

THE STATE OF THE ART IN CREATIVE ARTS THERAPIES

EDITED BY: Tal Shafir, Hod Orkibi, Felicity Anne Baker, David Gussak and
Girija Kaimal
PUBLISHED IN: Frontiers in Psychology





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ISSN 1664-8714

ISBN 978-2-88963-561-0

DOI 10.3389/978-2-88963-561-0

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THE STATE OF THE ART IN CREATIVE ARTS THERAPIES

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Citation: Shafir, T., Orkibi, H., Baker, F. A., Gussak, D., Kaimal, G., eds. (2020). The State of the Art in Creative Arts Therapies. Lausanne: Frontiers Media SA.
doi: 10.3389/978-2-88963-561-0

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Editorial: The State of the Art in Creative Arts Therapies

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Keywords: dance movement therapy (DMT), art therapy, music therapy (MT), drama therapy (DT), psychodrama, creative arts therapies research

Editorial on the Research Topic

The State of the Art in Creative Arts Therapies

Creative Arts Therapies is an umbrella term for healthcare professions that use the creative and expressive process of art making to improve and enhance the psychological and social well-being of individuals of all ages and health conditions. Creative arts therapies use the relationship between the client and therapist and among clients in group or dyadic therapy in the context of the creative-expressive process as a dynamic and vital force for growth and change. The creative-expressive process engages physiological sensations, emotions, and cognition; facilitates verbal and non-verbal symbolization, narration, and expression of conscious or unconscious conflicts and meaning-making through internal and external dialogue and communication between oneself and others.

The major objective of this Research Topic was to introduce, collect, discuss, and disseminate new clinical practices, scientific evidence, methodologies, theoretical concepts, and notions about Creative Arts Therapies. By publishing this open-access articles under this Research Topic we hope not only to distribute updated knowledge among the many clinicians in this field, but also to inform and convey the importance and significant therapeutic impact of this field, to scientists and clinicians from other psychological disciplines.

Creative arts therapists work in a variety of settings such as hospitals, educational institutions, community mental health facilities, prisons, hospices, and private practices, and include a variety of Professional specializations. Contributors to this Research Topic included experts in dance-movement therapy (DMT), drama-therapy and psychodrama, film therapy, music therapy, and art therapy. The topics of their studies vary from theoretical concepts and underlying mechanisms through methodology and up to evidence-based clinical studies and their review or meta-analysis. In the following paragraphs we summarized the 36 different contributions to this Research Topic, based on their artistic modality.

DANCE-MOVEMENT THERAPY

Seven articles contributed to the modality of dance-movement therapy.

Payne and Brooks, wrote a theoretical article “Different Strokes for Different Folks: The BodyMind Approach as a Learning Tool for Patients with Medically Unexplained Symptoms to Self-Manage” in which, based on research and their DMT practice with patients with medically unexplained symptoms, they proposed a new approach to treat this population: The BodyMind Approach. A description of the theoretical underpinnings and philosophy of the proposed alternative to current interventions is presented as well as a description of the suggested intervention which incorporates creative arts therapies and adult learning techniques for self-management practices.

OPEN ACCESS

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Specialty section:

This article was submitted to
Psychology for Clinical Settings,
a section of the journal
Frontiers in Psychology

Received: 31 October 2019

Accepted: 10 January 2020

Published: 05 February 2020

Citation:

Shafir T, Orkibi H, Baker FA, Gussak D
and Kaimal G (2020) Editorial: The
State of the Art in Creative Arts
Therapies. *Front. Psychol.* 11:68.
doi: 10.3389/fpsyg.2020.00068

In their article “How Do We Recognize Emotion from Movement? Specific Motor Components Contribute to the Recognition of Each Emotion” Melzer et al., report a scientific study whose aim was to investigate the mechanism underlying DMT practices. In this study Melzer et al., demonstrated that the specific Laban motor components which were found in their earlier study (Shafir et al., 2016) to enhance specific emotions when moved, enable recognition of the same emotions when being observed, even when the mover didn’t try to express any emotion. This study supports the notion of the existence of associations in the brain between certain movement components and specific emotions, a notion which can explain how internal simulation by the mirror neurons of observed movements can create empathy in the observer and help therapists to understand their clients’ emotional state, by eliciting a similar emotion to that which is elicited in the client who moves with those movement component.

In another article: “How Shall I Count the Ways? A Method for Quantifying the Qualitative Aspects of Unscripted Movement With Laban Movement Analysis” the same group (Tsachor and Shafir) describe in details the methodology they had used in their 2016 study (Shafir et al., 2016) to narrow down and select out of many movement components the ones they used as variables for the statistical analysis with which they determined which movement components enhance which emotion.

Another article which deals with methodology, although not methodology of the study but that of intervention assessment, is the article by Dunphy K. F. et al., “Outcome-Focused Dance Movement Therapy Assessment Enhanced by iPad App MARA.” This article describes the applicability and benefits of using the iPad app MARA (Movement Assessment and Reporting App; Dunphy et al., 2016) to assess and report the progress of clients with intellectual disability as a result of a 16 weeks DMT program.

Three of the DMT articles reviewed the evidence for therapeutic effectiveness of this modality. While two articles reviewed the effectiveness of DMT on specific populations using mainly a qualitative synthesis: Karkou et al., examined the effectiveness of DMT in the treatment of adults with depression, and Goodill examined accumulating evidence for DMT effectiveness in Cancer care, the article which was published last in this Research Topic summarized nicely the overall effectiveness of this field. In their paper “Effects of Dance Movement Therapy and Dance on Health-Related Psychological Outcomes. A Meta-Analysis Update” Koch et al., conducted a very detailed meta-analysis (including a sensitivity analysis, assessment of heterogeneity, analysis of outliers and publication bias and analysis of follow-up data) on the effects of 21 DMT and 20 dance controlled intervention studies (2,374 participants) published between 01/2012 and 03/2018, on health-related psychological outcomes. They found in total a medium significant overall effect for dance and DMT intervention based on heterogeneous results. Since type of intervention was a significant source of heterogeneity, they explored the effects of DMT and dance separately and found that DMT consistently and with a high homogeneity significantly improved affect-related psychological conditions by decreasing anxiety and depression levels,

and significantly increased quality of life and interpersonal and cognitive skills, whereas dance interventions increased (psycho-)motor Skills.

DRAMA THERAPY, PSYCHODRAMA AND FILM THERAPY

One drama therapy, one film therapy, and eight psychodrama studies are featured in this special topic.

Drama therapist Feniger-Schaal et al. report on the application of the mirror game to assess the embodiment of attachment in adulthood. Associating attachment scores with non-verbal movement interactions constitutes the first step toward validating the mirror game as a standardized assessment tool in drama therapy and dance movement therapy.

Azoulay and Orkibi report the results of a mixed method study on first year MA students’ psychodrama field training experience in Israel. The results point out possible helpful and hindering factors in students’ field training and trajectories in their perceived professional identity and suitability, all of which may inform the design of field training in psychodrama programs.

Cruz et al. conducted a systematic review of psychodrama techniques implemented in research and practice. The results provide an inventory of operationalized definitions of core psychodrama techniques that was confirmed through consensus by international psychodrama experts and will be of value to researchers and trainers.

Ron’s case study of an open psychodrama group in a psychiatric inpatient ward in Israel highlights how the doubling technique and the group sharing phase reinforce empathy, relatedness, and support, which may offer psychiatric inpatients relief from distress and loneliness.

A study by Gonzalez et al. elegantly illustrate how to implement the mixed methods hermeneutic single case efficacy design to explore treatment effectiveness. The quantitative results generally suggest positive changes in clients’ self-identified problem, symptoms, and spontaneity, while the qualitative results underpin the attribution of these changes to the treatment.

Bucută et al.’s mixed methods study probes how psychodrama methods and techniques can empower abused women and promote changes from their victim role. The findings and discussion may inform readers interested in psychodramatic gender violence interventions.

The quantitative results of Testoni et al. suggest that a death education course with psychodrama and movie making activities helped high school students in Italy to work through a case of suicide. Enhanced sense of life meaning and reduced death anxiety were among the findings related to the processing of death related trauma and grief.

Filmmaking was also used by Tuval-Mashiach et al. in their qualitative study on Israeli military veterans suffering from service-related trauma. The results indicate that the “I Was There” video therapy program contributed to alleviating participants’ trauma processes and sense of agency and affiliation.

In his theoretical article, Yaniv draws on the neurocognitive concept of bottom-up/top-down processing to explicate the

somewhat enigmatic state of spontaneity or “trusting the process” in psychodrama. He reviews the scientific evidence in support of J. L. Moreno’s contention that all individuals can learn to let go of predetermined top-down conceptions and be open to bottom-up processing of experiences in the here-and-now.

Sang et al. provide a historical analysis of the spread and development of psychodrama in mainland China. This article identifies key actors and processes that led to the development of three major branches of psychodrama in that country.

MUSIC THERAPY

Two research studies were reported for music therapy. The first by Baker et al. was an interpretative phenomenological analysis of interviews with people with acquired neurodisabilities who had engaged in a songwriting program aimed at reconstructing a post-injured identity. Results of the analysis indicated that participants traveled through one of four recovery journeys. Some experienced their acquired injury as an opportunity for new beginnings, some were drawing on resilience from previous traumas to activate well-developed coping strategies, while others used the process of creating songs to identify new way of being in the world.

A study by Clark et al. of people living with dementia and their family caregivers focused on how therapeutic group singing enables these community dwelling older people to flourish. Interviews with participants revealed that the singing groups not only enhanced relationships between person with dementia and his or her family carer, but facilitated the development of new relationships with others attending the group. Participants also reported feeling more socially accepted and confident, experienced a lift in mood and an enhanced sense of purpose.

ART THERAPY

Thirteen articles, a third of all of the peer-reviewed articles represented in this Research Topic of *The State of the Art in Creative Arts Therapies*, focused on art therapy. Many of the articles, recognizing the need to invest in and develop robust yet quite varied research agendas, were dedicated to how the arts, art meaning, and aesthetic interactions can bring about positive and sustained change. Gerber et al. relied on a robust qualitative research agenda to explore aesthetic and intersubjective phenomena in the creative arts therapies and how such therapeutic approaches can transform perception, behavior, relationship and well-being. Their study “Arts-based research approaches to studying mechanisms of change in the Creative Arts Therapies” relied on a “...deductive thematic analysis of written accounts of simulated arts therapies experiences...” to determine the potential for complex transformative phenomena “that occur in the nexus of art-based expression, reflection and relationships.”

Focusing specifically on the need for empirical evidence on the therapeutic potential of art materials, Haiblum-Itskovitch et al.’s article, “Emotional response and changes in heart rate variability following art-making with three different art

materials,” addressed how three different art materials that varied greatly in levels of fluidity—pencil gouache, and oil pastels—elicit various emotive responses and changes. This important scientific study relied on a combination of data from self-reports and an electrocardiogram device to inform their findings. Another empirical study, Zeevi et al.’s “The efficiency of art-based interventions in parental training” differed in tone and focus. The authors, in providing 87 parents two questionnaires before and after 10 months of art therapy treatment for their young children, while the children and 14 art therapists completed two questionnaires, assessed the difference between those parents who received parental training with art-based interventions, verbal training or no training at all. Also focusing on the relationship between parents and their children, Gavron and Mayseless’s “Creating art together as a transformative process in parent-child relations: The therapeutic aspects of the joint painting procedure,” employed a qualitative method—as part of a much larger mixed-methods study—in which to ascertain the specific benefits of engaging in a specific art task to positively affect the relationship between 87 mother-child dyads.

Huss and Samson instituted a large-scale qualitative method to clarify the relationship between coping and art therapy, particularly the components of meaning, manageability, and comprehensibility, for those experiencing health-stress from cancer. In their study, “Drawing on the arts to enhance salutogenic coping with health-related stress and loss” they discovered that the arts naturally embodied the mechanisms that enhance and contain these components. As a natural extension of these positive results, they provide a protocol in how art can be used to enhance coping with such stressors. Nagamey et al. relied on an interpretive phenomenological analysis of semi-structured interviews and drawings to explore “Perspectives on social suffering...” specific to Palestinian adults who must cross a particular checkpoint into Israel for school and work. While regionally focused, their results could lead to a greater understanding of the social stressors by those experiencing political conflict around the world.

In addition, Binson and Lev-Weisel, relied on a phenomenological methodology to explore the benefits of applying experiential learning to facilitate personal and professional growth in doctoral students in Thailand attending academic lectures. As indicated in their article “Promoting personal growth through experiential learning...” they discovered that “...the experiential learning element within the course contributed to their personal well-being, improvements in their family and spousal relationships, enhanced social skills, as well as a changed self-perception in roles as lecturers and therapists.”

There has been ever increasing debate over the years of the benefits of examining the formal elements within the art over content as assessable indicators. Péntzes et al. relied on a constructivist grounded theory approach to examine how art therapists may use the formal elements of a drawing to better understand the mental health of their client. In their article “How art therapists observe mental health using formal elements in art products: Structure and variation as indicators for balance and adaptability” the authors interviewed eight art therapists

and determined that rather than contribute to an understanding of a client's symptoms or diagnosis, such characteristics inform the balance and adaptability of the artist. However, in their article "Associations between perception of parental behavior and 'Person Picking an Apple from a Tree' drawings among children with and without special education needs," Or et al. relied on the symbolic content of the Person Picking an Apple from a Tree drawing. Long associated with the Formal Elements Art Therapy Scale, rather than focus merely on *how* the drawings were completed, the authors relied on the content elements to quantitatively determine children's perceptions of parental behavior, which seemed much more revealing with those children with special needs.

It is imperative that research endeavors in art therapy be reexamined to ensure rigor, application of current theories as well as efficacy and viability of methodological approaches. In "Effectiveness of art therapy with adult clients of 201–What progress has been made," Regev and Cohen-Yatziv examined the last 27 published studies in the field that examined the efficacy of art therapy with adult clients among an array of seven specific categories. In doing so, the authors have continued the necessary dialogues instrumental in furthering our own examinations within the field. Feen-Calligan et al., in "Art therapy, community building, activism, and outcomes" provided a descriptive study that examined the interrelationships that developed amongst graduate art therapy students who were tasked to prepare undergraduate service-learning students as part of their research class with the directors of six community agencies preparing for such students. Noting the growing trend of such hands-on practice in the community, the authors recognized the value of such an examination to inform other art therapy programs who hope to rely on service-learning to teach research.

As we continue to advance research in the field of art therapy, there has expanded a greater acceptance of the need to think outside the box, to go beyond the limitations of just our field, to rely on new innovations and push the envelope to provide the best services. In her article "Summary of twenty-first century great conversations in art, neuroscience and related therapeutics," King emphasized the need for transdisciplinary collaboration to best understand the complexity of mental and physical disorders. Proposing that this article serves as a potential missing link to fill the gap amongst varied fields, King recounts a symposium at her home institution that brought together several divergent thinkers from a wide array of fields who were tasked to help develop a common language in which to advance the interplay of the creative arts therapies and neurosciences. And finally, in "The

principles of art therapy in virtual reality," Hacmun et al. take us well-beyond the boundaries of our physical reality and offer various perspectives on the potentials and challenges of using virtual reality in the therapeutic milieu, outlining much needed principles of its use.

MULTIPLE THERAPIES

Two articles reviewed the effectiveness of interventions using different modalities of arts therapies. Lo et al. reported a qualitative systematic review of 11 (six music therapy, three visual art therapy, one DMT, and one applied literature therapy) creative arts-based intervention studies for stroke survivors. The authors identified five analytical themes: functional restoration, psychological support, social engagement, spiritual experience and short-comings and barriers, and concluded that overall art-based therapies have demonstrated strengths in addressing psychosocial needs for stroke survivors and that different art modalities are perceived to be useful in achieving different therapeutic goals.

Dunphy K. et al. examined the outcomes of four creative arts modalities (art, dance, drama, and music) interventions for older adults experiencing depression. In their review they also paid attention to the processes documented in those studies as contributing to the change, as well as the mechanisms considered to underlie these processes. Their analysis of 75 articles (17 art, 13 dance, 4 drama, and 41 music) indicated mostly significant qualitative or positive qualitative findings, where the mechanisms considered to contribute to the reduced depression included physical (e.g., increased muscle strength), intra-personal (e.g., enhanced self-concept; processing and communication of emotions), cultural (e.g., creative expression, aesthetic pleasure), cognitive (e.g., stimulation of memory), and social (e.g., increased social skills and connection) mechanisms.

Taken separately, each of the articles in this Research Topic provides a glimpse into the unique, complex, and far-reaching endeavors of members of our field. Together, the articles reflect not only the increasing evidence for the effectiveness of arts therapies interventions, but also the increasing diversity of perspectives as well as methodological sophistication in the field of arts therapies research, offering directions for how we might build on these foundations in the future.

AUTHOR CONTRIBUTIONS

All authors contributed to writing up the editorial.

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Promoting Personal Growth through Experiential Learning: The Case of Expressive Arts Therapy for Lecturers in Thailand

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OPEN ACCESS

Edited by:

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 04 August 2017

Accepted: 14 December 2017

Published: 05 February 2018

Citation:

Binson B and Lev-Wiesel R (2018)
Promoting Personal Growth through
Experiential Learning: The Case of
Expressive Arts Therapy for Lecturers
in Thailand. *Front. Psychol.* 8:2276.
doi: 10.3389/fpsyg.2017.02276

The aim of the paper is to assess academic experiential learning in relation to academic lectures' perceived personal and professional growth. Sixteen PhD students (age ranged between 23 and 46, 10 male, 6 females) participated in an introduction to expressive art therapy. Qualitative methods according to phenomenological methodology was used. At the beginning and end of the 48-h course they were asked to draw themselves, and explain the differences between the two drawings. In addition participants were semi-structured interviewed about the course and its personal and professional aspects at the end of the course. The main themes were the carousal of emotional experience, the use of art means for growth, and, professional growth. Findings revealed a perceived growth in terms of family relationships, inter—personal skills, and professional role performance.

Keywords: experiential learning, expressive arts therapies, personal growth, self-figure drawing, professionals

INTRODUCTION

Experiential learning is a philosophy and methodology in which educators purposefully engage the students in experiences and focused reflection in order to increase knowledge, develop skills, and clarify values (Association for Experiential Education, para. 2). The Experiential Learning Theory developed by Kolb (1984) provides a holistic model of the learning process and a multilinear model of adult development. It emphasizes the central role that the person's subjective experience plays in their learning process. Learning from both cognitive and emotional perspectives is at the heart of experiential learning (Davis, 2011).

Experiential learning is a form of practice-based education that provides exposure and opportunities for students to explore interpersonal dynamics during work, along with the roles and identities they will encounter as future professionals (Wheeler and Grocke, 2001). There is a general agreement across disciplines that educational programs for future therapists should include both didactic and experiential components since learning involves both cognitive and affective processes (Dudley et al., 1998). Thus, learning is based on active personal experience in combination with theoretical concepts. It is through active participation in a learning process that students acquire interpersonal skills, develop an understanding of the therapeutic process, and increase their self-knowledge. Additionally, experiential learning encourages students to recognize and reflect upon their own interpersonal style and to identify areas which need to be developed (Hall et al., 1997), both as individual human beings and as future therapists. For example, students in expressive

arts therapies would draw their safe place as humans and safe place as therapists in a therapeutic encounter. Finding its meaning and discussing it within the class allows them to review it from different aspects; personal and professional, individual and group member, etc.

Despite the broad use of experiential learning components in academic therapy education, the empirical evidence on its impact in terms of professional growth is scarce due to the unique problem of assessment (Qualters, 2010) and the variety of exercises employed in different therapeutic disciplines (i.e., psychology, social work, art therapy, or occupational therapy). Professional growth refers to the development of interpersonal skills—that help professionals in creating relationships with clients (Muran and Barber, 2011). These skills as self-awareness, empathy, warmth, and congruence, are known to relate to one's own mind and others well-being, both on a professional and personal level (Elman et al., 2005). In relation to Thai culture, professional growth means broadening the practitioner's knowledge on one hand, and deepens the understanding for human sufferings. Experiential activities in academic education consist of the means as well as the ends; it is imperative therefore to look at assessment as more than outcome measurement. Wurdinger (2005) asserted that development of innovative tools measuring both the process and the product are imperative in order to assess students' professional and personal growth. For example, Knecht-Sabres (2013) found recently that experiential learning (EL) in occupational therapy academic studies, is an effective method to enhance the understanding and application of course material, improve the personal and professional attributes and skills needed to be an effective clinician, and to improve clinical reasoning skills.

Despite the general consensus that EL is an important element in academic therapy studies together with its vast use within theoretical courses as a supplement, the evidence on its impact mainly relates only to its implementation within field studies, practicums and supervision (e.g., Schreiber et al., 2015). In light of the scarcity of evidence on EL and its perceived impact on academic studies related to therapeutic training, the current study attempted to evaluate the impact and significance of experiential learning in an expressive art therapies course of Thai PhD students. The main research question was: how does EL in expressive art therapies education contribute to self-awareness and growth of students? More specifically, the study sought to find out the impact of experiencing expressive art means on personal and professional levels of PhD Thai students. It was hypothesized that arts based experiential learning, followed by therapeutic sharing amongst classmates, would impact each participant's growth that would be reflected in self-awareness both personally and professionally. It was also hypothesized that EL would contribute to the group cohesiveness.

Experiential Learning and Expressive Arts Therapies

The expressive arts therapies is an hybrid therapeutic profession aiming toward a better integration between body and mind (Lev-Wiesel, 2015). According to Lusebrink et al. (2012) expressive arts

therapies consists of three stepwise levels—Kinaesthetic/Sensory, Perceptual/Affective and Cognitive/Symbolic—interconnected by the creative level. Thus, the creative therapeutic process engages physiological sensations, emotions, and cognitions; verbal and non-verbal narration and expressions, for improving people's psychological and social well-being. Art making consists of creation, observation, reflection, meaning making and insight that may lead to change (Malchiodi, 2005). McNiff (1981) asserted that expressive therapies are those that introduce action to psychotherapy and that action within therapy is imperative since life is rarely limited to a specific mode of expression.

The rationale for including experiential learning within the majority of expressive art therapy academic courses is the belief that education of expressive art therapies has to be a place where both cognitive and emotional material come together to allow the future practitioners to reflect about themselves and their clinical work on the conscious level (Mollon, 2000). Thus, many of the theoretical courses within these programs provide students a space for thinking, feeling, and reflecting.

The benefits of experiential learning through the use of the expressive arts include within academic programs: improving self-awareness, developing conceptualization skills, and processing countertransference (Turry, 2001). Some other benefits include: self-care and stress reduction (Deaver and Shiflett, 2011), an improved supervisory relationship (Scheiby, 2001), self-awareness on the part of the student (Austin and Dvorkin, 2001), empathic attunement (Cooper, 2001), and a sense of empowerment as a future therapist (Proctor et al., 2008). For example, Ko (2014), who examined the experience of six native Korean expressive arts therapy students (four in art therapy and two in dance/movement therapy) in a movement-based program at a Korean university, reported that there was a reduction in perceived authoritarianism paired with an enhancement of verbal sharing with their clinical supervisor. Another recent study conducted by Elkis-Abuhoff et al. (2011) that focused on the development of professional identity in creative art therapy academic setting, found an increase of the importance of self-awareness, supervisory relationships and professional identity, at the completion of the program. Consistent with the previous study, Deaver and Shiflett (2011) reported that using art techniques within expressive art therapies educational field studies was effective in reducing supervisee stress, which in turn increased supervisees' self-awareness, allowed for better case understanding and intervention conceptualization along with the processing of countertransference issues. However, in light of the scarcity of evidence on the impact of experiential learning on expressive art therapies' students, the current study focused on the personal and professional growth experienced by students who participated in an academic course entitled Introduction to Expressive Art Therapies at Thailand's Chulalongkorn University. This course was conducted by a Thai female professor who is an expert in Thai music and imagery therapy and an Israeli female professor who is an expert in expressive art therapies.

METHODS

The present article aims to contribute an insider's view of the learning experience of expressive art therapies in Thai doctorate students. The descriptive phenomenological method guides our methodology (Giorgi, 2012). This perspective allows us to capture lived experience and to conceptualize it, offering insights into how individuals in particular context (course within their academic studies) make sense of a given phenomenon (the course characteristics) (Giorgi, 2012).

Participants and Procedures

Following approval of CU Institutional Review Board (IRB) and signing on a consent form to participate in this research (participants gave permission to use their names on the presented drawings, as well as signed a consent form to use and publish the photo in Figure 4), 16 Thai PhD students were registered to an elective PhD course in expressive arts therapies. The course syllabi included information about the course and the study objectives. All of the students (10 males and 6 females, born and raised in Thailand) had MAs in the arts (visual arts, creative arts, dance or music) and already were in positions as lecturers at different academic institutions located in the greater Bangkok area. The course was the first encounter between the students and the lecturers who had extensive experience and knowledge in expressive arts therapies. The participants' ages ranged from 24 to 43 (see **Table 1** for participants' demographics). The participants used more than one art medium in their classroom instruction beyond their own art medium, but none of them had experience in using media of art for therapeutic purposes.

The 48-h course included 16 three sessions during the first semester of 2015 academic year. The course covered the theoretical background of expressive art therapies (e.g., art as therapy vs. therapy as art), basic therapeutic concepts (e.g., containment, transference and counter-transference, and corrective experience/reparation, etc.), and intervention

techniques (e.g., drawings for diagnostic and therapeutic purposes, the use of visual arts or movement and dance therapy in treating sexually abused children). The students needed to select a concept and a population group to study in-depth, develop an intervention technique and make a 20 min classroom presentation followed by a session of implementing their intervention on their classmates (see **Table 2** for a detailed program). These sessions drawn by the participants included a concrete experience-engagement, a reflective self-observation noticing what happened and its relation to one's life, and summary of conceptual understandings by the student conductor and lecturers of the course.

Procedures and Measurements

The study employed qualitative methodology—self-figure drawing and semi-structured open-ended questionnaire as well as written protocols of the class sessions taken by the research assistant. The students were asked to draw themselves both before and after the end of the course (pre-post) and complete a semi-structured interview (post-only).

The rationale for using qualitative methods (self-figure drawings and semi-structured interview) was based on a transformative paradigm (Evans et al., 2008) that asserts the value of promoting group and individual empowerment and change (Ozanne and Saatcioglu, 2008). These transformations occur across the individual and the group to which he or she belongs, through a learning process occurring concurrently between the researchers (the lecturers in the current study) and the group participants through challenging activities and actions (Perkins et al., 2007). This transformation relates to learning as a form of personal and professional research that also implicates an individual's affiliation to a particular group. As a result, transformative change modifies the problems experienced by individuals to equip them with the ability and belief that they can navigate and acquire the resources needed to improve their quality of life (Bandura, 2004) and in this case, the quality of their lecturing performance. Thus, the goal of research within a transformative paradigm is to move individuals from the margins and toward personal and/or social change.

Semi-structured Interview

The semi-structured interview was guided by descriptive phenomenological-psychological perspective. This view offers to provide the lived experiences of participants and understand them, allowing insights into how individuals in particular contexts make sense of a given phenomenon (Denzin and Lincoln, 2005; Spinelli, 2005). Phenomenology is an intense examination of individual experience. It is an embodied examination of perspective and meaning (Sokolowski, 2000; Willis, 2007).

Thus, the interview included the following issues:

- Pre (retrospective)-and post-perception of the course
- Quality of Interpersonal relationship in the group
- Role of the lecturer
- Comfort level
- Level of verbal sharing

TABLE 1 | Participants' demographics.

Participant no.	Major subject	Gender	Marital status	Age
1	Creative arts	F	S	34
2	Dance	M	S	35
3	Visual arts	F	S	26
4	Creative arts	F	S	43
5	Dance	M	S	31
6	Music	M	S	40
7	Music	F	M	36
8	Creative arts	M	S	33
9	Creative arts	F	M	38
10	Creative arts	M	S	34
11	Visual arts	M	S	43
12	Music	F	M	33
13	Visual arts	M	S	33
14	Creative arts	M	M	34
15	Creative arts	M	S	29
16	Creative arts	M	M	31

TABLE 2 | The “introduction to EAT” course program.

Session No.	Content	Technique used
1.	Introduction and Warming Up	History of EAT (Ice breaking and being a human) Example for exercise: Know your classmate by name through acting and movement (personal meaning to each name based on personal history, color and attached movement)
2.	Introduction to EAT	Theoretical background of expressive art therapy Example for exercise: Draw your safe place, sharing with classmates
3.	Use of drawings for diagnostic purposes	Drawing tests, DAP, HTP Example for exercise: Draw yourself, draw a house, tree, and person of the other sex Add narratives; imitate the posture of the figure drawn, share its feelings and thoughts; Analyze in pairs according instructions
4.	Music Therapy	Theoretical background of Music therapy Example for exercise: Guided Imagery Music (listening to music working in a pair, then write the images of partner, sharing). Group sharing of feelings and sensations
5.	Use of drawings for therapeutic purposes	Theoretical framework Trauma and child abuse Example for exercise: trauma and post-traumatic growth— “Draw an uneasy event in your life”, upon completion, “copy it as accurate as possible and add to it what had helped you cope”; Sharing, interpreting of drawings and discussion within the group
6.	Psychodrama	Theoretical background Example for exercise: Draw your family in an activity; The protagonist set the pictorial scene and works it through. Sharing within the group at the closure
7.	Use and meaning of colors in EAT	Theoretical background Example for exercise: The self-revelation technique through colors technique (Lev-Wiesel Daphna-Tekoha, 2000)
8.	Dance and movement therapy	Theoretical background Example for exercise: Comforting vs. ritual movement in trauma exercise
9.	Play and drama Therapy	Theoretical background Example for exercise: Improvisation in movement, drama and play - Anger expressions—anger management - Listening to oneself and others' heart beating; synchronizing between the heart beatings - Group hug
10.	Movement therapy and Trauma	The body keeps the score- theoretical model Example for exercise: Release Exercises 6 exercises to stimulate tremor in order to release trauma/tension
11.	Research presentation 1 (7 m/p) Student presents an updated empirical research in EAT within the classroom	Group discussion and sharing
12.	Research presentation 2 (7 m/p) Student presents an updated empirical research in EAT within the classroom	Group discussion

(Continued)

TABLE 2 | Continued

Session No.	Content	Technique used
13.	Students presentation of their own creative technique 1 (25 m/p) Each student presents their own creative technique using the classmates	Group sharing and discussion
14.	Students presentation of their own creative technique Students presentation of their own creative technique 1 (25 m/p) Each student presents their own creative technique using the classmates	Group sharing and discussion
15.	Students presentation of their own creative technique 1 (25 m/p) Each student presents their own creative technique using the classmates	Group sharing and discussion
16.	Closure	Example for exercise: Draw yourself Comparison with the self-figure drawn prior to beginning of the course in terms of feelings and well-being; questions unanswered; closing ending summary and comments; group departure.

(f) Benefits or deficiencies regarding the use of experiential learning

Self-figure Drawings

This study's instruction to "Draw yourself" is based on the Draw-A-Person Test (DAP), developed by Machover (1949). It is based on the concept that the figure drawn represents the drawer, while the paper represents the drawer's environment. According to Furth (2002), Gillespie (1994), and Lev-Wiesel (1999) and Lev-Wiesel and HersHKovitz (2000) the figure drawn usually reflects the drawer's deep acquaintance and inner knowledge of oneself. Klepsch and Logie (1982), noted that drawings represent what a person is like on the day he or she produces the drawing. Keeping that caveat in mind, the analysis should consider the overall impression of the picture. Some overall impression descriptive word pairs are happy/sad, friendly/unfriendly, active/passive, and strong/weak. This general impression provides a clue to the drawer's mood at the time the picture was drawn. Additionally, the main themes emerging from the picture should be found. If the same theme is apparent within the drawing, such as sadness, it provides a stronger indication to the drawer's state of mind.

Other aspects of the drawing to consider in forming an overall impression are the size of the figure, its placement on the page (indicative of feelings of inferiority, inadequacy, and insecurity), facial expressions (indicative of self-esteem, state of mind), body posture (indicative of self-confidence) and shadowing or omission of body parts (indicative of anxiety and of problems relating to others) (Furth, 2002; Carmaichael, 2006). Furthermore, based on the supported assumption that cultural values are represented in self-figure drawings (Rubeling et al., 2010) and taking into account Thai cultural values—kindness is represented by a smiling face, while modesty and cleanness is represented by the omission of one's feet (Komin, 1990). The two following indicators were selected for comparison in this study: facial expressions and the omission of the lower part of the body. Based on previous studies indicating that (1) happiness is the most universal facial expression (smile with displaying teeth and crescent-shaped eye) have the same meaning across all cultures (Collins, 2003), (2) a smile indicates health social

invitation, strength, and self-sufficiency (e.g., Remland and Jones, 2005), (3) drawing the whole body and placing it in the center of the page mean self-confidence (Koppitz, 1968; Lev-Wiesel and Drori, 2000), it was hypothesized that the personal growth through experiential learning is likely to be presented in happier facial expressions and a safe body position of the whole figure (including the feet) placed in the middle part of the paper.

Participants were asked to draw themselves on a sheet of A3 paper with a pen or pencil at the beginning of the course, and again at the end of the course. Any questions the students asked regarding how to proceed with the drawing were answered by the instructor with the phrase "As you wish." When completed, the participants were asked to provide a verbal narrative for the drawing to the group. On the final day of the course, after their last drawing, the participants were given their first pre-course drawings and were asked to describe the differences between the two. Their responses were recorded, transcribed and translated into English by a Thai-English translator.

Analysis

Data analysis included open coding to enable the identification of units of meaning. A cross-case analysis followed in which segments from each interview were condensed until core themes emerged (Patton, 2002). The themes, which emerged from the analysis, are differentiated from the categories of the interview guide. Each theme consisted of different categories that related to the following dimensions: personal space, comfort, relationship, therapeutic component, non-verbal expressive tools, professional development, and personal and professional awareness. Our cross-case analysis revealed that all those different perspectives fall under a unified spectrum ranging from communication as a tool to gain and provide support to communication between their social roles; personal and professional. Three primary themes emerged from the data and serve as the backbone of our analysis.

Trustworthiness

In the present study, credibility is achieved through the systematic presentation of quotes and the analyses, which allow

the reader to evaluate the ways in which reality was constructed and themes were derived (Henwood and Pidgeon, 1992; Maxwell, 2005). In qualitative research, the emphasis shifts from validity to validation. Rather than presenting a finished product, researchers describe the process by which they arrived at the specific constructions underlying the study and thus allow the readers to make their own judgments and to validate or reject the interpretations suggested (Patton, 2002). For instance, the theme Emotional experience is presented in the following manner: First, information regarding the group activities was offered, followed by quotes of participants. Afterwards, a more detailed description of the group's process is offered for the reader. This served as the validation tool for the researchers' systematic work. The focus in such research is on in-depth subjective analysis of experiences rather than on generalizations. Additionally, trustworthiness is also ensured by collecting various types of data (i.e., semi-structured interview, self-figure drawings at the beginning and ending of the course, and participants interviews) (Stake, 2010; Creswell, 2013). Important to note that the two sets of drawings (pre and post) were given to two practitioners (a dance and movement MA therapist and an MA art therapist) who were asked to estimate the following indicators hypothesized to represent self-awareness, depression, anxiety, and self-control: body shape—omission/whole body (head only, head and torso, whole body); facial expression (sad, smiling, or detached); and placement of the body on the paper (on top, medium or lower part of the paper). Note that pre- and post-drawings do not represent different constructs, thus all 32 drawings were rated accordingly and the ratings went into the same reliability test. This procedure is carried out in order to determine the indicators for comparison. Since there were only two raters, the final score (correlation) was determined by averaging the two assessments. Inter-evaluator reliability was 0.87 (Spearman correlation).

RESULTS

The 16 self-report semi-structured interviews yielded three themes: (a) the emotional carousal experience, (b) the use of art means for growth, and (c) professional growth, from seven categories (that appeared differently but in relation to each of the themes): personal space, comfort, relationship, therapeutic component, non-verbal expressive tools, professional development, and personal and professional awareness. Note, that an example for how the theme evolved of the categories mentioned above is presented in the first theme.

Theme 1: The Emotional Carousal Experience

Most participants reported having uncomfortable emotional experiences, such as fear, anxiety, and embarrassment (category-level of comfort) at the beginning of the first two sessions. This was mainly due to exercises that appeared to challenge their physical, emotional, and sexual boundaries (category- personal space). For example, in one of the exercises they were asked to listen to first their own and to another's heart beating by placing one ear to their back. Some of them felt uncomfortable

in resting ear and head on another classmate (category- personal space/relationship). Some explanations for this unease were: the member was of the other sex, age/position disparity, and a general sense of invading the other's private space (category- personal and professional awareness). Following the lecturer's instruction of getting out of the classroom and return as merely a human being and prior to any gender or position or age distinction, enabled them to push themselves beyond the usual Thai cultural boundaries. For example, a female participant described "At the beginning I was really embarrassed, I even felt a bit paralyzed, I could hardly look to my fellows' eyes...I trusted the teacher and knew I need to comply. I watched my classmates and saw they overcome their embarrassment...after the second session, I became intrigued, wanted to experience the next session, wondered how I will feel...I was more and more excited, longed to come to the class, meet my friends, feel the warmth, hugs, sometimes cry because of the pain and suffering...felt so connected to others as if they were my family..."

One participant responded within the class: "I feel more as a human being, I feel I am a better—more forgiving person," another male said "through mirroring and reflecting, each one's emotions were recognized," (category- personal and professional awareness) another participant, female when relating to her experience wrote: "the important thing is to exchange my experience with friends and listen to their experiences, it fills me with love and understanding for others... being able to actually hear their hearts, gave me also an access to their souls (category-therapeutic component)... most importantly, I felt encouraged to help my fellow colleagues" (category- relationship/professional development).

All participants cited how profound this new, unfamiliar tool of using art as powerful means for self-exploration was through the enabling emotional expression, which resulted in a deep sharing through the disclosure of personal feelings and personal hardships. One participant whose family lost their house and property during the flood described "it was the first time I shared this event and how I feel with others. Crying in front of my classmates, disclosing my sorrow and pain with them, was unique experience for me...I moved from agony to inner calmness, can't explain it... it was like cleaning myself from within..." In addition, they found that while learning in a less structured format/manner, the emotional distance between the lecturers and students was decreased. Moreover, this shared transformative experience created a strong level of camaraderie through the sharing of both stories from the participants' life and the expression of a variety of emotions that most did not want to end.

The desire to continue spending time together after formal class hours by going together to a café or taking a trip together during the semester break was expressed by many. One male participant wrote: "I was happy every time I came to the class, I fear that after this course ends, all the opportunities to meet each other will be gone. It saddens me, because we became brothers." A female participant stated: "I came early every time to the class to meet my colleagues. It was a happy time. We love and understand each other. We somehow liberated ourselves within the group. I wanted to tell the teachers I love them, I wanted

to hug them each meeting. I have never hugged or been hugged before this course. At the last meeting, I hugged the teachers and my new friends, with tears of happiness dropping from my eyes.”

As can be seen, participants experienced a spectrum of negative and positive emotions and sensations (e.g., embarrassment, uneasiness, shame, joy, excitement, longing, freedom, happiness). These feelings were not only expressed toward their classmates but also to their family members (parents).

Theme 2: The Use of Art Means for Growth

The use of art such as drawing can serve as a non-threatening gateway for students to verbalize their represented experiences and feelings, and convey their body's reactions during prior difficult and stressful events. Also, the development of metaphoric drawings and narratives can lead to a more conscious reflection and insights about themselves and those with whom they interact. Additionally, the meaning of their creation when shared within the group, whether it be drawing, sculpting, or dance and movement, tend to enhance the students' abilities to gain insight into transference and countertransference and the functional meaning of a therapeutic relationship. Namely, to experience a catharsis catalyzed from being creative and by receiving rich, in-depth feedback from the group's members on it. This feedback in turn, appeared useful in reaching conceptualization as reflected in the students' descriptions of the benefits of using art: "I understood that crying is not a weakness it's just a means to show how one feels at the present. A smile on the other hand does not always represent happiness, one can hide behind it. I felt that by making related artwork and sharing it with others so they understand its meaning, the barriers between us disappeared." Another participant mentioned: "As one of the professors of the course asked me when looking at my drawing 'are you a perfectionist? Does it interfere with your ability to relax?', 'Yes,' I answered. That sentence was a very important reflection; it helped me become aware of its (perfectionism's) impact on my well-being." Another participant described what the art making meant for him "it was like a revelation for me. I always tried to draw as I was taught, tried to make it better according my teacher's instruction...drawing how I feel, expressing what I had experienced, what helped me cope with the trauma (the flood left his family homeless), enabled me to see that I have resources...that I am strong...survived...I am blessed, no one died..."

The art creation became significant in learning about oneself, enabled participants to observe themselves through a distant, and acquire additional way to express their inner conflicts and difficulties to others.

Theme 3: Professional Growth

All participants identified their areas of growth as human beings, instructors, and therapists. They reported a reduction in their expression of criticism toward others especially students, in addition to more sharing and self-disclosure, as the main areas of positive personal change. As one participant wrote: "I realized that people/students are just humans. My family members are just people who sometimes have good and bad days—as I do.

My relationship with my girlfriend is much better now, we understand each other better. I used to criticize my students for everything, was very hard on them, kept distant. I feel I am a better teacher today, a teacher for life, an educator with empathy and understanding of life adversities, not an authoritarian lecturer."

Professionally speaking therapists reported an attitude shift in their level of patience and openness toward creativity. They stated they are more bodily self-aware, have more emotional flexibility and are more comfortable with the use of the arts in sessions. For example, one female participant expressed: "I feel I have better access to other people's minds. More importantly, I felt encouraged in helping others. I am able to contain more suffering and relate to it without becoming intimidated or helpless."

Instructors also reported a shift toward a mentor with equality and acceptance independent of position and status. They moved forward with greater awareness of student's emotional state and accompanying needs. One male instructor stated: "The teachers need to recognize themselves and their students as just people with stresses and address it...teaching my students that I am a person and a human being as they are, that we all have disadvantages and deficiencies, that we all can try to do our best and can improve ourselves...this is what I realized and try to teach" Another said: "I feel students are humans like me. I will use the principles of art therapy within my class to help my students better understand themselves and feel reassured with their abilities." Another wrote: "Learning by doing is the best way to learn. I understand and will do my best to better understand my students, to teach and be taught by them."

Self-figure Drawings

Frequency distribution revealed differences between the drawings in the following indicators: whole vs. omission of body (whole body 33% at the beginning, 80% at the end), facial expression (60% sad or detached at the beginning, 86% happy at the end), placement and posture of figure on the paper (100% were placed in the middle part of the page at the beginning, whereas 90% were standing firm on their feet, at the end).

Following observation of the two sets of drawings at the concluding session, each student commented on the differences between the drawings and their meaning. All participants shared their notions of their own personal growth in terms of confidence, trust in others, ability to share positive and negative feelings and traumatic events with friends and family members, ability to touch and perform gestures such as patting, caressing and hugging to reveal closeness with others, and strengthened abilities of decision making and problem solving. In addition, the drawings enabled the participants to evaluate their own performance before the activities began and after the course ended in terms of strengths, improvements, and insights.

The following are three examples:

Example 1

This first example is a male, aged 38, living with his girlfriend (see **Figure 1**). He shared his depression diagnose and suicidal thoughts with the group during the initial sessions. He expressed that the course's exercises enabled him and others to hug,

share, and disclose feelings. The group's relationships which spontaneously extended beyond the group meetings helped lower his feeling of loneliness, which in turn helped him share his virtues as a talented musician and artist with his new friends. He became more aware of his influence on others including in the relationship with his partner. Looking at the two drawings he said: "I have learned that life can be good and enjoyable." When viewing the pre- and post-course drawings, it is obvious that the drawer's feeling about himself and life are now totally different. Wherein the first drawn figure looks in agony: looking down, the head and face are shadowed all around, and the rest of his body omitted, the second drawn figure stands on its feet, smiling (e.g., The mouth can reveal happiness or sadness with a corresponding smile or frown, Koppitz, 1968). When turning to the post-course image with its raised fingers in a gesture of victory he said: "I have found friends, I became more aware of myself, I understood how much being depressed has impacted my relationship with my girlfriend, I feel I have gained my life back again."

Example 2

In this example we have a female aged 34 who is a married music lecturer residing with her parents (see **Figure 2**). She disclosed during the course a history of social rejection by peers. She also expressed her ongoing fear of being rejected and under-valued by her colleagues despite her making enormous efforts at work both as a teacher and as a colleague. In her response to her first figure drawing, she said that she encapsulated herself for protection. It also enabled her to keep her own anger and rage toward others who hurt her contained. The second, or post-figure, reveals the beginning of coming out of her protective bubble. In reference to her experience in the class, she said that one of the most meaningful activities for her was hitting a pillow as it allowed her to vent her anger in front colleagues. Secondly, her most meaningful insight was realizing that each member is human and should be regarded as such without the influence of age, sex, or status. Accepting others as human and being accepted by the group members in return, was experienced as a safe place. She said: "It has been a corrective experience for me, for the first time in my life I am not afraid of people." She added while looking at the two drawings: "I am among friends here, we hug and support one another. I feel so close to you all, as I never had in my entire life." It should be reiterated that although the second figure is not drawn locked in a bubble as the first, the fact that there are no feet shown, means she still is metaphorically not on a safe ground and still in the process of becoming more "grounded."

Example 3

This third example is 43 year old female digital media lecturer who lives with her parents (see **Figure 3**). She shared with the group her sadness of being away from her family when her grandfather whom she loved died, and the fact that her mother had cancer. The secretive and general non-communicative nature of her family prevented her from being able to share her feelings. She felt invisible and unimportant in the family while at the same time expected to bring respect to it by obtaining an education and a high status position.

Being pushed away from the meaningful experiences occurring in her family was internalized by her as betrayal tinged with exploitation. In her first figure she drew herself as a rectangular bottle, with the torso as the bottle and the head as the cap. The averted eyes indicate her anxiety. The boxy shape of the torso represents a protective stance and her case of a shield from depression.

When referring to the activities, she mentioned the "guided imagery with music" session as meaningful, as it assisted her delving into herself and sorting out her feelings, setting the stage to share them with others. Then in regard to the second drawing she said: "Allowing myself to express my negative feelings felt like an internal cleaning. My feelings and attitudes toward my parents has changed. I started talking to them about myself and our relationship—and most surprisingly they are responding in kindness." The change in her attitude is reflected in her second figure drawing. Her eyes are looking straight ahead, she is smiling and the figure stands on her feet with her arms and hands to the side ready to connect to and interact with her environment.

Summary of the Results

Participants have expressed in the semi-structured questionnaire growth and better well-being. The impression of the figures drawn at the end of the program and their posture seemed to support this feeling of growth.

An association between narratives given to the drawings were also exhibited in the verbal report given in the semi-structured questionnaire; for example, impression of the drawn face and feeling at the end of the program, change in their perception of their role as lecturers and face impression at the end and body posture (see **Figure 4**). The two study measures seemed to promote validation of the reported growth. This can be seen by the group's ending photo picture taken by the lecturer assistant. It shows the farewell hug and entitled the group comfort-table.

DISCUSSION

This study sets forth the perceived impact of experiential learning on students' personal and professional growth. The "Introduction to Expressive Art Therapies" course presented here, aimed to provide the theoretical background, knowledge, and experience in the use of creative art means for therapeutic and diagnostic purposes. The results indicate that despite the students' initial expectations from the course (which was to broaden their knowledge in expressive art therapy through listening only), the experiential learning element within the course contributed to their personal well-being, improvements in their family and spousal relationships, enhanced social skills, as well as a changed self-perception in roles as lecturers and therapists. These results are consistent with Ko (2014), who reported an increased sense of happiness and optimism, and a better understanding of the therapist's role after completing a movement-based supervisory course.

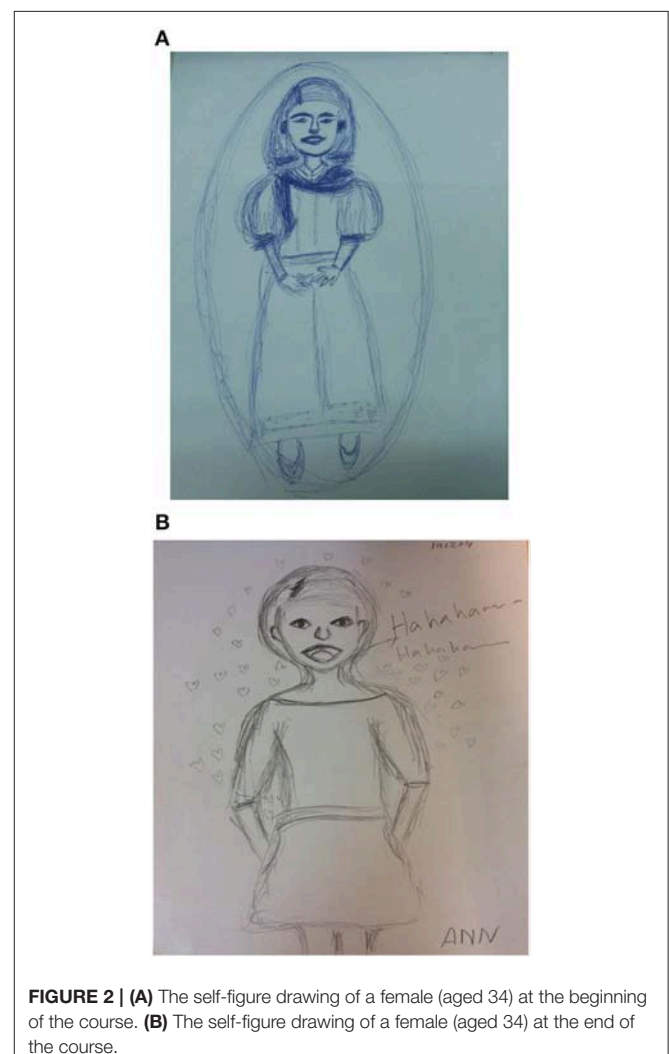
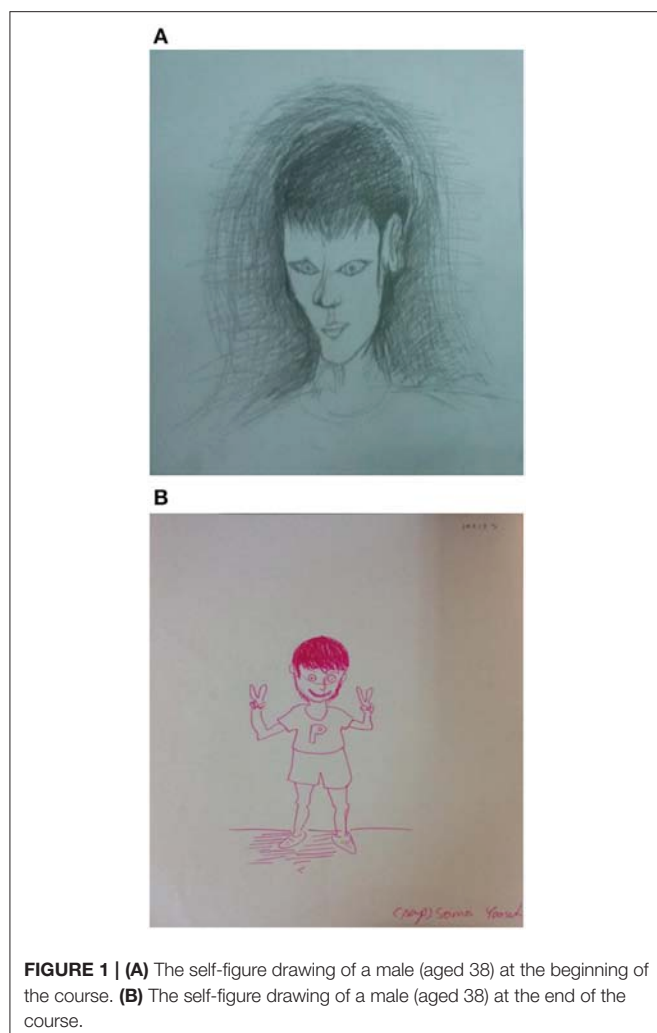
Not surprisingly, the use of art means was found to be a significant factor in the student's experience and growth. During artmaking, ideas lead to the creation of imagery which in turn generates knowledge, more thought, then more imagery, and so on (Marshall, 2007). In this form of experiential

learning, there is a connection between first manipulating materials to create an art piece and then making sense of it (Hickman, 2007). Marshall (2007) asserted that artmaking allows information to be seen differently, in a fresh, more meaningful, personal, and experiential way (as in art, symbolism, and metaphor). This transformation of concepts through imaging, followed by reflection, produces insights and learning. The actual involvement of the person in the interpretative process (through reflection) could utilize the drawing or any other art means, as a prompt or reminder. For instance, in discussing sensitive or difficult issues such as depression or suicidal thoughts (as described earlier in **Figure 1**). This is in line with previous findings (Wasserman and Beyerlein, 2007) showing that self-figure drawings are effective tools for enhancing self-reflection (a process that involves playing back a period of time related to previous valued experiences in search of significant discoveries or insights about oneself), and self-assessment (a process used for studying one's own performance in order to improve it), two meaningful processes that can lead to learning from experience Reflection is.

The in-class learning process also encouraged group interaction, here-and-now responses, real-time associations,

and inspired conceptualization and understanding theoretical models such as post-traumatic growth and group-as-a-whole theory. Students refer both to their fellow students and to the group as meaningful resources supportive of new learning experiences; they also referred from an emotional personal level and cognitive understanding of professional terms such as intimacy, trust, ability to contain, and growth. The model's premise is that the case material presented in the class would stimulate parallel "material" in students, which was then used to elucidate what had taken place in therapy group. Thus, it seems that the findings are more than just the personal and educator's growth, but also incorporated theoretical learning of what is the meaning of therapeutic process.

The employment of experiential learning within academic therapy programs is intended to bridge the theory-practice knowledge gap which in turn may instill new knowledge. While exceptional academic supervisors and mentors go to great lengths to assist students making the connections between study and work, university work-related programs tend to lack the frameworks and support mechanisms bridging theory and practice. As a consequence, many academic supervisors are



unwilling or unable to provide the facilitative learning students need before, during, and after their work life placements (Walker, 2004).

STUDY LIMITATIONS AND CONCLUSIONS

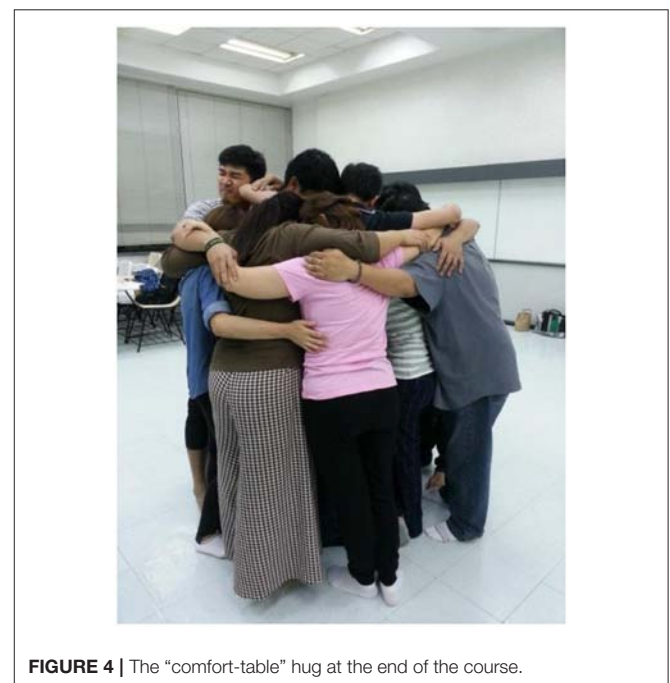
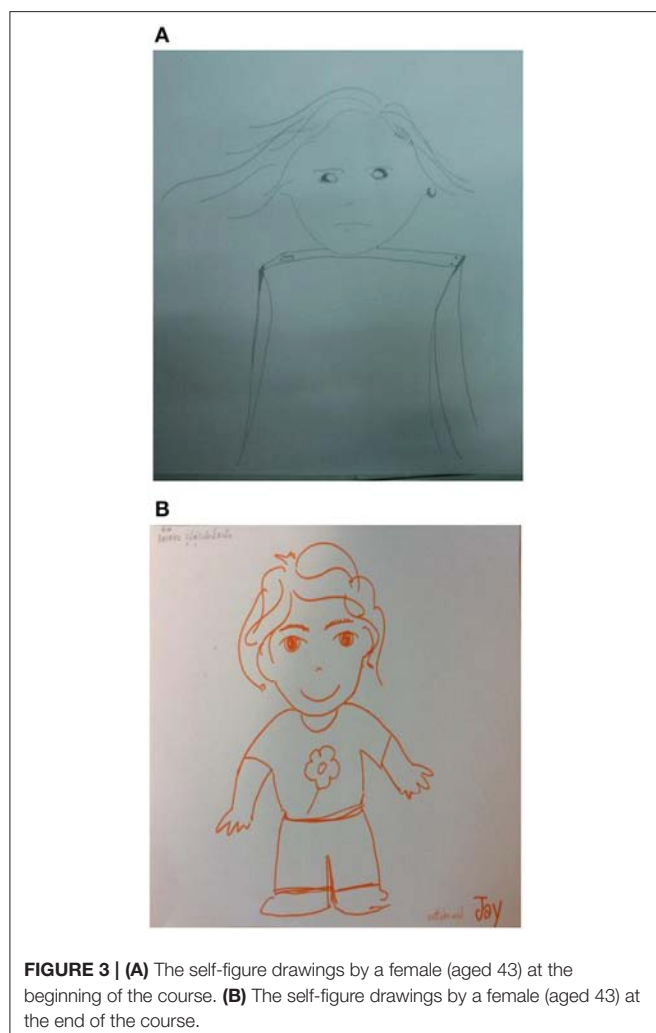
Despite the limitations of this study with its small sample size and the fact that all students had previous art education that may account for their ease with art means and the outcomes of this study, it seems that the experiential learning experiences through artmaking reinforced the course content and the presented theories. Students learned through student-centered rather than instructor-centered experiences by doing, discovering, reflecting and applying, and conceptualizing independently and as a group. Through these experiences, students developed communication skills, strengthened self-confidence and decision-making skills by responding to and solving real problems and processes. The acquisition of new unaccustomed modes of behaviors such as touching one another, hugging, sharing and disclosing private personal issues, were indicative of change by the participants which was beyond their existing cultural boundaries. Thais are not used to touching or hugging friends or colleagues and often

the same can be said about family members. They also tend to avoid burdening others with their own personal difficulties and remain silent to the point of refraining from asking questions in class to avoid any potential embarrassment of the lecturer out of respect.

In conclusion, the findings of this study can serve as a foundation for developing an effective, flexible, creative, and culturally appropriate model of an experiential learning element within academic therapy programs in general and in expressive arts therapy in particular. Experiential learning as described in this study involves the whole person (all aspects of human experience- physical, mental, emotional, and intellectual). This form of learning takes place along the affective, cognitive and behavioral dimensions since it consists of participative, interactive, and applied elements. It also allows contact with the environment, and exposure to processes that are highly variable and uncertain. Obviously, the experience needs to be structured to some degree and the relevant learning objectives need to be specified along with monitoring of the experience to maintain the course's objectives (Gentry, 1990). It is important to note that students need to evaluate their experience in light of relevant theories and in light of their own feelings. Moreover process feedback needs to be provided to the student to complement (and possibly supersede) the outcome feedback received by the student. Nevertheless, further research focusing on experiential learning's influence on the therapeutic skills and knowledge, is needed in order to develop better exercises and improve academic therapy programs.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of CU Ethical Board Committee. The protocol was approved by the CU Ethical Board Committee.



AUTHOR CONTRIBUTIONS

BB was in charge of the background, course program, and discussion. RL-W was in charge of the methodology and results.

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ACKNOWLEDGMENTS

This research grant was supported by Center of Excellence for Thai Music and Culture Research, Faculty of Fine and Applied Arts, Chulalongkorn University, Thailand.

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- Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
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Helpful and Hindering Factors in Psychodrama Field Training: A Longitudinal Mixed Methods Study of Student Development

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OPEN ACCESS

Edited by:

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 06 September 2017

Accepted: 05 February 2018

Published: 20 February 2018

Citation:

Azoulay B and Orkibi H (2018)
Helpful and Hindering Factors
in Psychodrama Field Training:
A Longitudinal Mixed Methods Study
of Student Development.
Front. Psychol. 9:196.
doi: 10.3389/fpsyg.2018.00196

Although the literature indicates that students in mental health professions start to form their professional identity and competence in graduate school, there are few studies on the in-training experience of creative arts therapies students. This mixed methods study examined how five first-year students in a psychodrama master's degree program in Israel experienced their field training, with the aim of identifying the factors likely to promote or hinder the development of their professional identity and sense of professional ability. Longitudinal data were collected weekly throughout the 20-week field training experience. The students reported qualitatively on helpful and hindering factors and were assessed quantitatively on questionnaires measuring professional identity, perceived demands-abilities fit, client involvement, and therapy session evaluations. A thematic analysis of the students' reports indicated that a clear and defined setting and structure, observing the instructor as a role model, actively leading parts of the session, and observing fellow students were all helpful factors. The hindering factors included role confusion, issues related to coping with client resistance and disciplinary problems, as well as school end-of-year activities that disrupted the continuity of therapy. The quantitative results indicated that students' professional identity did not significantly change over the year, whereas a U-shaped curve trajectory characterized the changes in demands-abilities fit and other measures. Students began their field training with an overstated sense of ability that soon declined and later increased. These findings provide indications of which helping and hindering factors should be maximized and minimized, to enhance students' field training.

Keywords: psychodrama, students, professional development, identity, competence

INTRODUCTION

Studies on the in-training experience of creative arts therapies (CAT) students are rare compared to those on student training in other healthcare professions. This is unfortunate since these studies can provide educators with valuable insights into student in-training needs and processes. The present longitudinal mixed methods study examined how five first-year students in a psychodrama master's degree program in Israel experienced their first year of field training to pinpoint the factors

likely to promote or hinder the development of their professional identity and sense of professional ability.

Students' Professional Development and Identity

Professional development has been defined as “an ongoing process through which an individual derives a cohesive sense of professional identity by integrating the broad-based knowledge, skills, and attitudes within psychology with one's values and interests” (Ducheny et al., 1997, p. 89). There is relatively limited research on the professional development of CAT students, including in art therapy (Feen-Calligan, 2005), music therapy (Luce, 2008), dance movement therapy (Federman, 2011), and drama therapy or psychodrama (Orkibi, 2010, 2012a,c).

Orkibi's (2014) two-year longitudinal study found that the Rønnestad and Skovholt (2003) seminal theory of counselors' and therapists' professional development was largely applicable to that of CAT graduate students in Israel. According to Orkibi, students in the Beginning Student phase (first year of a 2-year Master's degree program) were mainly concerned with translating theory into practice, learning in a prescriptive and concrete way how experienced therapists practice, and reducing cognitive dissonance upon realization that their pre-training lay conceptions of helping were no longer valid. Stress and anxiety tended to prompt these students to adopt easily mastered techniques to implement in the practicum, and supervision was identified as the primary source of influence in this phase.

In the Advanced Students phase (second year), students began to critically assess their role models and accepted or rejected aspects they did not perceive as suited to their own perception of the therapist's role. Advanced students developed a more complex view of client feedback and supervisor reactions which they used to gauge the effectiveness of treatment and by extension derive a sense of professional satisfaction. Generally, the findings suggested that students who were older and had undergraduate human-service education and/or considerable life experience were less concerned about their suitability to the profession, were more fully acquainted with a professional working style and sought to define their individual path toward becoming therapists.

The transformational process of professional development typically begins in graduate school and involves the formation of a professional identity (Kuther, 2008), which refers to identification with and emotional attachment to a given profession (Carson and Carson, 1998). In the CAT, students' professional identity and career commitment were shown to be significantly correlated in the first semester of training (Orkibi, 2010) and increased during their 2-year training period (Orkibi, 2012a). A decrease was noted in students' need for occupational and training information as well as the perceived environmental and personal barriers to career decision-making (Orkibi, 2012a). Feen-Calligan's (2012) qualitative study identified a number of factors that fostered the professional identity of art therapy students, including a positive practicum and internship experiences, relationships with mentors, faculty and fellow students, courses taught by renowned art therapists,

and experiential or art-based classroom assignments. Edwards (2015) suggested that becoming a music therapist emerges at an individual level (the student's processing and learning), interpersonal (the dynamic between students as a group and with their trainers), and a broader meta-systemic level which includes the training institute, the faculty or department in which the training program is held, and the external regulating procedures of the state structures and the professional body (Edwards, 2015). In sum, the literature indicates that students' formation of their professional identity starts in graduate school and is heavily dependent on self-reflection, an increasing sense of mastery and autonomy, and ongoing professional socialization. One important factor in the literature is students' perceived demands-abilities fit.

Perceived Demands-Abilities Fit

Studies on the determinants of educational and vocational success often refer to the *person-environment* fit framework, where “fit is defined as the degree of compatibility or match between an individual and the characteristics of his or her environment” (Nye et al., 2012, pp. 385–386). Environments can be an organization, job task, or academic major (Su et al., 2015). Academically, studies show that higher levels of fit (or congruence) between students' vocational interests and their major is associated with better academic performance (Tracey and Robbins, 2006), persistence in academic major choice (Allen and Robbins, 2007), and a greater likelihood of timely degree completion (Allen and Robbins, 2010). Students' perceived major fit correlated positively with academic self-efficacy (Wessel et al., 2008), satisfaction and GPA, and negatively with withdrawal intent (Schmitt et al., 2008). Nevertheless, the findings are mixed because some studies have reported only weak or no correlations with outcomes (e.g., Pozzebon et al., 2014).

In a recent CAT study, high scores on the Artistic and Social vocational types (i.e., exhibiting fit with the CAT profession that integrates arts and therapy) were hypothesized to negatively correlate with work burnout and positively with career commitment (Orkibi, 2016). The findings confirmed the significant role of person-environment fit in that students and professionals who were more self-expressive, creative, and original (artistic type) as well as more communicative, supportive, and interested in helping others (social type) were less vulnerable to the adverse effects of work burnout on career commitment than those who were lower on both of these vocational types.

The current study focused on a sub-domain of *person-environment* fit called the *demands-abilities* fit (D-A fit), which refers to the competence-related congruence between field training demands and student abilities as psychodramatists in training. Research shows that perceived D-A fit is positively correlated with employees' organizational identification, job and career satisfaction, and occupational commitment, but not to job performance and raises (Cable and DeRue, 2002). In first-year undergraduates, perceived D-A fit was positively correlated with academic satisfaction, general life satisfaction, and academic performance and negatively correlated with major change intention and depression (Li et al., 2013). Perceived D-A

fit was the strongest predictor of students' subjective measure of academic performance, and D-A fit positively correlated with academic satisfaction and negatively with students' intention to change their major (Etzel and Nagy, 2016). In a different study, major D-A fit positively correlated with GPA (Vahidi et al., 2016).

Overall, D-A fit thus appears highly consequential to students' academic and personal functioning. The present study contributes to this literature by examining the understudied trajectory of perceived D-A fit of psychodrama students in field training, as well as the association between perceived D-A fit and their PI, perceived client involvement, and session quality. We predicted that students with a high D-A fit perception would also have high PI and would report high client involvement and session quality.

Client Involvement and Session Quality

In this study we sought to quantitatively examine how psychodrama students' perceived client involvement, session quality and in-session mood related to their sense of professional identity and perceived D-A fit throughout their first year of field training. Client involvement in sessions has been widely acknowledged as a common psychotherapy process factor that is important to session- and treatment-level outcomes across theoretical orientations (for a review see Morris et al., 2016). A moderate association between participation (encompassing involvement) and therapeutic outcome was found in a meta-analysis of 10 treatment studies with children and adolescents (Karver et al., 2006). Client involvement also significantly predicted a positive session evaluation as rated by both clients and therapists across different theoretical orientations (Eugster and Wampold, 1996). Related research on session evaluation has mostly looked at the client's, rather the therapist's, perceptions of session quality and its association with outcomes (Hill and Lambert, 2004; Chui et al., 2016). Although we were unable to locate studies with counseling or psychotherapy students focusing on our particular variables, it has been shown that higher levels of therapists' negative mood *before* sessions associated with lower levels of therapist-rated helpfulness of their interventions and the quality of the sessions (Hill et al., 1994).

Psychodrama Training

In most countries psychodrama training takes place in private rather than in academic institutions of higher education. In the United States, a prerequisite for psychodrama training to have a Master's degree from an accredited university and postgraduate education in specified psychology/mental health areas. The psychodrama training itself is completed in certificate programs offered by private institutions by a certified psychodrama therapist who has a recognized TEP credential (i.e., trainer/educator/practitioner) awarded by the American Board of Examiners in Psychodrama¹. In Europe, the Federation of European Psychodrama Training Organisations (FEPTO) has established "minimal training standards" that specify a Bachelor's degree in specified psychology/ mental health areas as prerequisites for training. Psychodrama training is completed

in FEPTO-recognized private institutions and to date, Master's degree programs are only available in Austria, United Kingdom, and Israel².

In Israel, the Council for Higher Education set down uniform standards in 2010 for graduate training in the CAT, including psychodrama. The prerequisites for training are an accredited Bachelor's degree, 18 credits in specified psychology courses, and 500 h in the relevant art form (for psychodrama in drama or theater). According to the Council's standards, a 2-year Master's degree curriculum must consist of 40% psychotherapy courses and methodology courses and 60% CAT theoretical and experiential courses, seminars, and workshops in all modalities, as well as in the specific area of student specialization (e.g., psychodrama). With respect to field training, students must complete 600 h of supervised field training during the 2-year Master's degree program and an additional 960 h of supervised post-Master's advanced clinical training that is overseen by an accredited training program. Thus, students accumulate 1560 h of field training to qualify for a future (yet to be legislated) national exam and licensure by the Ministry of Health.

The Present Study

The current study focused on students in a FEPTO-recognized Master's degree training program that includes field training in health, welfare, rehabilitation, and education services with a variety of clients who have different problems. In the first year, field training takes the form of a guided clinical seminar and in the second year students are assigned to an independent practicum. This study focused on a clinical seminar, a weekly group field experience led and supervised by an experienced psychodramatist-supervisor. In the role of participant observers, students are required to pay attention to *how* and *when* they share themselves during a session, as well as *what* they share. When the students gain more experience they lead part of the session while the supervisor is also present. Thus, all students have several opportunities to take on a session leadership role, but their intervention is pre-approved by the instructor who closely monitors the intervention. The clinical seminar has four defining characteristics: (a) students are participant-observers in therapy sessions led by an experienced therapist, (b) the therapists closely monitors the students' gradual therapeutic intervention with clients, (c) the therapists provide group supervision, and (d) students engage in milieu activities on the clinical site (see also Orkibi, 2012b).

The overarching research question in this study was how students experience their clinical seminar field training in terms of factors that are likely to promote or hinder the development of their professional identity and sense of professional ability. Qualitative changes in students were expected to be reflected in the quantitative measures collected. Thus, we also hypothesized that (1) students' weekly scores on professional identity and D-A fit measures would increase throughout the year, and that (2) the increase in professional identity and D-A fit would be associated with increases in client involvement and session evaluation.

¹<https://www.psychodramacertification.org>

²<http://www.fepto.com/>

MATERIALS AND METHODS

We used a *concurrent triangulation* approach in a mixed methods design where qualitative and quantitative data were collected concurrently each week (Creswell, 2008). The secondary quantitative data were collected to assist in the interpretation of the primary qualitative data; namely, the quantitative data played a supportive role to the qualitative data by highlighting students' trajectories on the quantitatively measured variables throughout the academic year. The concurrent triangulation approach is typically used to compare or relate two databases to determine whether there is convergence, divergence, or some combination of the two across the qualitative and quantitative data.

Participants

Data were collected from five first-year students attending the same group of clinical seminar field training in the psychodrama Master's degree program, ranging in age from 24 to 33 ($M = 27$). All students were born in Israel, four were Jewish and one was Christian; four were in a relationship or married and one was single. Two students had a Bachelor's degree in theater/drama, two in social work, and one had a general degree in the behavioral sciences.

Procedure

Data were collected throughout one academic year. The 20-week clinical seminar was held in a public junior-high school and involved the five students, seven 8th graders at risk and one Ph.D. level clinical instructor (CI) who has 15 years of experience as a qualified psychodramatist and 5 years of experience in facilitating this type of clinical seminar. The students and the CI adhere to the Code of Ethics of the Israeli Association for Psychodrama. Each week, on the day of their clinical seminar, the students received an email with a link to an online form. All the data were collected as parts of routine assignments during the clinical seminar. At the end of the academic year, after completion and grading of the clinical seminar, students were asked for permission to use their data in the study. It was clarified that participation was voluntary and that they had the right to refuse without penalty or prejudice to their interests. It was made clear that the data would be numerically encrypted. All students provided their informed consent that data can be used for research purposes.

Measures

Demographics and Background Questionnaire

Data were collected on gender, age, country of birth, religion, marital status, number of children, place of residence, Bachelor's degree, pre-training therapy experience as a client, and pre-training experience as a human service provider. In addition, we assessed student self-perceived dramatic competence in response to the following question: "Students come to psychodrama training from varying disciplines. Choose the answer that best represents your current view regarding your competence using tools from drama and theater (not necessarily in a therapeutic context). There is no right and wrong answer; an honest answer is most important." Responses were on a 4-point scale: 1 (*I think I am not at all competent*), 2 (*I think I am not so*

competent), 3 (*I think I am quite competent*), 4 (*I think I am very competent*).

Helpful Aspects of Therapy (HAT)

Qualitative data were collected using the HAT form, a post-session open-ended self-report instrument that originally asked clients to identify and describe the most helpful/important and hindering events in the session in their own words (Llewellyn, 1988). The HAT form has been used to identify client perceptions of significant therapy events and clients' narrative responses have been analyzed with a variety of qualitative methods (Elliott, 2010). In this study, the HAT form was slightly modified in that we clarified that "by 'event' we mean something that happened in the session. It might be something you said or did, something your CI or someone else in the group said or did, or a specific activity."

Professional Identity

The 3-item career identity subscale of the three-dimensional career commitment measurement was used in this study (Carson and Carson, 1998). The two additional dimensions not measured here are career planning and career resilience. The original reference words "line of work/career field" were replaced with "psychodrama" as follows: "Psychodrama is an important part of who I am," "Psychodrama has a great deal of personal meaning to me," and "I strongly identify with the psychodrama profession." Students rated the items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), where a high score reflects a higher sense of professional identity. The internal consistency reliability of this modified Hebrew version was very good with a Cronbach's alpha of 0.83.

Demands-Abilities

The 3-item demands-abilities fit subscale of the three perceived fit scales was used in this study (Cable and DeRue, 2002). The two additional subscales not used here are person-organization fit and needs-supplies fit. Items with the original references to demands or requirements "of my job" were modified as follows: "The match is good between the demands on a psychodramatist and my personal skills," "My abilities are a good fit with the requirements on a psychodramatist," and "My personal abilities match the demands that the psychodramatist role places on me." Students rated the items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), where a high score reflects a higher sense of demands-abilities fit. The internal consistency reliability of this modified Hebrew version was very good with a Cronbach's alpha of 0.91.

Client Involvement

The 6-item Child Involvement Rating Scale used in this study included four positively worded items and two negatively worded items (Chu and Kendall, 2004). For this study, the term "child" was replaced by "participants." Thus, instead of ranking each client's individual level of in-session involvement, students rated the overall level of in-session involvement for all participants as a whole. A sample item is: "Participants demonstrated enthusiasm in therapy-related tasks." The items were rated on a scale indicating the presence of involvement behavior in the group,

from 0 (*not at all present*) to 5 (*a great deal present*) with higher scores representing higher involvement. Because recorded sessions for observational rating were not available for ethical reasons, after each session each student rated his or her perceived level of involvement in the session. The internal consistency reliability of this modified Hebrew version was good with a Cronbach's alpha of 0.83.

Session Evaluation

To measure the students' impression of each psychodrama session, the two sections of the Session Evaluation Questionnaire (SEQ; Stiles, 1980; Stiles et al., 1994) were modified and simplified in this study. As in Efraty (2007, Unpublished), our two sections measured *overall session* evaluation and *in-session mood* (instead of post-session mood in the original version). Each section had six bipolar adjective scales, with an opposite adjective on each end of the scale (instead of 10 items in each section). The SEQ session evaluation section measured students' overall appraisal of the reported session quality where a higher score indicates better perceived quality. For each bipolar adjectives scale students were instructed to "mark the appropriate position on the scale that best represents this session for you." The stem "This session was. . ." preceded the first six pairs of bipolar adjectives (e.g., bad-good, difficult-easy). The SEQ mood section measured students' mood during the reported session, with a higher score indicating better mood. Students were instructed to "mark the appropriate position on the scale that best represents your feelings during this session." The stem "During the session I felt. . ." preceded the second six pairs of bipolar adjectives (e.g., uncertain-definite, confident-afraid). In both sections, the scale was coded from 1 (for negative adjectives) to 5 (for positive adjectives). The mean score was calculated for each section. Internal consistency reliabilities of this modified Hebrew version were acceptable with Cronbach's alphas of 0.79 for SEQ evaluation and 0.75 for SEQ mood.

Data Analysis

Qualitative Analysis

Students' narrative responses to the open-ended HAT form were first analyzed with a six-phase thematic analysis procedure (Braun and Clarke, 2006, 2012). The analysis sought to identify concepts and patterns within the data, primarily with respect to student perceptions of their own processes of development as therapists in-training. A cyclical analysis was continued until the point of saturation, when gathering more data seemed redundant, and no longer revealed new insights. Out of the five students, three reported 19 sessions, one reported 20 sessions, and one reported 18 sessions. All available sessions were analyzed.

Quantitative Analysis

We used a multilevel linear model (MLM) with the SAS PROC MIXED procedure (Jones and Huddleston, 2009), which enables the aggregation of single case results to the population level by taking into account a nested data structure (sessions nested in students). Because the visualization of outcomes over the sessions showed a parabolic trend (i.e., a curve similar to the shape of

parabola), a quadratic session term was included in addition to the linear term. Using the same statistical framework (MLM), additional models were applied to test the relationships between the different measurements during treatment.

QUALITATIVE FINDINGS

Thematic analysis of the students' HAT forms yielded a longitudinal insight into their development over the academic year. The findings are presented according to three overarching themes: (a) change in perceived competence, (b) helpful factors, and (c) hindering factors. For each theme, the categories are described for the three phases throughout the academic year, which was divided according to trends that emerged in the quantitative data: beginning phase (sessions 1–5), middle phase (sessions 6–14), and culminating phase (sessions 15–19). A summary of students' themes by phase is presented in **Table 1**. Pseudonyms are used for purposes of anonymity.

A. Change in Perceived Competence

In the **beginning phase**, an overstated sense of ability was evident with respect to the students' self-perceived demands-abilities fit. For example, one student stated: "Despite my fatigue and fear I felt I was as present and attentive as I wanted. This feeling made me feel more confident for the next meeting." A different student wrote "I was successful in seeing what Avi (a client) really felt. It made me feel I am in the right place." Another student reported "It was surprising to me how comfortable I felt during the session. . . quickly figuring out what to do in this new role."

In the **middle phase**, the students' overstatement of their professional suitability dropped; self-doubts and feelings of confusion, anxiety, uncertainty and distrust of their capabilities and their therapeutic skills emerged along with a significantly increased number of questions in their reports. For instance, a student remembered that "Ruthi (a client) said that she was searching on the Internet for a definition of psychodrama and found that it is treatment for children without friends.... I felt uncertain and had no words and was a little anxious that I had to contain it." Another student was worried about the idea of being a group leader stating, "I wondered how I would cope as a group facilitator. There were moments when I asked myself whether the adolescents wanted to be here at all. Maybe they do not want to? Maybe we should terminate the group?" A different student shared "The big question I am struggling with is 'what to do.' What to do when they [the clients] sit like this, how to respond to Mira's [the client's] negativism or to unpleasant tones."

In the **culminating phase** a more realistic professional capability emerged. For example one student said: "Today, unlike in the past, I understand that even when the group is stormy and noisy, work takes place." Another student wrote about recognizing "opportunities" to identify therapeutic elements in the psychodramatic sessions: "My clinical understanding became sharper and clearer that it is also possible to use indirect dramatic activities . . . that can enable the client to

freely express personal themes.” A different student stated that “Role playing enabled me to play with Tal (a client) and created an opportunity to strengthen and empower his self-confidence.”

In this culminating phase, the students also increasingly started to think more therapeutically as psychodramatists and to use psychodramatic and clinical professional terms: “I have now realized that it is very helpful to use simpler and more theatrical terms with adolescents rather than psychotherapy jargon.” Another student wondered: “how do I manage the countertransference more efficiently without ‘waiting’ for them to disappear by themselves?” A different student wrote: “distancing the role from ourselves, defining it as a part within us, showed me the strength of psychodrama role theory.” Another student pointed out that “role reversal enabled Dina (the client) to be more authentic with her words, body posture and tone of voice. I could see the expansion of her role repertoire as she didn’t take her typical role. . . .”

Similarly, the students appeared to have learned to react therapeutically to a client’s “interruptions” in the group. This was reflected in the students’ reported ability to react more therapeutically to clients and to perceive disciplinary issues and maladaptive behaviors as psychological material to work with: “I was able to reflect to the client that he was very ‘stormy’ instead of saying that he is ‘interrupting the session’.” Another student reported: “When a client wanted to leave the room, I didn’t panic, I told her it would be better if she stayed and ‘told us why you are so angry, it might also represent other voices in the group’.”

B. Helpful Factors

In the **beginning phase**, students highlighted components that were meaningful in orienting them to psychodrama field training. The most significant components were having a clear and defined setting and structure, such as a defined timeframe for the session, a defined session structure (working in large and smaller groups), clear goals for the group, an explicit contract, recurring pre-group arrangements of the room and materials, and a recurring opening ritual. One student stated: “First things first: the setting. It was helpful to all of us that when the girls and boys first entered the classroom, the chairs were arranged in a circle.” Other students felt it was “important that the instructor clearly presented the group’s goals in the opening session” and that

“defining the group’s rules and norms, including confidentiality, seems to have provided a framework, an obligation and confidence to the boys and girls.” The students noted that the setting and structure enabled them and the clients to form relationships and become “more and more engaged and involved.” Introductory playful psychodrama activities and techniques were identified as “tools that made us more readily involved in the process.” Overall these findings suggest that these components contributed to the feeling of holding and contained environment in the group, for both the students and the clients.

Another helpful factor within the session was observing the CI in action who served as a role model. The students felt safer observing than actually doing. This is illustrated by the following statement: “It is interesting to observe how during your [the CI] conversation with Ella [the client], as an observer, to see you listening, thinking, and only then deciding together with her how to start the scene.” Another student stated: “The way in which you [CI] conducted yourself allowed me to be calm in the midst of the bustle and learn how to cope with the lack of cooperation and the resistance that arose.”

In the **middle phase**, one of the most helpful factors was the students’ own active participation in leading the session warm-up, “My experience in delivering the warm-up was the most significant for me, because I could experience the challenge of facilitating a group.” This hands-on role was illustrated in another way: “I’m glad I gave the warm-up today, I feel I have more confidence to stand in front of the group. . . I had a good learning experience. Especially the importance of improving the way I introduced the exercise instructions.” Another student noted “A meaningful event was my warm-up exercise before the action phase. . . I had the opportunity to self-introspect on how I act when I need to talk with a teenager, to expand and develop the dialog.”

In the **culminating phase** the key helpful factor was observation of fellow students, which seemed to reinforce their own competency: “I saw Liat’s warm-up [exercise] and I felt more relaxed today and beyond that, I knew that if my exercise did not go as I planned it would not be the end of the world.” Students’ understanding of the psychodramatist’s role was also clarified, specifically as regards being therapeutic, spontaneous, creative, “facilitating a contained and holding environment,” “mastering psychodrama theory, processes, and techniques according to the client’s needs.”

TABLE 1 | Summary of students’ themes by phase.

Phase	Changes in competence	Helpful factors	Hindering factors
Beginning phase	Overstated sense of ability	-Clear and defined setting and structure -Observing the instructor as a role model	-Role confusion: Students as participant observers -Instructor as educator vs. therapist -Dealing with clients’ resistance and discipline
Middle phase	Self-doubts and confusion	Actively leading a warm-up	
Culminating phase	-More realistic view -Increased therapeutic thinking, language, reactions	Observing fellow students	School end-of-year activities

C. Hindering Factors

The hindering factors in the beginning phase were similar to those in the middle phase and therefore are reported together. The main hindering factor was role confusion. There was confusion regarding students in the participant-observer role in that they often over-identified with the teens' issues and did not have enough clinical experience to identify countertransference processes or to effectively manage it. They used lay terminology to describe their feelings and experience in the group. For example, one student wrote: "I know that my identification with his [the client's] pain draws on times when I felt rejected in my own past." When reflecting on her reaction to three boys who acted-out in the group, another student stated "I wonder if the boys recognized that they were triggering me? Could I have reacted differently to what they did in the group?" The second type of confusion had to do with the role of the CI (who was the group facilitator); students were confused about her role as educator as compared to therapist, given the fact that psychodrama group was taking place in a school. For example, one student stated he "felt offended for the instructor when the teens interrupted and acted-out rather than listening to her [the CI]."

Another hindering factor in the beginning phase involved dealing with clients' resistance and disciplinary issues, which students viewed as impeding the group process. An illustrative example is the following: "During the session, some of the boys spoke among themselves in Russian and were also playing with their cell phones. This was after being asked politely several times to speak Hebrew and put the cell phones away." Another illustration related to the disciplinary stance is reflected by a student who wrote "the three boys were late again and it creates a disruption when we need to wait for them. They are not well behaved. . ."

In the **culminating phase**, there were only a few reports of hindering factors, and student increasingly used professional terminologies more accurately. The most notable hindering factor was the school end-of-the-year activities which, according to students "invites rule breaking," "disrupts the continuity and setting" and "interrupts the therapy process."

QUANTITATIVE FINDINGS

Hypothesis 1: Trajectories of Change in Students' Scores

Figure 1 depicts the patterns of change in student scores over sessions. The students' professional identity did not change significantly over sessions ($p = 0.057$). However, a significant trend of change was found in students' perceived D-A fit ($B = 0.001$, $t = 2.71$, $p = 0.008$), students' perceived client involvement ($B = 0.009$, $t = 2.39$, $p = 0.02$), students' general evaluation of the sessions ($B = 0.07$, $t = 5.28$, $p < 0.001$), and students' evaluation of their mood during the sessions ($B = 0.05$, $t = 4.07$, $p < 0.001$). Note that the depiction of the outcomes over the sessions exhibited parabolic trends that have the tendency to initially decrease only slightly and then become steeper with time, often taking the form of a U-shaped curve.

Hypothesis 2: Relationship between Variables

The results showed that students' professional identity (inserted into the statistical model as an outcome variable) was significantly and positively correlated with students' perceived client involvement ($B = 0.11$, $t = 2.36$, $p = 0.02$), students' general evaluation of sessions (SEQ-session; $B = 0.04$, $t = 3.46$, $p < 0.001$), and students' mood during sessions (SEQ-mood; $B = 0.03$, $t = 2.60$, $p = 0.01$). Students' perceived D-A fit (inserted into the model as an outcome variable), did *not* correlate with any of the variables. The qualitative and quantitative findings are discussed below.

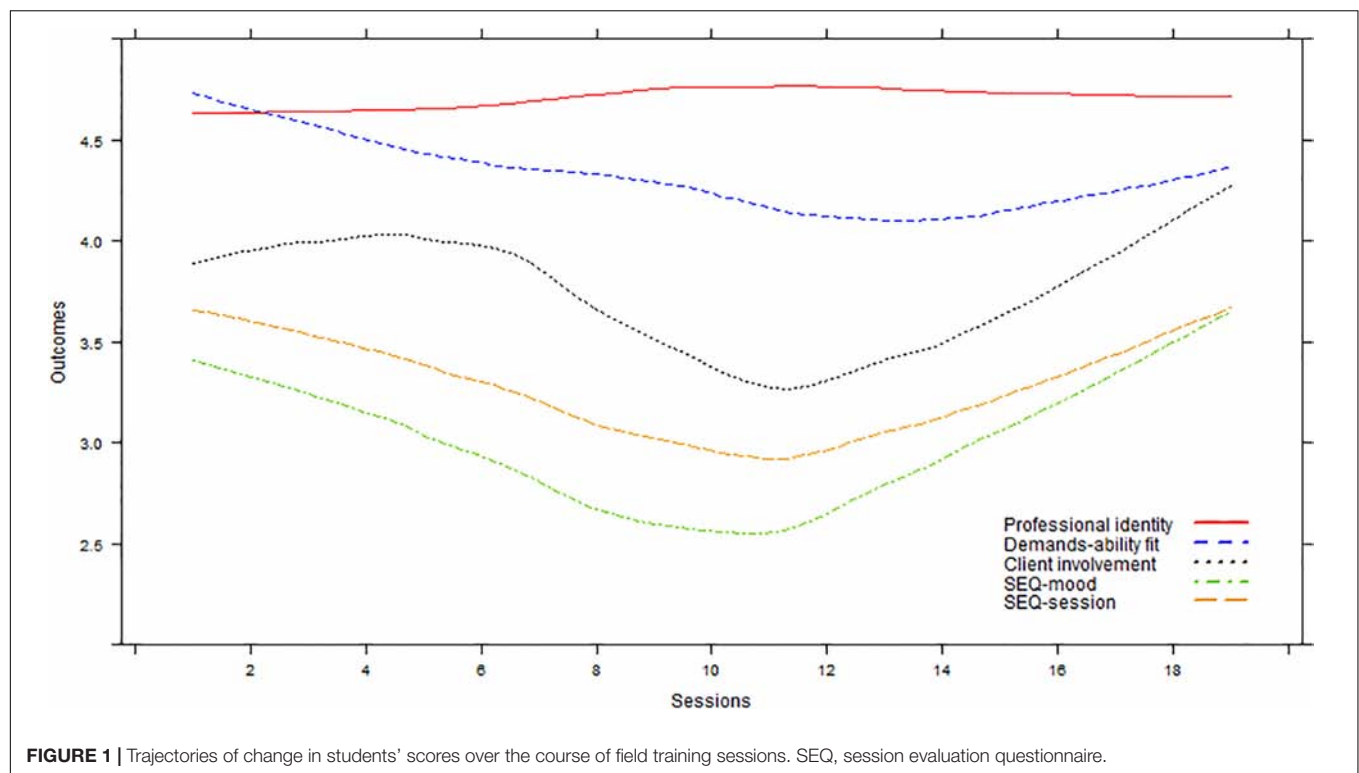
DISCUSSION

This longitudinal mixed methods study examined the experience of psychodrama students during their first year field training in a clinical seminar held in a public junior high school. Students were in the role of participant-observers in psychodrama sessions led by an experienced psychodramatist-supervisor. We aimed to identify factors that helped or hindered the development of their professional identity and sense of professional ability.

Taken together, the quantitative and qualitative findings suggest that students undergo a U-shaped curve trajectory during their first year of psychodrama field training. They began their field training with an overstated sense of ability that later declined and then increased. This trajectory generally corresponds to the pattern described in studies in developmental psychology which have indicated that whereas self-competency beliefs can be unrealistically positive in young children (Nicholls and Miller, 1984), these beliefs decline across middle childhood and early adolescence (Jacobs et al., 2002), probably as they start to make social comparisons (Suls et al., 2002).

Similarly, CAT students enter training with their own personal lay conceptions of helping, as they often see themselves as helpers to friends and family members where helping is typically guided by common sense and personal life experience (Orkibi, 2014). Students may consciously or unconsciously overestimate their helping abilities as a form of self-protection; in other words, they may strive to protect and enhance their feelings of self-worth (Shepperd et al., 2008). In fact, it has been suggested that CAT students' self-serving cognitive bias may "reflect a need to defend their professional choice and ratify their emerging professional identity" (Orkibi and Bar-nir, 2015, p. 33).

As training progresses, some students start to engage in upward social comparison, when comparing themselves to the CIs or to a more experienced peer. Consequently they may feel more insecure about the fit between their abilities and the demands of the therapist role (Orkibi, 2014, p. 515). Thus, the subsequent quantitative decline in students' sense of ability and the qualitative findings that reflect an increase in self-doubts and confusion regarding suitability are consistent with Orkibi's (2014) study where first-year students experienced increased stress and anxiety upon the realization that their personal self-endorsed pre-training lay conceptions of helping others were no longer valid.



Surprisingly, students' perceived professional identity remained stable over the year (it did not change significantly over sessions) possibly because the professional identity scale assesses a general identification with a chosen profession. In contrast, the four other scales that did indicate change (D-A fit, client involvement, and the two session evaluations) rely heavily on ongoing in-session occurrences and experiences. The reasons why the D-A fit did not correlate with client involvement and session evaluations should be explored in future studies with a larger sample. These relationships may have been affected by intervening variables (i.e., moderators) such as student pre-training experience in the care provider role as well as student feedback from the CI.

The findings are indicative of the helping and hindering factors that should be maximized and minimized to cultivate students' successful field training. As in Orkibi (2014), the qualitative findings here suggest that students need a stable setting and clear group rules and that they rely on their CI (who led the group) as a viable professional role model. The findings also highlight the importance of gradually enabling students to take on a leading role in the group, under the close supervision of the CI. The results suggest that leading hands-on warm-up activities is a significant first step in rebuilding students' sense of competence after their earlier experiences of doubt.

The findings on the hindering factors highlight the importance of making sure the students have a clear perception of their role as participant observers, which requires that they be mindful and prudent about sharing during the sessions. From a psychodramatic standpoint, the role of the participant-observer corresponds to that of the auxiliary ego: a group member who

plays a role in the protagonist's psychodrama and thus is an extension of the therapist in the service of the protagonist (Holmes, 1998). The key hindering factors were related to the school setting of the field training. The literature on school-based CAT indicates that one of the challenges that can influence the effectiveness of therapy itself and may impede the therapist's work is role confusion (Karkou, 2010; Leigh, 2012), as noted by the students here. As was the case for our students, studies have noted the challenges associated with changes in the location of the therapy room and outside disruptions that interfere with the safe and familiar therapeutic space, as well as school holidays, activities, and excursions that interrupt the continuity and stability of therapy (Wengrower, 2001; Regev et al., 2015; Keinan et al., 2016; Belity et al., 2017).

CONCLUSION

The strengths of this study include the longitudinal examination of the understudied trajectories of professional identity, perceived D-A fit, client involvement, and session evaluation of psychodrama students throughout field training. In addition it examined the association between these variables and the triangulation of qualitative and quantitative data in a mixed methods design constructed to offset the disadvantages of using one method with the advantages of another (Creswell, 2008).

However, there are several limitations that should be addressed in future work. Studies on students' professional development during training would benefit from a larger sample size for the quantitative analysis. This would enable the use of

more complex statistical procedures such as the examination of moderated and mediated relationships between variables. Second, the transferability of the findings is somewhat limited to field training with junior high school adolescents and field training with other age groups or in other settings (e.g., hospitals) could yield different results. Third, whereas this study involved psychodrama Master's degree students, most psychodrama training programs in the world are run in private institutions. Nevertheless, the findings may be more applicable to field training in other CAT Master's programs. In addition the reliance on students' self-reports may have been influenced by social desirability bias. Future studies should not only measure social desirability (e.g., Fischer and Fick, 1993) but should also collect data on CAT students' performance (e.g., D-A fit) from other sources such as students' CIs in the field, university supervisors, and even peers. This data triangulation could be used to cross-validate students' perceived competence as well as highlight the putative disparities between students' perceptions and their actual abilities. Despite these limitations, we hope that this study will encourage others to further examine understudied in-training processes that can ultimately lead to the reconsideration and

improvement of the clinical field training of future creative arts therapists.

ETHICS STATEMENT

The study was exempt from ethical approval procedures because all the data were collected as parts of routine assignments during the clinical seminar. At the end of the academic year, after completion and grading of the clinical seminar, students were asked for permission to use their data in the study. It was clarified that participation was voluntary and that they had the right to refuse without penalty or prejudice to their interests. It was made clear that the data would be numerically encrypted. All students provided their written consent.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication. The authors contributed equally to this manuscript.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The handling editor is currently co-organizing a Research Topic with one of the authors, HO, and confirms the absence of any other collaboration.

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Psychodrama and Moviemaking in a Death Education Course to Work Through a Case of Suicide Among High School Students in Italy

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OPEN ACCESS

Edited by:

Hod Orkibi,
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Sapienza Università di Roma, Italy

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 16 January 2018

Accepted: 16 March 2018

Published: 10 April 2018

Citation:

Testoni I, Ronconi L, Palazzo L,
Galgani M, Stizzi A and Kirk K (2018)
Psychodrama and Moviemaking in a
Death Education Course to Work
Through a Case of Suicide Among
High School Students in Italy.
Front. Psychol. 9:441.
doi: 10.3389/fpsyg.2018.00441

This study describes the psychological effects of an experience of death education (DE) used to explore a case of suicide in an Italian high school. DE activities included philosophical and religious perspectives of the relationships between death and the meaning of life, a visit to a local hospice, and psychodrama activities, which culminated in the production of short movies. The intervention involved 268 high school students (138 in the experimental group). Pre-test and post-test measures assessed ontological representations of death, death anxiety, alexithymia, and meaning in life. Results confirmed that, in the experimental group, death anxiety was significantly reduced as much as the representation of death as annihilation and alexithymia, while a sense of spirituality and the meaning of life were more enhanced, compared to the No DE group. These improvements in the positive meaning of life and the reduction of anxiety confirmed that it is possible to manage trauma and grief at school with death education interventions that include religious discussion, psychodrama and movie making activities.

Keywords: death education, spirituality, psychodrama, movie making, alexithymia, representations of death, death anxiety

INTRODUCTION

As Gorer (1965) affirmed in the article “The Pornography of Death” that sex and death exchange positions of the “forbidden” and that the censorship of death issues is widely spread in contemporary Western civilization. Certainly Western post-modern societies are widely characterized by intercultural differences, and many expressions of religiosity run in parallel with atheism and agnosticism, so it is important to be cautious in affirming that death and dying are totally concealed. However, it is possible to state that in this complex scenario the general trend is toward a form of significant censorship of real mortality, arguing that this inevitably produces notable effects in individual’s lives. Indeed, as cultural psychology shows, cultures shape the psychological processes of their members because the mind is shaped by beliefs, representations, traditions and social practices (Bruner, 1990; Shweder, 1991; Cole, 1996; Heine, 2011).

In the current post-modern and secularized culture, traditional and religious reflection on the afterlife has progressively eroded to the point that finding meaning in death and dying creates difficulties for people (Doka, 2007; Ronconi et al., 2009; Testoni, 2016). Indeed, whereas in the past the meaning of life processes were practiced informally in the families, it seems that nowadays

it is necessary to plan specific educational activities to recover these profound conversations (Wass, 2004; Testoni et al., 2017b). In fact, while the media portray such issues by resorting to sensationalist unrealistic events focusing on the exceptional, cruel and aggressive factors (Gilbert and Murray, 2007; Noppe, 2007; Sofka, 2007), parents find themselves unable to explain these life and death messages with their children because they are uncertain as to how to, and whether to, do so cautiously about their child's ability and their competence (Butler, 2004; Fonseca and Testoni, 2011).

Secularized society has a reduced faith in an afterlife, which is one of the important remedies to death anxiety and this leads to some negative effects. In fact, as Terror Management Theory (TMT) demonstrates, mortality salience intensifies anxiety, and activates psychological defenses that censor the same triggers of angst (Greenberg et al., 1994; Solomon et al., 2000; Greenberg and Kosloff, 2008). From a TMT perspective, which is one of the important theories in death studies, all cultures develop beliefs that are shared by individuals and aimed at providing a sense that life is meaningful and offering an account of the origin of the universe, prescriptions for appropriate behavior, and assurance of immortality. A belief in immortality permits people to manage death anxiety in everyday life and assuming socially shared values keep the unconscious conflict at bay (Solomon et al., 2017).

Two forms of immortality are commonly shared: literal immortality as afforded by souls, heavens, afterlives, and reincarnations associated with all major religions; while symbolic immortality is achieved by being part of a human community and its history.

A recourse to the removal of mortality from awareness can lead to an unconscious suppression of thoughts and negative emotions, and this censorship could diminish the ability to cope with existential anxiety, developing an "alexithymia." Our "black hole hypothesis" suggests that the tendency toward impoverished emotions (Bagby et al., 1994) or alexithymia could be related to a systematic cultural inhibition of dialogue on death and dying. In particular, young people are more vulnerable to the lack of competent reflections aimed at managing mortality salience; silence around the experience of suicide could be a major factor which exacerbates such an effect, because it gives the idea that suicide is insignificant Testoni et al., 2016.

In a broad sense, it can be said that formal death education responds to this need by promoting a reflection on existential themes and exploring contemporary concerns about death and beliefs in an afterlife (Kastenbaum, 2000; Wass, 2004).

Death Education and Suicide in Adolescence

The unexpected deaths of young people are experiences that can impact upon younger adolescents; sometimes they experience the sudden and tragic deaths of their peers, usually from accidents, illness or suicide, and when these experiences occur they find themselves unable to manage them and become isolated in their grief (Cupit and Meyer, 2014; Testoni et al., 2016b; Cupit and Kuchta, 2017). At this critical age, unfortunately, the incidence of suicidal behaviors combines with other important indications

of suffering: self-harm, addiction and challenging behaviors that endanger life (Gosney and Hawton, 2007; O'Connor et al., 2010; Haw and Hawton, 2011). Young people who attempt suicide or adopt self-harming behaviors are struggling in all psychological areas; they are characterized by perceiving reality as unmanageable and horribly nonsensical (Brent et al., 1999; Sinclair and Green, 2005; Haw and Hawton, 2008; Brent, 2017). The need to reduce the problem is widely recognized and the role of the social context and sharing with families and peers is generally agreed (i.e., Goldston et al., 2008; Schwartz-Lifshitz et al., 2012). In this area, prevention policies discuss the possibility of transforming the school into a psycho-educational space that can become a protective factor against suicidal risk or enable the expression of any kind of loss and grief. These prevention strategies propose to implement pivotal activities that focus on existential experiences and shared reflections in order to improve cultural values aimed at the significance of life, health, and well-being (Daniel et al., 2006; Goldsmith et al., 2007; Stanley et al., 2009). These curricula ensure that teenagers have accurate information about death, the value of life that must be protected; they offer simultaneously the opportunity to express emotions appropriately and develop a balanced realistic representation of death, instead of a dreamlike phantasmagorical one (Edgar and Howard-Hamilton, 1994). Furthermore, the strategies permit the exploration of grief. Such interventions offer young people the opportunity to discuss, in the ordinary space of the classroom, everything that causes suffering, loss, anxieties, and fears, without creating trauma or further psychological problems (Alexander and Adlerstein, 1958; Kastenbaum, 1967; Moss, 2000). These experiences promote activities of storytelling aimed at sharing experiences to reduce social isolation (Fortune et al., 2008). At other times psycho-educational strategies are used for existential reflection, activities like narrative methods or art-therapy (Walsh, 1993; Manley and Lechner, 2003; Dezutter et al., 2009; O'Connor et al., 2009; Sun-Hyun and So-Jeong, 2014). In summary, the overall aims of these death education methods are: to provide information on death and a common and appropriate language in order to understand emotions; to create space to reflect on the meaning of life; and to strengthen rational and critical thinking abilities (Wass, 2004).

Psychodrama offers excellent techniques, useful both for the expression of grief and for death education. Initiated by Moreno, psychodrama is a method most commonly conducted in a group format (Orkibi, 2011; Cruz et al., 2016) it can be used in individual settings (Pio-Abreu and Villares-Oliveira, 2007). It involves the representation of subjective experiences using dramatic techniques, where the participants are encouraged to develop their spontaneity and creativity in order to solve, in a new way, a situation from which suffering arises (Moreno, 1953). In order to improve self-awareness, personal empowerment and positive relationships in young people psychodrama techniques have been used in school settings as well (Azoulay and Orkibi, 2015). Managing contemporary issues of death, dying and associated death anxiety is hampered by the lack of adequate dialogue on death and dying between mature grownups and developing adolescents.

THE PRESENT STUDY

The “Black Hole Hypothesis” and Aims of the Death Education Project

Our main hypotheses are derived from the conviction that death education should be offered increasingly in high school curricula using psychodrama techniques. The main hypothesis of the present study was that adolescents who participated in death education experience would express their emotions better, with a higher sense of control over their death imagery and death anxiety (i.e., Kastenbaum, 2004; Currier et al., 2008). An important concern regarding death education is inherent in the fact that enhancement of mortality could intensify death anxiety. So we wanted to show that: (1) it is possible to realize death education experiences without producing negative effects, by exploring death thoughts with thoughts of immortality; (2) the relationship between spirituality/religiosity/depictions of death can reduce death anxiety, as proposed by TMT; (3) psychodramatic, verbal and artistic explorations of the fear of death can reduce alexithymia. In particular, we wanted to confirm the efficaciousness of immortality representation as a support in the managing death anxiety elicited by mortality salience.

METHOD

The Activities

Subsequent to the conviction that death education is useful in opening a debate to explore the various ways of conceptualizing death and, hopefully, lead to fostering of greater understanding and clarification of personal value systems, a death education project was created in a Southern Italy village, where an adolescent student had committed suicide.

A death education project was created in a Southern Italy village, where an adolescent student had committed suicide; this was based on the conviction that death education is useful in creating a debate in which to explore the various ways of conceptualizing death, to lead to a greater understanding and clarification of personal value systems.

The project was presented as a way to encourage students to discuss death and associated spirituality; it also aimed to open dialog about and reflections on the afterlife. It was approved by the directors of the institutes, by teachers and by parents; in fact all the three high schools in the community decided to participate in the death education course. They were aware of both the aims of promoting a sense of life and exploring traumatic grief.

There were three psychologists who were expert in psychodrama and death education; two others had expertise in religious sciences and worked at a hospice in a nearby town and collaborated in the program. At the end of the classroom activities, each class visited the hospice and during that visit students could share their emotions, thoughts, convictions about the afterlife and existential reflections. Teachers, who had specific and related training, were involved as supporters in all the activities.

The activities of death education were divided into “formal” work (during the lessons in the classroom) and “informal” work (activities at school for production of pictures and short movies

using teamwork). The formal work included lessons on death, on meditation (Western and Eastern traditions) paying particular attention to the protective messages from religions. The informal work included activities of looking at a film on meditation before dying, then creating a psychodrama that reproduced some aspects of the movie. The material was widely shared by students, teachers and psychologists and the narratives were fundamentally aimed at explicitly expressing all the emotions that derived from awareness of mortality. In order to assume in the “first person” and the existential condition of dying or living with the awareness of being mortal, at this stage, they engaged with the psychodrama techniques of doubling, soliloquy and role reversal.

At the next stage, the students were entrusted with the following tasks: (a) to form work groups and search for useful documents that seemed better able to describe death, loss, and grief; (b) to share in the group their sensations, feelings, thoughts, reflections on death and afterlife and to explore and expand the ideas inspired by the film and their texts; (c) to develop and produce a movie outlining their psychodrama experience and the contents of the training course, this was intended to manifest their meaning making about death, life and afterlife; (d) to plan their presentation for a final exhibition at school and for a conference jointly organized by the hospice palliative team with the Municipality. Before and after all the encounters, the psychologists facilitated the student’s warm up and their sharing moments in the classroom.

The study followed American Psychological Association Ethical Principles and Code of Conduct and the principles of the Declaration of Helsinki; furthermore it was approved by the Ethics Committee of University of Padua. Participants were informed about the study aims and procedures and they were assured that participation was voluntary. The confidentiality of their responses was guaranteed. Informed consent was obtained from all participants and their parents.

Participants

There were 268 student participants (57% girls) from 10th to 11th year of three high schools located in southern Italy. Of these, 138 participants were assigned to the Death Education group and attended the course (DE group) and 130 were assigned to a group of participants who did not participate in the course (No DE group). In each institute, about two classes were involved with the experimental DE group and two classes to the No DE group. The differentiation between DE group and No DE group was not random, because we preferred to involve the classes whose teachers were particularly motivated to participate in the project. In fact, as the primary requirement of the study was focused on the positive outcome of the experience, we specifically chose the classes of the motivated teachers for the experimental group. The No DE group was comprised students of the same institutes and the same year of study, but they did not participate in the course. Participant’s characteristics are presented in **Table 1**.

Measures

A socio-demographic questionnaire collected background information, including age, gender, grade, school, and religious

TABLE 1 | Characteristics of students in the two study groups.

Variables	Groups	
	DE (N = 138)	No DE (N = 130)
Age ^a	17.1 (0.6)	17.2 (0.6)
Gender female	75 (54%)	77 (59%)
Gender male	63 (46%)	53 (41%)
Scientific high school	20 (14%)	27 (21%)
Humanities high school	48 (35%)	58 (45%)
Professional institute	70 (51%)	45 (35%)
God believer	118 (85%)	101 (78%)
God non-believer	20 (15%)	29 (22%)
Religious practicing	37 (27%)	37 (29%)
Religious non-practicing	101 (73%)	71 (%)

^aFor this variable is reported Mean and (SD).

DE, Death education.

attitude. The four self-report instruments below are Italian versions of standardized measures.

The Testoni Death Representation Scale (TDRS)

The Testoni Death Representation Scale (TDRS) (Testoni et al., 2015) is a short 6-item 5-point Likert scale measuring the ontological representations of death either as annihilation (i.e., the end of everything) or as a passage (i.e., belief in an afterlife). Lower scores indicate that the individual represents death as a passage, whereas higher scores represent death as total annihilation. These constructs have been used in research examining attachment (Codato et al., 2011), hypnosis (Facco et al., 2017), emotional impact of nursing (Zamperini et al., 2015) grief, and palliative care (Testoni et al., 2016a, 2017a).

The Toronto Alexithymia Scale (TAS)

The Toronto Alexithymia Scale (TAS) (Bagby et al., 1994) is a 20-item instrument, expressed in a 5 point Likert scale, commonly used to measure problems in emotional competence. It consists of three subscales: the Difficulty Describing Feelings subscale used to measure difficulty explaining emotions; the Difficulty Identifying Feeling subscale used to measure difficulty in identifying emotions; and the Externally-Oriented Thinking subscale used to measure the tendency of individuals to focus their attention externally. TAS has been used to examine emotional understanding by gender, age, culture, mental and physical illness, empathy, deviance, and parental relationships. The TAS is also suitable for use with an adolescent population (Parker et al., 2010).

The Personal Meaning Profile (PMP)

The Personal Meaning Profile (PMP) (Wong and Fry, 1998) measures individual perception of personal meaning in one's own life. PMP is based on the human need for life meaning which is individually constructed, as a culture-based cognitive system, and influences the choice of activities, objectives, personal values, and fulfillment in life. However, when these essential human needs are ensured individuals are more likely to cope better with their

problems and to live a more rewarding life. The questionnaire consists of 57 items on a 7-levels Likert scale (from 1 = not at all, to 7 = a great deal), in seven subscales identifying the following dimensions of life meaning: Achievement (16 items, e.g., "I pursue worthwhile objectives"); Relationship (9 items, e.g., "I am highly regarded by others"; "I am trusted by others"), Religion (9 items, e.g., "I believe that life has an ultimate purpose and meaning"; "I believe that human life is governed by moral laws"); Self-Transcendence (8 items: e.g., "I seek higher values-values that transcend self-interest"; "I attempt to leave behind a good and lasting legacy"); Self-Acceptance (6 items: e.g., "I have learned that setbacks and disappointments are an inevitable part of life"; "I am at peace with my past"); Intimacy (5 items: e.g., "I have someone to share intimate feelings with"); Fair Treatment or Perceived Justice (4 items: e.g., "Life has treated me fairly"). The PMP was translated into Italian and the original 7-factor model was confirmed with good reliability scores for each scale (Testoni et al., 2017c).

The Death Anxiety Scale (DAS)

The Death Anxiety Scale (DAS) (Templer, 1970) is one of the most commonly used tools for assessing anxiety death. It is a scale that provides a type of True/False response and consists of 15 items. The score ranges from 0 to 15, and the higher the score is, the higher the degree of anxiety of death of the responding individual. The Italian validation of this tool, carried out by Saggino and Kline (1996), has shown that while it mainly evaluates general anxiety it also emphasized the multidimensional nature of death anxiety by identifying three factors: the fear of death and dying; the passage of time; the fear of pain and operations.

Data Analysis

We conducted our analyses in two steps. Firstly, we examined the impact of the death education course on the death representation as annihilation, alexithymia, personal meaning in life and death anxiety by conducting a multivariate analysis of covariance on all baseline total scores, with age and gender as covariates and by mixed-design repeated measure analysis of variance to test within and between subject differences. Secondly, we tested the interaction effect of pre-test assessment in death education course. We calculated change scores by subtracting the post-test score from the pre-test score for TDRS, TAS, DAS, which were expected to diminish over time. We performed a linear regression analysis with change scores as dependent variables including gender, age, group, and all pre-test scores as predictors and only significant interactions between pre-test scores and group selected by stepwise method.

RESULTS

Death Education Impact

Age did not have significant effect on baseline total scores, gender did have a significant effect at multivariate-level, Wilk's $\lambda = 0.92$, $F(4, 260) = 5.50$, $p < 0.001$, but only on baseline Death Anxiety at univariate-level, $F(1, 263) = 130.97$, $p < 0.001$ (with a higher score for female than for male, $M_s = 9.14$ and

7.76, respectively), and no intergroup differences were found for baseline total scores, Wilks' lambda = 0.99, $F_{(4, 260)} = 0.45$, $p = 0.770$.

As seen in **Table 2**, there was a significant interaction between time and group effect on Death Representation as Annihilation. A follow-up analysis, with Bonferroni adjustment for multiple comparisons, indicated that the mean scores of the DE group significantly decreased over time $M_{diff} = -0.98$, $SE = 0.37$, $p = 0.018$, whereas the No DE group significantly increased over time, $M_{diff} = 1.48$, $SE = 0.38$, $p < 0.001$. Similarly, a significant interaction was also found between time and group on Alexithymia Total score and Alexithymia factors except Difficulty Identifying Feeling, the mean scores of the DE group significantly decreased over time: $M_{diff} = -3.28$, $SE = 0.78$, $p < 0.001$ for Alexithymia Total score, $M_{diff} = -1.95$, $SE = 0.45$, $p < 0.001$ for Difficulty Describing Feelings and $M_{diff} = -0.97$, $SE = 0.38$, $p = 0.022$ for Externally-Oriented Thinking; whereas the No DE group significantly increased over time for Alexithymia Total score and Externally-Oriented Thinking, $M_{diff} = 2.16$, $SE = 0.80$, $p = 0.014$, and $M_{diff} = 1.43$, $SE = 0.39$, $p < 0.001$, respectively, and did not change for Difficulty Describing Feelings.

A significant interaction was found between time and group on Personal Meaning Total score and Personal Meaning subscales except Religion, Self-Transcendence and Fair Treatment, the mean scores of the DE group significantly increased over time for Personal Meaning subscales Self-Acceptance and Intimacy, $M_{diff} = 0.19$, $SE = 0.08$, $p = 0.032$, and $M_{diff} = 0.30$, $SE = 0.10$, $p = 0.006$, respectively, and did not change for Personal Meaning Total score and the other Personal

Meaning subscales; whereas the No DE group significantly decreased over time for Personal Meaning Total score and Personal Meaning subscale Achievement, $M_{diff} = -0.14$, $SE = 0.05$, $p = 0.020$ and $M_{diff} = -0.24$, $SE = 0.07$, $p < 0.001$, respectively, and did not change for the other Personal Meaning subscales. Finally, a significant interaction was found between time and group on Death Anxiety: that the mean scores of the DE group significantly decreased over time $M_{diff} = -0.98$, $SE = 0.37$, $p = 0.018$, whereas the No DE group did not change.

Interaction Effect of Pre-test Assessment in Death Education Course

Regression analysis with change scores of Death Representation as Annihilation as dependent variable showed no interaction between group and any score at the pre-test (**Table 3**). There was a better positive change on Death Representation as Annihilation for females ($\beta = 0.14$ $p = 0.009$), students with high score on Death Representation as Annihilation at the pre-test ($\beta = 0.55$ $p < 0.001$), students with high score on Personal Meaning subscale Religion at the pre-test ($\beta = 0.17$ $p = 0.018$), students with low score on Alexithymia factor Difficulty Identifying Feeling at the pre-test ($\beta = -0.15$ $p = 0.022$) and, of course, for DE group ($\beta = 0.24$ $p < 0.001$).

Regression analysis with change scores of Alexithymia factor Difficulty Describing Feelings as dependent variable showed a significant interaction between group and Personal Meaning subscale Intimacy at the pre-test. There was a better positive change on Alexithymia factor Difficulty Describing Feelings for

TABLE 2 | Descriptive statistics for study variables by time in the two groups.

Variables	DE		No DE		F _{time × group}	η _p ²
	T1 M (SD)	T2 M (SD)	T1 M (SD)	T2 M (SD)		
TESTONI DEATH REPRESENTATION SCALE (TDRS)						
Death representation as annihilation	16.98 (4.91)	16.00 (4.59)	16.96 (5.55)	18.44 (5.28)	21.18***	0.07
TORONTO ALEXITHYMIA SCALE (TAS)						
Difficulty describing feelings	20.16 (6.19)	18.21 (6.07)	19.01 (6.36)	19.46 (6.07)	14.19***	0.05
Difficulty identifying feeling	14.79 (4.20)	14.46 (3.96)	14.78 (4.39)	15.08 (4.74)	1.66 ns	–
Externally-oriented thinking	17.96 (4.51)	16.99 (4.38)	18.31 (4.75)	19.74 (4.95)	19.27***	0.07
Total score	52.92 (10.13)	49.65 (10.40)	52.12 (11.04)	54.28 (11.59)	23.82***	0.08
PERSONAL MEANING PROFILE SCALE (PMPS)						
Achievement	5.29 (0.87)	5.40 (0.75)	5.28 (0.92)	5.04 (1.00)	13.96***	0.05
Relationship	5.18 (0.92)	5.31 (0.78)	5.17 (0.97)	5.08 (1.00)	5.44*	
Religion	4.26 (1.03)	4.27 (1.05)	4.04 (1.23)	4.00 (1.19)	0.13 ns	–
Self-transcendence	4.78 (0.82)	4.91 (0.78)	4.62 (1.00)	4.59 (1.00)	2.66 ns	–
Self-acceptance	4.50 (0.94)	4.69 (0.86)	4.61 (0.99)	4.54 (1.09)	5.35*	0.02
Intimacy	4.85 (1.21)	5.15 (1.17)	5.03 (1.25)	4.82 (1.30)	12.74***	0.05
Fair treatment	4.83 (1.01)	4.77 (0.99)	4.95 (1.05)	4.75 (0.98)	1.27 ns	–
Total score	4.81 (0.66)	4.93 (0.59)	4.83 (0.74)	4.69 (0.77)	11.38**	0.04
DEATH ANXIETY SCALE (DAS)						
Death anxiety	8.70 (2.71)	7.98 (2.76)	8.38 (2.81)	8.23 (3.00)	13.90***	0.05

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ns, not significant.

TABLE 3 | Regression analysis with gender, age, group, and all pre-test assessments predicting change scores of TDRS, Alexithymia factors, and DAS.

Predictors	Change scores				
	TDRS	TAS1	TAS2	TAS3	DAS
Gender (female = 1, male = 0)	0.14**	0.05	−0.04	0.10	−0.09
Age	0.00	−0.08	0.00	0.03	0.06
Group (DE = 1, No DE = 0)	0.24***	0.20***	0.10	0.27***	0.21***
VARIABLES AT THE PRE-TEST					
Death representation as annihilation (TDRS)	0.55***	−0.07	−0.05	−0.10	−0.11
Difficulty describing feelings (TAS1)	0.04	0.53***	−0.14*	−0.06	−0.05
Difficulty identifying feeling (TAS2)	−0.15*	−0.11	0.56***	−0.07	0.09
Externally-oriented thinking (TAS3)	0.02	−0.02	−0.06	0.48***	−0.10
Achievement (PMPS1)	0.03	−0.09	0.03	0.02	−0.06
Relationship (PMPS2)	−0.12	0.08	0.08	0.15	0.05
Religion (PMPS3)	0.17*	−0.01	0.00	−0.02	−0.19*
Self-transcendence (PMPS4)	0.14	−0.11	−0.11	0.08	0.14
Self-acceptance (PMPS5)	−0.04	0.10	0.04	−0.03	0.01
Intimacy (PMPS6)	−0.10	−0.04	0.01	−0.14*	0.06
Fair treatment (PMPS7)	0.06	0.04	0.06	−0.04	−0.06
Death anxiety (DAS)	−0.01	−0.08	−0.03	−0.15	0.46***
INTERACTIONS BETWEEN VARIABLES AT THE PRE-TEST AND GROUP					
PMPS2 × group				−0.20*	
PMPS6 × group		0.17*			
DAS × group				0.15*	
Total R-square	0.36	0.30	0.26	0.35	0.26

Standardized coefficients are presented. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

students in DE group with high score on Intimacy at the pre-test ($\beta = 0.17$ $p = 0.038$), and also for students with high score on Alexithymia factor Difficulty Describing Feelings at the pre-test ($\beta = 0.53$ $p < 0.001$) and, of course, for DE group ($\beta = 0.20$ $p < 0.001$).

Regression analysis with change scores of Alexithymia factor Difficulty Identifying Feeling as dependent variable showed no interaction between group and any score at the pre-test. But there was a better positive change on Alexithymia factor Difficulty Identifying Feeling for students with high score on Alexithymia factor Difficulty Identifying Feeling at the pre-test ($\beta = 0.56$ $p < 0.001$) and for students with low score on Alexithymia factor Difficulty Describing Feelings ($\beta = -0.14$ $p = 0.042$).

Regression analysis with change scores of Alexithymia factor Externally-Oriented Thinking as dependent variable showed two significant interactions, between group and Personal Meaning subscale Relationship at the pre-test and between group and Death anxiety at the pre-test. There was a better positive change on Alexithymia factor Externally-Oriented Thinking for students in DE group with high score on Death Anxiety at the pre-test ($\beta = 0.15$ $p = 0.046$) and for students in DE group with low score on Personal Meaning subscale Relationship at the pre-test ($\beta = -0.20$ $p = 0.007$), and also for students with high score on Alexithymia factor Externally-Oriented Thinking at the pre-test ($\beta = 0.48$ $p < 0.001$), for students with low score on Personal Meaning subscale Intimacy at the pre-test

($\beta = -0.14$ $p = 0.021$), and, of course, for DE group ($\beta = 0.27$ $p < 0.001$).

Finally, regression analysis with change scores of Death anxiety as a dependent variable showed no interaction between group and any score at the pre-test. There was a better positive change on Death anxiety for students with high score on Death anxiety at the pre-test ($\beta = 0.46$ $p < 0.001$), students with low score on Personal Meaning subscale Religion at the pre-test ($\beta = -0.19$ $p = 0.011$), and, of course, for DE group ($\beta = 0.21$ $p < 0.001$). Supplementary Material is presented in Appendix 1.

DISCUSSION

The results confirm our hypotheses. The first result is that students, who participated in the death education, using psychodrama techniques and artistic production of movies activities, reported a significant decrease in their representation of death as annihilation, while in the No DE group it significantly increased over time. The second result is that our research also confirmed what TMT literature has widely empirically demonstrated, namely the role of symbolic and literal representation of immortality as an effective buffer against the paralyzing effect of being aware of mortality (Solomon et al., 2017). This outcome is supported by the amelioration of the scores inherent to death anxiety in the experimental group compared with the No DE group. Literature has already shown the relationship between death cognition and the processes of death acceptance, which reduces death anxiety (Wong et al., 2004). However, our research confirms what the early classical studies on death education illustrated (Leviton and Fretz, 1979). All such effects can be supported by the confirmation of the increase of personal meaning in their own life, in particular in the dimensions of “Self-Acceptance” and “Intimacy,” obtained from the Personal Meaning by the experimental groups, compared to the No DE group. The importance of the meaning of life was also confirmed by the final structural model we obtained. Indeed, the research enabled us to recognize that personal meaning of life moderated alexithymia with positive change over time in the students who participated to the death education course. In particular, the impact of death education course on alexithymia reduction is more relevant for: students with a high score on Personal Meaning subscale Intimacy; students with low score on Personal Meaning subscale Relationship and students with a high score on Death Anxiety. There is also a moderating effect on alexithymia in the experimental group’s positive change over time on PMP. Since, in particular, the increasing impact of death education course on the PMP is most relevant for students with high score on Alexithymia factor Externally-Oriented Thinking, it is useful to underline that death education course could help individuals whose attention is mostly focused externally.

Finally, a brief look at the importance of meaning between the fear of death and death acceptance, related to trauma in adolescence. As seen in the literature, many relationships overlap the meaning of death with the meaning of life, where the two dimensions influence both fear of death and death acceptance (Tomer, 2012). van Bruggen et al. (2017) found correlations

between death anxiety, intolerance of uncertainty, neuroticism, and distress; they showed that ability in meaning making reduced the effects of death anxiety. Floyd et al. (2005) examined the relationship between exposure to trauma and attitudes toward existential issues. Their participants were undergraduate students who answered questions on exposure to trauma, fear of death, overall distress, and meaning in life. Results illustrated that those with a history of trauma exposure had higher levels of overall distress, but there were no differences in death anxiety or meaning in life. The results suggest that the positive outcomes (less fear of death and increased meaning in life) associated with exposure to traumatic events may be relatively rare, especially with younger adults. If we consider the experience of the suicide of a peer as traumatic, it is important to help adolescents explore and explain what is happening when they encounter such an experience. Because it is the conspiracy of silence in this case that simply abandons them to their own solipsistic negation of grief and suffering. Since it is normal for adolescents to suffer from death anxiety, fear of death and existential meaningless (Routledge and Juhl, 2010; To and Chan, 2016), not necessarily because of a traumatic loss, we think that our experience of death education could be useful. It provided an environment conducive to understanding the meaning of self-transformation in life and death. These developments suggest that the denial and fear of death are a meaningless distraction in the development of adolescent consciousness.

CONCLUSION

Despite the increase of mortality salience implicated by the issues inevitably intrinsic to death education courses, our results confirm that an effective set of activities aimed to reflect on death and enhance parallel meaning making processes on existential themes, is suitable for adolescents. This outcome is in line with literature (Chikako, 2004), which shows that in early and middle adolescence the meaning of death for life may change. Specifically, our outcomes indicated that in this general post-modern and secular culture with the concomitant crisis in religious faith progressively supports the development of a conviction, in adolescents, that no afterlife exists beyond death. If we consider the importance of conviction in immortality with respect to buffering the terror of death, as indicated by the TM researchers, it is possible to confirm that a course of death education, aimed to reflect on the afterlife contents, can be useful in the management of death anxiety. Psychodrama and artistic activities in this context seem to be particularly effective in reducing anxiety and helping students to face these issues. Furthermore the “black hole hypothesis” has been confirmed. The improvement in a range of capabilities enabling recognition

of emotions in oneself and in others, arising in part from the experimental group’s components, supported the possible relationship between the conspiracy of silence about death and alexithymia. This was seen differently in the No DE one in which it seemed that such abilities weakened. In this sense, death education not only helps to manage death anxiety and does not exacerbate it, but also it improves emotional aptitudes, starting from the exploration of existential anguish. The experience of psychodrama and meditation enabled them to look toward their internal world, without anxiety.

When they encounter any kind of loss, death education can improve adolescents’ abilities to promote the transformation of the distress into a post-traumatic growth, namely their ability to change a more or less severe stressor into an existential gain (Gerrish et al., 2009).

STUDY LIMITATIONS

While our results are encouraging, some limitations should be considered. First, it is impossible to generalize the outcome because the two groups of participants were not randomized. This can be a problem of almost all experiences of death education at school, since the educational context requires that all the teaching processes are tightly controlled before the start of the activities. Only when death education is widely integrated would it be possible to select randomized samples. The second limit is related to the lack of long term follow-up. In further studies it would be good to have a post-test follow up after 1 year, which would enable verification, or not, of the stability of the outcomes. Furthermore, as indicated by Beshai and Naboulsi (2004), to expand the concept of death anxiety it is necessary to supplement empirical research with qualitatively collected texts. Seeing the words of people, who have similar numerical scores, may yet show qualitatively different fears of death, and vice versa. Total reliance on empirical scales may not disclose the full tension between the dual poles of “life-death” anxiety. Future studies could analyze such relationships.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.00441/full#supplementary-material>

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Emotional Response and Changes in Heart Rate Variability Following Art-Making With Three Different Art Materials

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OPEN ACCESS

Edited by:

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Girja Kaimal,
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United States

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 24 October 2017

Accepted: 24 May 2018

Published: 18 June 2018

Citation:

Haiblum-Itskovitch S,
Czamanski-Cohen J and Galili G
(2018) Emotional Response
and Changes in Heart Rate Variability
Following Art-Making With Three
Different Art Materials.
Front. Psychol. 9:968.
doi: 10.3389/fpsyg.2018.00968

Art therapy encourages the use of art materials to express feelings and thoughts in a supportive environment. Art materials differ in fluidity and are postulated to thus differentially enhance emotional response (the more fluid the material the more emotion elicited). Yet, to the best of our knowledge, this assumption has not been empirically tested. The current study aimed to examine the emotional and physiological responses to art-making with different art materials. We were particularly interested in vagal activity, indexed by heart rate variability (HRV), because of its association with numerous health related outcomes. In this study, 50 adults (mean age 33 ± 10.27 years, 52% males) participated in a repeated measures experiment, in which they were requested to draw with three art materials (order randomized) differing in their level of fluidity (pencil, oil-pastels, and gouache paint) intermittent with periods of music. We measured the emotional response to art-making with each material using a self-report measure and matrices of HRV using a wearable electrocardiogram device. We calculated two indices of HRV, one indicative of parasympathetic nervous system (PNS) activity, and one indicative of sympathetic nervous system (SNS) activity. Art-making with gouache paint and oil-pastels resulted in improved positive mood, while pencil did not. Art-making explained approximately 35% of the variability in parasympathetic reactivity, which may indicate changes in emotional regulation processes during the art-making task. Yet, fluidity was not sufficient to explain the reaction to art-making. Surprisingly, the largest suppression of PNS and augmentation of the SNS occurred during art-making with oil-pastels and not with Gouache. Moreover, PNS and SNS reactivity to oil-pastels were related to emotional valence, which may point to emotional engagement. We can conclude that art-making with oil-pastels, first created in Japan in 1924 to increase self-expression of students, results in a unique emotional and physiological responses. These findings might be explained by the enhanced tactile experience of art-making with oil-pastels along with their relative fluidity, triggering an arousal pattern. Further studies that take the format and presentation of the materials as well as the content of the artwork, into account, are needed.

Keywords: art therapy, heart rate variability, emotional response, expressive therapies continuum, art-making

INTRODUCTION

Art therapy is a mental health profession that encourages the use of art materials to express feelings and thoughts as part of a supportive relationship. This process has been shown to promote improved mood (Drake et al., 2011), catharsis and stress reduction (Curl, 2008). An experimental study examined the effect of drawing with a black marker on white paper as compared to writing following a negative mood induction. The researchers found that drawing led to increased positive affect in comparison to writing. Furthermore, using art-making (and writing) for distraction rather than for venting, promoted positive mood (Drake et al., 2011). The opportunity to choose what to create as well as the art materials and art-making techniques with which to create, enhances one's ability to solve problems, make decisions, and act upon them (Foster, 1992; Moon, 1994; Czamanski-Cohen, 2012).

The expressive therapies continuum (ETC) is a theoretical model for the assessment and application of media in art therapy (Lusebrink, 2010). The ETC can be utilized to assess the predominance of sensory information processing based on the configuration of formal elements in the art work and the interaction of the art-maker with the materials. The ETC also accounts for the effect of the texture and fluidity of the art materials, which are postulated to differentially effect the level of sensory information processing as well as the potential to elicit emotion (Kagin and Lusebrink, 1978; Lusebrink et al., 2013). For example, pencils and markers are highly structured, easy to control, and are assumed to promote limited emotional arousal. Oil-pastels are soft and easily smeared, thus their use entails tactile engagement and encourages emotional arousal (Hinz, 2009; Moon, 2010). Finally, gouache paint is an aqueous material with the potential for regressive engagement and high levels of emotional arousal. Gouache is used with a brush, which offers structure and some sense of control (Snir and Regev, 2013).

Several studies interviewed art therapists and art therapy clients about their experience of engaging in art therapy. Snir and Regev (2013) analyzed 30 reflective writing samples of students after working with five different art materials. They found that students reported a sense of pleasure in working with materials that entailed a risk of getting dirty and losing control. However, these materials also led to the fear of getting dirty and an attempt to balance flow and control. Their overall conclusion is that the art-making experience is related to the interaction between the material qualities, the art-maker's personal attributes and previous art-making experiences. An experiment examined the effect of 41 children engaging in art-making with pencils, oil-pastels, and gouache paint over 10 group sessions. The researchers found decreases in aggression in the group that used gouache, however, not pencils or oil-pastels. Furthermore, there were no changes in self-esteem, anxiety, or self-control following the group art-making (Passo-Aviv et al., 2014). Two studies qualitatively investigated the opinions and experience of art therapists of the use of art materials in art therapy assessments (Pénzes et al., 2014, 2015). These authors used focus groups and interviews to create a categorization of the ways in which art therapy clients interact with art materials. They concluded that

art therapists observe how clients interact with art materials to assess cognitive and emotional characteristics. In addition, the authors claim that these studies confirm the ETC claim that resistive art materials lead to cognitive processes while fluid materials promote affective processes.

However, this conclusion is based on art therapists' clinical experiences rather than empirical knowledge. To support the theoretical base of the art therapy profession, empirical studies of an experimental nature along with clinical trials need to be conducted. The Bodymind model of Art Therapy (Czamanski-Cohen and Weihs, 2016) delineates several mechanisms through which Art Therapy benefits clients. The model is developmental and epigenetic in nature, meaning that each therapeutic process described develops from a preceding process in a cyclical manner (Wynne, 1988). The processes begin with the triangular relationship between the client- the art- therapist and the art-making process and product, which is elementary in any art therapy setting. It proceeds to self-engagement that is possible after a basic security in relationship is established. The self-engagement emphasizes the self as the integration of body and mind when engaged in art therapy. The third process is the embodied self-expression that occurs when emotional content transitions from implicit to explicit expression which can occur on a continuum in which content remains embedded in a visual metaphor to a verbal discussion during and following art-making. Lastly, meta-cognitive (thinking about thinking) processes include mechanisms that entail exploration and reflection of the self, the art-making process and product as well as relationships in and outside of the art therapy setting. Each core process is further divided in to several mechanisms that can be measured in experimental or clinical studies. The mechanisms can overlap and occur under several processes, or just one, depending on their nature. The core processes are cyclical rather than linear and can be revisited over sessions or within one session. The bodymind model has two main goals- to describe how art therapy may have a salutary effect on individuals and to provide a clear framework for the conduct of studies that examine how art therapy benefits clients. This study follows the latter call to empirically examine psychological and physiological responses following art-making. One proposed physiological measure with cognitive and emotional implications is heart rate variability (HRV).

The autonomic nervous system (ANS) is the primary neural mediator of physiological responses to internal and external stimuli and is comprised of the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS). The two branches of the ANS usually act in a reciprocal opponent fashion on target organs. However, the balance between sympathetic and parasympathetic activity is not a simple bipolar unimodal process and under some physiological conditions, both branches are enhanced or inhibited at the same time (Teff, 2008). The SNS has an activating role and stimulates the body's fight-or-flight response to stressful situations while the PNS has an inhibiting role and promotes relaxation (Porges and Byrne, 1992). The HRV index is a non-invasive way to gauge ANS activity (Porges and Byrne, 1992). Fluctuation in the intervals between heartbeats comprise the HRV index and express the responsiveness of the

cardiovascular and nervous systems to the constantly changing external and mental environment (Cohen and Taylor, 2002).

The vagus nerve is the longest nerve in the ANS and it innervates many of the body's organs. The vagus is also partially responsible for the ANS innervation of the heart. The myelinated vagus actively attenuates the SNS's influences on the heart. The most influential theoretical frameworks that guide a large portion of HRV studies emphasize the neural influence that affect behavioral flexibility following changes in the physical, emotional, and social environment. Porges's (2007 & 2011) Polyvagal theory emphasizes the importance of this system in response to emotional and social stimuli. The neurovisceral integration model (NIM, Thayer and Lane, 2000) also emphasizes the role of the vagus in adapting to the environment. The NIM focuses on HRV as indicative of vagal inhibition of the heart and reflecting the primary output of the ANS. The NIM also provides the platform for further studies that associate brain activity and functioning, that are beyond the scope of this paper. Both models are complementary and have differing, but not contrasting emphases on the role of vagus nerve, reflected in HRV. The NIM postulates that higher resting HRV indicate tendencies for appraisal while the Polyvagal theory associates higher levels of HRV with a capacity for social engagement (Kemp et al., 2017).

Heart rate variability at rest is indicative of ANS health. High variability is associated with a range of motion and flexibility in physiological processes, adaptive response, and good adaptability to changes. Therefore, people with low HRV at rest tend to be less flexible both physiologically and behaviorally in adapting to environmental demands (McCarty et al., 1995; Lane et al., 2009; Meerwijk et al., 2014). Low HRV at rest was found to be associated with difficulties in emotional regulation (Williams et al., 2015) and psychiatric conditions (Adrian et al., 2011). However, when participants used an effective strategy for emotional regulation (reassessment), the difference in resting HRV between anxious and non-anxious individuals was reduced (Reinecke et al., 2015).

Heart rate variability reactivity is a change from the basal state in response to stimuli. An increase in the respiratory sinus arrhythmia (RSA) index, which is a high frequency index of HRV, indicates an increase in heart's vagal cardiac control, which is reflected in a decrease in heart rate (HR), and a decrease in the RSA indicates a withdrawal in the vagal effect on the heart, which is reflected in an increase in HR (Malliani et al., 1994; Malik, 1996; Porges, 2007; Rottenberg et al., 2007; Meerwijk et al., 2014). High volatility, theoretically attesting to high adaptability, is associated with high attention processing and regulatory capabilities (Suess et al., 1994). The emotional response to stimuli results in a decrease in RSA (Yaroslavsky et al., 2013).

Two other mechanism proposed by the Bodymind model (Czamanski-Cohen and Weihs, 2016) are tactile engagement and relaxed arousal, both measured using the self-assessment manikin visual analog scale (SAM; Bradley and Lang, 1994). Tactile engagement relates to the experience of interacting with the art materials that begins in the exploratory and pre-symbolic stages of art-making. This mechanism is postulated to lead to the experience of pleasure related from a sensory experience.

The SAM can measure the intensity of that response using the dominance sub-scale. The tactile engagement with the art materials can lead to a state of arousal that is well-balanced with relaxation. The level of arousal and relaxation can be measured using the SAM. As well as by looking at changes in sympathetic and parasympathetic indices of HRV.

The objective of the current study was to examine the theoretical claim that art-making with art materials with different levels of fluidity (pencil, oil-pastel, and gouache paint) creates a differentiated emotional and thus physiological response. To obtain this objective, we conducted a controlled experiment that measured the mechanisms of emotional response and HRV during art-making with three art materials. Hypothesis 1: Drawing with different materials will differentially affect emotional response. We hypothesize that drawing in pencil will result in the lowest while painting in gouache will result in the highest arousal. Hypothesis 2: Art-making will affect HRV compared to baseline. Mean change in the parasympathetic function will be largest while drawing in pencil and smallest while painting in gouache. Conversely, we expect an increase in sympathetic function while engaged in art-making, with the smallest change expected during drawing with pencil, as it requires cognitive engagement and planning as compared to drawing with oil-pastels and gouache paint, respectively. Hypothesis 3: HRV and self-reported emotional response after art-making will be related. As emotional response increases we expect to see decreases in the parasympathetic index and increases in sympathetic index.

MATERIALS AND METHODS

Research Procedure

The study was approved by the Ethics Committee of the Faculty of Health and Welfare at the University of Haifa. The participants were recruited using the snowball method through which the experiment was advertised and interested participants were requested to invite friends and acquaintances to participate in the study. Conditions while measuring HRV were maintained by having the subjects in the laboratory between 08:00 and 15:00 to ensure similar environmental conditions. Per guidelines for experimental studies measuring HRV (Thayer et al., 2008; Quintana et al., 2016), and to create baseline conditions, 2 h before the experiment subjects were asked to avoid drinking coffee, eating, smoking, and exercising. Two video cameras were installed in the room that was activated after signing the informed consent form and were filmed throughout the experiment. After attaching a wearable Electrocardiogram (ECG) device and adapting to the environment, 5 min of resting HR was measured in a sitting position to establish baseline HRV.

Each participant engaged in three 10 min art-making sessions (pencil, oil-pastels, and gouache paint) (see **Figure 1**). The order of the art materials was randomized to ensure that the effect of drawing with the material was not affected by the order of the presentation. To establish a baseline in terms of arousal, participants listened to 5 min of relaxing music of their choice

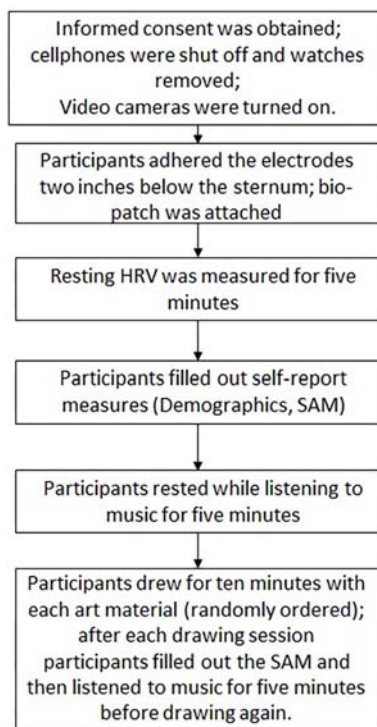


FIGURE 1 | Flow chart of the experiment.

(nature sounds, new age, or classical music) before each art-making session. The rationale for the music listening was to create a comparable condition before the art-making session and ensure equal conditions within participants. After each art-making session, participants reported their emotional response using a visual analog scale, described below. The subjects received a (50 cm × 35 cm) sheet of paper and were instructed to draw for 10 min. Participants were encouraged to use the entire 10 min for art-making. The pencil was provided with a pencil sharpener and eraser. An open box of 12 colors of oil-pastels was placed on the table, and participants were told that they can use them in any way they choose including peeling the wrapper and breaking the pastel if needed. The box of pastels was replaced for the next subject if their general appearance was significantly affected by use. Gouache paint in primary colors (yellow, red, and blue), black and white were presented in a plastic palette, divided into six bowls and four mixing surfaces, to control the quantities of paint. In addition, a color mixing chart, a jar of water, a soft, flat-headed brush (size 6) and a cloth were provided. The subjects were told that they could request additional paint if needed. The researcher provided a short explanation of mixing colors and cleaning the brushes.

Participants

Sixty adults participated in the study (30 women). Inclusion criteria were: normative development and health, Hebrew speakers at a level sufficient for their participation between the ages of 18 and 60. Exclusion criteria were current or history of

heart disease. The study included 60 subjects, 30 men and 30 women between the ages of 21 and 56 years, with an average age of 33 ± 10.27 years, 38 of them were born in Israel (63.3%), 18 in the former USSR (30%) and others in different countries. 28 of them were single (46.7%), 30 were married (50%), and 2 divorced (3.3%). In terms of education, 20 of them have a high school education (33.3%), 23 have a bachelor's degree (38.3%), 18 have a higher degree (30%), and seven have a professional certificate (11.7%). Fifty-nine of the participants were Jewish (98.3%), and 51 defined themselves as secular (85%). Secular Jews, are individuals who are Jewish by ethnicity, but do not define themselves as religious (Cohen and Susser, 2000). 40 were not engaged in art (66.7%), 14 were engaged in art as a hobby (23.3%), and six professionally (10%). Four of them reported that they were in emotional therapy (6.7%) and 11 were taking medication regularly (18.3%). There was no attrition during the study.

Research Tools

Self-Report

The practice of art was coded by a single item "Do you regularly engage in art-making?" to which the participants marked one of three possible answers: "No" (1), "Yes, as a hobby" (2), "Yes, professionally" (3).

Emotional responses were measured with the self-assessment manikin visual analog scale (SAM, Bradley and Lang, 1994), which is a valid nine-point visual scale for measuring the valence, arousal, and dominance of emotional response. The valence scale ranges from unhappy or sad to happy or joyful. The arousal scale ranges from calm or bored to stimulated or excited. The dominance scale ranges from submissive or "sense of being without control" to dominant or "in control" (Lang, 1980). Following Tsonos and Kouroupetroglou (2008) SAM scales were centered on zero ranging from -4 to 4. Valence and arousal have been validated against physiological responses related to emotional experiences such as HR, skin conductivity and electrical activity of facial muscles (Bradley et al., 1992; Lang et al., 1993).

Heart Rate Variability (HRV)

The frequency of the HR is calculated using spectral analysis by calculating the difference in time between each beat [inter-beat interval (IBI)]: high frequency (HF: 0.15–0.4 Hz), low frequency (LF: 0.04–0.15 Hz), and very low frequency (VLF: 0–0.04 Hz) (Malliani et al., 1994). The high-frequency component of the HRV is associated with vagal activity that regulates respiration rate and represents RSA. Low RSA indicates increased activity of the PNS is indicated in a lower RSA index. We assessed sympathetic function can be using a non-linear method to analyze fluctuations in heartbeats using a Lorenz plot and resulting in two indices that point to sympathetic (CSI) and parasympathetic (CVI) function (Toichi et al., 1997; Allen et al., 2007), also coined Non-Linear SD1/SD2 (Kemp et al., 2017). These measures have been field validated and found to have factor structures and patterns of changes from baseline to stressor consistent with indices of parasympathetic and sympathetic activity, except CVI, which was not found to discriminate between baseline and stressor (Hibbert et al., 2012).

Heart rate variability was estimated based on continuous ECG recordings, at rest and while drawing. ECG was sampled (1000 Hz, 16 bit) and recorded by a small wireless and portable device (BioPatch, Zephyr Technology, Annapolis, MD, United States), that was attached to the participants' chest using Ag–AgCl disposable electrodes. ECG series were visually inspected for artifacts since ECG artifacts might be quite similar to those of R waves, it may result in R–R, i.e., IBI's miscalculations. The R component of the ECG was identified using the QRS-tool software. ECG series was visually inspected alongside the identified heartbeats time points and artifacts (missed or wrongfully identified heartbeats) were corrected manually (Allen et al., 2007). The two indices of HRV (RSA- calculated by the extraction of frequencies of variability and CSI- using a Lorenz plot to analyze fluctuations in heartbeats) were calculated using CMetX software (Allen et al., 2007), is a command-line based utility that calculates various matrices of HRV given a simple IBI series as an input. HRV reactivity was calculated by subtracting the mean HRV index during music listening from the HRV index during the following art-making session (i.e., positive values represent higher HRV during art-making compared to the proceeding relaxation).

Statistical Methods

To compare HRV in the different experimental conditions, a repeated measures ANOVA was performed. In the planned pairwise comparisons, *t*-tests were performed, whereas in unplanned comparisons a *post hoc* test of Sidák was used. To compare the experimental conditions with measurements of a rank scale, a non-parametric Friedman's test was performed. For the pairwise comparisons, we conducted the Wilcoxon test. To test the correlation between variables, Pearson or Spearman correlation coefficients were calculated.

RESULTS

Demographic Data

Fifty of our participants (83%) were under the age of 37 while 10 participants were between 40 and 60. Since the effect of age on RSA was determined, we decided to examine differences in HRV at baseline between the two age groups. Baseline RSA in participants over the age of 40 $5.15 (\pm 0.70)$ was found to be statistically significantly lower than RSA in subjects under the age of 40 $6.32 (\pm 1.21)$ [$t(58) = 3.15$, $p = 0.003$, *Cohen's d* = 1.184]. Because lower RSA due to age difference may mask the responsiveness to different materials of each group, we decided to omit them in our analyses. We also identified further differences in demographics between the two age groups (Table 1). We included 50 participants between the ages of 21 and 36 (see Table 1 for full demographic data). No differences were found in HRV, indexed as RSA [$t(48) = 0.77$, $p = 0.442$, *Cohen's d* = 0.213] between men [$0.643 (\pm 1.08)$] and women [$6.19 (\pm 1.71)$].

It is plausible that participants who practice art on a regular basis may respond to the experiment differently than those who do not practice art. Therefore, we decided to examine

differences between the average physiological indices in the baseline condition between individuals with habitual art-making experience and those without. No difference was found at baseline RSA [$t(48) = -0.54$, $p = 0.052$, *Cohen's d* = -0.15] between those who practice or do not practice art.

To examine whether listening to relaxing music could be used as a baseline for each task we conducted an analysis of variance between the different time-points in which participants were listening to relaxing music as well as the baseline HRV measure at the beginning of the experiment. There were no statistically significant differences between the baseline levels ($M = 6.32$, $SD = 0.16$) and music listening (before pencil drawing $M = 6.34$, $SD = 0.15$, before oil-pastel painting $M = 6.39$, $SD = 0.15$, and music before drawing in gouache $M = 6.35$, $SD = 0.17$) [$F(3,147) = 0.24$, $p = 0.868$, $\eta_p^2 = 0.005$]. Hence, we conclude that the state of listening to the music before each material can be considered a baseline measurement.

Emotional Response and Art-Making (H1)

The first hypothesis was that painting with different materials would result in an emotional response in which pencil would have the least effect, while gouache would have the largest effect. In the analysis of the variability of the emotional valance, a significant difference was found between the experimental conditions [$F(3,147) = 2.93$, $p = 0.030$, $\eta_p^2 = 0.056$]. In a Sidák's *post hoc* test to examine the source of the difference, we found that increased positive valance was found following painting with

TABLE 1 | Demographic data and comparison between age group.

Variable		N
Sex	Male	26
	Female	24
Birth country**	Israel	37
	Other	13
Marital status**	Married	20
	Other	30
Parenthood***	Have children	11
Education*	High school	10
	Certificate studies	6
	BA	23
	MA/Ph.D.	11
Employment	Work	41
	Not working	9
Religion	Jewish	49
	Christian	1
Religiosity	Secular	43
	Traditional	4
	Religious	2
	Other	1
Experience with art	No	32
	As a hobby	13
	Professionally	5

* $p < 0.05$; ** $p < 0.001$; *** $p < 0.0001$.

gouache in comparison to emotional valence following drawing with a pencil ($p = 0.038$), but not in comparison to baseline valence ($p = 0.744$). Contrary to our hypothesis, there was no difference in emotional arousal nor dominance following art-making with the different art materials (Table 2).

The Relationship Between Art-Making and HRV (H2)

The second hypothesis was that mean RSA would decrease and CSI would increase from baseline in each material. This hypothesis was confirmed in RSA, but not in CSI. The results of the analysis indicated an interaction between material and state, with a decrease in mean RSA from resting state while painting [$F(1,49) = 26.155$, $p < 0.0005$]. The effect size ($\eta_p^2 = 0.348$); indicates that 35% of the variability of RSA is explained by art-making, regardless of art material. When examining the differences in RSA for each of the materials, the smallest change was as expected during art-making with pencil 6.22 (± 01.020) compared to baseline 6.34 (± 01.008) [$t(49) = 1.40$, $p = 0.168$, *Cohen's d* = 0.105]. But contrary to the hypothesis, the greatest change was found to be during art-making with oil-pastels 5.90 (± 0.99) compared to baseline 6.39 (± 1.07) [$t(49) = 5.51$, $p < 0.0005$, *Cohen's d* = 0.475] and not during art-making with gouache 6.01 (± 1.09) compared to baseline 6.35 (± 1.21) [$t(49) = 3.63$, $p = 0.001$, *Cohen's d* = 0.195].

In examining the change in RSA from baseline (Δ RSA), a statistically significant difference was found between the experimental conditions [$F(2,98) = 5.97$, $p = 0.004$]. The effect size ($\eta_p^2 = 0.109$) indicates the variance of Δ RSA explained by the drawing material. The change while drawing with a pencil was small in comparison to oil-pastel ($p = 0.007$), but not gouache ($p = 0.099$). There was no difference in the change in RSA between drawing with oil-pastel and painting with gouache ($p = 0.412$). The change in CSI from baseline (Δ CSI), was significantly different in the experimental conditions [$F(2,58) = 3.98$, $p = 0.024$] with an effect size ($\eta_p^2 = 0.24$) indicating that the variance of Δ CSI is explained by the drawing material. The change in CSI after drawing with a pencil is smaller than the change in CSI following drawing with oil-pastels ($p = 0.025$). The difference in changes between CSI during art-making with oil-pastels compared to painting with gouache was also significant ($p = 0.02$). There was no difference in the changes in CSI following painting with gouache and drawing with pencil ($p = 1.0$). The means, standard deviations, and results of analyses of this index in the state of the various materials appear in Table 3.

Examining the Association Between Emotional Response and HRV (H3)

The third hypothesis was that emotional response and HRV would be related (increased emotional response and increased changes in RSA and CSI). Contrary to hypothesis, we found no linear other relationship between emotional state (valence, arousal, and control) and HRV parameters (RSA/ Δ RSA and CSI/ Δ CSI).

DISCUSSION

The current study examined the effect of drawing with different art materials on HRV and emotional response. Leaning on the ETC model (Kagin and Lusebrink, 1978) and the Bodymind model of art therapy (Czamanski-Cohen and Weihs, 2016), we hypothesized that similar to the stages of visual information processing in the brain, art-making with fluid art materials would result in an increase in emotional response (Lusebrink et al., 2013). This research is unique in its examination of the relationship between the use of different art materials and HRV. It responds to the claim, presented in the Bodymind model, that places importance on conducting studies that examine the ways in which art-making in the framework of a supportive relationship has a salutary effect.

The hypothesis that creating with different materials would have a differential emotional response (pencil having the least and gouache the most) was partially confirmed by increase of emotional valence but not emotional arousal or control. Art-making, has been shown to increase positive mood (Drake et al., 2011) however we expected to find increases in arousal and intensity of emotion following engagement with more fluid art materials. According to Kapitan (2013), a certain amount of stress always accompanies the creative process and can be a driving force in the process. However, the ability to maintain equilibrium, between arousal and relaxation by require the increased ability for emotion and sensory regulation. The participants in this study were a normative population, most likely with effective adaptive and coping mechanisms, which may moderate their emotional response following art-making with the different art materials.

Flooding and withdrawal during the creative process can be motivated by self-judgment, performance anxiety, worry, stress, lack of attention and physical exhaustion (Kapitan, 2013). In this study, drawing with pencils resulted in the lowest increases in positive mood. Pencils are monochromatic and may create connotations to elementary school and be associated with

TABLE 2 | Valence, arousal, and dominance in baseline and art-making with different materials (mean, SD, and variance analysis).

	Baseline	Pencil	Oil-pastel	Gouache	$F(3,147)$
	(M/SD)	(M/SD)	(M/SD)	(M/SD)	(M/SD)
Valence	2.14 (± 1.07)	1.96 (± 1.65)	2.30 (± 1.54)	2.60 (± 1.55)	2.93*
Arousal	-1.72 (± 1.84)	-1.86 (± 2.13)	-1.90 (± 1.88)	1.66 (± 2.11)	0.47
Dominance	-0.02 (± 1.41)	0.16 (± 1.54)	0.14 (± 1.77)	0.16 (± 1.82)	0.28

* $p < 0.05$.

TABLE 3 | RSA, Δ RSA CSI, and Δ CSI during art-making with different materials (mean, SD, and variance analysis).

	Pencil	Oil-pastel	Gouache	$F(2,98)$
	(M/SD)	(M/SD)	(M/SD)	
RSA	6.23 (\pm 1.07)	5.90 (\pm 0.98)	6.01 (\pm 1.09)	3.58*
Δ RSA	-0.11 (\pm 0.57)	-0.49 (\pm 0.62)	-0.33 (\pm 0.65)	5.97**
CSI	2.85 (\pm 0.14)	3.04 (\pm 0.13)	2.83 (\pm 0.13)	0.017
Δ CSI	-0.29 (\pm 1.02)	0.08 (\pm 1.06)	-0.15 (\pm 0.85)	7.41**

* $p < 0.01$; ** $p < 0.001$.

cognitive (dis)abilities (McManus et al., 2010). This may give rise to self-criticism, thus making the art-making experience less pleasant. In addition, the paper presented to the subjects was the same for all the materials. The properties (size, thickness, and texture) of the drawing/painting platform influence its ability to contain aqueous materials (Moon, 2010). We chose a relatively large and thick sheet to contain the gouache paint which may have evoked unease during drawing with pencils.

Unlike pencil, gouache paint was associated with the highest increase in positive valence, similar to the aggression reduction found by Snir and Regev (2013). Memories of childhood are important in working with materials (Snir and Regev, 2013), and oil-pastels may be perceived as childish and less “artistic,” while painting by brush and palette, with which artists paint with oil colors and acrylic, may have been perceived as more mature and “professional.”

Art-making explained approximately 35% of the variability in parasympathetic reactivity, which may indicate changes in emotional regulation processes during the art-making task. However, fluidity alone was not sufficient to explain the emotional response to art-making. The hypothesis that art-making with different materials would affect RSA was confirmed to a large extent however, there was no significant difference in HRV after painting with gouache compared to after drawing with oil-pastels. We believe that this may be because of the mediation of the paintbrush as opposed to drawing with oil-pastels without mediation. The brush prevents direct contact with the paint which in turn limits tactile engagement (Kagin and Lusebrink, 1978; Czamanski-Cohen and Weihs, 2016). Therefore, even though gouache is more liquid than oil-pastels, oil-pastels may be experienced as “dirtier” because they smear and leave marks on the art-maker’s hands. In other words, it is possible that the intensity of the reaction to the painting material depends not only on the degree of liquidity of the material but on the degree of its contact with the art-maker’s skin. Another possible explanation is related to the relatively thin brush and the way the gouache colors were arranged on the palette in a limited quantity which may have increased the art makers’ sense of control. Possibly a thicker brush and more paint would enhance tactile engagement and result in greater changes in HRV during gouache painting. Surprisingly, the largest suppression of the PNS and augmentation of the SNS occurred during art-making with oil-pastels and not with Gouache. Moreover, PNS and SNS reactivity to oil-pastels were related to emotional valance, which may point to increased emotional engagement.

Drawing with oil-pastels demonstrated a differential pattern of sympathetic response in comparison to while drawing with pencil and painting with gouache paint. CSI decreased while working with both gouache and pencil while it increased while drawing with oil-pastels. This finding may also be indicative of emotional and cognitive efforts while using oil-pastels.

The context in which oil-pastels were invented as a media to encourage self-expression is interesting. Influenced by British and American art education, the Japanese educational system during the Taisho period the Jiyu-ga movement theorizing that free form drawing increases creativity (as opposed to teaching art through copying, which was the norm at the time) (Okazaki, 1984). In 1924 by teachers Rinzo Satake and Shuku Sasaki with the consult of Kanae Yamamoto, the artist who formed the Jiyu-ga movement, sought to create a new and local art material to increase self-expression in students (Ellis and Yeh, 1998). Yamamoto recommended that the new art material have vivid colors and a soft texture to enhance creativity (Sakura Color Products of America, 2018). As far as we know, these hypotheses have not been examined by the Japanese educational system, or elsewhere. Our study, can provide some support that oil-pastels are doing what they were designed to do. Further research is needed to examine the extent of the self-expression involved, beyond emotion and physiological response.

Our findings are also interesting considering the clinical preference of oil-pastels by art therapists for their tendency to promote self-expression while maintaining the art-maker with a sense of control (Snir and Regev, 2013).

Thirdly, we expected to find a differential connection between emotional response and HRV in response to the various art-making materials. The greater the hypothesized emotional response, the greater the increase in mean RSA and vice versa. However, no relationship was found possibly due to our sample of a healthy and normative individuals. These associations were found in a study of individuals coping with psychiatric disorders, such as depression (Meerwijk et al., 2014). Another possibility is that the lack of connection stems from the nature of the task. The purpose of this study was not to focus on a certain emotion, and subjects were instructed to draw freely. A relationship between emotion and RSA was found in a normative population when a manipulation was performed to stimulate certain emotions (Lane et al., 2009).

Research Limitations

The benefits of this study should be considered along with its limitations. We had a relatively small number of subjects; therefore, it was not possible to examine differences in emotional response in different age groups. The small sample size may also explain why we did not find the expected differences in HRV between men and women which were found in larger sample ($N = 1970$) or when stress induction was used (Nugent et al., 2011). Even though drawing with different materials was expected to affect the ANS, the intervention in the current study did not include stress induction. Furthermore, while the non-linear calculating CSI, has been used in studies to measure the

HRV index of sympathetic function (Toichi et al., 1997; Allen et al., 2007) and more recently validated in the field (Hibbert et al., 2012), other studies question whether HRV indices accurately reflect cardiac sympathetic regulation in short term measurement (Reyes del Paso et al., 2013; Heathers, 2014).

Another limitation lies in the way art materials were presented to the subjects. For example, in the case of the gouache paint, the brush served as an intermediary and prevented direct contact with the material. Furthermore, placing small amounts of paint on the palette may have limited tactile engagement and moderated its impact on emotional involvement and changes in HRV.

In addition, in our sampling participants were recruited using the snowball method, which can lead to homogeneity in demographics and increased motivation to cooperate with the researchers. 98% of our participants were Jewish, 86% were secular, and 68% had an academic education. In addition, the self-report questionnaires may reflect the respondent's desire to please the researchers (Cook and Campbell, 1979).

Recommendations for Further Studies

Due to the paucity of research on materials and art therapy, and the limitations of the research mentioned above, additional research is needed. In this study, we found the largest decrease in HRV during drawing with oil-pastels. This finding raises questions about the properties of the materials examined, and it would be interesting to examine the effect of additional materials that differ from each other by tactile engagement or fluidity.

In addition, art therapists work with a variety of populations and age groups. Considering the homogeneity of the sample (Jewish population, secular, working, and educated), and considering differences in HRV found in other studies in different age groups, it would be important to examine a wider range of

populations and age groups. It would be interesting to compare the response to different art materials in different groups with the goal of designing appropriately tailored interventions.

CONCLUSION

The importance of this research to the field of art therapy stems from the growing demand for practice from an evidence-based research standpoint. This study is based on the ETC model, which emphasizes the importance of interaction with creative materials. The results reinforce this model and support the claim that different art materials have a different effect on emotional response and physiology. This research clarifies the importance of art therapists making well-informed choices of art materials. We call for follow-up studies to continue examining the effect of art-making with different art materials and their association with emotion, cognition, and physiology.

AUTHOR CONTRIBUTIONS

JC-C: formulated the idea for this experiment with assistance and input from GG and SH-I; trained SH-I to collect, clean, and analyze HRV data; conducted the data analysis and writing the manuscript. GG: assisted in planning the experiment; trained SH-I in collecting HRV data as well as cleaning, and analyzing the HRV data; conducted the data analyses and formulated the data analysis plan, participated in writing the manuscript. SH-I: collected the data; conducted the data analysis with guidance and participated in writing the manuscript. This manuscript is derived from a thesis she wrote in as part of her MA studies at the University of Haifa School of Creative Arts Therapies.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The handling Editor and reviewer GK declared their involvement as co-editors in the Research Topic.

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The Core Techniques of Morenian Psychodrama: A Systematic Review of Literature

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OPEN ACCESS

Edited by:

Hod Orkibi,
University of Haifa, Israel

Reviewed by:

Erica Hollander,
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 01 May 2018

Accepted: 29 June 2018

Published: 24 July 2018

Citation:

Cruz A, Sales CMD, Alves P and
Moita G (2018) The Core Techniques
of Morenian Psychodrama: A
Systematic Review of Literature.
Front. Psychol. 9:1263.
doi: 10.3389/fpsyg.2018.01263

The original theory of psychodrama proposed by Moreno in 1921 has been adjusted and re-interpreted by several authors over the last three decades. This resulted in the proliferation of techniques whose definitions and contexts of application are unclear and poorly documented in the literature. The purpose of this review was three-fold: (1) to identify the psychodramatic techniques currently used for research and clinical purposes, (2) to extract and create a list of core techniques which are consensually used by psychodramatists, and which reflect the main principles of the Morenian theory of psychodrama, and (3) to propose an operationalised definition of the core psychodramatic techniques identified. To achieve this, a systematic review was conducted, according to the PRISMA guidelines (Moher et al., 2009). The search was conducted between June and September of 2012 in the main electronic databases (e.g., PubMed, Embase, PsychINFO) and using the following keywords: “psychodrama,” “group psychotherapy,” “experiential psychotherapy,” “Moreno,” “intervention,” and “techniques.” Fifty-six techniques were extracted from the 21 papers selected for review. Of these, a preliminary list of 30 techniques was selected, which was reduced to a total of 11 core techniques: soliloquy, double, mirror, role reversal, resistance interpolation, sculpture, social atom, intermediate objects, games, sociometry, role training. The credibility of this final core list was first checked with an expert in Morenian psychodrama, and later discussed with a network of 22 European psychodramatists to ensure full consensus. Overall, this review provides a contemporary framework for psychodramatists that reconciles the current approaches to psychodrama with the core techniques proposed by Moreno, and updates the definitions of these techniques, by merging the interpretations of different experts in the field. To have a list of core techniques which is consensually accepted from an international point of view is paramount not only for future research, but also for training purposes. The implications of this review for clinical practice are also discussed.

Keywords: Moreno, psychodrama, techniques, group therapy, review

INTRODUCTION

Created by Moreno in 1921 (Moreno, 1946/1993), psychodrama is a therapeutic model widely used in Europe in private and public health settings, including hospitals (e.g., Vieira et al., 1993; Kipper, 1997; Sousa, 2012) and mental health services (e.g., Kirk and Dutton, 2006), in the treatment of various pathologies such as schizophrenia (e.g., Parrish, 1959; Sousa, 2012) and substance abuse (e.g., Crawford, 1989; Couto, 2004; Pinheiro, 2004). Because of this, psychodrama has been accredited by the European Association of Psychotherapies (EAP) and is also recommended by several European governments as a good health practice, such as in Austria and Hungary. In the last decades, the growing popularity of psychodrama has led to the proliferation of over 60 psychodrama training and accreditation schools over 26 European countries. Most of these schools are overseen by the European Federation of Psychodrama Training Organizations (FEPTO, <http://www.fepto.com>). FEPTO aims to develop training, create ethical standards and promote scientific knowledge sharing across trainers and schools. However, it is unclear which psychodrama techniques are currently being used and taught, and whether this proliferation of schools has fragmented the original theory proposed by Moreno, to which the present review will contribute.

Psychodrama is a group format of psychotherapy with deep roots in theater, psychology and sociology. Although preferably performed in a group format, it focuses on the particularities of the individual as the intersection of various relational roles, (e.g., being a son and a spouse) and roles related to difficulties and potentialities (e.g., fears, like fear of flying; or doubts, how the next job interview will be). For this reason, it is said to be an individual therapy in a group format, centered on the protagonist, and the action may take place around the various roles that s/he assumes throughout life (Blatner, 1996). A psychodramatic session comprises of three contexts: social, group and dramatic (Gonçalves et al., 1988; Rojas-Bermúdez, 1997); five instruments: protagonist, stage, auxiliary-ego, director, audience (Moreno, 1946/1993; Gonçalves et al., 1988; Holmes, 1992; Pio de Abreu, 1992; Rojas-Bermúdez, 1997); and three distinct phases: warm-up, action, and sharing (Moreno and Moreno, 1975/2012; Gonçalves et al., 1988; Holmes, 1992; Kipper, 1997). The majority of the techniques found in the literature, such as role reversal, soliloquy, or double mirroring, are used to assist the protagonist in the dramatization of the conflict that needs to be solved. Others, however, can be used both as a warm-up for the action phase and emergence of the protagonist, as well as to work out a common topic for the whole group and to constitute the stage of the drama itself. This is the case of dramatic games and sociometry.

From the early 1980s, several authors suggested deviations from the original psychodramatic theory. These suggestions were, on the one hand, attempts to demonstrate the integration of Moreno's methods and ideas with other theories (Holmes, 1992; Blatner, 1996) and, on the other hand, to conceive new theoretical bases for the method (Kipper, 1982, 1997; Rojas-Bermúdez, 1997). With this separation from the original formulations, a deviation from the traditional dynamic of the session also

occurred (warm-up, action, sharing), with the application of specific psychodramatic techniques as independent interventions within the more traditional, verbal psychotherapy (Kipper, 1997).

The dissemination of psychodrama across the different countries of Europe and America and the absence of clear definitions has resulted in a diversity of applications of the techniques and concepts introduced by Moreno within psychodrama itself. Therefore, the practice of psychodrama has evolved in an isolated and distinct way across various countries and schools, and there are no common definitions of some of its components, namely the techniques. Also, when it comes to the operationalization of the model, the techniques seem to be its component that meets less consensus. In short, answering the question “what does define Moreno's psychodrama” has become a challenge. Hence, in a time when it is considered important to study psychodrama and to stimulate research, a fundamental and key step is to operationalize the model. It is essential to realize, within Morenian Psychodrama (MP), what is being done and how, which techniques are being used and which techniques constitute the basis of the theory.

The present review aims to contribute to the understanding of how MP has evolved and the way it has been practiced since the launching of its theoretical roots. We will achieve this through the systematization of core techniques used at an international level. More specifically, our review aims:

1. To identify MP techniques existing in the international literature; and
2. To identify and describe the techniques that gather consensus across the community of researchers and practitioners of MP.

METHODS

Search Strategy

This review followed, the procedure suggested by the guidelines “Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)” (Moher et al., 2009). The search for literature sources occurred between June-September 2012 and included the databases Scopus, PsycINFO, PsycARTICLES, B-on, Psychology and Behavioral Sciences Collection, SciELO and Bibliography of Psychodrama Database¹ (<http://www.pdbib.org>). The keywords used in the search were “psychodrama,” “group psychotherapy,” “experiential psychotherapy,” “Moreno,” “intervention,” and “techniques.” In the pdbib database, only the terms “intervention” and “techniques” were used as keywords, since this bibliographic source was specific for psychodrama. Additionally, internet search engines were also searched (such as Google), as well as gray literature (e.g., books, articles, master's theses, and doctoral theses in psychodrama). Finally, national and international psychodrama experts (psychologists and psychiatrists) were contacted to identify relevant studies/texts/books for review. This contact was made in person and via e-mail.

¹ Compiled and updated by James M. Sacks until 2009, followed by Michael Wieser. Contributions by Valerie Greer, Jeanine Gendron, and Marie-Therese Bilaniuk.

Eligibility and Selection Criteria

After the systematic search, the texts were selected according to the following inclusion criteria: (1) texts that described or indicated psychodramatic techniques; and (2) available in Portuguese, French, English, and Spanish. These criteria were chosen because the goal was to identify all existing techniques, even if their definition was not entirely clear (see section on quality assessment of texts selected for review). As for languages, the research team included those in which they had fluency to understand and review. The following exclusion criteria were adopted: (1) information from websites without peer review; (2) texts of unknown origin (e.g., without author, list of references or bibliographical citations), and (3) texts referring to new techniques or techniques applied to specific populations only. These exclusion criteria aimed to ensure that all selected texts came from reliable sources, included reliable contents from an academic and scientific point of view and referred to the original MP model. Finally, the preliminary list of selected studies was verified by an expert in psychodrama. All disagreements were discussed until consensus was reached on the final list of texts to be included for review (see diagram in **Figure 1**).

Selection of the Final List of MP Techniques

MP techniques were identified and extracted from the texts selected for review. The following techniques were excluded from the preliminary list: techniques mentioned only once in the literature; specific techniques for certain pathologies; and techniques that were directly related to therapeutic modalities². This list was then discussed with a psychodrama expert, until a final list of core techniques, which were consensual and could be traced back to the model proposed by Moreno, was prepared.

The final step involved the validation of the final list of MP techniques by international experts in psychodrama. For this, the relevance of the techniques and their definition were discussed by experts in a bi-annual meeting of the FEPTO Research Committee in October 2012. In this meeting, all techniques were discussed by 22 members of FEPTO, representing a total of 11 countries³, until a consensus was reached on the completeness of the list and the operational definition of each technique.

Quality Check

The quality of the papers selected for review was evaluated according to two criteria: the reliability of the source, considering peer recognition in the scientific and clinical community; and the clarity of the definition of the techniques provided in each paper.

To evaluate the reliability of the source, a point-based evaluation system (see criteria in **Table 1**) was used to value peer-reviewed periodicals (1 point), in contrast to publication not reviewed by peers/status unknown (0 points). Books and gray literature (e.g., theses) received 1 point if written by recognized

specialists in the field (i.e., pioneer in psychodrama, trainer in Psychodrama, or affiliation to training schools or training centers) or certified psychodramatists; and received 0 points if the author was not a recognized specialist (unknown) or whose training was not accredited.

All sources were classified according to these parameters. For quality check purposes, a second independent judge (clinical psychologist with accredited training in psychodrama) classified a random sub-sample of 50% of the sources, resulting in a 100% agreement.

To evaluate the quality of the definitions, we focused on the clarity of the operational domains, objectives and advantages of each technique (see **Table 1**). One point was assigned when the definition was clear and 0 points when the definition was considered incomplete or unclear. A second independent judge (clinical psychologist with accredited training in psychodrama) evaluated 50% of the definitions and the agreement between the two judges was calculated through Cohen's Kappa, with the following results: role reversal ($k = 0.87$), mirror ($k = 0.63$), resistance interpolation ($k = 0.70$), role training ($k = 0.68$), dramatic games ($k = 1$) and amplification ($k = 0.40$)⁴.

RESULTS

A total of 925 texts were found in the systematic search, of which 904 were excluded. Out of this search, 21 texts were initially selected for review, which comprised of 15 books and six articles. In terms of quality, all the books scored 1 point. Of the six articles, only one was not a peer-reviewed publication, receiving 0 points and thus being excluded, whilst the remaining five received a score of 1 point. This resulted in a final list of 20 texts to be used for the extraction of MP techniques.

Core MP Techniques

Fifty-six techniques were initially extracted from the 20 texts. Of these, 30 were considered eligible for selection, among which 12 MP core techniques were identified. **Figure 2** and **Table 2** provide further details about the selection process and Annex 1 presents a list of the total 56 techniques that were identified in this search.

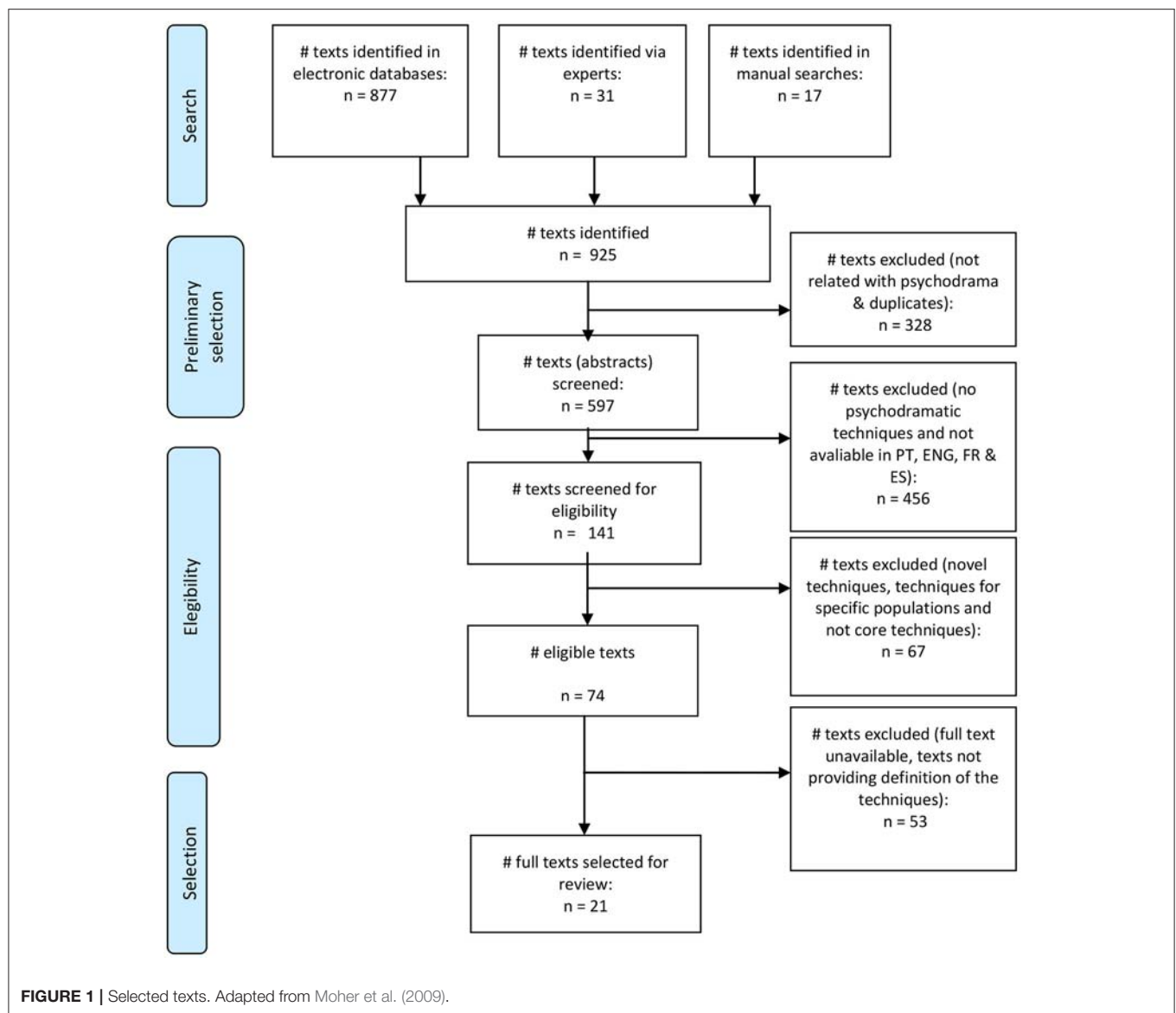
As **Table 2** shows, some changes were made to the initial proposal of MP core techniques, following the feedback of FEPTO-RC experts. These changes, to which we refer next, were due to the consensual meeting of the differences between the different schools.

1. Resistance Interpolation was presented as one of the main techniques of psychodrama. Many of the schools represented in the meeting were not aware of this technique and, after discussion, this consensually classified as secondary.
2. Role-play raised the theoretical issues mentioned below, and was later designated as role training;

²An example of this is the "Improvisation Theater," a theater modality founded by Moreno in 1921.

³Germany, Austria, Bulgaria, Finland, Hungary, Israel, Italy, Portugal, United Kingdom, Serbia and Switzerland. This discussion was also promoted to validate Helpful Aspects of Morenian Psychodrama Content Analysis System manual (Cruz, 2014; Cruz et al., 2016).

⁴Despite being considered statistically low, this value of $k = 0.40$ was considered acceptable for this study since it results from the agreement between 3 ratings only, i.e., a case in which the judges only had to evaluate the quality of only 3 definitions, being that, in this case, the discrepancy between only one value (as has been seen in practice) was sufficient to lower the value from 1 to 0.4.



3. Symbolic representation, also proposed as a secondary technique, was rarely used by many of the schools and agreement was not reached about its theoretical definition. Even though used to represent difficult situations on stage, such as sexual intercourse, this was considered by some experts as a psychodramatic principle and not as a technique. This discussion led to the creation of a new category “other techniques,” where this was included;
4. Amplification, concretization, symbolic representation and empty chair were added to the category “other techniques.”

DISCUSSION

The main objective of this study was to identify contemporary MP core techniques, as used in real clinical practice and to propose an updated definition to those MP techniques, which

were consensually agreed by a group of international experts and certified trainers in this field.

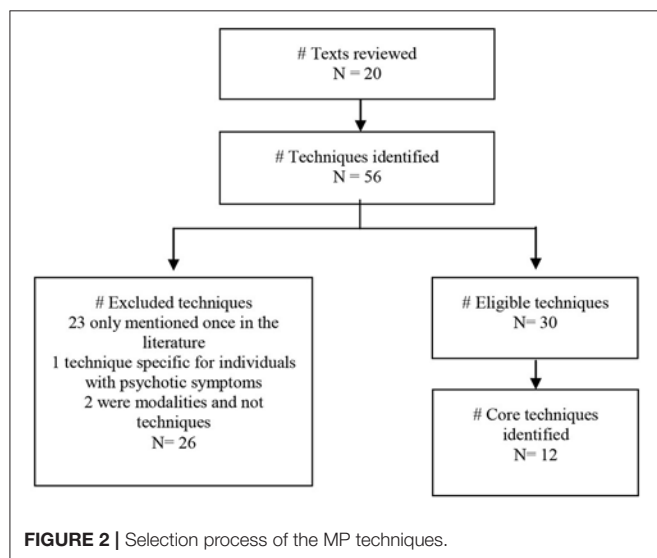
Soliloquy

Soliloquy is a technique brought by Moreno directly from classical theater where it had artistic aims (Moreno, 1946/1993; Santos, 1998). It was described approximately in half of the revised texts (10 out of 20), and was one of the most consensual techniques in terms of its operability.

For Moreno (1946/1993), the “purpose is to be cathartic” (p. 245), and its “end is the knowledge of oneself” (Moreno, quoted in Cukier, 2002, p. 307). The intention is for the protagonist to externalize the hidden feelings and thoughts (Rojas-Bermúdez, 1997; Moreno, quoted in Cukier, 2002), “to reveal deeper levels of the interpersonal world” (Moreno, quoted in Cukier, 2002, p. 306). “It allows correcting any misrepresentations of the scene,

TABLE 1 | Checklist for assessing sources quality and techniques definition.

Criteria		Condition	Score
Authorship/Peer Recognition	Articles	Peer-reviewed periodical publication	1
		Publication not reviewed by peers / status unknown	0
	Books or gray literature (e.g., theses)	Specialists recognized in the field or certified psychodramatists	1
		Unknown author, unknown training or non-accredited training.	0
Clarity of techniques definitions found in various sources		Absolutely clear definitions	1
		Incomplete or unclear definitions	0



being valuable for the adaptation of the auxiliary egos and orientation of the director (...) If the dramatization ends in this way, one can obtain the 'insight' of the protagonist" (Pio de Abreu, 1992, p. 30). The protagonist has the opportunity to change and integrate into action, what s/he expressed in soliloquy (Rojas-Bermúdez, 1997).

When the protagonist holds his/her action or becomes ambivalent, the director asks him/her to "think out loud" (Rojas-Bermúdez, 1997), outside the dramatization dialogue, expressing what s/he thinks and feels in the here-and-now (Pio de Abreu, 1992; Rojas-Bermúdez, 1997; Santos, 1998). Soliloquy can also be performed as the protagonist walks the stage (Santos, 1998).

Double

The double technique was referred to in 14 of the 20 texts, and is considered by Moreno (quoted in Cukier, 2002, p.310), "as old as civilization. We find it in the great religions. I have often thought that God must have created us twice, one for us, to live in this world, and another for ourselves." This technique is used to (a) assist the protagonist in the expression of thoughts and feelings that, for some reason, s/he does not perceive or avoids expressing both verbally and bodily (Blatner and Blatner, 1988; Rojas-Bermúdez, 1997); (b) support the protagonist to enter the

dramatization more fully and deeply (Blatner and Blatner, 1988); (c) test the director's interpretation of the protagonist's inner messages by means of an auxiliary ego (Pio de Abreu, 1992; Gonçalves, 1998); and (d) be a vehicle to provide more effective suggestions and interpretations to the protagonist (Blatner and Blatner, 1988). By identifying with the double, the protagonist may gain insight (Gonçalves et al., 1988). The double can also constitute a good warm-up for the auxiliary ego (Gonçalves, 1998).

While the protagonist represents his/her own role, the auxiliary ego stands beside or behind him/her, adopts his/her body and emotional expression, and slowly adds the emotions, fears, motives, or hidden intentions that the protagonist is not explicit about (Gonçalves et al., 1988; Holmes, 1992; Pio de Abreu, 1992; Rojas-Bermúdez, 1997; López, 2005). It is therefore a procedure that requires corporal flexibility and telic sensitivity on the part of the therapist and auxiliary ego (Gonçalves, 1998).

One can make subsequent or simultaneous doubles. This is useful when one wants to know the opinions of the group members regarding, for example, a dramatized scene (Rojas-Bermúdez, 1997). Each element of the audience should, in turn, place a hand on the shoulder of the protagonist and while doubling, will say what s/he feels from the role of the protagonist. This way of applying the double allows a minimization of the negative impact of feeling imitated (Rojas-Bermúdez, 1997; Gonçalves, 1998).

Mirror

Mirror was found in approximately half of the revised texts (11 out of 20), and although it can be applied in various ways, there were no significant disagreements regarding its definition. The purpose of this technique is to promote the awareness of the protagonist and his/her behavior in different situations (López, 2005). It is used when the protagonist does not perceive his/her behavior, and the image s/he transmits to others differs substantially from the image s/he has of him/her self (internal and external image) (Pio de Abreu, 1992; Rojas-Bermúdez, 1997). As Moreno conceived its aim is to transform the protagonist into a spectator of him/herself.

It can be applied in a variety of ways: in the dramatization, the auxiliary ego imitates the protagonist, standing in front of him/her, saying and doing what s/he does (Gonçalves et al., 1988; Rojas-Bermúdez, 1997); once the dramatization is finished, the auxiliary ego reproduces what the protagonist dramatized while

TABLE 2 | List of core techniques validated by FEPTO-RC.

	List of techniques initially proposed	Techniques selected by FEPTO-RC	Sources used for the definition of the techniques (quality = 1 point)
Core techniques	Soliloquy	Soliloquy	Pio de Abreu, 1992;
	Double	The director asks the protagonist to think “out loud” and express his/her feelings, thoughts or intentions	Rojas-Bermúdez, 1997; Santos, 1998; Cukier, 2002
	Mirror		
	Role Reversal		
	Resistance		
	Interpolation		
		Double	Gonçalves et al., 1988; Holmes, 1992; Pio de Abreu, 1992;
		The auxiliary ego plays the role, or an aspect of protagonists’ role, by standing to the side or behind him/her; expressing the protagonist’s unspoken thoughts and feelings.	Blatner, 1996; Rojas-Bermúdez, 1997; Gonçalves, 1998; Cukier, 2002; López, 2005
		Mirror	Gonçalves et al., 1988; Pio de Abreu, 1992; Rojas-Bermúdez, 1997; Gonçalves, 1998; Cukier, 2002; López, 2005
		The protagonist watches, as if in a mirror, the auxiliary ego playing his or her role, reproducing it by mirroring his/her postures, gestures and words as they appeared in the dramatization.	
		Role reversal	Blatner and Blatner, 1988;
		A dramatization in which the protagonist reverses with other roles, so that the protagonist places him/herself in the other’s shoes	Holmes, 1992; Pio de Abreu, 1992; Kellerman, 1994; Rojas-Bermúdez, 1997; Cukier, 2002; López, 2005
Secondary techniques	Sculpture	Resistance Interpolation	Gonçalves et al., 1988; Pio de Abreu, 1992; Rojas-Bermúdez, 1997; Calvente, 1998; López, 2005
	Social atom	The director asks the auxiliary ego to act in a completely different way to which the protagonist would expect (e.g.: an authoritarian figure may become humble and compliant).	
	Intermediate objects		
	Games		
	Sociometry		
	Role play		
	Symbolic representation		
		Sculpture	Pio de Abreu, 1992; Hug, 1997; Rojas-Bermúdez, 1997; López, 2005; Moyano, 2012; Rojas-Bermúdez and Moyano, 2012
		The director asks the protagonist to arrange group members in a symbolic representation of the way he/she perceives an aspect of his/her life or self.	
		Social atom	Gonçalves et al., 1988; Pio de Abreu, 1992; Cukier, 2002
		Representation or configuration of all the meaningful relationships in protagonists’ life. It can be represented in diagrams or graphic terms, or about individuals or issues, in past or present terms, intensity and/or distance.	
		Intermediate Objects	Rojas-Bermúdez, 1997, 2012
		The director introduces the use of objects in the session to facilitate communication with the protagonist (e.g. a doll, puppet, stone, fabrics, etc.).	
		Games	Pio de Abreu, 1992; Rojas-Bermúdez, 1997; Monteiro, 1998
		A game with specific objectives and specific rules	
		Sociometry	Blatner and Blatner, 1988; Gonçalves et al., 1988; Fox, 2002
		Measure interpersonal relationships, how group members position themselves in relation to each other, in response to given criteria.	
		Role training	Boies, 1972; Blatner and Blatner, 1988; Pio de Abreu, 1992; Soeiro, 1995; Rojas-Bermúdez, 1997; Kaufman, 1998; Cukier, 2002
		To practice a role, to simulate a situation, to try different answers, alternatives or behaviors.	
Other techniques or actions		Symbolic representation	–
		Amplification	
		Concretization	
		Empty chair	

s/he observes from the audience (Gonçalves et al., 1988; Rojas-Bermúdez, 1997; Gonçalves, 1998; Moreno, quoted in Cukier, 2002; López, 2005). An alternative option can be used, the “technological mirror,” which may rely on photography, cinema, video and audio recordings to achieve similar results (Rojas-Bermúdez, 1997).

This technique can be potentially uncomfortable and provocative for the protagonist. As such, it is recommended that a professional auxiliary ego is used to avoid the risk of the protagonist feeling ridiculed (Pio de Abreu, 1992; Rojas-Bermúdez, 1997).

Role Reversal

Role reversal is one of the foundations of Moreno’s theory (Rojas-Bermúdez, 1997) and was the most common technique in the literature, present in 15 out of 20 texts.

This technique allows the protagonist to obtain a more accurate perception of the individuality of the complementary role (López, 2005), as well as the possibility of perceiving the other’s view about him/herself (Kellerman, 1994), and about the world (Holmes, 1992). It also allows a characterization of the characters so that the auxiliary ego learns the role (verbal and non-verbal component) that has been assigned to him/her. This warms up for the action so that the represented scene is as close as possible to the protagonist’s experience (Blatner and Blatner, 1988; Pio de Abreu, 1992; Rojas-Bermúdez, 1997).

In a dramatization, the protagonist is invited by the director to reverse with the other with whom s/he interacts, namely, the complementary role (hereby referred to as auxiliary ego). This auxiliary ego can be an element of the therapeutic team or an element of the audience. With role reversal, the protagonist places him/herself psychologically in the place of this other person (Pio de Abreu, 1992).

Resistance Interpolation

Found only in one third of the texts, and little known among the elements of the FEPTO-RC, this technique has also been seen as a concept.

The interpolation of resistances may be used to test the capacity of the protagonist to face a situation (López, 2005): when it is used unexpectedly, it will test the spontaneity of his/her response, while providing an opportunity to train his/her flexibility and discover new possibilities in face of an unfavorable situation (Pio de Abreu, 1992). It can also be used to corroborate a diagnostic hypothesis: if the results are not obtained, the hypothesis should be abandoned (López, 2005).

As a technique, it consists on the modification, by the director, of the scene presented by the protagonist. S/he presents his/her scene according to his/her point of view, based on an argument and certain expectations about its outcome. The director introduces modifications (e.g., modifies the characteristics of the dramatic context and/or the complementary roles) through indications to the auxiliary ego: introducing unforeseen factors that lead the protagonist to act spontaneously, revealing forms of behavior and personality (Pio de Abreu, 1992; Rojas-Bermúdez, 1997; López, 2005). “An authoritarian character can become humble and submissive, an attentive individual can become deaf

or distracted, a docile relative can become irascible” (Pio de Abreu, 1992, p. 31).

Sculpture

Referred to in eight of the 20 texts, the origin of this technique was not clear. The school of Rojas-Bermúdez speaks of psychodramatic images and distinguishes them from the concept of Moreno’s therapeutic images (quoted in Cukier, 2002). For this clarification, we considered important to compare three concepts: sculptures, psychodramatic images and therapeutic images. Moreno refers to therapeutic imaging as a “method that can be used with advantage (...). The method of image activation is only a resource to assist the musician or student in the process of learning to be spontaneous” (Cukier, 2002, p.150), but it is not clear in his definition as a technique. Rojas-Bermúdez and Moyano (2012) state that, although Moreno used the term, he referred to it as a mental image.

Rojas-Bermúdez and Moyano (personal communication, February 10, 2012) claim to prefer the term “images” to “sculptures” because they understand that the latter was taken from other therapeutic approaches. Blatner (1996, 1997) argues that sculpture is traditionally seen as a family therapy technique and is an adaptation by Virginia Satir of the psychodramatic technique action sociogram (Blatner, 1997). When consulted directly by e-mail, Zerka Moreno (personal communication, February 20, 2012) clarified that Moreno would have suggested sculpture to one of his students as a family organization. Rojas-Bermúdez and Moyano (2012) also claim to have been introduced to this technique in the scope of family therapy. Some psychodramatists following a systemic perspective have, since 1990, been incorporating this technique into their work, considering sculptures as an expression of the binding structure of a system.

The objective of the sculpture technique is the observation by the protagonist, the director and the group, of the organization within his/her sculpture figure, the connections between its elements and the exploration of their meanings. This technique is used to deepen the knowledge of a certain material. When constructed by the protagonist him/herself, s/he “drags” his/her characteristics and, therefore, allows a quick access to his/her contents (Rojas-Bermúdez, 2012).

The protagonist is asked to construct a figure (with people or objects) that represents the material brought by him/her. The protagonist must choose an auxiliary ego to represent himself/herself (Rojas-Bermúdez, 1997). The starting point for its construction can be directly the mental image (for example, a dream, a fantasy, a memory), or a mental image corresponding to a word (e.g., “duel”), or a phrase (e.g., “I feel sunk”); it can be a construct elaborated to convey a state of mind (e.g., sadness) or a physiological process (e.g., hunger) (Rojas-Bermúdez, 2012). From this first image, other images may be requested in a temporal line (before, after), other spaces (in parallel, in another place), contrasting values (better, worse, pleasant, unpleasant), reference points for improvisations that integrate several images (to invent a story, to tell a story), among others (Rojas-Bermúdez, 1997).

Usually, sculptures tend to be realistic and constructed with elements of the group, but they can also be symbolic and accomplished with both people and objects (Pio de Abreu, 1992; Rojas-Bermúdez, 1997).

Social Atom

The social atom, referred to in 10 of the revised sources, is described by Moreno (1946/1993) as “the nucleus of all individuals with whom a person is emotionally related or at the same time related to it. It is the minimal core of an emotionally accentuated interpersonal pattern in the social universe. The social atom reaches as far as tele itself reaches other people. Therefore, it is also called the tele-range of an individual” (p.289). It is a technique of presentation of the protagonist through which s/he presents the significant others of his/her life (Gonçalves et al., 1988; Pio de Abreu, 1992), often used in initial interviews and diagnoses (Gonçalves et al., 1988). The social atom provides an overview of the protagonist's interpersonal structure, revealing conflicts with significant people and providing themes for dramatization.

Family members and significant others are arranged in the scenario, represented by auxiliary egos and also objects. Distances, positions and postures are important elements. The protagonist makes role inversions with each of the people represented (Gonçalves et al., 1988; Pio de Abreu, 1992). The reversal of roles with significant others reveals common interactions and the protagonist's understanding of them (Pio de Abreu, 1992).

Intermediate Objects

Described in six of the 20 texts, in all of them the concept is recognized as being of Rojas-Bermúdez (Pio de Abreu, 1992; Blatner, 1997; Hug, 1997; Rojas-Bermúdez, 1997; López, 2005; Rojas-Bermúdez et al., 2012). Although objects have always been used, Rojas-Bermúdez owes the concept and theoretical framework. It is important to mention that although this was not a concept of Moreno, the use of different objects was suggested and is part of all Psychodrama schools, and hence this was consensually considered as one of the MP most important techniques.

Objects such as props, fabrics, puppets, cloth dolls and masks have been recognized as catalysts of important non-verbal reactions and at the same time allow a greater distance from the emotionally charged situation (Blatner, 1997). In its simplest form, it is an articulated doll that, through the voice of the director, “talks” with the protagonist (Pio de Abreu, 1992).

According to Rojas-Bermúdez (1997), it allows the reestablishment of interrupted communication with the patient, replacing the direct therapist-patient relationship with object-patient, in order to facilitate the focus of attention and decrease alarm states.

When the patient does not respond to verbal communication, the professional auxiliary ego addresses the patient through the object (puppet, mask, hood, tunic); and based on the patient's reaction, the auxiliary ego can continue to use the object, or choose another object, or give the patient a similar object to

interact with. When face-to-face communication is achieved, the object is eliminated (Rojas-Bermúdez, 1997).

Games

Dramatic games were referred to in about a quarter of the revised references. The game must go through the same stages of the psychodrama session: warm-up, action and sharing (Monteiro, 1998).

There is a wide variety of games ranging from improvisation and character play to collective creation (Rojas-Bermúdez, 1997). The main objective is to provide an opportunity to freely express the inner world and externalize a fantasy through the representation of a role, or bodily activity (Monteiro, 1998). In the warm-up phase, games aim to raise therapeutic material to decide the theme of the session and/or the protagonist (Pio de Abreu, 1992; Soeiro, 1995; Monteiro, 1998). Particularly useful to increase group cohesion, it strengthens the trust among the members, creates a relaxed atmosphere, resolves intra-group tensions, and changes the focus of a group that is constantly around recurring issues (Pio de Abreu, 1992). Although they are play activities, they reflect personal aspects that can help the director to move from the game to the reality (Rojas-Bermúdez, 1997).

Sociometry

Referred in eight of the 20 texts, one of the challenges presented by sociometry concerns its conceptual diversity, which probably comes from the importance and comprehensiveness that it has assumed over time.

It has been considered as a scientific method to objectively determine the basic structure of human societies (Fox, 2002), as well as a method to measure interpersonal relationships (Blatner and Blatner, 1988). Its purpose is to help the elements of a group to provide mutual feedback on various issues (Blatner, 1997). As a technique, it is used to measure interpersonal relationships (Blatner and Blatner, 1988; Gonçalves et al., 1988) regarding the criteria of interest to the researcher and how to warm up for group interactions (Blatner and Blatner, 1988). It makes isolated people to stand out, making visible the pattern of the social universe (Blatner and Blatner, 1988; Fox, 2002).

Sociometric data can be obtained in writing: each element registers their choice of other members of the group according to the criteria presented by the director. The choices are all placed in a diagram or table and then the results are shared with the group (Blatner and Blatner, 1988). They can also be obtained in action: by placing a hand on the shoulder of the selected person. This alternative is termed “sociometric action” because interpersonal choices are displayed in action, and used when immediate feedback is needed (Fox, 2002). After making the choices, there is room for confrontation and clarification among the participants (Gonçalves et al., 1988).

Role Training

Here it is important to note that all the definitions (12 out of 20) were reviewed, both for role-playing and role-training, so that better theoretical support could be made.

Role training aims to create situations for the development and training of a certain role in conditions very close to the real situation yet in a protected way (Blatner and Blatner, 1988; Soeiro, 1995). It can be used as well as a diagnostic method (Moreno, cited in Cukier, 2002).

Essentially, “it consists of representing a role whose performance is feared, for example, that of a student during a next examination, or a role usually played poorly, such as the boss who does not know how to give orders” (Pio de Abreu, 1992, p. 37) and can be operationalized in two ways: the person is asked to play a role that is not normally theirs (Boies, 1972; Cukier, 2002), or the person is asked to play his/her own part, but not in the setting in which it is normally played (Boies, 1972).

CONCLUSION

Almost 100 years after its foundation MP still lacks theoretical and technical coherence within the international clinical community. We believe this work is a contribution to take the first step in that direction by finding the 11 consensual core techniques that are used mainly in the action phase of the traditional psychodrama session in contemporary Morenian Psychodrama. Psychotherapeutic and integrative models have been making extensive use of MP techniques. Techniques such as role reversal, sculpture, empty chair, and others can be used during a session, without the need for a group or auxiliary egos (Blatner, 2007). This fact points us to the importance and clinical relevance of the method. However, when used outside of its theoretical and philosophical frame of reference, these techniques may become distorted (Bustos, 1999). In fact, many of Moreno’s original techniques have been appropriated by other theoretical models, which led many of their users to be unaware of their origin (Blatner and Blatner, 1988; Bustos, 1999). For instance, this is the case of sculpture in family therapy and the use of the auxiliary chair by Fritz Perls in Gestalt Therapy, which was later modified for the “two-chair” technique in the cognitive approach (Blatner and Blatner, 1988; Blatner, 1997). Hence, it is important

that individual, verbally-based psychotherapies acknowledge the basic principles of MP techniques, such as those highlighted by this review. Respecting these basic principles will, therefore, prevent a potential disconnection between MP techniques and their theoretical roots, allowing them to evolve and become fully integrated with other therapeutic models.

This review is not without limitations. The first is the exclusion of texts whose languages were not fluently spoken by our research team, leading to many articles e.g., in German and Italian to be excluded. To overcome this limitation, the results were validated and discussed with representatives of several countries included in FEPTO, to widen the scope of this review. As for peer-reviewed papers included in the review, these tended not to include enough information to define the techniques. However, there is a growing tendency for studies on the effectiveness of techniques individually (Kipper and Ritchie, 2003). This was also expected considering that definitions of techniques are usually published for didactic and training purposes and less frequently in empirical articles.

AUTHOR CONTRIBUTIONS

AC was responsible for conducting the review, analyzing the data and writing the manuscript. CS and GM supervised the review and contributed for the manuscript. PA collaborated with the review and contributed for the manuscript. All authors approved the final version of this manuscript. This review was conducted as part of the AC research project toward a Ph.D. degree, of which CS and GM were the supervisors.

FUNDING

No funding was received for this study, nor for the Ph.D. project from which this study derived. CS is currently receiving funding from the Portuguese Foundation for Science and Technology (FCT UID/PSI/00050/2013 and EU FEDER and COMPETE programmes (POCI-01-0145-FEDER-007294).

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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ANNEX 1

Initial List of 56 MP Techniques Identified in the Review

Live wheel; gallery mirror; intermediate scenes; therapeutic objectivators; aesthetic communication techniques; autodrama; replay; monodrama; aside; multiple ego; crib scene; structured negotiation; breaking in; spectrogram; nonverbally coming together; shared secrets; directed fantasy; chorus; maximization; substitute role; projection; symbolic distance; closure; auxiliary world; improvisational theater; living newspaper; role reversal; soliloquy; mirror; double; sculpture; resistance interpolation; social atom; intermediate and intraintermediate objects; dramatic games; sociometry; role-playing; symbolic representation; amplification; concretization; empty chair; surplus reality; self presentation; behind back; puppets and masks; psychodance;

body techniques; psychomusic; hypnodrama; magic shop; onirodrama; spontaneous improvisation; videopsychodrama; future projection; spontaneity test.

List of MP Techniques Considered as Eligible for Selection

Role Reversal; Soliloquy; Mirror; Double; Resistance Interpolation; Sculpture; Social atom; Intermediate and Intraintermediate Objects; Dramatic Games; Sociometry; Role training; symbolic representation; amplification; concretization; empty chair; surplus reality; self presentation; behind back; puppets and masks; psychodance; body techniques; psychomusic; hypnodrama; magic shop; onirodrama; spontaneous improvisation; videopsychodrama; future projection; spontaneity test.



Community-Dwelling People Living With Dementia and Their Family Caregivers Experience Enhanced Relationships and Feelings of Well-Being Following Therapeutic Group Singing: A Qualitative Thematic Analysis

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OPEN ACCESS

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Kelly Yu-Hsin Liao,
Cleveland State University,
United States

Reviewed by:

Dianna Theadora Kenny,
University of Sydney, Australia
M. Teresa Anguera,
University of Barcelona, Spain

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 19 November 2017

Accepted: 11 July 2018

Published: 30 July 2018

Citation:

Clark IN, Tamplin JD and Baker FA
(2018) Community-Dwelling People
Living With Dementia and Their Family
Caregivers Experience Enhanced
Relationships and Feelings
of Well-Being Following Therapeutic
Group Singing: A Qualitative Thematic
Analysis. *Front. Psychol.* 9:1332.
doi: 10.3389/fpsyg.2018.01332

The progression of dementia can severely compromise interpersonal connection and relationship quality between people living with dementia (PwD) and their family caregivers (FCG), leading to social isolation and poor quality of life for both. Therapeutic group singing (TGS) is a socially engaging, stimulating, and supportive pursuit that community-dwelling PwD and their FCG can participate in together. This study aimed to build on the findings from previous research by undertaking a thematic analysis of interviews with nine PwD (five women, four men; mean age = 79.1 years) and nine FCG (five women, four men; mean age = 75.7 years). The interviews explored participants' perspectives and experiences of a 20-week TGS intervention, underpinned by Kitwood's model of person-centered care. Inductive thematic analysis resulted in the emergence of five themes which described how TGS for PwD and their FCG: (1) included supportive therapeutic facilitation and design features; (2) made group singing more accessible; (3) fostered new empathic friendships; (4) enhanced relationships between PwD and FCG; and (5) led to personal feelings of wellbeing for both PwD and FCG. Affinity with others who had similar life experiences and challenges created a sense of mutual understanding and camaraderie, which made group singing accessible without fear of judgment and social stigmas. For some PwD/FCG dyads, TGS meant they could continue a lifelong passion for singing together, while others enjoyed participating in singing together for the first time. Both PwD and FCG participants described personal feelings of acceptance, improved social confidence, mood, and purpose. Further, participants valued mental stimulation from TGS such as learning new skills and memory support. A model explaining relationships between themes suggests that TGS with person-centered facilitation features for PwD/FCG dyads led to affinity among group members with ripple effects, which enhanced accessibility to group singing, the formation of empathic friendships, PwD/FCG relationship quality, and personal wellbeing.

for both PwD and FCG. Psychoemotional, social and cognitive benefits from TGS described by participants in this study are known to promote self-identity, healthy relationships, and quality of life. This research highlights a need for improved availability of TGS for community-dwelling PwD/FCG dyads.

Keywords: group singing, people living with dementia, family caregivers, qualitative thematic analysis, community-dwelling

INTRODUCTION

Dementia currently compromises the health and quality of life for ~47 million people and their families worldwide, and this figure is expected to reach 131 million by 2050 (Prince et al., 2016). A high proportion of people living with dementia (PwD) reside in the community and considerable societal global costs, estimated to be around \$330.8 billion US, are attributed to informal care provided by family caregivers (FCG) (Prince et al., 2015). Estimates report that numbers of informal FCG, usually a spouse/partner and less frequently a son/daughter/other relation or friend, are around 670,000 in the United Kingdom (Lewis et al., 2014), 3.6 million in the United States (Friedman et al., 2015), and 200,000 in Australia (Ross and Beattie, 2015). The familiarity of a long-term residence supports optimal independence for PwD and also reduces costs to families and to society (Greenblat, 2012). Therefore, a strategic priority recognized by the World Health Organization aims to support community-dwelling PwD/FCG dyads to live together for as long as possible in the family home of their choice (Greenblat, 2012). However, FCG often provide unpaid care for several years from early diagnosis (or before) and accept escalating workloads as personal care and supervision needs increase (Greenblat, 2012). As such, FCG are prone to high burden of care along with accompanying physical and mental health conditions, which in turn increase the likelihood for negative symptoms in PwD and placement in residential care (Prince et al., 2016).

Community psychosocial services that aim to support emotional coping for FCG, independence for PwD, and social engagement, health, and emotional wellbeing for both are known to delay admission to residential care for PwD, particularly when commenced early in the disease trajectory (Greenblat, 2012; Prince et al., 2015; Farina et al., 2017; Frankish and Horton, 2017). For PwD, symptoms such as memory loss and aphasia, may lead to reduced confidence in social situations, which when coupled with social stigmas, can result in withdrawal and isolation from previously meaningful activities (Burgener et al., 2015a,b). To combat these experiences, Kitwood's (1997) landmark model recognizes person-centered care with respectful trusting relationships and social connectedness as essential if "personhood" is to be maintained by PwD in the face of cognitive decline.

Kitwood's person-centered care model seeks to foster autonomy, independence and social skill in PwD, acknowledging that life can be well lived regardless of deficits in memory, reasoning, communication, and capacity to care for self (Kitwood, 1997). Within this framework, personhood is regarded as a status that is bestowed on one person (the PwD) by another

(the caregiver). Rather than viewing cognitive impairment and compounding factors such as agitation, anxiety, apathy and depression as negative consequences of dementia, caregivers and recipients are co-contributors in an intersubjective relationship fostering relative wellbeing (Kitwood and Bredin, 1992). Twelve concepts guiding Kitwood's person-centered approach are recognized for support relative wellbeing in PwD: (1) Recognition of each person as unique; (2) Negotiation ensuring personal preferences are considered for all aspects of daily life; (3) Collaboration between care recipient and giver in decision making; (4) Play involving preferred activities that enable self-expression; (5) Giving, denoting recognition of acts of kindness from PwD toward caregivers and others; (6) Timalation involving interactions using aesthetic sensual experiences; (7) Celebration of everyday achievements; (8) Relaxation facilitated by modification to environmental stimuli; (9) Validation and acceptance of the person's reality; (10) Holding a safe psychological space for expression; (11) Creation and self-expression through art forms such as music; and (12) Facilitation of tasks that are challenging (Kitwood, 1997). Fazio et al.'s (2018) recent review of articles examining person-centered care acknowledges that these concepts remain extant in current dementia care practices and research.

While FCG are often acutely aware of the need to sustain personhood in their loved one living with dementia (Wadham et al., 2016), they too are subject to experiences of social isolation resulting from the responsibility of day to day care and their loved one's unpredictable behavior during social situations (Greenblat, 2012; Nay et al., 2015). To reduce this risk of social isolation for both PwD and FCG, accessibility to dyadic interventions that place an emphasis on the PwD/FCG partnership and shared identity rather than focussing solely on either the PwD or FCG as individuals are encouraged (Nay et al., 2015; Spector et al., 2016; Wadham et al., 2016). Further, strengths-based rather than deficit orientated psychosocial services and interventions are particularly recommended to promote healthy relationship quality between PwD and FCG (Kitwood and Bredin, 1992; Hellström et al., 2005; Merrick et al., 2016; Wadham et al., 2016).

Therapeutic group singing (TGS) is a low-cost intervention that may support personhood in PwD, offer meaningful shared experiences for PwD and FCG, and improve health and wellbeing for both (Clark and Harding, 2012; Yates et al., 2016). Recent evidence from a systematic review with 18 studies suggests that stimulation associated with singing supports cognitive function among older people with various age-related health conditions including dementia (Yates et al., 2016). Implicit musical memory, that is the ability to sing and play an instrument, is retained into the late

stages of dementia lending weight to the notion that active music participation supports memory function (Baird and Samson, 2009). Further systematic reviews investigating the effects of therapeutic singing interventions for PwD facilitated by credentialed music therapists in residential care contexts demonstrated improved mood and reductions in behavioral disturbances and depressive symptoms (McDermott et al., 2013; van der Steen et al., 2017). Individualized singing interventions implemented by FCG in the family home have also led to reduced physical signs of depression and improved mood, orientation, and episodic memory in PwD, and improved short-term memory, working memory and wellbeing in FCG compared with usual care (Sarkamo et al., 2013). Beyond the amelioration of psychological and behavioral symptoms, TGS is also a potent stimulus of interpersonal and intrapersonal social connection for PwD and their FCG (McDermott et al., 2014).

With the increasing acknowledgment of benefits from singing for PwD, there is a growing demand for singing groups or choirs for community-dwelling PwD and their FCG (for example, “Singing for the Brain” in the United Kingdom, which currently offers over 100 singing groups and has long waiting lists) (Osman et al., 2016). Unadkat et al. (2017) examined this phenomenon using grounded theory to analyze interview data from 17 PwD/FCG spousal dyads who had attended various choirs across the United Kingdom. They proposed that group singing is an accessible and joyful activity for both PwD and FCG, which when combined with effective facilitation leads to feelings of social belonging and connection, and ultimately individual benefits for both PwD and FCG, and as a couple (Unadkat et al., 2017). Other recent research supports this notion in suggesting that community singing groups attended by PwD and their FCG support experiences of wellbeing, social inclusiveness and connectedness, improved relationship quality with each other and others, opportunities for learning, and acceptance and coping with dementia (Camic et al., 2013; Osman et al., 2016; Unadkat et al., 2017). Davidson and Almeida (2014) further demonstrate improved mood for both PwD and FCG participants and relaxation levels, lucidity and focus in PwD following 6-weekly group singing sessions. These findings suggest that group singing is a creative normalizing activity offering health and wellbeing benefits for PwD and FCG as a dyad and as individuals.

Previous research has provided initial evidence of benefits for PwD and FCG from community singing groups (Camic et al., 2013; Davidson and Almeida, 2014; Osman et al., 2016; Unadkat et al., 2017), and therapeutic singing groups in residential care (McDermott et al., 2013; van der Steen et al., 2017). However, to the best of our knowledge there has been no research describing therapeutic community-based group singing interventions for PwD and their FCG facilitated by credentialed music therapists. The current project, funded by the National Health and Medical Research Council and Australian Research Council (APP1106603), therefore extends previous research with an exploration of community-dwelling PwD and FCGs’ experiences of TGS underpinned by Kitwood’s person-centered care model. Qualitative interviews sought to investigate the

feasibility of our TGS intervention from the perspectives of our participants.

MATERIALS AND METHODS

Research Design

The current paper reports thematic analysis of qualitative interviews conducted with participants following a pre-post feasibility trial.

Participants

We recruited 12 PwD/FCG dyads to examine the feasibility of our TGS intervention. Allowing for attrition, this sample size was considered sufficient for capturing differing perceptions of the TGS experience (Creswell and Poth, 2018). PwD and FCG registered their interest in the project following attendance at information sessions and/or after receiving an information flyer from community organizations offering dementia support services. PwD/FCG dyads had to be living together in their own home in the community to be eligible for this study. PwD were eligible for the study if they had a clinical diagnosis of mild to moderate dementia with a Mini Mental State Exam score between 10 and 26 (Folstein et al., 1975). FCG were eligible for the study if they were the primary care giver for the PwD. Both PwD and FCG participants needed to have functional hearing with or without hearing aids and speak English. Approval for this study was obtained from the relevant health service human research ethics committee (approval number HREC/15/Austin/445). Written informed consent was obtained from all participants (FCG and PwD). In cases where researchers were uncertain of a PwD’s capacity to provide written informed consent, a person responsible who was not a participant in the study (not their FCG) was also asked to complete written informed consent on behalf of the PwD.

Singing and Music Interventions

The intervention consisted of 20 TGS sessions that PwD and FCG participants attended together. Owing to a staggered recruitment process, participants commenced and completed their 20 sessions on differing dates over a 12-month period. Participants who had completed their final data collection assessment were encouraged to keep attending the TGS sessions if they wished. TGS sessions were held in a spacious room at a large public health facility. The number of participants in the group was limited to 15 PwD/FCG dyads (30 participants in total).

Each TGS session, held over ~120 min, included introductions and information updates (5–10 min), vocal warm ups and exercises (15–20 min), singing familiar participant requested songs (30–45 min), learning new songs and singing skills introduced by the researchers (20–30 min), and socialization over afternoon tea (30 min). Most sessions were facilitated by two registered music therapists (also the researchers – authors 1 and 2), although occasional sessions were facilitated by only one therapist. Registered music therapists (RMTs) in Australia have completed an accredited tertiary course and maintain ongoing professional development (Australian

Music Therapy Association, 2017). Additional support was provided by volunteers and student music therapists over the 12-month intervention period. A power-point presentation with an index of ~75 participant nominated songs and accompanying lyrics for each song was used to support singing. The RMTs used guitars, keyboard, and banjo to accompany singing. Occasionally, participants were also invited to play percussion instruments. To support participant involvement and ownership of the group, PwD and FCG were encouraged to contribute to the running of the group with tasks such as setting up afternoon tea, marking attendance on a list, giving out name tags, and taking tea and coffee orders.

Twelve concepts of person-centered care developed by Kitwood (1997) were used to guide the facilitation of TGS sessions in an effort to maximize positive experiences for both PwD and FCG, and to mitigate any potential negative feelings and behaviors for PwD (such as apathy, agitation, and anxiety). **Table 1** describes how each of these concepts were integrated into TGS sessions.

In addition to the regular TGS sessions, we provided participants with music-based resources for use at home between sessions. These resources included recordings of songs used in TGS sessions and personalized play lists.

Interviews and Thematic Analysis

PwD/FCG dyads were invited to participate in semi-structured interviews together. Interviews, facilitated by Authors 1 and 2, were audio-recorded and transcribed by Author 1 for analysis. The following questions were used to guide interviews: (1) Why did you agree to participate in this project? (2) What, if any, benefits were you expecting? (3) Did the singing group meet your expectations? Why or why not? (4) How would you describe your experience of the group? (5) How did being part of a singing group make you feel? (6) Was there anything additional that you would have liked the group sessions to offer? (7) How could the music therapy program be improved to suit your individual needs? (8) What, if anything, did you learn from participating in this project? (9) Would you encourage other people with dementia and their caregivers to participate in singing groups? Why or why not?

Inductive thematic analysis was performed using guidelines outlined by Braun and Clarke (2006). A systematic analysis of interview data involved the following steps: (1) Author 1 transcribed recorded interviews verbatim in word documents and imported these into MAXQDA12 for analysis (VERBI Software, 2017). (2) Author 1 read through the transcripts several times to gain familiarity, highlighted sections of text and coded this under initial descriptive titles. (3) Preliminary themes were constructed from codes by Author 1 using the topics asked in the interview questions as a guide for determining what interview content should be analyzed. These topics comprised rationale for decision to participate, benefits, areas for improvement, expectations, experiences of being in the group, experiences of singing, and learnings. (4) Authors 2 and 3 independently reviewed this preliminary construction of themes from coded extracts and either agreed with the

assignment of codes or offered alternative perspectives. (5) An iterative process ensued whereby Author 1 recoded data based on feedback and further consultation with Authors 2 and 3 until consensus suggested that the themes and codes captured participant experiences related to the topics of interest. Saturation was achieved when no new codes or themes were emerging from the data. (6) Authors 1 and 2 met to further refine the themes and codes. This process involved the rewording of some theme descriptions and collapsing of others. (7) Author 3 reviewed this final iteration and suggested a few minor amendments. (8) Authors 1, 2, and 3 independently reviewed the coded extracts to ensure that participants' experiences were authentically captured in the themes. (9) Relationships between themes were then examined with reference to previous literature to construct a framework explaining how participants in this study experienced TGS.

RESULTS

Twelve PwD/FCG dyads were recruited for the project and of those, nine PwD (five women, four men, mean age = 79.1, range = 57–89, $SD = 9.5$; mean MMSE score = 19.1, range = 10–26, $SD = 4.8$) and their FCG (five women, four men, mean age = 75.7, range = 61–90, $SD = 10$) completed 20 TGS sessions and participated in the interviews (75% completion rate). Eight dyads were in a spousal/partner relationship and one PwD was being cared for by her daughter. Eight dyads were born in Australia and spoke English as their first language, and one dyad had immigrated from the Ukraine in the 1960s and spoke English as a second language. Musical history was mixed with three PwD/FCG dyads who both had choral/singing experience, four dyads where one partner (PwD = 3, FCG = 1) had singing or choral experience, and two couples who had never sung in choirs before. Three dyads withdrew before completing 20 sessions. One FCG whose family member (PwD) died during the project was encouraged to continue but chose to withdraw. Another dyad completed the mid assessment but did not attend the full 20 sessions or post-assessment despite several follow up phone calls. A third dyad withdrew after the first session citing ill health as the reason for withdrawal.

An initial iteration with four themes (26 codes) developed by Author 1 was presented to Authors 2 and 3 who suggested reconceptualization and the re-organization of codes. Author 1 incorporated these suggestions and further iterations were developed involving input from all three authors over several weeks. As Authors 1 and 2 facilitated the TGS, observations during sessions may have led to pre-assumptions that the experience was positive for participants. To mitigate this risk, Authors 1 and 2 were mindful of these pre-assumptions and made efforts to minimize any influences during the data analysis. Further, Author 3 was not involved in the TGS sessions, had no relationship with participants, and was therefore able to analyze the data from a more impartial perspective. Saturation was reached when new themes ceased to emerge from the data and all three

TABLE 1 | Facilitation of therapeutic group singing sessions based on Kitwood's concepts of personhood.

Concept	Therapeutic group singing facilitation practice
Recognition	Recognition of individual preferences such as music tastes, seating options, and level of participation (overt or covert). Name tags worn by all participants and facilitators to compensate for memory loss.
Negotiation	All members of the group were encouraged to contribute to group decision making processes. This meant that some members required more support than others to ensure the musical and non-musical preferences of each person were heard and incorporated into sessions.
Collaboration	All major decisions involved collaboration between the participants and facilitators. For example, decisions regarding performance invitations, choice of venue, length of sessions, and preferred days of the week to meet.
Play	Encouragement of musical and non-musical playful self-expression including humor and creative movement.
Giving	Acknowledgment and acceptance of kind and generous contributions from participants.
Timalation	Modulating elements in the music (such as rhythm, harmony, tempo, lyrics) to meet the aesthetic needs of the group, and individuals within the group as required.
Celebration	Joyous, overt, and frequent celebrations of musical achievements by individuals including applause for solo singing, instrument playing or dancing. Celebration of non-musical events such as birthdays and anniversaries. Group celebrations following performances.
Relaxation	Considering of session pacing, including provision of quieter, more reflective songs, in addition to upbeat active music. Provision of space for individuals to seek solitude or to just listen to the music passively if desired.
Validation	Validating and accepting the experienced reality for each individual regardless of actual events.
Holding	Therapeutic use of music coupled with therapeutic listening and conversational skills to meet the needs of the group, provide a safe psychological space for individual self-expression, and promote peer support. Providing individual attention for a particular participant by one facilitator if needed.
Creation	Encouragement of creative contributions such as individual singing, song parody, harmonies (part singing), movement/dance, and instrumental contributions.
Facilitation	Encouragement to participate in challenging and cognitively stimulating active singing and music-making opportunities such as part singing, rounds, learning new songs, songwriting, and instrumental contributions.

authors agreed that codes were appropriately categorized within each theme. Final consensus between the three authors led to the emergence of five themes (17 codes) from the qualitative interview data: Theme (1) the TGS intervention included supportive therapeutic and design features that enhanced participant experience; (2) TGS made singing more accessible for PwD and their FCG; (3) TGS fostered new empathetic friendships for PwD and FCG; (4) TGS supported relationships between PwD and FCG; (5) PwD and FCG experienced enhanced personal wellbeing as a result of TGS. **Table 2** includes a summary of themes and corresponding codes.

Theme 1: *Therapeutic Facilitation and Design*. The Intervention Included Supportive Therapeutic Features That Enhanced Participants' Experiences Structure

Participants appreciated practical aspects of the sessions including the use of familiar participant-selected songs, opportunities to learn new and more technical pieces of music (for example, part singing), diverse instrumental support (guitars, keyboards, banjos, percussion), power point displays for lyrics, afternoon tea following singing, and regular email communication between sessions. One participant thought that the "size of the group" (FCG10) with 18 core members worked well. Participants further explained how they enjoyed opportunities to perform:

We sing the sort of songs that I like to sing (PwD1).

We're learning lots of things... Singing in different ways aren't we. We're learning to use the instruments and that's something new isn't it (FCG12).

I'm glad they've got the things up on the boards because... I get my words wrong a lot of the time (PwD8).

Getting together afterwards... everyone does appreciate that catching up on how everyone's week's been (FCG12).

Yes, and it's the size of the group as well. You can get around everybody. Whereas if it was any bigger, I think that might cause some problems. We perhaps wouldn't be as close to them as we are with these people. And if anyone can't come, there's always enough so it's not too small either (FCG10).

And to be able to perform a couple of times, that's been great hasn't it. We enjoy doing that too with everybody else (FCG2).

Facilitators

There were a number of comments suggesting that participants valued support provided by the two facilitators. For example, participants commented on facilitator enthusiasm, organization, regular information emails, and take-home practice tracks that supported singing between sessions and could be shared with extended family members and friends. One participant also appreciated the involvement of students during part of the program:

You guys have been excellent organizing it... you're a key part of it. Your enthusiasm is catchy (FCG4).

And I do like having the students as part of it because I think they bring something else to the group as well... You can see that they develop as well and that's rather nice to see as well that they gain in confidence. The longer they're with the group

TABLE 2 | Themes and codes explaining participants' experiences of therapeutic group singing (TGS)*.

Theme and definition	Codes and definitions
<i>Theme 1. Therapeutic facilitation and design.</i> The intervention included supportive therapeutic features that enhanced participants' experiences (<i>n</i> = 2 codes)	<p><i>Structure.</i> Several practical aspects of the TGS sessions supported participation</p> <p><i>Facilitators.</i> The organization, engagement and enthusiasm demonstrated by the facilitators was appreciated</p>
<i>Theme 2. Accessibility.</i> TGS made singing more accessible for PwD and their FCG (<i>n</i> = 5 codes)	<p><i>Encouraging and accepting.</i> PwD felt supported and this made them feel comfortable in the TGS</p> <p><i>Continuing singing.</i> Some participants found that TGS meant they could continue with their lifelong passion for singing</p> <p><i>New experiences.</i> Some participants who had never sung in a choir before found that TGS ignited a new passion</p> <p><i>Singing is valuable.</i> Singing was thought to have a number of benefits for PwD, and FCG were also surprised to find that there were benefits for them as well</p> <p><i>Sustainability.</i> There was concern about the ongoing accessibility to the singing group following cessation of research funding</p>
<i>Theme 3. Empathic friendship.</i> TGS fostered new supportive friendships for PwD and FCG (<i>n</i> = 3 codes)	<p><i>Affinity.</i> Shared experiences helped participants to bond as a group</p> <p><i>Empathy.</i> FCG valued the supportive new friendships that they developed with others who understood</p>
<i>Theme 4. PwD/FCG Relationship.</i> TGS supported relationships between PwD and FCG (<i>n</i> = 2 codes)	<p><i>Ripple effects.</i> Opportunities for connection outside TGS sessions were also sought and valued</p> <p><i>Togetherness.</i> For some dyads, singing had been central to their relationship for many years and they enjoyed being able to continue together.</p> <p><i>Mutual benefits.</i> Other dyads experienced new and unexpected benefits from participating in singing together</p>
<i>Theme 5. Personal wellbeing.</i> TGS led to positive individual experiences for PwD and FCG (<i>n</i> = 5 codes)	<p><i>Confidence.</i> TGS boosted social confidence and aroused feelings of pride</p> <p><i>Self-identity.</i> TGS led to experiences of reconnection with self-identity and purpose.</p> <p><i>Mental stimulation.</i> TGS promoted learning, memory and skill development</p> <p><i>Enjoyment.</i> TGS boosted mood and feelings of happiness</p> <p><i>Evokes memories.</i> TGS evoked discussion about meaningful memories</p>

*Codes are not mutually exclusive.

as well – so it's good to be, that you're part of their learning as well. That it's not just for us – that it has another purpose – a little bit as well (FCG12).

The whole objective of this group is to recognize people with their difficulties rather than just being a bland choir where everyone is expected to be at the same level. It's very supportive (FCG8).

Theme 2: Accessibility. Therapeutic Singing Group Made Singing More Accessible for PwD and Their FCG Encouraging and Accepting

This specialized therapeutic singing group for PwD and FCG created a supportive environment where participants felt comfortable. For PwD, this meant they could participate in singing without being restricted and were able to experience a sense of belonging and affinity with others. FCG appreciated that this leveling environment was free from judgment despite any difficulties that participants might be experiencing:

I was allowed to sing in the manner that I wanted to sing and not restricted (PwD1).
It's just a very comfortable feeling. Nobody is judging anybody else (FCG2).

Continuing Singing

Some participants had been involved in choirs and musical groups for most of their adult lives. However, symptoms of dementia meant that traditional community choirs and music groups were now too cognitively and socially demanding, and they had stopped attending. For these participants, therefore, an environment of acceptance created in this group meant they could continue to access and engage in their lifelong passion for singing:

You (referring to PwD12) were finding it more and more difficult to follow a score (FCG12). Yes, yes (PwD12)... So that transition has been really beneficial because it was a time of sadness for you not being able to continue with the (name of another choir). So, from that point of view it's been really beneficial to have something to replace that – that's still challenging (FCG12).

New Experiences

Other participants had never actively engaged in singing or music before, and accessibility to a therapeutic singing group ignited a new passion.

We've got people in this group who have never sung before. And yet, at that first concert we did, I know that [another participant's name] really wanted to do it and she loved it. . . afterwards – she was just so happy. She said – I've never done anything like this before. You see people who have never done it before are discovering music and are getting this wonderful benefit too – it's amazing (FCG2).

Singing Is Valuable

There was a general recognition that accessibility to group singing is valuable regardless of whether participants had previous music/singing experience or not. For some participants, this belief derived from expert opinions. Others who had been involved in singing before felt that benefits for PwD and FCG from the group were greater than they had previously realized:

There is some correlation suggesting that singing for people with Alzheimer's is a good thing. Dr [name] suggested that this might be good for PwD1, so that's why I was keen for PwD1 to have a go (FCG1).

I have always had music. And when mum came to stay with us, we still did the same things. But after joining this choir, we started to realise that it was more important. More beneficial. The benefits that have come out of joining the choir have made us aware of just what music can mean to people and different situations. It's also made us probably have more music in our lives (FCG2).

Sustainability

However, this recognition of the value of group singing for PwD and their FCG also led to concerns about the ongoing accessibility following cessation of research funding:

Everybody's talking about when's it going to finish. And they're not just talking about it – they're really concerned about it. I know it's research – and I know it's incredibly important and I think it's wonderful that it's happening, but I think it's such a shame that when the people are in the here and now, that they're actually benefitting from it. It's like being given a trial drug and then it fixes you but you can't keep going (FCG2).

I would like that the group goes for ever and ever. That would be very nice (FCG9).

Theme 3: Empathic Friendship. Therapeutic Group Singing Fostered New Supportive Friendships for PwD and FCG

Affinity

Singing with other people who had an “affinity” (PwD2) with similar life experiences, challenges and musical interests resulted in “special bonds” (FCG12) between participants:

We're drawn together for a common reason. . . there's just that feeling I think of. . . (FCG2) . . . belonging (PwD2), familiarity, friendship. . . (FCG2).

We have some affinity. . . I feel like I'm in the right place. Well – you're surrounded by music and we're all singing the same thing. And we're listening to the same thing. Interested in the same thing. We're all sort of a beautiful combination (PwD2).

I think that's gone beyond the music, which is fantastic and you go away feeling good because you've been singing but then you've also met all these people that you can just sit and talk to. And I think that's an unbelievable benefit. . . and the longer the group is together, then the more that really works I think. That's really important because we form special bonds (FCG12).

I think mainly. . . well we benefited greatly from the friendships. . . The first time we went. . . we sort of clicked with the people that are in the group and we both enjoyed singing (PwD10).

Empathy

FCG valued the supportive new friendships that they developed with other caregivers. This expression of empathy among caregivers was particularly recognized during critical times such as illness or during bereavement after “losing a partner to dementia” (FCG2).

Meeting the other carers has been really good. And sometimes you don't have to say anything, but then at other times, you can. So that's really been lovely because you don't find that anywhere else – well I haven't. It's pretty isolating and a lot of friends and other people don't understand. . . Even my siblings don't understand the way they do (FCG2).

I think it's quite tremendous how that group has really bonded as a group. And that was brought on so very strongly for me when PwD12 was sick for that month – how everyone was just so supportive of me, which I found was absolutely fantastic. That was very beneficial for me (FCG12).

And then there's [name of volunteer bereaved after losing her husband to dementia]. I think she finds the group helpful too. It's the camaraderie. . . the other carers being there – that's so special. They know – they understand. . . And so that support adds another dimension that comes from the choir. . . And in our situation, that situation will grow (FCG2).

Ripple Effects

Participants also valued opportunities to connect and meet up with one another outside the singing sessions. These connections had ripple effects whereby participants made other social connections beyond the singing group:

I was going to suggest to a get-together during the holidays – it's going to be a long time. . . Because it would be too long to wait until we get back to see each other again (FCG9).

And to be able to perform a couple of times, that's been great hasn't it. We enjoy doing that too with everybody else (FCG12).

PwD1 – he's a member of [social organisation] and they haven't seen him there for years but he turned up last Monday night and he sat with [my husband] the whole night. . . I said to [my husband] he obviously feels safer and he knows that you know and he trusts you (FCG2).

Theme 4: PwD/FCG Relationship. Therapeutic Group Singing Supported Relationships Between PwD and FCG Togetherness

PwD/FCG dyads explained how being able to participate in the singing group together was important to them. For some, singing together had been “central” (FCG12) to their relationship, and they valued the opportunity to continue being part of a singing group that was supportive of people with dementia.

Being able to go to choir together has been something that we've done for so long. So, to be able to keep up a musical interest together – that's something we've really enjoyed doing for always – something that's pretty central to our relationship. So, to be able to continue in doing that is really valuable to us . . . I think it's really key that we've been able to do this (FCG12).

I was excited when I learnt that I could also be involved. . . It wasn't just – did my mum want to – but do you both want to. . . it was something that we could do together that was a happy thing (FCG2).

Mutual Benefits

Several FCG participants had initially joined to support their loved one with dementia, but found that there were benefits for them as well. One couple spoke of past challenges in their relationship where FCG8 had sung in choirs throughout their marriage, and although PwD8 had also wanted to sing, this had not been possible before:

In the beginning – I thought it would be all for PwD10, but it's for me as well. And um I quite enjoy it. And our family are happy because we're enjoying it and that (FCG10).

I've always loved choral work and participated in it, and I thought – well this is the time for the two of us to participate in singing together. . . I love it – but it was always the things I had done. It's a double benefit – I get my own self enjoyment from it and I'm conscious that the work you are doing is invaluable to PwD8 (FCG8).

Theme 5: Personal Wellbeing. Therapeutic Group Singing Led to Positive Individual Experiences for PwD and FCG Confidence

Participants said that singing with the group boosted their social confidence and aroused feelings of pride:

I think we've got more confidence to meet up with new people – and we can get up and sing and think nothing of being nervous. Gives you lot of confidence (PwD10).

How does being part of a singing group make you feel (Interviewer)? Good (PwD11 and FCG11 together). Yes, it really does. Proud yes! . . . Oh yes – I'm very proud. Hmm (PwD11). Oh yes (FCG11).

Self-Identity

Some PwD participants also felt that being a member of the singing group had provided them with a sense of purpose and reconnection with their past and self-identity. PwD8 explained how despite having word finding difficulties, she was able to reconnect with her past as a counselor:

It's something to live for. I was still a little bit less than I am now – in being able to find the words and things – and the first day we went, [other participant] they were anxious. You could tell, and somehow or other I was just able to talk to one of them. I was really thrilled, because that was me (PwD8).

FCG4 explained how singing was part of his partner's identity and expression of wellbeing:

“If there is singing, then life is probably ok, but when there isn't any singing, then life is not ok” (FCG4).

Mental Stimulation

Participants felt that music and singing were mentally stimulating and promoted learning and memory among PwD. FCGs explained how there was an association between having singing on a Friday and remembering the day of the week, and that PwD participants had learnt and remembered new songs:

He generally remembers when he realises it's Friday – he knows he's got singing, so that's a good thing (FCG1). I don't remember Thursday but Friday (PwD1). No, he doesn't remember what he's doing the other days of the week, so yeah, certainly he puts Friday and singing together (PwD1).

You see PwD4 can't read the words – most of the songs – she knows off by heart, but she seems to know a few new ones now too (FCG4).

Enjoyment

Group singing boosted mood and led to feelings of enjoyment and happiness:

I think it always does the heart good to ah sing. I think it raises the endorphins and it always does – yes – it's a very good thing to do. Singing is a good thing to do. And we are having fun – it is a lot of fun. . . You can completely switch off from everything else. It's a very special time of the week (FCG12).

I never was participating in singing before, and I'm very happy that we did. Extremely happy that we did. For PwD9 it only works for a short time, but for me it works really for the whole week – I just keep thinking when it's next and happiness comes to it (FCG9).

Evokes Memories

Singing and music were associated with meaningful memories from the past. Several participants reminisced about their

younger days and how music and singing were connected with family, social gatherings, and past performances:

The family have always been keen on music. Even when we were going to school, we'd play tennis on a Saturday afternoon and we'd finish up around the piano. We'd been used to that – well I have – all my life (PwD10).

We used to have a lot of parties at our place (laughs) yes and ah – you know – mum playing the piano and singing – you know (PwD8).

DISCUSSION

This pilot study aimed to explore how community-dwelling PwD and their FCG experienced therapeutic group singing over 20 weeks. Qualitative data from semi-structured interviews were sought to identify participant expectations, perceived benefits (if any), experiences of the therapeutic singing group, and recommendations for facilitation. In addition, we planned to draw on the presented qualitative analysis (alongside statistical analyses from the parent feasibility study reported elsewhere) to inform the planning of a larger randomized controlled trial. This study also adds to a small but growing body of research exploring the influences and effects of community group singing for PwD/FCG dyads.

The experiences of participants in our therapeutic singing group were extremely positive and suggest that there is a need for meaningful, focused activities in the community, such as group singing, that community-dwelling PwD and their FCG can attend together. We have developed a model explaining relationships between themes emerging from this study. This model suggests that therapeutic facilitation by credentialed music therapists, with design features tailored for PwD and FCG dyads, provided supportive structure (Theme 1), which when coupled with affinity between group members and the fact that PwD and FCG could attend together, mediated improved accessibility to group singing (Theme 2), the formation of empathic friendships (Theme 3), benefits within PwD/FCG relationships (Theme 4) and wellbeing for both as individuals (Theme 5; **Figure 1**). These findings align with Kitwood's model of person-centered care, which recognizes 12 concepts of care as central to supporting personhood and wellbeing for PwD (Kitwood, 1997). In this project, TGS facilitation underpinned by these concepts of person-centered care not only led to positive experiences for PwD, but also the development of supportive relationships and wellbeing for FCG.

Our findings support previous research explaining multiple benefits from singing groups for community-dwelling PwD/FCG dyads (Camic et al., 2013; Davidson and Almeida, 2014; Osman et al., 2016). There are some parallels with Unadkat et al.'s (2017) "group singing model in dementia for couple dyads" which evolved from an examination of community-dwelling spousal couples' experiences across various singing groups, and McDermott et al.'s (2014) "psychosocial model of music in dementia" which emerged from thematic analysis of interviews with PwD and their families, care home staff, and

credentialed music therapists. Our research builds on these conceptual understandings with an examination of group singing facilitated by credentialed music therapists for community-dwelling PwD/FCG in various relationships, including spousal and parent/child.

Participants in this project spoke of their appreciation of the facilitators' attention to their therapeutic needs (Theme 1). As described previously, the TGS intervention, facilitated by two credentialed music therapists, was informed by Kitwood's theory of personhood, which recognizes the capacity for wellbeing and retained strengths among PwD when environmental conditions include humanizing opportunities for meaningful and respectful social interaction and personal growth (Kitwood and Bredin, 1992; Kitwood, 1997). In keeping with Kitwood's 12 concepts of person-centered care, sessions included spontaneous modulation of musically based elements (timelation) where participants were encouraged to contribute skills and ideas (recognition, play, creation), direct the content of sessions (negotiation, collaboration), and over time as they gained confidence (validation, holding), take increasing ownership of the singing group (negotiation, facilitation) (Kitwood, 1997). We also ensured that practical aspects of the sessions supported experiences of success. For example, power-point slides were used to display song lyrics rather than song books as they made it easier to read lyric lines and find songs while also increasing eye contact and social engagement. Access to supportive environments where skills and capacities are emphasized (as included in our TGS intervention) have been suggested to reduce the rate of decline in PwD (Kitwood, 1997).

The importance of effective therapeutic singing group facilitation for PwD/FCG dyads identified in our research, was also recognized by Unadkat et al. (2017) in their study examining various community singing groups, and McDermott et al. (2013, 2014) who explored group singing facilitated by credentialed music therapists. While Unadkat et al. (2017) did not identify the qualifications of facilitators in their study, they did capture PwD/FCG dyads' positive and negative experiences and concluded that effective facilitation encourages belonging, equal participation and social inclusiveness among group members. Our analysis of qualitative interviews further suggests that PwD/FCG dyads experience these psychosocial benefits when TGS is facilitated by credentialed music therapists. Therefore, consistent with recommendations made by McDermott et al. (2013, 2014), we believe that credentialed music therapists with both therapeutic qualifications and music expertise provide optimal social, emotional and physical conditions for PwD and FCG attending singing groups. Indeed, there is considerable evidence demonstrating a need for expert therapeutic leadership for groups involving PwD and FCG owing to the high incidence of complex mental health issues such as depression and anxiety (Prince et al., 2016).

Therapeutic facilitation in the current research intervention created an accepting and supportive environment that improved accessibility to group singing (Theme 2). This notion of accessibility was described as an environment within the group where participants felt comfortable about attending without fear of "judgment" (FCG2) or being "restricted" (PwD1).

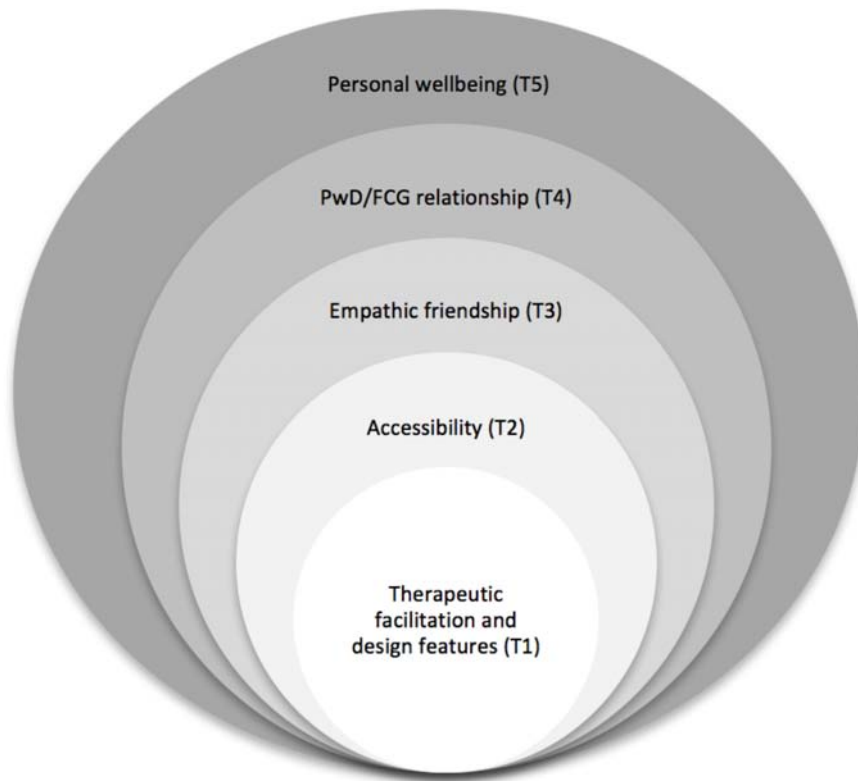


FIGURE 1 | Conceptualization of therapeutic group singing for community-dwelling people with dementia and their family caregivers.

Acceptance was largely impacted by the “affinity” (PwD2) that participants felt with one another. It is possible that a normalizing environment with others who had similar challenges provided respite from commonly reported experiences of stigma among PwD (Batsch and Mittelman, 2012), as described by participants in this study who felt ostracized from general choirs and had stopped attending.

Singing, combined with the affinity among group members led to the development of supportive friendships among participants (Theme 3). In particular, the bonds developed from group singing in this study were valued by the FCG participants. Strains on FCG including conflict and lack of awareness from other family members and social isolation increase their risk of mental health conditions such as depression and anxiety (Greenblat, 2012). FCG participants in our study spoke of these strains and stated that the empathy they experienced from and for other FCG was something they “didn’t find anywhere else” (FCG2) even among other family members. Group singing, which is known to have a strong impact on the development of social connections among people with chronic health conditions (including dementia) and also healthy populations (Gridley et al., 2011; Clark and Harding, 2012; McDermott et al., 2013; Reagon et al., 2016), acted as a conduit for the development of important new relationships among FCG. Participants in this study further suggested that the importance of these bonds between FCG would likely grow with decline in health and eventual death of their loved ones with

dementia. In support of this observation, our therapeutic singing group attracted two volunteers who were both recently bereaved following the death of their loved one with dementia.

PwD/FCG dyads explained how attending the singing group together supported their relationship (Theme 4). Our intervention design that involved both PwD and FCG in the singing group together was informed by recommendations suggesting that interventions promoting togetherness, shared meaningful experiences, and enjoyment in the here and now improve relationship quality (Wadham et al., 2016). Consistent with other research modeled on these recommendations (Camic et al., 2013; Davidson et al., 2014; Osman et al., 2016; Unadkat et al., 2017), our findings suggested that dyads appreciated being able to attend the singing group together. For some dyads, the singing group allowed them to continue their musical interest together, while others enjoyed learning and participating in singing together for the first time. Further, we were surprised to hear from participants that opportunities for involvement in meaningful activities that they both enjoyed doing together were not readily available in the community, and they were very concerned that the singing group would discontinue with the cessation of research funding. Fortunately, we were able to source further funding and the group was able to continue beyond the research period. Based on our findings and other research (Osman et al., 2016), it would appear that there is a demand for greater accessibility to

sustainable singing groups where both PwD and FCG can attend together.

Individual benefits from group singing reported by participants in this study (Theme 5) are widely reported. Evidence from systematic reviews recognize the positive influence from active group singing participation on outcomes measuring quality of life, mood, anxiety and depression both for people with chronic health conditions including dementia (Clark and Harding, 2012; McDermott et al., 2013; Reagon et al., 2016) and healthy populations (Clift et al., 2008). Consistent with our findings, other qualitative research examining group singing for PwD/FCG dyads also suggest that participants experience mental stimulation, enjoyment, and improved feelings of social confidence and self-esteem (Camic et al., 2013; Osman et al., 2016; Unadkat et al., 2017). In addition, a number of participants expected singing to be particularly valuable for PwD based on media reports and comments they had heard from experts (for example, their medical doctor) suggesting that singing is broadly recognized as beneficial by society. A number of FCG in this study also commented on the way PwD were able to learn of new songs and retain memory for these songs from week to week. While this phenomenon is controversial, it has been reported by participants in other singing groups for PwD and FCG (Camic et al., 2013), and in a detailed case study demonstrating immediate and delayed recall of an unfamiliar song by a 91-year-old woman with advanced dementia and no previous musical training (Baird et al., 2017). Further, recent research involving original group songwriting for PwD has demonstrated an ability to recognize and build on previously unknown musical material from one week to the next (Baker and Stretton-Smith, 2017). This capacity to learn new songs is fascinating to observe and deserves further research.

Limitations

The current study only investigated experiences following a 20-week intervention. This relatively short intervention period could be considered a limitation owing to the evolving and dynamic nature of the singing group with participants commencing at different times coupled with the degenerative nature of dementia. Nonetheless, in examining the first 20 weeks of the singing group, we also captured the group through its developmental stages with the formation of new relationships and personal changes such as increased confidence. Since this therapeutic singing group included spousal ($n = 8$) and parent/offspring ($n = 1$) dyads, we are unable to differentiate how the therapeutic singing group might be experienced differently across various caregiver-recipient relationships. It is also worth noting that we interviewed PwD and FCG participants from each dyad together, and while we feel that our PwD participants made significant contributions to the data (in spite of their dementia), it is possible that FCG participants are over-represented. Finally, the two interviewers (Authors 1 and 2) also facilitated the TGS sessions and it is possible that this relationship with participants influenced their responses and researcher pre-assumptions may have influenced the analysis of data. To deal with this, the third author (who was not involved in interviews or group facilitation) carefully read the data and assisted with the analysis process.

Recommendations

Based on the findings from this project and others, therapeutic group singing appears to make a positive short-term difference to the lives of community-dwelling PwD and FCG (Camic et al., 2013; Osman et al., 2016; Unadkat et al., 2017). However, systematic reviews suggest that knowledge about longer-term influences of TGS for community-dwelling PwD/FCG dyads is limited (Clift et al., 2008; Clark and Harding, 2012; McDermott et al., 2013; Reagon et al., 2016). Attendance in singing groups is a lifestyle choice, and it is also possible that there may be cumulative benefits over time such as delayed disease progression in symptoms dementia, improved coping among FCG, and reduced experiences of social isolation for both PwD and FCG leading to significant impact on long-term quality of life. Therefore, it would be interesting to explore ongoing health and well-being outcomes as well as experiences of TGS participants over the longer-term. Further, dementia is a degenerative disease and so an exploration of PwD's engagement in regular group singing from early through to later stages of the disease trajectory is relevant. Given the relationship between early interventions that improve social engagement, health and emotional wellbeing for both PwD and FCG and delayed admission to residential care for PwD (Greenblat, 2012; Prince et al., 2015; Farina et al., 2017; Frankish and Horton, 2017), it would also be worthwhile embedding a health economics health evaluation into a longer-term study.

Consistent with previous research, our findings suggest that facilitator expertise may impact the effectiveness of group singing for community-dwelling PwD and FCG (Unadkat et al., 2017). Therefore, it would be interesting to examine and compare various facilitation models. Such models might include singing groups for PwD/FCG dyads facilitated by: (1) credentialed music therapists; (2) community musicians; (3) credentialed music therapists and community musicians working together; and (4) community musicians overseen and trained by credentialed music therapists. It may be that different models would be suitable depending on the degree of recommended therapeutic input. For example, if participants were experiencing high levels of depression and anxiety, then a credentialed music therapist with expert therapeutic and music skills might be recommended. Alternatively, a professional musician may be more suitable for leisure singing groups where members have good mental health and an interest in musical skill development and performance opportunities. Finally, given low available numbers of credentialed music therapists compared with growing numbers of PwD, a combination model involving professional musicians who receive training and guidance from credentialed music therapists might best meet a potential high demand from PwD/FCG dyads for community group singing (Osman et al., 2016).

Participants in this study spoke about how they enjoyed giving performances. Performances by PwD/FCG singing groups demonstrate capacity and success, even among people with advanced dementia (Baird and Samson, 2009), and may contribute to a greater understanding of dementia among members of the public. A greater understanding and awareness of dementia among the general public has the potential to reduce

negative social perceptions and stigma leading to improved empathy (Batsch and Mittelman, 2012). Therefore, it would be interesting to examine audience and social media responses to public performances by PwD/FCG singing groups.

CONCLUSION

Participants in the current project were extremely positive about their experiences of this therapeutic singing group. This enthusiasm was evident from participants who had previous musical and singing experience and also by those who had never sung in a group before. A therapeutic singing group attended by PwD/FCG dyads together provided a supportive environment where participants had an affinity with one another. Within this environment PwD and FCG participants developed supportive new friendships and experienced many personal benefits, including feelings of success, improved confidence, enjoyment, and mental stimulation. For PwD participants, the singing group was a place where they could demonstrate strengths and skills rather than deficits. FCG participants particularly valued the empathy and understanding they shared with other caregivers. These psychoemotional, social and cognitive benefits are thought to promote self-identity, healthy relationships, and wellbeing for

both PwD and their FCG (Greenblat, 2012). Therapeutic singing groups for community-dwelling PwD/FCG dyads are not readily available in Australia, where this research was conducted, despite international evidence demonstrating a growing demand for such services (Osman et al., 2016). Therefore, further exploration of various models facilitated by credentialed music therapists and/or professional musicians might increase the availability of sustainable therapeutic singing groups leading to improved quality of life for community-dwelling PwD and their FCG.

AUTHOR CONTRIBUTIONS

IC and JT were responsible for the design, intervention implementation, qualitative interviews, and qualitative data collection for this study. IC, JT, and FB contributed to the qualitative data analysis and writing of the manuscript.

FUNDING

This research was funded by the National Health and Medical Research Council and the Australian Research Council (APP1106603).

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Meaning Making Process and Recovery Journeys Explored Through Songwriting in Early Neurorehabilitation: Exploring the Perspectives of Participants of Their Self-Composed Songs Through the Interpretative Phenomenological Analysis

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OPEN ACCESS

Edited by:

Nuno Conceicao,
Universidade de Lisboa, Portugal

Reviewed by:

Concetta Maria Tomaino,
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Function, United States
Eleonora Anna Mess,
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 04 March 2018

Accepted: 20 July 2018

Published: 07 August 2018

Citation:

Baker FA, Tamplin J, Rickard N,
New P, Ponsford J, Roddy C and
Lee Y-EC (2018) Meaning Making
Process and Recovery Journeys
Explored Through Songwriting in Early
Neurorehabilitation: Exploring
the Perspectives of Participants
of Their Self-Composed Songs
Through the Interpretative
Phenomenological Analysis.
Front. Psychol. 9:1422.
doi: 10.3389/fpsyg.2018.01422

Objectives: This pilot study examined how 15 participants in early rehabilitation described their self-composed Songs 6- to 12-months following participation in a 6-week identity-focused songwriting program. Specific focus was given to the process of meaning making and identity reconstruction in the participants' self-composed songs.

Methods: Data were collected through individual semi-structured interviews ($n = 15$) and analyzed using interpretative phenomenological analysis. Findings were developed idiographically as super-ordinate themes unique to each participant, then analyzed across cases to identify recurrent themes and subthemes.

Results: Participants described the songwriting process as taking them through one of four distinct recovery journeys described by individuals following acquired neurodisability who underwent a focused therapeutic songwriting program. These included (1) reconceptualizing values and shifting perspectives about self (my body is broken but my mind has been set free); (2) recognizing acquired inner resources to negotiate discrepancies in self (hope is there); (3) confirming existing values and identifying resources and coping strategies (I have what I need to move forward); (4) confirming previously held values and ongoing process of negotiating discrepancies in self (I don't yet have the answers).

Conclusion: The current study provides insight into the nature and process of meaning making and recovery journeys perceived by individuals with neurodisability. Our findings suggest that songwriting could be a therapeutic tool to facilitate identity reconstruction in neurorehabilitation.

Keywords: songwriting, music therapy, identity, recovery journey, spinal cord injuries, acquired brain injury, self-concept, meaning making

INTRODUCTION

Self-identity or self-concept is a broad term used to describe a set of characteristics that we perceive as our own and that are enduring, continuously evolving over time, and are shaped by our experiences and social interactions (Ownsworth, 2014). When people acquire a neurological disability, they can struggle to process numerous physical, cognitive and/or emotional changes, which may threaten the known self (Carroll and Coetzer, 2011). Such threats to the known self may lead to an internal conflict and to disturbed psychological equilibrium (Cicerone et al., 2004; Mateer et al., 2005). When internal struggles occur, these may further impact people's mental health and ability to function, including successful reintegration back into the community, returning to previous roles, and their capacity to maintain relationships (Ownsworth and Gracey, 2011).

Using a quantitative measure of self-concept, Tyerman and Humphrey (1984) found discrepancies between past and future self-ratings, as well as "striking similarity" between pre-injury and future self-ratings in individuals following severe traumatic brain injury (TBI). These findings have been explained in terms of a discrepancy between pre-injury and current selves and the prospect of resuming pre-injury roles in the face of sustained impairments. These discrepancies exacerbate the identity disturbance. Over time, heightened distress associated with persisting negative self-discrepancies may produce a sense of hopelessness and lead to maladaptive coping and disengagement from rehabilitation and from society (Ellis-Hill and Horn, 2000; Doering et al., 2011).

Individuals who actively pursue continuity in their identity (i.e., "It's the same me") as a process of re-establishing one's sense of self and place in the world, are more likely to experience positive long-term adjustment (Carroll and Coetzer, 2011; Wolfenden and Grace, 2012; Gendreau and de la Sablonnière, 2014). According to Ylvisaker and Feeney (2000), identity continuity is often achieved through re-connecting with one's values, activities, social networks and roles (e.g., parent) while confronting functional impairments and limitations (e.g., inability to drive). As such, successful identity reconstruction ultimately involves individuals exploring, and revising their self-concept, adjusting to a change in various aspects of self, and modifying future goals (Ellis-Hill et al., 2008).

There is a growing body of research demonstrating that individuals who experience life-altering events, such as an acquired brain injury (ABI), can experience positive psychological outcomes or 'post-traumatic growth' (Rogan et al., 2013; Zeligman et al., 2018). Post-traumatic growth has been conceptualized as a process by which individuals find new meaning and use the injury/illness as the opportunity to re-evaluate core priorities and anticipated goals (Hawley and Joseph, 2008). The presence of meaning and social support have been implicated as the strongest predictors of post-traumatic growth in individuals living with chronic illnesses (Zeligman et al., 2018). A recent study in a TBI group showed an association between living according to one's values and improved functional outcomes (Pais et al., 2017).

Therapeutic songwriting is a music therapy method, which is defined as the process of creating, notating, and/or recording music within a therapeutic relationship to address psychosocial, cognitive, psychological and communication needs of the client (Wigram and Baker, 2005; Baker, 2015). Therapeutic songwriting has been utilized by clinicians worldwide in both non-clinical and clinical populations across the lifespan (Baker et al., 2008). Using a previously developed therapeutic songwriting protocol (Tamplin et al., 2016) designed to promote reconstruction of self-concept in individuals with acquired neurological injuries, we analyzed the song lyrics of the three songs that each participant wrote (Baker et al., 2017). The songs focused on exploring self-concept using six domains (personal self, academic self, moral self, family self, social self, and physical self). The three songs focused on describing their self-perceptions of their pre-injured self (Song 1), present self (Song 2), and imagined future self (Song 3). An independent deductive analyses of 36 songs composed by 12 adults with spinal cord injury (SCI) and 11 adults with ABI showed that individuals tended to focus predominantly on the family and personal self when reflecting on who they were pre-injury while the songs moved toward a focus on the physical self when examining their present self. It was found that the song about their future self began to move toward a more balanced self-concept with many of the domains of the self-explored in detail.

Additional studies using the songwriting protocol with people with SCI (Roddy et al., 2017) and ABI (Roddy et al., 2018) indicated that there were some participants whose self-concept and well-being indices improved, while those participants with a more significant impairment, did not always demonstrate improvement. These later studies suggest that drilling down into participants' individualized recovery journeys may help to build a more complex and rich picture of how people with acquired neurological disability utilize a songwriting process tailored specifically to address the self-concept post-injury.

Our research methods used a phenomenological inquiry in that we sought to understand the phenomenon of identity reconstruction in people who were recovering from a SCI or ABI. The phenomenon of interest was how the participants perceived changes in self-concept post-injury and what the impact of a tailored therapeutic songwriting intervention was on that process. Phenomenological inquiry typically explores people's experiences by analyzing first-person accounts of how they experienced an event (Smith et al., 2009). Unlike the majority of interpretative phenomenological analysis (IPA) studies which focus on analyzing interviews with participants (Smith et al., 2009), our study combined the analysis of songs created during the songwriting process in concert with participants' own reflections of the song when they re-listened to their songs at a later point in time. In music therapy, novel approaches to understanding a phenomenon using IPA have included video analysis (Lee and McFerran, 2015) and analysis of musical improvisations (Pothoulaki et al., 2012). The IPA approach we undertook was guided by IPA principles of phenomenology (the study of the lived experience), hermeneutics (multiple interpretative processes), and idiography (understanding the unique and often subjective phenomenon) (Smith et al., 2009).

Our study aimed to gain an understanding of:

1. What participants described as key messages in their self-composed songs;
2. What meanings participants perceived across their self-composed songs.

MATERIALS AND METHODS

Participants

We analyzed data from 15 individuals (male $n = 11$; female $n = 4$) with ABI or SCI (mean age = 48 years; range = 20–66 years) who were undergoing inpatient rehabilitation or discharged from a sub-acute rehabilitation center in metropolitan Melbourne, VIC, Australia. Pseudonyms were allocated to each participant to protect their identity. Participants were an average of 300 days post-injury ($SD = 275$ days). The nature of injury or illness included ABI (i.e., stroke, TBI, Guillain Barre syndrome), traumatic SCI, and non-traumatic SCI (i.e., spinal stenosis, arteriovenous malformation), as outlined in **Table 1** below.

The project received ethical approval from the Austin Health Human Research Ethics Committee (HREC REF H2013/05038). All participants gave written informed consent prior to participating in the study.

Procedure

A detailed description of the 6-week identity-focused songwriting intervention with the theoretical framework underpinning the intervention has been detailed elsewhere (Tamplin et al., 2016). In

summary, participants in the current study created three songs; Song 1 about their past self, Song 2 about their present self, and Song 3 about their imagined future self. A qualified music therapist facilitated the songwriting protocol by assisting the participants to identify key aspects of themselves according to the previously described subdomains of the self-concept and to assist the participants to shape these into meaningful lyrics and create accompanying music.

Data Collection

Individual semi-structured interviews were conducted 6 months post-completion of the intervention and participants were encouraged to reflect on their experience of songwriting. The interviews allowed for sensitivity, reflexivity and flexibility for ‘participants to think, speak and be heard’ (Reid et al., 2005, p. 22). Interviews were conducted by either YL or CR. Interviews were 40–50 min in length. Questions posed to the participants were formulated to elicit the participants’ listening experience and perspectives on their songs at 6-month follow-up. After participants listened to each song, they were asked the following questions about each song:

1. What did you mean by the title of this song?
2. What is this song about?
3. Can you tell me about what is the overall message or themes of the song that you were trying to convey?
4. What did you mean by the lyrics in Verse 1, Verse 2, and the Chorus?
5. What were you thinking about when you wrote this song?

TABLE 1 | Participant demographic and clinical characteristics.

Participant	Gender	Age	Education	Marital status	Injury description
Melanie	F	20	Completed High School/V.C.E.	Single	SCI – post-MVA
Peter	M	50	Postgraduate University Degree	Married/defacto	SCI – sporting accident
Sam	M	44	Completed High School/V.C.E.	Married/defacto	SCI – post-MVA
James	M	64	Completed High School/V.C.E.	Married/defacto	ABI – Guillain Barre syndrome
Valerie	F	27	Postgraduate University Degree	Single	Non-traumatic SCI – arteriovenous malformation
Tony	M	61	Undergraduate University Degree/Graduate Diploma	Single	ABI – Guillain Barre syndrome
Hayley	F	37	No higher than Year 10 of high school	In a relationship but not living together	ABI – subarachnoid hemorrhage
Kelly	F	37	Completed apprenticeship/TAFE/College Diploma	In a relationship	Non-traumatic SCI – lumbar spine canal stenosis
Billy	M	29	Completed apprenticeship/TAFE/College Diploma	Single	SCI – post-MVA
Max	M	60	Completed apprenticeship/TAFE/College Diploma	Divorced/separated	SCI – post-bicycle accident
Richard	M	51	Undergraduate University Degree/Graduate Diploma	Married/defacto	ABI – left middle cerebral artery infarct
Tom	M	66	Undergraduate University Degree/Graduate Diploma	Married/defacto	SCI – post-fall
Finn	M	57	Undergraduate University Degree/Graduate Diploma	Married	ABI – Guillain Barre syndrome
Matthew	M	64	No higher than Year 10 of high school	Married	ABI – multifocal strokes
David	M	46	No higher than Year 10 of high school	In a relationship but not married	SCI – central cord syndrome

ABI, acquired brain injury; MVA, motor vehicle accident; SCI, spinal cord injury.

6. How does it feel to listen to this song now? Do you think the feelings have changed from when you wrote them?
7. Does this song still have meaning for you now? Why/why not?

Data Analysis

We transcribed all the interviews and imported these transcriptions into MAXQDA qualitative analysis software. This MAXQDA file was then duplicated so that authors YL and FB could independently read through the interviews and code what participants said about each of the three songs they created. Drawing on hermeneutics, we returned to the interviews on multiple occasions over 6 months, creating themes that reflected participants' perceptions of the songs' meaning in the context of their recovery journey. Where appropriate, *in vivo* coding was used to ensure the participants' intended meaning was not lost during the analysis process. YL and FB, then independently distilled all the codes to arrive at an interpretation of the meaning behind each song and the story of recovery that the song was communicating. Following this, YL and FB compared their analysis of each song, and arrived at similar distillations, sometimes differing in terminology when aggregating several codes. Examples of these can be reviewed in Table 2.

Following this process, FB and YL compared the distilled stories across cases, and looked for common threads. After immersing themselves in the data for an extended period of time, they grouped participants' stories according to similarity in journeys through the songwriting process and then aggregated the stories from each group to arrive at composite journeys.

RESULTS

We distilled individuals' experiences into four distinct journeys. In summary, these were: (1) re-conceptualizing values and shifting perspectives about self ('my body is broken but my mind has been set free'); (2) recognized acquired inner resources to negotiate discrepancies in self ('hope is there'); (3) confirming existing values and identifying resources and

coping strategies (I have what I need to move forward); and (4) confirming previously held values and ongoing process of negotiating discrepancies in self (I don't yet have the answers). The four distinct journeys are depicted in Figure 1 and described in further detail in the subsections below.

Recovery Journey 1: 'My Body Is Broken but My Mind Has Been Set Free'

Three participants (Melanie, Peter, and Sam) described a similar journey in their self-composed songs of how their injury/illness provided them with an opportunity to reconceptualise their values and shift their perspectives about self. Melanie described her first song as the process of reconceptualising her values pre-injury, specifically how her injury made her recognize how selfish she was before the injury stating:

"...like looking back at what I – the person that I was... I was there, but I didn't really... I think I was very, quite selfish... I didn't appreciate the things I took for granted, like walking and things like that, I just didn't even give it a second thought, which no-one ever does."

Similarly, Peter stated that his first song contained key messages about the regret about his lack of purpose and "disappointing" pre-injury life:

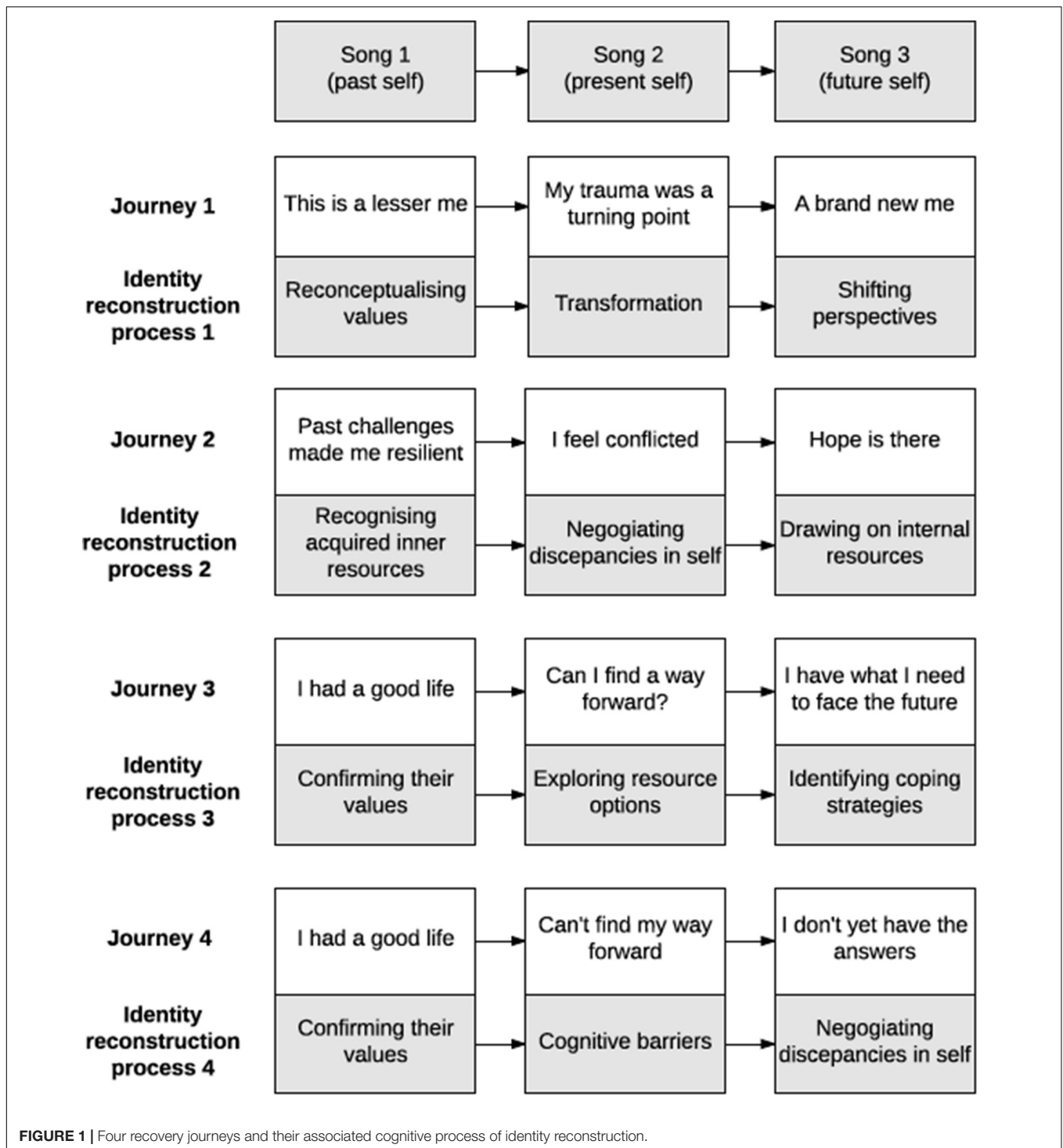
"Just take away very proud childhood to a rather disappointing ending really. To that point, I really hope I could have achieved a bit more but initially was really full of hope and then it turned to something else. So, it's a bit of a disappointing ending."

In the same vein, Sam described the key messages of his first song to be a reflection about his upbringing and regret about not appreciating his family – "I thought that I wasn't showing enough affection to her [wife]... with the kids that they mean everything."

Participants in this journey described Song 2 and Song 3 to reflect how their trauma served as a *turning point* for shifting their perspectives about self and life. Melanie described how her injury was "the best thing that could have happened to me." She stated that her songs convey the losses and challenges associated

TABLE 2 | Examples of how author 1 and author 2 distilled their analysis into the essence of each song.

	Song 1 message/theme (FB)	Song 1 message/theme (YL)	Song 2 message/theme (FB)	Song 2 message/theme (YL)	Song 3 message theme (FB)	Song 3 message/theme (YL)
Matthew	I never gave up despite obstacles; describe life, pain, but still remaining positive	Remaining positive in the face of challenging past life (health)	Capturing difficult period in hospital	Capturing dark period in hospital	Tragedy makes you review your life	Importance of family to get him through the challenges of stroke
Kelly	Reflection about self-worth, loving herself and letting go of the past	Self-worth, allowing self to be loved again; song expressing unresolved feelings re: marriage breakdown	Living in a new body (adjusting to physical changes/from being an athlete); holding onto hope	Living in a new body, hope is healing; message to self (like a mantra to get her through difficult times)	Accept aids and accept myself; positive messages of affirmation; hope is there	Setting realistic expectations for the future; balance between hope and realistic expectations



with her injury including the “dark” period in hospital and reflects on how the injury has “changed me for the better.” She stated, “now I see the me I was meant to be. It’s like now I get it. This is what I’m supposed to be. It feels right” and added “my body is broken, but my mind has been set free.”

ciated with his injury and how t Similar themes emerged throughout the songs of Peter who stated that his Song 2 and Song

3 reflect on his losses and challenges associated with his injury and how the injury shifted his perspective about self and life:

“All those questions. . . could I walk. . . if that won’t happen, will that be the end of me. . . What if I couldn’t walk, never walk. Then, well miracles do happen. I could walk again. Everything back to normal. Family rejoice. Then the last paragraph [of the song] is it doesn’t matter. Whatever happens, I’ve gone through this journey.

Compare it to, I'm lucky I'm alive. Literally second life really. So, it's whatever happens that's the brand new me. . . I look at life very differently now. . . Even if I go back, it won't be me anymore. It wouldn't be the same me because I have more experience. . . Things have to change for the better."

Sam described his Song 3 as capturing how his injury/illness redefined his identity and outlook in life – "New and different me. . . my outlook is not going to change. Not starting over, but just start a new chapter." Similar to Melanie and Peter, Sam said that Song 3 contained themes about shifting his perspective about himself:

"So, that's breaking free mentally. No more pleasing people or if someone said something nasty, I'll just put them back into place. If they say something nice, then I'll be happy and friendly with them. Everything straight out, straight down the line. . . my body is still broken but I'm getting better and better."

Recovery Journey 2: 'Hope Is There'

Five out of fifteen participants (James, Valerie, Tony, Hayley, Kelly) described how their resilience acquired through past challenges allowed them to draw on their internal resources in the face of their injury/illness. Specifically, participants described how their self-composed songs explored the process of recognizing their inner resilience from past painful experiences to reconciling the negative discrepancies in self to overcome their current injury/illness.

Three participants (Valerie, Tony, Hayley) stated that Song 1 depicted their challenging early life experiences. Valerie stated that:

"I think I've struggled a lot during my early years. This song really expresses who I was before. . . and then my struggles, to be accepted by the family. . . Because I think they didn't really intend to make me feel that way. But unconsciously they were able to or maybe sometimes it's because – it's just me. It's just me because I just keep on thinking that maybe I wasn't good enough."

Valerie described how Song 1 captures what she had learnt from her early challenges:

"... the chorus is more telling you that you could be beyond actually what you think yourself could do. Sometimes you just stop listening to what others are telling you. It's more of listening to yourself because that's who you are. Then it's you that makes you you. . . Don't forget about the struggles that you had before because that would help you now."

Two participants (James, Kelly) reflected on a particularly challenging period in life prior to injury/illness in Song 1. For instance, Kelly described how her first song reflected on how challenging past experiences allowed her to cope with the current illness:

"[when I was writing the song] I was thinking about self-worth and that came up a lot when – in rehabilitation and I've struggled with self-worth for a big part of my life, particularly during my marriage. . . then the marriage breaking. . . So, whether the breakdown actually prepared me mentally for the surgery and the spinal cord injury, I don't know. So, I think that's why a lot of that was coming out in that song."

Valerie described Song 2 as her inner struggle about facing the losses and challenges and the process of negotiating the conflicting identities following her injury:

"Because that moment when I was writing this song, there were so many things playing in my mind. The different aspects of my life that I am thinking that I'm losing them. I'm losing my life. I'm losing my work. I'm losing everything. Of course, you have that eagerness in yourself that I want them back. I want the things that I've worked hard for to still be there. . . I lost one big part of my life. . . my health. . . I lost it, because I didn't value it much."

Similar themes of negotiating discrepancies in self and recognition of inner resilience from past experience were described by James in Songs 2 and 3.

"Life was good and I didn't want to lose it. For a change, I had a good life and with kids around and good family life and I just didn't want to lose that basically. . . I'm talking about how I beat the cancer and I will beat this one too. I'm getting there so it's not a problem. If I'm going to stay this way that's fine. I'm accepting that I'm not 100% but who cares?"

Tony described his emotional conflicts associated with the losses he had experienced due to his illness and the process of negotiating these losses in Song 2:

"Well, basically, I was saying that it's basically my life in music has died. . . because of the state of the industry and what I concentrate on and what I was good at, no longer existed. The depression of being sick and the way it makes you feel, all the different emotions go through and that and with so many of my friends dying over the last few years."

"But it's the same old story. Bigger it. Don't let it get you down. Just keep on going. Try something else, try whatever. . . So, basically, it was a case of get up, keep doing things. Keep doing stuff, if no more than just to show people that you are not crushed by the fact you have got nothing to do anymore."

Hayley described her Songs 2 and 3 as the process of recognizing and drawing on her existing internal resources to negotiate discrepancies in self:

"I guess even though things might be bad underneath, it's still – I'm still able to just let it go, concentrate on what has to be done and keep smiling on the outside. Keep being happy and positive. I think that's the whole positive part, because that's – positive thinking does really get you everywhere."

Similarly, Valerie and Kelly stated that Song 3 reflected on the process of drawing on their previously acquired inner resources. Valerie described Song 3 as:

"... this song I said, just- I want to say to myself that everything is going to be alright. Because in the situation I really can't do so much. I don't want to force myself again and then compromise or jeopardize my health again because of the things that I wanted. So, it's like okay everything is going to be alright. . . It [song] still has a very good mantra that's telling you to don't be stressed and just I think trust that everything will fall into place."

Kelly talked about a similar theme in her Song 3:

“There was hope in there, love myself in there, accept aids and accept myself and don’t think too far ahead. Live for now.”

Recovery Journey 3: I Have What I Need to Move Forward

Six out of fifteen participants (Billy, Max, Richard, Tom, Finn, Matthew) interviewed described how their songs reflect important values (family, religion, home), exploring internal and external resource options and identifying coping strategies to overcome injury/illness. Billy discussed the importance of reflecting on his past and confirming his values in Song 1:

“Dancing in the past. . . it’s like, you know, don’t rush through reflection. If you’re looking at your past, don’t rush through it, don’t just skip over it, don’t just. . . take your time, but don’t just take your time with it. The dancing part is like enjoy, enjoy the highlights of the past.”

“That (song). . . I guess this caps off what it means for me to dance through my past, to look back and see how even the sad stuff and the kind of crap I had in my life was turned around because I was allowed to help other people because of it. Because of the experience I’m able to use that experience of good instead of generally sweeping over the past.”

In Song 1, Finn voiced about the start of his new life in Australia as an important period in defining his values pre-injury:

“So yeah, it was taking a step into something really new. It was exciting but it was scary as well. . . it was all exciting coming to Australia and that’s what I tried to put in the song. Yeah, that’s just the story of how things did happen.

Similarly, Tom reflected on his important values pre-injury in Song 1:

“It’s really about the idea that. . . you make great progress if you take your starting point from people who have already achieved great things. . . that you can take inspiration from other people, and you can be stronger and bolder, when you take that inspiration.”

Max described how his first song captured the importance of home and spirituality in defining his values in his pre-injury period:

“It captures my life at home. I thought of my life at home – my neighbor – playing games in the backyard with my kids. The park – when I took my kids to the park. . . All the time-take courage to the fact that there’s someone listening to me and worship is pretty much part of that. So, it’s devotion to a listening spirit.”

Tom reflected on the process of exploring the options and resources to establish a new way of living with his acquired injury in Song 2:

“It depends on your perspective, and how you look at things. You can look at the opportunities. . . what I’m really saying is that I’ve now established a new way of living, and making the most of what I can, and being creatively restless, and not dwelling or feeling sorry for myself. . . That, I’ve pulled everything back together again, and I’m doing things which I feel are useful and giving me satisfaction.”

In Song 3, Tom described the process of identifying coping strategies and drawing on existing inner strengths to move forward with living with his injury:

“The first step in all of this is to. . . get all that in place, and then to move forward from there. Well, really, the emphasis is on thrive, that – the emphasis is to make the most of what you now have available. . . there is no reason why you can’t – why I can make progress and make a valuable contribution to my family, and continue to enjoy life. . . The key to all of this is to have some hope that particularly technology will – is evolving so fast, that you’ve got to maintain a positive attitude and not fall down. Relax a little bit, and allow things to happen.”

Richard described how Song 3 was about recognizing his values and re-evaluating his goals and priorities, identifying resources to cope with his illness:

“I think the main theme was that I’m ok. It’s been a good life and I’m ok. Being a family man, yes, and now I know who I am. Yeah, because I couldn’t – when I woke up in the hospital I didn’t realize that no one could understand what I was saying. . . Yeah. it slowed me down but it keeps me busy. Closer to my family and my friends. Everyone’s been visiting and showing their support – oh yeah, well that was people that came from work and friends to see me in [hospital]. They always made me laugh.”

“I suppose I was looking forward to getting back to work and those sort of things, but not everything has happened. So, the dream is near and some of it’s gone further away. Some of it’s come closer.”

Finn described how his second and third songs captured his experience of overcoming his illness using his inner resources and celebrating the ‘end’ of his illness:

“. . . I was trying to explain exactly that this is what I have been through and I’ve come out the other side. It hasn’t got to the part of coming out the other side but how (my illness) affected my life and that I wasn’t very happy about having it but there you go, I had to grin and bear it and suffer on, see how we get through. . . because it [the song] was a celebration that everything has finished and it’s all back on the motorbike and we’re hunky dory again everything is back to normalish.”

Matthew reflected on his recovery, and the process of exploring and identifying internal and external coping strategies to overcome challenges in Songs 2 and 3:

“It is about coming home and all the changes that you were going through. . . I think I tried to say how grateful I was, and how I came at this stage and how far I wanted to take it. The people that helped me, along the way. Which is my wife, and my grandkids, and my kids.”

“Looking for the future. Like I said before, when I was in hospital my son says you can’t go to sleep, or whatever. You can’t die, because you’ve got another grandkid coming up. Now I’ve got another one, I’m looking forward to, in about 3 months’ time. So always you’ve got something to look forward to, in life. My ambition is now to grow old with my wife.”

Billy talked about how his second song contained the main message of his inner struggles in facing the physical changes and exploring inner resources associated with his injury:

"It's sort of a play on words because moving in the moment, well, I couldn't really walk through the motion of movement through the moment, if that makes sense... I literally was sitting still, because I was in my day chair and I couldn't really walk away from the table. There was so much happening around me with turmoils of emotions and thoughts, my mum and dad's emotions and thoughts... Sitting still in the middle of the mayhem, not running, not walking, but moving in the moment. And I realized I was still running the race, and I was still walking out my faith, even though I couldn't walk."

Billy went on to reflect on how his song described the importance of spirituality to get him through rehabilitation:

"Obviously my feet can't walk at the moment, well at that time I couldn't walk – but I'm still following my faith, I'm still following what I believe. Walking within my hope, taking steps in faith. Then I ride along for now – it's like, I ride in a wheelchair for now, I'll ride this wave for now, I'll ride this rollercoaster, sit in the middle of mayhem and pray... I think it's [faith, spiritual self] grown, it's sustained me a lot, but it's also grown a lot. Even people back home say you've just grown so much and, you know, I don't necessarily see that myself until I reflect on it."

"But, you know, looking back on these words, you know, I've just gone wow, my faith has really supported me in these times. You know, just being able to write these songs, was like, really helped me express where I was and reflect where I was."

Recovery Journey 4: I Don't Yet Have the Answers

One out of fifteen participants (David) described how his songs reflected on his work and home life and evaluating his values pre-injury, processing the changes following the accident and negotiating the discrepancies associated with his past and current self:

"It just meant that, a few beers and a smoke after work... I probably drunk a bit too much before I hurt myself... I used to be away during the week, so on the weekends I'd just go and mow the lawns and that, have a few beers in the shed and have a game of pool with the kids or whatever. Family time or – mm, and mucking around with old cars or something."

He talked about how his second song reflected on his cognitive and emotional processes including the challenges and expectations associated with his illness:

"It's how life has changed after the accident. Like I said in the song, life's meant to get – not so hard, get easy, but it hasn't. It hasn't got any better, I don't think anyway. Well, I couldn't do nothing for myself and anything else. I still feel a bit like that now. Yeah, to have people helping me and all that. That side of it hasn't really changed much. Felt like a burden stuck in this chair... Yeah, I've even lost that, just sitting around wondering what I'm going to do with myself. Yeah, I was better then because I thought I was going to get a little bit better. Now I'm just stuck with what I've got. I wrote some of these songs when I was sort of – gaining momentum. Then all of a sudden it hits you, and so, like this is

it. This is all, it's it... Yeah, I got to the plateau and then I fell off it."

David reflected on how his third song captured his anxiety and fear about the uncertainty of his future:

"I was worried about going home and how I felt I was a burden and all that. In the end, it worked out to be right, didn't it? Feeling like it would be a bit hard to transition back into family life... and how it was going to affect the kids and all that when I did get home. It affected them more than what we really know... Well, it did, didn't it? I'm not in the family life anymore. Yeah, and it worked out the way I thought it would in the end... Yeah, and all of my fears come true. It still is challenging now."

DISCUSSION

This study explored the experiences and meaning making of individuals in early rehabilitation who participated in a targeted identity-focused songwriting intervention. The four distinct recovery journeys that we identified illustrate that evolution of self-concept post-injury is complex but that with the exception of the one participant whose journey was characterized by a continuous struggle (journey 4, David), the therapeutic songwriting process enabled our participants to explore their self-concept, grief process, and reconceptualise their future selves in unique but useful ways. By exploring their perspectives of past, present, and future through song, our participants were able to recognize that the recovery journey enabled them to have a positive shift in sense of self (journey 1), negotiate inner conflicts and identify internal resources (journey 2), or explore potential ways to cope in the future (journey 3). These different journeys occurred despite the intervention protocol being delivered in the same way to all participants. This suggests that the process of exploring the past, present and future self through the songwriting process may have important value for people with acquired neurological disability, even if the effects of the intervention and the recovery journeys encountered by participants differ. We found that participants were able to negotiate discrepancies in identity continuity as they reconnected with their values, reflected on their relationships with others, family roles and social roles, while simultaneously confronting functional impairments and limitations (Ylvisaker and Feeney, 2000). This was all achieved through the creation of songs about their past, present and future. In addition, current findings appear to align with the post-traumatic growth literature, which suggests that meaning and social support are associated with positive psychological growth in individuals following life threatening events such as neurological injury/illness (Zeligman et al., 2018) and that focusing on one's values may facilitate positive outcomes and psychological adjustment following TBI (Pais et al., 2017).

With respect to the participant in journey 4, it seems that despite the intervention, he was still in the midst of negotiating discrepancies in his self-concept and grappling

with adjusting to a changed self as he confronted the impact of significant disability. Perhaps for this participant, the length of the intervention period was too short. Maybe he needed more time and space between sessions to process his explorations of self or more space between the creation of each song before he was ready to move further in his recovery journey. Alternatively, perhaps 12 sessions to create 3 songs was insufficient and this participant needed more sessions to support him through his journey, which is evidently slower than others. This may be especially apparent given that short-term memory and cognitive challenges may inhibit those with neurological disability, especially ABI, moving forward in a psychological process (Tamplin et al., 2016). This participant could have had limited cognitive resources and/or was experiencing psychological resistance, thereby requiring more time to process the meaning on his injuries in the context of his present and future life that resulted from his injury.

Another potential explanation for this participant's more negative journey is that it might not have been the right time in his recovery process to participate in this personally confronting process. When experiencing such a crisis, it may be difficult to voice your thoughts as once you label your feelings and shape them into lyrics, you need to own them (Baker, 2013). It is possible that this participant had so much to deal with, including staying focused on his rehabilitation program, that reflecting on the present and contemplating the future was just too confronting for him at this time post-injury. Timing of intervention implementation is an important consideration in music therapy practice. Being able to determine "when is it too early? when is it too late? and when will the intervention have the biggest impact?" are important questions research should seek to answer. Further research focused specifically on the timing of therapeutic songwriting implementation is needed to further develop our knowledge and ensure best practice.

Study Limitations

This study reported on qualitative analyses of interview data from participants who were available and willing to be interviewed at 6 months post-intervention. It is possible that those who were not able to be followed up, intentionally did not respond to our invitations to be interviewed because their experiences were not as positively transformative. If so, we may have an inherently biased sample of participants who were willing to share their experiences. If we had studied carefully the journeys reported in all of the participants' songs, we may have encountered more participants who experienced journey 4 or experienced other less transformative journeys than those reported by our participants. Considering the quantitative data that suggests some participants experienced positive changes in identity while others had negative changes (Roddy et al., 2017, 2018), these findings need to be viewed with caution and not necessarily as representative of all people's recovery journeys. Further investigation into the journeys that were negative is warranted to gain a deeper understanding of how

songwriting influences recovery and the reconstruction of the self-concept.

Implications of Study and Recommendations for Future Research

Our research indicates that a therapeutic songwriting protocol that specifically targets an exploration of the self-concept facilitates a recovery journey, of one form or another. The focused process of exploring the self through a songwriting experience enables people with neurological disability to reflect on their thoughts, and through the crafting of lyrics and music, revisit their perspectives over and over again (Baker, 2015). This revisiting that occurs when re-reading and refining their lyrics (Tamplin et al., 2016), fosters opportunities to reframe feelings about their situation with the aim of enabling people with neurological disabilities to reach a consensus on what is meaningful in life and resolve potential conflicts between what was, is, and can be. These findings are likely to have clinical implications for music therapy clinicians, as recognizing transformative moments that match one of the four possible recovery journeys might inform whether further exploration is needed (and the issues subsequently included in song lyrics). This knowledge also gives clinicians permission to allow people to experience conflict, knowing that conflict is integral to some people's recovery journey. Clients may be inclined to drop out of treatment when issues being explored become confronting. However, clinicians can use findings from this study to share with their clients, informing them that conflict may be an integral part of the journey to a healthier and more positive self-concept and more positive view of their future.

We have a long-standing commitment to using therapeutic songwriting with vulnerable populations because of the potential for this medium to tell people's stories in a form (verbal) with which most people are familiar. Music in this case can be used to convey mixed or ambivalent emotions or to further intensify the meaning of the lyrics. However, we acknowledge that the more traditional music therapy method of improvisation also has the potential to explore people's feelings and sense of self. Future research could explore and compare aspects of the music therapy process by improvising on the referential theme of past self, then on present self, and then on an imagined future self and comparing the journey and outcomes with those that use songwriting which uses verbal processing.

Using therapeutic songwriting as a tool to address a disintegrated or negative self-concept and identity is emerging as an area of increasing importance across a broad range of clinical areas (Baker and MacDonald, 2017). Identity crises may be experienced by people who have experienced abuse, displacement, mental illness, or recent diagnoses of terminal illnesses, all of whom might benefit from a tailored songwriting program, such as that used in the current study, which specifically focuses on reflecting on past, present, and future. Clinicians are encouraged to consider the broader applicability of this research and whether their clients with identity crises of differing origin respond to the songwriting protocol in ways that map onto the journeys presented here.

CONCLUSION

Our study found that participants with a SCI or ABI were able to constructively use a therapeutic songwriting process to reflect on and explore aspects of their pre-injured self, present self, and an imagined a future self as someone living with a permanent acquired disability. By synthesizing the participants' own reflections on their songs' meanings and comparing these perspectives with the lyrical content of the songs, we were able to synthesize the experiences of 15 participants into 4 distinct recovery journeys. Our research shows that through the creation of three personally meaningful songs, participants with acquired neurological disabilities have the opportunity to reconceptualise what is valuable to them, to recognize and utilize their inner resources, to confirm their values, and to identify coping strategies that will support them as they contemplate a future with permanent disability. Songwriting was found to be a

powerful means to explore the self and engage in a recovery journey.

AUTHOR CONTRIBUTIONS

FB was responsible for the overarching design of the study and design of the intervention. Y-EL and JT conducted the songwriting interventions. FB and Y-EL undertook the interpretative phenomenological analysis and then sought further input from the remaining authors. All authors contributed to the development of the research questions and interview questions presented to participants and writing of the manuscript.

FUNDING

This project was made possible with the support of an Australia Research Council Project (Grant No. DP150100201).

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Summary of Twenty-First Century Great Conversations in Art, Neuroscience and Related Therapeutics

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OPEN ACCESS

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 16 May 2018

Accepted: 22 July 2018

Published: 08 August 2018

Citation:

King JL (2018) Summary of
Twenty-First Century Great
Conversations in Art, Neuroscience
and Related Therapeutics.
Front. Psychol. 9:1428.
doi: 10.3389/fpsyg.2018.01428

Transdisciplinary collaboration is the future of knowledge making in advanced post-industrial societies and there is a growing awareness that the most vexing problems we face cannot be solved by any single discipline. Best practices for complex and challenging physical and mental disorders require a multi-disciplinary approach, yet there is a void in bridging the gap between the most contemporary models. It is in this capacity that the Twenty-First Century Great Conversations in Art, Neuroscience, and Related Therapeutics serves as a missing link. It was with active minds and a collective spirit that artists, scientists, therapists, physicians, engineers, technology experts, healthcare practitioners, and researchers from across the globe transcended historical silos to explore the capacities for collaborative partnerships to influence the health of patients and the amelioration of disease. Hosted at Indiana University-Purdue University Indianapolis (IUPUI), presenters shared insights through didactic sessions and panel discussions aligned with three tracks led by prominent experts in their respective fields: (1) Neuroaesthetics, Anjan Chatterjee, MD; (2) Creativity and Consciousness, Arne Dietrich, PhD; and (3) Mobile Brain/Body Imaging (MoBI), Klaus Gramann, PhD. The goals for this symposium were developed from a vision which embraces cross-disciplinary intersectionality, a merging of viewpoints, and active dialogue surrounding the development of a common language with which to advance the Creative Arts Therapies and neurosciences. The goal was also to contribute to the development of a simplified roadmap to enhance and enrich the CATs with a greater understanding of neuroscience and the available technologies that can assist in research.

Keywords: art, neuroscience, creative arts therapies, art therapy, mobile brain body imaging, neuroaesthetics

Transdisciplinary collaboration is the future of knowledge making in advanced post-industrial societies and there is a growing awareness that the most vexing problems we face cannot be solved by any single discipline. Current best practices for complex and challenging physical and mental disorders require a multi-disciplinary approach, yet there remains a void in bridging the gap between the most contemporary models. It is in this capacity that the *Twenty-First Century Great Conversations in Art, Neuroscience and Related Therapeutics* serves as a missing link. This international symposium was hosted at Indiana University-Purdue University Indianapolis (IUPUI), where the schools of Art, Medicine, Engineering, Informatics, Health, and Rehabilitation Sciences, Nursing and Liberal Arts joined healthcare practitioners and researchers from across the globe to transcend historical silos and explore the capacities for collaborative partnerships to influence the health of patients and the amelioration of disease.

The symposium took place over 3 days and was attended by more than 120 people from 10 countries. 13 speakers shared insights through didactic sessions and panel discussions aligned with three tracks led by prominent experts in their respective fields: (1) Neuroaesthetics, Anjan Chatterjee, MD; (2) Creativity and Consciousness, Arne Dietrich, PhD; and (3) Mobile Brain/Body Imaging (MoBI), Klaus Gramann, PhD. Although there are many conferences that focus on the intersection of arts and sciences, the goals for this symposium were specifically developed from a vision which embraces cross-disciplinary intersectionality, a merging of viewpoints, and active dialogue surrounding the development of a common language with which to advance the Creative Arts Therapies (CATs) and neurosciences. The goal was also to contribute to the development of a simplified roadmap to enhance and enrich the CATs with a greater understanding of neuroscience and the available technologies that can assist in research. (See **Appendix A** for Speaker Topics and Primary Themes and **Appendix B** for recommended readings based on Keynote Addresses) (**Supplementary Material**). This perspective article is written through the lens of the symposium organizer, an art therapist, and is intended to highlight common themes extracted from the three keynote addresses and offer commentary for how these themes can be translated into research potentials at the intersection of our respective disciplines.

CATs embrace the variances of subjective artistic expression and its value in representing more completely the psyche of the individual, while neuroscientists typically strive for precise data acquisition in advancing the understanding of brain structures and functions. CATs rely upon the creative process and non-verbal symbolic expression as contributing factors for effective intervention and are positioned to understand that rigor in a scientific experiment that cultivates data inclusive of generalizability is just as important as arts-based research that calls upon intuition and phenomenological inquiry to inform what it is that we are seeking to understand. Creative Arts Therapists and neuroscientists need to evolve existing common language that will allow for communication and connection across disciplines and cultural barriers. Often times our seemingly distinct fields use the same words with different meanings which challenges the ability to communicate and may complicate our discourse. For example, “bottom up” and “top down” processing means something completely different to an engineer, a neurologist and an art therapist.

Through the identification of specific research questions that utilize a common scientific language, the CATs have greater capacities to provide insight into the links between cognitive, affective, and symbolic expression and brain function. Simultaneously, the translation of computational neuroscience data and neural correlates to human behavior is an expansive and rich terrain upon which the CATs have enormous potential to contribute. With a comprehensive understanding of the neurological mechanisms involved in creative expression, Creative Arts Therapists have more power to advance and perfect such forms of therapy, establish proof of what works and what does not and create models for delivering optimal treatments to better serve our patients.

This summary serves to disseminate the primary elements from the three Keynote Addresses and panel dialogue of these *Great Conversations*, offer integrative commentary for how the material translates to the research of the Creative Arts Therapist, and set the stage for future collaborative work in the coming years. The privilege to design and organize this symposium would not be possible without the support and guidance of Dr. Robert Pascuzzi, Chairman of the Department of Neurology for the IU School of Medicine. Many thanks for the input and participation of art therapist and research assistant Kaitlin Knapp in the design and implementation of the symposium and the preparation of this manuscript. Special thanks to planning committee members Alexandra Shaikh, JD Hall, MC Jill Ditmire, filmmaker Leigh DeNoon, and the graduate art therapy students that helped with the conference proceedings. Much gratitude is extended to the Indiana University New Frontiers in Arts and Humanities, the Indiana Clinical Translational Sciences Institute, IU School of Medicine Department of Neurology, Herron School of Art and Design, Efroymsen Family Fund, and the Buckingham Foundation for the financial support for this event. **note: permission was obtained to report the names and content of participants.*

NEUROAESTHETICS

Anjan Chatterjee, MD

Neuroaesthetics is a branch of empirical aesthetics that uses neuroscience to understand aesthetic experiences at the neurological level. Dr. Anjan Chatterjee called upon the work of Gustav Fechner to explain the origins of neuroaesthetics and described how properties of the world are systematically related to properties of the mind. There is an outer psychophysics, which relates properties of the world and mind, and an inner psychophysics, in which properties of the brain, of the nervous system, relate to properties of the mind.

There is a cognitive neuroscience of aesthetics and a cognitive neuroscience of art that are often related, but not identical. For example, one can have aesthetic experiences of natural objects such as faces and landscapes and also abstract objects like mathematics. Mathematicians talk about beautiful theorems and elegant proofs, and aesthetic experiences can occur when things are removed from art. It would be a mistake to think that aesthetic processes, either perception or production, occur in one part of the brain. This idea is categorically wrong. Dr. Dietrich expanded on this in his Keynote Address with what he referred to as the *brief and frightening reign of the right hemisphere*: Creativity is not localized and although hemispheric specialization is of heavy interest to a neuroscientist, and there are many cognitive functions that show this lateralization effect, creativity is not one of them.

Aesthetic experiences are among the most complex of brain functions. The brain sorts different pieces of the world (stimuli) into different modules that carry out specialized processing. Some of these modules classify objects like faces and bodies and body movements. It appears that these same modules also evaluate these objects and likely work in concert with the brains reward systems to produce our emotional responses

regardless of whether they are delight or disgust (Chatterjee, 2016). For example, when people are looking at attractive faces, parts of the visual cortex that are specialized in processing faces tends to be active. Simultaneously, the reward systems that are in the front of and deep in the brain are active. (Including the orbitofrontal cortex, dorsal medial prefrontal cortex, nucleus accumbens, and the insula). The general system for valuation and rewards seem to be activated by attractive faces. Dr. Chatterjee explained that the cortical systems in the human brain interact with the deeper systems and provide a context in which we approach our *wants* and enjoy our *likes*.

Commentary

Understanding more thoroughly the connections between visual information processing and reward systems provides ample opportunity to study the nature of creative expression in clinical treatment with the addictions population. Creative Arts Therapists can significantly contribute to these inquiries by helping to translate what the science of the brain might look like in a clinical context. Can we compare an attractive face to a drug? Can we compare non-invasive stimuli with a stimulant drug and affect the reward system? If we know that we change our brain chemistry when we engage in activity, how can we learn more about the differences that making art and viewing art have on the reward systems? On neurotransmitters? Recent studies in physiology of creative expression and aesthetic experiences help to conceptualize the many ways of initiating research in this arena (Kaimal et al., 2017a; Pelowski et al., 2017). Contributing to the research on addictions by testing art therapy intervention through a neuroaesthetic lens is timely, given the current opioid crisis in our nation and overall prevalence of addictions and substance abuse.

Building upon great strides in the field of art therapy (Walker et al., 2016, 2018), a clinical population ripe with potential for collaborative inquiry is brain injury. One reason for this is that it may be easier to assess a change in a resting or task-negative state pre and post CAT intervention since a brain injury tends to be more static in nature compared to a condition such as Post Traumatic Stress. Chatterjee and Coslett (Chatterjee and Coslett, 2014) affirms that brain damage can alter the available parts of the brain dedicated to the overall artistic output that becomes the product of a different coordination of components. He makes an analogy where we might think about neural systems like a suspended mobile, which rests on the equilibrium of its weights. If one of the weights is removed, the entire structure could collapse, yet also find itself in a new resting state. Similarly, brain damage may render the artist incapable of continuing the work or may create a new equilibrium where the artistic production shows alternative configurations. Creative Arts Therapists observe how creative expression in the context of the therapeutic relationship promotes the capacity for the brain to balance itself into a homeostasis like a Calder mobile. Pairing the metaphor with the science allows for a common language to explore these phenomena more thoroughly and make specific links between disciplines. We might observe the neuroplastic pathways of creative expression more closely by

looking at the compensatory functions found through artistic expression following a brain injury.

Although more difficult to study due to the nature of neurodegenerative disease, at the *Great Conversations*, Dr. Chatterjee mentioned that Alzheimer's Disease (AD) is an area of inquiry in desperate need for scientific data to show efficacy of therapeutic intervention. Funding opportunities for AD should provide motivation for all therapeutic disciplines to generate sound hypotheses that test existing models of treatment and although there is solid research available, it is notoriously difficult to obtain quantifiable data in treatment of AD through the Creative Arts Therapies (Cowl and Gaugler, 2014). The CATs rely heavily on the engagement of imaginative systems in the production of symbolic expression, and the ability to bypass language and access less conscious material while attending to task is an important, if not crucial aspect of treatment that needs more attention.

Creative Arts Therapists readily see transformation in clinical practice by observing patient engagement in artistic expression that often results in the capacity to form narrative around images that otherwise would and could not be articulated. This is often accompanied by a reduction in symptoms and behavioral change. The Creative Arts Therapist often witnesses that many people who have endured brain injury develop new artistic talent post injury. Creative Arts Therapists are trained with awareness that creating in solitude is different than in the context of another. If the Creative Arts Therapist was trained to understand more completely the neurological mechanisms of aesthetic expression there would be an invigorated opportunity to develop specific and verifiable (and falsifiable) hypotheses that would support clinical observations with proof. Simultaneously, Creative Arts Therapists are positioned to explore more thoroughly what and who is being treated beyond a cluster of symptoms and without relying solely on diagnoses and brain science to define the person.

Although not a popular figure in neuroaesthetics, it is important to mention Sigmund Freud here. Freud was not focused exclusively on anatomical localization but he was invested in the energy transfer of the dynamic unconscious. Creative Arts Therapists have long relied upon theories of psychoanalysis and call upon Freud to explain a synthesis that occurs through conscious and unconscious expression when symbolized through art process and product. This is the native tongue of the Creative Arts Therapist. It is exciting to consider here the work of Kandel (1998) who articulates a biological approach to psychiatry through an integrated perspective that emerges from Freudian theories and might promote a *renaissance* of psychoanalytic thought (p. 11). Neuropsychologist Zaidel (2016) emphasizes imaging research that shows how unconscious and conscious cognitive systems interact in our perception of artwork at the neural level. Neuropsychology is crucial in the advancement of our knowledge of cognitive processing systems and helps make the quantitative shifts necessary to more completely understand the role of neuroaesthetics (Chatterjee and Coslett, 2014). By studying the brain's response to aesthetic stimuli we learn more about the interactive conscious and unconscious systems, which gets us steps closer to validating

with science what is referred to as symbolic and nonverbal communication.

Neuroaesthetics does not currently address therapeutic implications and further investigation of how the physiological and psychological aspects of aesthetic experience relate to one another is an important goal for the future (Chatterjee et al., 2010). The knowledge of the scientist is enhanced with the clinical knowledge of the therapist who specializes in artistic self-expression to facilitate behavioral change and symptom reduction. Dr. Girija Kaimal, art therapy researcher and conference attendee, stated that “Art therapists are well positioned to identify behaviors, patterns of visual self-expression, clinical profiles of specific populations and interpersonal dynamics. As Creative Arts Therapists are not traditionally trained in neuroscience, measurement tools or technology, they are well positioned to partner with those who are. This will help the work of neuroscientists to become grounded in clinical practice while also serving to advance knowledge in both fields.” (G. Kaimal, personal communication, 2017).

CREATIVITY AND CONSCIOUSNESS

Arne Dietrich, PhD

Looking for creativity in the brain is Sisyphus’ work! Among many topics, Dr. Arne Dietrich focused on key themes to help the audience understand the true nature of creativity in the brain. He began by elucidating a fallacy of belief called the *divergent thinking paradigm*, which states that if both divergent and convergent thinking lead to creative thinking then there is a problem because we do not yet know what it is about divergent thinking that is creative. Creativity in terms of divergent thinking is a compound construct; it is complex and there are many cognitive functions involved. For the mechanistically-minded neuroscientist, divergent thinking becomes a beast, said Dr. Dietrich, as it is too amorphous and too large to tackle. We do not know what neural or cognitive processes, and to what extent, go into divergent thinking to make it measurable with neuroimaging. We can measure working memory, perceptual processes, categorization, and attention processes with functional MRI, but we cannot at this time measure divergent thinking, nor is there a neural signature for complex psychological constructs.

We have a tendency to think about creativity as one thing—it is not one particular trade or characteristic, but rather the plurality of processes that can come in a variety of shapes, forms and sizes. You cannot isolate what you are studying with the creative process; if you cannot isolate the topic because you have false category information combined with a compound construct, you can’t decipher what an MRI shows because you haven’t isolated the mechanisms. Neuroscientists look for mechanisms and in order to identify them, they need to delineate the processes that the mechanisms occur within.

We have mechanisms that occur inside the brain that do not map very well with what we experience. The best way to understand this is by considering a computer—when we drag and click something into the trash it is simple on the user-friendly surface, but the computer is undergoing a much more

complicated series of events. Creative Arts Therapists observe a multidimensionality of symbol formation through nonverbal expression found in imagery, music and movement, and like the neuroscientist, would benefit from distilling creativity into small enough pieces so that each piece can be tested as a part of a larger component. To do this will generate greater evidence for why the creative process is considered an integral and life enhancing component of CATs. Dr. Dietrich affirmed that researchers would also benefit from breaking down creativity into types. There is no such thing as a simple overarching creativity process, mechanism, or brain localization. Rather, there are different types, processes and anatomical features that are opposing. Based on current knowledge in neuroscience and evolutionary theory these are the deliberate mode, the spontaneous mode, and the flow mode, all of which are different in terms of neuroanatomical features and processes. All types of creativity, however, are multifaceted and completely embedded in the brain according to cognitive neuroscience.

Commentary

Although challenging, the articulation of a cogent definition of creativity is a useful goal that can enhance innovative collaborations and inform cross-disciplinary research. Dr. Klaus Gramann asserted in his Keynote Address on Mobile Brain/Body Imaging (MoBI) that in order to understand what happens in the brain, we must understand what happens when we move. Motion requires efficacy and nothing costs as many neural resources as movement. The flow mode of creativity requires motion and movement and engages implicit processing, the basal ganglia and the limbic system. Art therapists have questioned whether some behavior states are more connected to flow than others (Chilton, 2013). Creative Arts Therapists who work with neurological conditions such as Parkinson’s Disease and Movement Disorders can contribute to a more thorough understanding of what is happening in the brain throughout the recovery of the disease state by documenting behavior change and symptom management through both verbal and nonverbal artistic expression. If the motor system of the brain is damaged then the quality of skill may be different and these behavioral variances contribute rich information that informs the questions to explore mechanisms of creativity in the brain.

Tremendous strides have been made to develop cogent theories of art therapy assessment and intervention through the use of the Expressive Therapies Continuum (ETC) (Hinz, 2009; Lusebrink, 2014; Lusebrink and Hinz, 2016). This theoretical model is based upon the assumption that media properties evoke different levels of visual information processing. Dr. Hinz (2014) documented several pertinent research questions that are guided by the ETC and include: *What differential experiences are evoked by the basic media used in art therapy?* Based on what we now know about neuroscience, it would serve the CAT researchers to start backwards and focus on a single thing we can prove. For example, does the brain produce a distinctive response to specific aesthetic stimuli at the neurological level? If we were able to identify that the use of media evoked a different neurological response in an individual then we would have more evidence to support and test hypotheses related to

the ETC. Wearable Electroencephalography (EEG) technology such as MoBI would allow for an understanding of what types of media elicit what types of brainwave activity and may illuminate where the activation takes place. This data would contribute to the growing knowledge of what happens in the brain when we “art,” and would also provide a scientific framework for media choice during art therapy intervention.

Dr. Sandra Gaskell, a clinical speech pathologist who is in the process of obtaining credentials as an art therapist and psychologist attended the symposium and shared her insights for viable avenues of interdisciplinary research. Dr. Gaskell is interested in assessment and suggested that a primary challenge with using the ETC as an assessment is that we are not yet able to validate any scoring mechanism for it, as is the case for most art therapy assessments. She suggests that if we were able to map the brain during an art therapy assessment we might be able to identify the neural activations that take place throughout the procedure and potentially correlate these with elements of the assessment. Further, if we distill symptom clusters for medical and psychiatric illnesses, apply an art therapy intervention and test changes in brain wave activity with EEG we may be able to isolate what brain activities take place and identify what can be improved. Speech pathologists specialize in understanding communication and the pathological variants of conditions such as Selective Mutism, Aphasia, and TBI. Creating research protocols with experts in nonverbal communication based upon existing models is both logical and pertinent.

Art therapists understand that the *Creative level* of the ETC is the optimal state where psychic integration takes place yet seem to refer to the healing potentials of creativity without fully recognizing how unwieldy the term really is to neuroscientists like Dr. Dietrich. It would benefit both CATs and neurosciences to explore with more clarity about what we mean by creativity. One way to do this might be to “localize the lesion,” so to speak. In neurology, “lesion studies” are an established method of breaking down parts and connections to see how the brain is operating with imaging technology. Lesions in humans with injuries and diseases are natural experiments and in animals they are planned and controlled experiments that help us to clarify mechanisms, circuits and interconnections. How can art therapists distill components of the creative process so that we can speak with more scientific certainty about how and why our interventions actually work? If we study a distinction between a deliberate type of creativity and a flow state based on client engagement at different levels of the ETC, how might this help to clarify the value of the CATs as a profession that offers evidence-based interventions? With the advancement of neuroimaging technologies like Mobile Brain/Body Imaging, we now have greater capacities to “take our investigations into the wild.” (K. Gramann, personal communication, 2017).

MOBILE BRAIN/BODY IMAGING (MOBI)

Klaus Gramann, PhD

At the core of MoBI is the understanding that cognition is deeply rooted in the body’s interaction with the world and happens in a dynamically changing environment (Wilson, 2002). Movement

through and physical interaction with the environment alters our cognition, and consequently the brain dynamics that accompany cognitive processes are also likely to change (consider here Dr. Chatterjee’s comments on inner and outer psychophysics). If we leave behind the restrictions of traditional brain imaging approaches we can investigate different behavioral states and how they change the brain dynamic state. Traditional assessment tools for brain function such as EEG do not allow for movement of participants because they are too stationary, the brain signals become contaminated with movement-induced artifact (the “noise” that gets in the way of an EEG reading), and ultimately this results in a reduction of the behavior dimensionality that we seek to assess.

MoBI was developed in 2007 with the idea that cognition and brain dynamics are embodied, and the natural cognition that makes use of physical structure—that which allows, uses and incorporates movement—feeds back into cognition itself (Makeig et al., 2009). If we know that movement changes cognitive processes, then we have more ability to understand the underlying neurological dynamics. MoBI identifies three factors: cognition, brain dynamics and movement, and explores their interdependency by recording all dimensions in synchrony through the use of technology such as EEG and fNIRS (Functional Near Infrared Spectroscopy). Although complex, we have a general understanding that MoBI provides the ability to analyze data while people actively behave in space. Art such as sculpture provides us with information for how human perception is perceived in the three dimensions. When we compare sculpture to a 2-D painting we obtain data for what information our body gives us when we move around compared to a stationary view of art. MoBI is relatively low cost and provides opportunities to conduct research while engaging in a task of creativity and artistic expression.

Commentary

The use of MoBI is particularly relevant for the CATs, as movement is inherent in artistic expression through visual art, music, and movement. For example, Dance Movement Therapists work in the integrative space of mind and body connection and help clients regulate by engaging the nervous system through kinesthetic activity. MoBI opens wide the exploration of how a Dance Movement Therapy intervention can improve the physical symptoms of an illness by comparing tractable brain activity with observed behavioral change through a rating instrument. This is significant to working with trauma. It is now accepted that the brain does not integrate sensory experiences easily after trauma and that traumatic memories are stored in our bodies and in areas of the brain that we have less conscious access to. Gramann (personal communication, 2017) emphasizes it is possible that learning new sensory-motor associations when experiencing the same sensory input but associating this with a different output can help overwrite traumatic memories, which can be measured and tested with this innovative technology and contribute to providing scientific evidence for working models of therapeutic intervention.

Art therapist Linda Chapman, who writes prolifically on the neurobiology of trauma, urges us to consider the virtually

untapped application of the visual system in art therapy and how this interacts with our bodies. Through the use of the visual system it is possible to address challenges such as phantom limb pain and paralysis. For example, stroke victims who have paralysis on one side might sit in front of a mirror and use the hand and arm without paralysis in front of the mirror. The brain is “tricked” into thinking that it sees the other limb, which opens up the neural pathways so the person can use the arm with former paralysis. Although most of the innovative research in this area is in the medical profession (Chan et al., 2007; Mercier and Sirigu, 2009), this is a rich area of discovery for those interested in medical art therapy (L. Chapman, personal communication, 2018). Similar to the prior examples, MoBI technology can assist in the identification of neurological mechanisms that make this physical and behavioral change possible.

There are several possibilities for how a neurological change may emerge, starting with structural changes and ending with functional changes (keeping in mind that structural changes can impact functional changes). Most structural changes in the brain require CT or MRI to visualize. Functional changes can be assessed and quantified with EEG and functional imaging. Functional EEG changes might be expressed in: (1) changes in the frequency domain (e.g., less alpha attenuation after intervention); (2) changes in the time domain (e.g., faster onset of a component or reduced amplitudes); (3) changes in connectivity (e.g., from parietal hubness to an increase of connecting activity in other areas).

Studying functional connectivity within parts of the brain is logical, the investigations of which may rest upon what has been done so far in neuroimaging and art therapy (Belkofer and Konopka, 2008; Belkofer et al., 2014; Kruk et al., 2014; King et al., 2017). Capitalizing on the framework set forth it makes sense to expand these investigations through the use of technology that can be utilized in the active and engaged artmaking state, the investigations of which have also been initiated (Kaimal et al., 2016, 2017a,b). Exploring more thoroughly established clinical areas that are proven to be effective with the non-verbal therapies, or that are deficient in specific clinical symptoms that are observed, is an area of rich opportunity for transdisciplinary research for Creative Arts Therapists to use MoBI. From here we could seek to establish standardized tests that indicate a specific deficit or ability and compare the EEG measures in such standardized tests pre and

post. Working to distil the correlations between brain function and creative expression and then applying in clinical trials is well within the reach of the Creative Arts Therapies and neuroscience research and will significantly contribute to the advancement of both fields.

Dr. Gramann provided rich information on a valuable tool for approaching research in the Creative Arts Therapies. As with the other Keynote speakers, he cautioned the audience on the limits of technology, the capacities of the neuroscientist to inform therapeutics, and the precision with which we need to proceed in order to be successful when attempting to integrate art, neuroscience and related therapeutics in both theory and research.

CONCLUSION

Outcomes are necessary to record the value of collaboration and this paper serves as the first published deliverable of the *Twenty-First Century Great Conversations*. This symposium was a thought provoking, inspiring and collegial experience that showcased the courageous potential to let go of ego and embrace different yet equally valuable perspectives. By removing the silos of our respective disciplines, we have the (action) potential to generate new connections and pathways of thinking; we are embodied creativity.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

ACKNOWLEDGMENTS

Much gratitude to art therapist and burgeoning researcher Kaitlin Knapp for her tireless commitment to advancing art therapy research and clinical practice through the organization of this symposium and in the preparation of this manuscript.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01428/full#supplementary-material>

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Conflict of Interest Statement: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The Spread and Development of Psychodrama in Mainland China

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The history of the popularization and research of psychodrama in the west has spanned more than 80 years since it was founded by J. L. Moreno in the 1930s. However, it was only in the 1990s that psychodrama was systematically introduced in mainland China. The historical process of the spread and development of psychodrama in China is complex; therefore, this study approached it from the perspectives of space and time and theoretical development. Considering four events as the critical time points, the history of psychodrama in China can be divided into four periods from a spatiotemporal perspective: pre-contact period, preparatory period, period of prosperity, and the period of new development. Based on the theoretical classification, three major branches of psychodrama in mainland China are represented by Gong Shu's Yi Shu psychodrama, Katherine Hudgins' therapeutic spiral model, and campus psychodrama developed by Chinese psychologists.

Keywords: psychodrama, mainland China, localization, history, campus psychodrama

OPEN ACCESS

Edited by:

Hod Orkibi,
University of Haifa, Israel

Reviewed by:

Yiftach Ron,
Kibbutzim College, Israel
Simone L. Tabib,
University of Haifa, Israel

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 30 April 2018

Accepted: 16 July 2018

Published: 20 August 2018

Citation:

Sang Z-q, Huang H-m, Benko A and
Wu Y (2018) The Spread
and Development of Psychodrama
in Mainland China.
Front. Psychol. 9:1368.
doi: 10.3389/fpsyg.2018.01368

INTRODUCTION

Psychodrama (PD) is an action-based group method to explore psychological and social problems. The use of PD techniques allows participants to explore their past, present, or future problems or situations, not by the participants' simple narrative, but by playing related events in daily life. The dramatic enactment not only shows the explicit external behavior but also more importantly explores the inner world of clients, such as some unsaid thoughts and feelings, unmanifested conflicts, the possible thoughts and feelings of others in imagination and the foresight of future possibilities, etc. It provides opportunities for self-reflection (Blatner, 2000). Jacob Levy Moreno founded PD in the 1930s. And the first time that the Chinese psychologist contacted PD could be traced to 1940s, but the systematical introduction of PD to mainland China started from 1990s. The introduction and popularization of PD techniques and training practices have undergone a long and complicated process. Therefore, this study approached it from the perspectives of space and time and theoretical development.

HISTORY AND DEVELOPMENT OF PSYCHODRAMA AND RELATED RESEARCH

Psychodrama was founded by psychiatrist J. L. Moreno in the 1930s. In 1921, he began to explore "impromptu shows", which marked the birth of PD. The basic techniques of PD were established from 1936 to 1940 (Blatner, 2000). Philosophically, J. L. Moreno rejects complete psychological determinism, as it is supported by Freud, in favor of his concept of spontaneity, which he considers as outside of determinism. Encouragement of free and spontaneous expression in inhibited patients can be therapeutic, as can the spontaneous dramatic solution of conflicting drives (Jenkins, 1947). He defined PD as "the science which explores the 'truth' by dramatic methods. It deals with inter-personal relations and private worlds". (Moreno, 1953, p. 81).

After J. L. Moreno's death in 1974, his wife Zerka Moreno published numerous PD-related works according to her husband's will and helped popularize PD techniques worldwide, becoming the global academic leader of PD (Li, 1995) until her death in 2016. And by leading numerous workshops, she contributed to the popularization of PD in Taiwan and mainland China.

Taking into account the establishment of internationally recognized and influential PD-related academic institutions, the following are the turning points in the history of PD. In 1942, J. L. Moreno established the American Society for Group Psychotherapy and Psychodrama, which was the first professional association for group psychotherapists (Blatner, 2000). In 1964, the first international conference on psychodrama was held in Paris. And then, the psychodramatists regularly held international meetings in Latin America, Europe, and Japan (Hare and Hare, 2004). In 1975, the American Board of Examiners in Psychodrama, Sociometry, and Group Psychotherapy (ABEPSGP) was established, and two levels of certification were determined: certified practitioner (CP) and trainer, educator, and practitioner (TEP). Since then, independent PD qualifications have gradually been established (Buchanan, 2009).

From the perspective of international academic research in psychology, PD theory and methodology has been researched since the 1950s. The literature predominantly consists of quantitative analyses of the effectiveness of PD treatment for specific populations and reviews of theoretical innovations. The quantitative studies mostly involve controlled clinical trials that examine the effectiveness of psychotherapy on patients with mental disorders, such as eating disorders (Pellicciari et al., 2013), drug addiction (Yablonsky, 1959; Somov, 2008), and depression (Ackerman and Ackerman, 1962; Nazar et al., 2014). The reviews of theoretical innovations have primarily focused on the mechanisms underlying the effectiveness of PD and the clarification of its theoretical structure (Kipper, 1978; D'Amato and Dean, 1988; Manzella and Yablonsky, 1991; Blatner, 1997, 2000; Kipper and Hundal, 2003).

HISTORY OF PSYCHODRAMA IN MAINLAND CHINA

The history of China's access to PD can be traced back to the early 1940s when a Chinese medical psychologist, Ding Zan, visited J. L. Moreno's studio in the United States and attempted to promote Moreno's PD therapy theory in China (Ding, 1948). However, due to various reasons, this early connection was interrupted for over 30 years. In the Great Proletarian Cultural Revolution, psychology was stigmatized as bourgeois pseudoscience, and the development of psychology as a discipline was suspended (The Executive Committee of the Chinese Psychological Society, 1982). In 1974, a Taiwanese psychiatrist Chen Zhuzhang and others founded the first Sub-department of Psychodrama in the Department of Psychiatry of Taiwan National University, marking the official beginning of PD development in the Chinese-speaking region (Lai, 2013). In the

1980s, PD was introduced in mainland China for the second time (Chen, 1982). In the late 1990s, a group of psychodramatists from the United States and Taiwan came to mainland China to further promote practical training in PD.

Through interviews with two psychologists who conducted training and research on PD in China, we distinguished four turning points in the history and development of PD: (1) Ding Zan discovered PD in J. L. Moreno's studio in the United States in 1948. (2) In the 1980s, PD was introduced to the Chinese psychiatric community by Chen and Li, as a type of psychotherapy for the treatment of mental disorders. (3) From 2004 to 2009, Gong Shu, Katherine Hudgins, Pam and Rory Remer, Lai Nianhua, and other PD Trainers organized various types of PD training in Nanjing and other locations. (4) In 2014, the Division of Group Counseling and Group Therapy of the Chinese Association for Mental Health (CAMH) established the Group of Psychodrama. This group of PD is an organization aimed to promote the development of professional training and research of psychodrama in China. These four turning points divide the history of PD in China into four periods: pre-contact period, preparatory period, period of prosperity, and the period of new development (Sang, 2015).

Pre-contact Period

The first discussions regarding PD in China can be traced back to the 1940s. At that time, Ding Zan was studying for his master's degree in psychology at the University of Chicago. In 1948, he spent a month in New York, where he participated in a PD group led by J. L. Moreno and also attended several lectures on PD. Accompanied by Moreno, he also visited a New York drama psychotherapy clinic, PD theater, and Beacon Hill Sanitarium. Later, Ding attempted to introduce PD theory to mainland China. In December 1948, four articles titled "Psychodrama Therapy: Memories of the Training from New York" written by Ding were serialized in *Ta Kung Pao* which is the oldest active Chinese language newspaper in China (Ding, 1948). Because of the political changes in mainland China, the development of psychology as a discipline was suspended shortly after the founding of the People's Republic of China, and academic ties initiated by Ding and Moreno were severed for more than three decades.

Preparatory Period

The preparatory period lasted from the mid-1980s to 2004. In the 1980s, PD as a type of psychotherapy for the treatment of mental disorders was introduced to the Chinese psychiatric community (Chen, 1982; Li, 1988). The earliest paper on the theory of PD was a literature review titled "Psychodrama Therapy", which was published in 1988 by Li in the journal *Shanghai Psychiatry*. And the first article in the CNKI (China Knowledge Resource Integrated Database) to discuss PD in mainland China was published in 1982, which was a review article, titled "Introduction to Several Ways of Healing Mental Illnesses" by Chen and published in the Chinese journal *Psychological Science*.

However, at that time, Chinese psychology and psychiatry specialists did not pay much attention to this type of therapy, and it was not practiced. This continued until July 1995,

when Gong Shu, a Chinese-American psychologist, visited Nanjing Brain Hospital to conduct a symposium on expressive psychotherapy and traditional Chinese therapeutic methods. Psychotherapy practitioners and researchers working in the field in China discovered that the theories of psychotherapy, which originated in the West, integrated well with their culture and manner of thinking. Gong Shu's theory and the techniques of Yi Shu PD were introduced to mainland Chinese scholars. At this point, the concept of PD began to attract the attention of psychotherapists in China and was included in the Chinese Encyclopedia of Psychology (1995) in the same year. In October 1997, the co-founder of PD, Zerk Moreno, visited Nanjing and Beijing, and conducted seminars on PD with Gong Shu. At this point, not only had the psychologists and scholars in China begun to address the concept of PD therapy, but also international academic PD institutions, which began to establish contact with the Chinese academia. Therefore, this period can be considered the preparatory period of PD development in mainland China. At this stage, the psychology community in mainland China began to accept the concept of PD, and understand and study PD theory and techniques on a small scale. However, little efforts were taken at that time to conduct independent research and popularize PD.

Period of Prosperity

After 1997, although the theory and practice of PD gradually became more popularized in mainland China, it was mostly chaotic and disorganized, lacking an authoritative organization or group to provide professional training to mental health professionals. Moreover, there was a lack of international psychodramatists visiting mainland China to share their knowledge. This situation gradually began to change after 2004. PD training sessions began to be conducted by authoritative specialists. Gong Shu held the first and second International Psychodrama Training of Zerk Moreno events at Nanjing University in 2004. Subsequently, annual PD training sessions or workshops were organized in Nanjing, Suzhou, and other cities. The successful organization of the first International Symposium on Expressive Psychotherapy and Psychodrama in Suzhou in 2007 marked the beginning of the official establishment of PD training and research in China. On March 6, 2010, the International Research Center for Yi Shu Body and Mind Therapy was established at the Faculty of Education of Suzhou University, which also marked the birth of the first formal PD-related research and promotion institution in China. Jiangsu Province became the academic center of PD therapy promotion in China.

Furthermore, 2004 is a crucial point in time also from the perspective of communication with international PD scholars. It was during this year that Gong Shu returned to Nanjing to conduct PD training. After that, Katherine Hudgins, the founder of the therapeutic spiral model (TSM) of PD in the United States, also visited Nanjing in 2004 and conducted numerous training sessions on TSM at Nanjing University. Following her visit to Nanjing, she later conducted training sessions or lectures in Shanghai, Jinan, Beijing, Chongqing, Zhuhai, and other locations. And the training subject included basic PD skills, TSM therapy for attempted suicide survivors and eating disorder clients, and its application in prison management and EAP. Hudgins also

set up a TSM working group in mainland China to train a professional TSM team. Starting in 2009, Pam and Rory Remer, psychodramatists and professors at the University of Kentucky, United States, also visited China for PD-related training.

In addition, Professor Lai Nianhua and other new generation psychodramatists from Taiwan began to conduct long-term continual PD training sessions in mainland China. At the same time, all types of PD theories converged in China and competed for recognition, which rapidly increased the theoretical research and practical use of PD in mainland China.

The period from 2004 to 2014 can be regarded as the period of prosperity with respect to the development of PD in mainland China. The PD community in mainland China widely promoted and developed the practice and methodology of PD and gradually began to explore the possibilities of its localization and adaptation. At this stage, the form of campus PD was developed in universities from the bottom up in mainland China. It has since demonstrated rapid development in Chinese universities and has become one of the most effective, lively, and expressive ways of promoting mental health education.

Additionally, as shown in **Table 1**, PD research in China mainly started at the beginning of the 21st century and particularly after 2005. This upsurge in PD research continues to the present day. These studies mainly summarized the therapeutic techniques of PD and the effectiveness of treatment for specific populations (including patients with specific mental disorders and specific social stratum). Among them, most studies have focused on patients in psychiatric hospitals and college students.

Period of New Development

After 2004, intensive training in practical PD skills was provided in China; however, no unified nationwide authoritative organization existed to develop a regular training program. In 2014, during the second session of the Chinese conference on group counseling and group therapy, the Division of Group Counseling and Group Therapy of CAMH conducted a meeting, where they adopted a resolution for the establishment of the Group of Psychodrama. This organization sought to "further promote the training and use of PD, strengthen the study, supervision and ethics training in PD, hold PD international seminars at the appropriate time, continue encouraging Chinese psychodramatists to participate in the examination of the ABEPSPG, and attempt to establish China's own evaluation and examination system in the future" (Sang, 2015). At the same

TABLE 1 | Articles on psychodrama published from 1980 to 2017 in the CNKI.

Year of publication	Number of papers	Comments
1980–1990	1	Word "psychodrama" appears in the title
1991–2000	7	
2001–2005	27	
2006–2010	98	
2011–2017	236	

Information as of December 31, 2017.

time, combined with the Chinese culture and characteristics, the use of psycho-scene-drama was vigorously promoted in schools, enterprises, and different workplaces.

The development of PD in mainland China could subsequently be ensured and maintained by an authoritative academic organization, and its development entered a new phase. Therefore, this event can be considered a critical point between the period of prosperity and the period of new development.

In summary, the above mentioned four periods are divided according to the crucial events involved in the spread and development of PD in mainland China. The first crucial event was in 1947, when Ding Zan came into contact with PD in the United States and introduced it to China. The second crucial event was in the 1980s. Chen (1982) and Li (1988) introduced PD as a psychotherapeutic method for treating mental illness in academic journals and thus introduced PD to the Chinese field of psychiatry. Contact with PD was opened again after an interruption of more than 30 years. The third crucial event occurred in 2004, when Gong Shu, Katherine Hudgins, Lai Nianhua, and other trainers began coming to China to conduct systematic and continual PD technical training. The popularization and development of PD in mainland China entered a stage of rapid development. The fourth crucial event was the establishment of the Group of PD in the Division of Group Counseling and Group Therapy of CAMH in 2014. Since then, the development of Chinese mainland PD has become more normative and orderly.

DEVELOPMENT OF DIFFERENT THEORETICAL BRANCHES OF PSYCHODRAMA IN MAINLAND CHINA

The popularization of PD in mainland China has undergone a four-stage process. However, discussing all branches of PD together could lead to overgeneralization. In fact, since Zerka Moreno first promoted PD techniques, many psychologists have further revised and developed PD theory according to their own clinical practice experience and distinctive theoretical concepts, which resulted in the development of different branches of PD. These theories were introduced in mainland China in different ways and influenced Chinese psychologists' understanding of the concept of PD. The most widespread PD models in China are Yi Shu PD and the TSM. Furthermore, Chinese psychodramatists created an innovative type of PD, known as campus PD, which was used in mental health education for college students and thereby led to support theoretical research and development of practical PD models.

Yi Shu Psychodrama

Yi Shu PD, developed by Gong Shu, is a therapeutic PD concept, which is the result of over 30 years of practice in the fields of art therapy, Gestalt therapy, PD, and traditional Chinese medicine. Yi means "change", Shu means "the way", the "art", or "the dao". Yi Shu simply means "the art of living with change" (Gong, 2012:57). The publication of the monograph "Yi Shu: The Art of Living with Change-Integrating Traditional Chinese Medicine,

Psychodrama and The Creative Arts" in the United States in 2003 marked the official formation of the theory of Yi Shu PD.

Yi Shu is a form of group psychotherapy that can also be used in individual therapeutic sessions. Its purpose is to "open the energy that is blocked by individuals, a group, or many groups" (Gong, 2007:107). The philosophical foundation of Yi Shu lies in the concept of "the organism as a whole", as well as spontaneity and creativity. Yi Shu uses the generating and restricting natures of the five elements in Chinese philosophy (Wu Xing: water, wood, fire, earth, metal) to treat human emotions and their related energy imbalances in the body. The visible physical body is yang in nature, whereas the invisible energy body is yin in nature. Yin and yang coexist at all times, influencing and transforming into each other. Emotions belong to the invisible energy body, whereas physical symptoms belong to the visible physical body. Emotional imbalances often affect the physical body. In the healing process of Yi Shu, the energy body and the physical body are simultaneously healed (Gong, 2008).

The basic procedure of Yi Shu is as follows: (1) Sitting still to practice Qigong (a system of Chinese physical exercises and breathing control), opening the conception vessel and governor vessel by relaxing, breathing, and imagining, and starting the energy flow of the human meridians. In theory, sitting still to practice Qigong can help people remove trivial matters from their minds and reach the deep potential that they were endowed with at birth. (2) Using music to promote breathing and allowing the body to swing. Through soft meditation music, or trance-inducing drums, the inner rhythm of the individual is regulated and the obstructed energy is opened. (3) The group members paint on Xuan paper (a soft rice paper with texture) with a brush. Chinese painting is used to cultivate spontaneity and creativity, and enables individuals to present their inner experience. (4) By acting and role playing each image and coloring in the pictures, the client can touch the feelings and meanings hidden inside them. Sometimes, during the performance, the director or the protagonist will be asked to complete some sentences, such as "I feel. . .," "I need. . .," and "I am afraid...." The group members are selected as auxiliaries to act out these colors and images. The auxiliaries must pay attention to the protagonist's voice, action, speech, and the positions and relationships presented by the protagonist. The protagonist sits among the audience to watch the performance, as if watching the story of others. The pattern, action, and sound of the role form the gestalt of the protagonist's spiritual reality. (5) Through PD procedures, such as role reversal, doubling, mirroring, and soliloquy, the client is assisted in accomplishing further exploration, accompanied by the release of energy blockages in the body and blood. Generally, the steps of Yi Shu are mostly the same form as in PD, such as warm-up, action, and sharing. Yi Shu works well with and naturally compliments classical PD with intermodal applications of Qigong, Chinese painting, shamanic music, and the use of the acupoints on the human body to adjust the body's energy to achieve harmonious functionality of the individual's viscera and emotions (Gong, 2007:107–109).

Gong Shu is the first psychodramatist to establish a connection with Chinese psychologists; therefore, her PD theory was introduced relatively early and expeditiously became rooted in

mainland China. Moreover, the features of oriental thinking mode and traditional Chinese medicine concepts were integrated into Yi Shu PD, which also made it more acceptable and applicable for practice in China. Numerous Yi Shu PD workshops were conducted in major cities in China, and the International Center for Yi Shu Body and Soul Therapy at Suzhou University was established. After the establishment of the center, some scholars conducted a series of research projects on the therapeutic effects and methods of Yi Shu PD; for example, in patients experiencing depression or emotional letdown who are in the process of learning to regulate their emotions and those who have experienced adolescent sexual trauma. These studies validated the therapeutic effect of PD to a considerable extent (Ji and Wang, 2012).

Therapeutic Spiral Model

TSM, developed by an American PD trainer Katherine Hudgins, is an integrated method of experiential psychotherapy that combines classical PD with advances in clinical psychology and trauma work to provide the containment required to prevent retraumatization (Hudgins et al., 2000).

Because many trauma survivors often experience internal confusion and interpersonal distress metaphorically akin to a tornado, TSM chooses a spiral as a therapeutic model to provide an alternative dimension to the uncontrollable energy of tornadoes. Clients learn to move up and down the spiral of their own needs instead of being torn apart by the chaos of the tornado (Deng et al., 2009:84).

The therapeutic spiral image in the TSM is divided into three categories: energy, experience, and meaning (Hudgins, 2003). The TSM comprises six safe modes: (1) positing and embodying the observed ego (OE); (2) circle of safety; (3) spectrogram; (4) action sociogram; (5) circle sociometry; and (6) mastermind art activity. The six safe modes help trauma survivors express themselves. In addition, body double, containing double, prescription character, and other techniques in the TSM made it safe for clinical practice, increased the therapeutic effects of action treatment for trauma, and prevented clients from experiencing retraumatization (Sang, 2009).

The following are the features of TSM: (1) The drama begins by seeking the power of the clients themselves. If the clients are not sufficiently strong, the director attempts to make them more powerful. Some of the power comes from prescriptive roles, such as body doubles, or from interpersonal interactions acted out by the selected auxiliaries. (2) Supporting wound healing is conducted with a containing double. The containing double provides clients with intense feelings of security, stability, and tolerance, and helps them establish a framework to understand the connotations when they experience strong emotions. (3) The expression of emotion is controlled spirally. With the help of the body doubles and containing doubles, the director alters the mood of the protagonist spirally and slowly. TSM keeps the clients aware of their emotions, and maintains effective and reasonable control of their emotional responses in the catharsis process (Deng et al., 2009:95–97). Unlike classical PD, the steps and psychological impact of the TSM were adjusted, and more new practical applications of PD techniques were developed,

which resulted in reasonable and conscious control of clients' psychological and behavioral degradation processes (Liu, 2007).

In May 2004, Hudgins visited Nanjing University for the first time to provide professional training on the TSM. After the 2008 Sichuan earthquake, numerous psychologists in China rushed to the areas affected by the disaster and used various forms of group psychotherapy to deal with victims' post-traumatic symptoms. At this point, the wide use of the TSM and its unique method of safely approaching trauma began to attract the attention of Chinese psychologists. From 2008 to 2010, Hudgins visited Chongqing and several districts of Sichuan with a group of Chinese psychodramatists to teach PD skills to local mental health teachers in primary and secondary schools and train them to use PD techniques flexibly with students to treat the trauma caused by the disaster. As a unique and safe mode of healing, the TSM has been widely used in the clinical practice of trauma treatment in China. It has been commonly used in areas with groups experiencing the negative aftermath of disasters, among public security forces and firefighting forces, at campus stress events, and in enterprise staff support interventions.

Campus Psychodrama

Campus psychodrama, also known as campus psycho-scene-drama, is based on the Chinese native culture and national traits. It imbibes the essence of expressive art, including drama, opusculum, PD, and musical. It is a type of "expressive arts in action" developed in Chinese mental health education practice (Deng et al., 2009:171). Using PD techniques, such as role-playing, campus PD reproduces psychological activities and conflicts and enables participants to recognize and solve problems, either by themselves or with the assistance of other participants. Campus PD scripts are written based on the common problems faced by students, allowing them to intuitively learn and understand psychological knowledge in the process of writing, rehearsing, and performing. It illustrates a psychological story in real life and has educational significance for the audience (Yu, 2013). Campus PD is popular among Chinese students because its techniques, such as scenery, dialog, soliloquy, narration, and role reversal, vividly present different aspects of campus life.

In addition to the typical characteristics of PD, such as spontaneity and creativity, campus PD is also thematic and educational. First, it is thematic because it usually focuses on certain topics, such as interpersonal communication, stress response, parent-child education, and self-growth. The process of determining the theme is also an effective warm-up process, which can eliminate cognitive impedance. Moreover, if the group selects a non-thematic performance, it becomes a theme in itself, that is, a free and spontaneous performance of the group's feelings by discussing and performing topics of common concern. Second, campus PD is educational because it emphasizes educational inspiration and moderate guidance, and plays an exemplary role through situational performance. For example, campus PDs regarding moral education, interpersonal communication, and love frustration can make actors and audience think deeply and find solutions in their own lives (Sang, 2017).

Campus PD draws on many PD techniques; however, it is different from PD in the following aspects: (1) PD promotes dealing with mental health problems at an individual level, whereas campus PD is aimed at dealing with the common mental health education issues faced by a particular group of people with certain characteristics. (2) PD is used for psychological counseling and therapy for serious mental health problems and mental disorders, whereas campus PD is usually used for general mental health education for ordinary people. (3) PD requires qualified directors and auxiliaries who receive considerable professional training to help the protagonist finish the psychotherapy; however, the director of campus PDs do not require the strict professional training of a PD director, and the actors are usually non-professional group members. The audiences of campus PDs are typically more homogenous than those of PDs (Deng et al., 2009:193–194).

Campus PD gained attention in 1999 at a special workshop of the Sixth Annual Meeting of the College Students' Psychological Consultation Specialized Committee of the CAMH. As a new form of mental health education, it became widely popularized in primary and secondary schools and universities in mainland China. In many universities, campus PD competitions became part of annual campus culture projects (Yu, 2013). Some Chinese researchers carried out empirical research to explore the mental health education effect of campus PD on the topics of interpersonal communication barriers, adaptation of college freshmen, and social responsibility training (Huang, 2015; Du et al., 2017; Qian, 2017).

The method of psycho-scene-drama in China has gradually been extended from school education to prisons, the army, enterprise training, and other fields. Wu (2016) used psycho-scene-drama to study the intervention of cognitive emotion regulation among prisoners, which showed that psycho-scene-drama can be used as an effective form of psychological treatment in prisons.

DISCUSSION

Since its introduction in China, PD has been widely used in all types of psychological counseling and treatment, mental health education, and group cohesion and interpersonal behavior training in business settings and other fields due to its emphasis on interpersonal groups, dynamic systems, self-metaphorization, and other characteristics considered vital in Chinese culture and has achieved highly successful results. Because PD was studied and applied in Taiwan before it was in mainland China, Taiwanese clinical practice experience and academic research are valuable for mainland scholars. For example, Taiwanese scholar Lai and Tsai (2014) reported in a quantitative empirical study on the process of PD that the final sharing and discussion often took more time and energy in a Chinese cultural context than it did in the Western context. Feedback from the direct participants of PD and the audience also suggested that they felt they benefited most from sharing and discussion. Many possible explanations existed for this phenomenon but cultural characteristics were certainly a factor. This may reflect the need for slow pace when

working within the Chinese culture. Possibly influenced by the suppressive and indirect manner of communication among the Chinese, participants in this culture tend to warm up slower in group activities than their western counterpart. On the other hand, clients may exhibit eagerness to share before finishing the session. This has prompted mainland PD workers to focus more on sharing and the cultural differences in practice.

This overview of the development of PD in mainland China illustrates the “many streams, one river” feature, which was specifically caused by factors, such as commercialization and uneven geographical development. Therefore, although the dissemination of multiple theoretical branches in the initial period of the development of PD was disintegrated, the general context of the development of mainstream PD in mainland China is clear. That is, from a temporal perspective, it can be divided into four stages of development, and from a spatial perspective, it originates in Nanjing and Suzhou and gradually spread to all parts of the country. This can be seen from the composition of the founding committee of the Group of Psychodrama of the Division of Group Counseling and Group Therapy of CAMH. PD scholars in mainland China have now begun to have multiple connections with international PD groups. At present, 13 have been accredited by the ABEPSPG. And many mainland scholars have been certified by the British Psychodrama Association. Mainland scholars, such as Wang Er-dong, have conducted continuous PD training in Malaysia, extending PD training and promotion work to other countries. Therefore, we believe that PD in mainland China has entered a stage of steady development.

Due to its high cultural adaptability, the application prospects of PD in China are broad, as with the Chinese use of Campus Psychodrama carried out in primary and secondary schools and universities, and its application in human resource management and prisoners' behavior correction. However, we must also acknowledge that although the Group of Psychodrama in CAMH has been established, further standardization of PD training and supervision is still a goal that PD workers in mainland China must strive to achieve. The gap between the levels of academic research on PD in mainland China and Taiwan and other international research is still obvious. This has prompted psychologists in mainland China to conduct research on PD in Chinese cultural settings and learn from the studies of Taiwanese academia to better serve the clinical practice of PD in mainland China.

AUTHOR CONTRIBUTIONS

Z-qS and H-mH reviewed literature and wrote the manuscript. AB translated the manuscript. Z-qS and YW revised the follow-up versions of the manuscript.

FUNDING

The research was supported by the National Philosophy and Social Sciences Fund of China (15BSII089) and a major project of the Jiangsu Province Philosophy and Social Sciences Research Base (2015JDXM002).

ACKNOWLEDGMENTS

The authors would like to thank Dr. Gong Shu, Dr. Katherine Hudgins, and Dr. Lai Nianhua. They introduced the topic of

psychodrama to mainland China, and led a group of excellent directors of psychodrama. More heartfelt thanks are extended to Dr. Zerka Moreno. She carried forward psychodrama funded by J. L. Moreno, and brought it to the land of China.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The reviewer ST and handling Editor declared their shared affiliation at the time of the review.

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The Efficiency of Art-Based Interventions in Parental Training

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In recent years, the field of art therapy has gained momentum, but art therapists still tend to work verbally during sessions with parents. The therapeutic approach presented here is anchored in the notion that the encounter between the art world and treatment creates a unique relationship between therapist, parents and the artwork. Eighty-seven parents of five to eight year olds filled in two quantitative questionnaires before and after a ten-month therapeutic intervention during which their child was treated through art therapy. Two other questionnaires were completed by the children and by the 14 art therapists. Three groups were tested: (1) Parental training with art-based interventions (intervention group). (2) Verbal parental training. (3) No Parental training. The parents in the first and second groups met the art therapist for parental training once every 3 to 4 weeks. In the intervention group the art intervention was based on a uniform protocol of exercises with various materials. It was hypothesized that a combination of art-based interventions during parental training (parents whose child was receiving art therapy) would contribute more to parent-child relationship, affect the parents' self-perceptions of parental functioning, and improve the child's daily functioning than verbal parental training or no parental training, both in terms of the parents' and the child's perception. Analysis of the children's questionnaire indicated significantly higher scores in the intervention group than in the control groups for perceived cognitive abilities, perceived acceptance by peers and by the mother. Analysis of the parents' questionnaires indicated there was no difference in parental perceptions of their child, level of satisfaction, or efficiency between the intervention and the control groups. The art therapists reported improvement in the intervention group on almost every measure. When parents take part in a therapeutic experience that enables them to create and play with art materials, they may accept and appreciate their inner 'child' more easily. This may help them accept the fact that their own children are dependent on them, while at the same time acknowledging their need for autonomy, which can heighten children's perception of their own acceptance by peers and acceptance by their parents.

OPEN ACCESS

Edited by:

Girija Kaimal,
Drexel University, United States

Reviewed by:

Einat Sabina Metzl,
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United States
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 30 April 2018

Accepted: 30 July 2018

Published: 22 August 2018

Citation:

Shamri Zeevi L, Regev D and
Guttman J (2018) The Efficiency of
Art-Based Interventions in Parental
Training. *Front. Psychol.* 9:1495.
doi: 10.3389/fpsyg.2018.01495

Keywords: parental training, art therapy, art based interventions, efficiency, quantitative research

INTRODUCTION

This study examined the efficiency of an innovative working approach in the field of parental training with art-based interventions. This approach is centered on creative work with the child's parents. It served to examine the parent-child relationship, in response to the growing need to integrate therapeutic work with parents in the field of art therapy.

Interest in understanding children's mental and developmental difficulties dates back to the earliest psychoanalytic approaches. Initially, psychoanalytic therapy for children made a clear separation between parents and children. Therapists emphasized the interpretation of unconscious conflicts and the strengthening of the ego (Freud, 1923, 1966) or the unconscious fantasies of the child (Klein, 1932). There was less focus on therapeutic work with parents as a factor that contributes to therapy. The Theory of Object Relations, which viewed the child's development process in terms of his/her relationships with other people and the environment, changed this orientation. Object relations theory considers the infant's initial relationship with the primary caregiver to be the basis for the development of the child's personality as an adult (Mahler, 1965; Winnicott, 1971; Ogden, 1990). However, alongside the integration of this approach, there was growing recognition of the importance of the parent as part of the child's therapeutic environment (Winnicott, 1964; Herzog, 2013). Over the years, numerous studies and observations have been conducted on the mother-child relationship, but father-child relations have rarely been examined. Studies show (e.g., Kochanska et al., 2007; Trowell and Etchegoyen, 2007) that the more involved the father is in raising his child, the more socially active the child will be, the less the pressure, and the less anxious the child will be. Therefore, recognizing the father's significant role in child development, this study dealt with the training of parents, fathers and mothers alike.

In addition to acknowledging the importance of the parental role in the child's emotional development (mother and father) in therapy (Fonagy et al., 2007; Barnett et al., 2008), a different conceptual approach to child therapy has emerged over the years. It has generated therapeutic models that do not center exclusively on the needs of the child, but also on the needs of the parent (Harel et al., 2010; Oren, 2015). Today, these models incorporate the parent into the therapeutic process in many ways, in the hope of prompting a change in the parent-child relationship.

Parental training is a broad field which is now considered to include many different aspects of the therapeutic intervention. It involves therapy with an adult client whose parental identity preoccupies him/her, or whose parental identity includes a form of distress that becomes the primary focus of therapy. This process functions on a continuum which may start from the provision of information on a specific subject, the provision of practical advice, or the clarification of specific issues as needed, and extends to therapy and training which enable parents to process past experiences that they project onto relationships with their children (Oren, 2012). Parental training can help parents deal with difficult feelings and foster understanding and acceptance while developing better conditions for adjustment and effective parenting. Sessions with parents are often complex because they provide a very specific space and time for dealing with a wide variety of needs and wishes. Generally, it is not easy for parents to allow an individual whom they do not know (the therapist) to have a close relationship with a child who is so dear to them, and parents often have an ambivalent attitude toward participating in their child's therapeutic process (Shamri-zeevi et al., 2015).

To better understand the importance of the parent's role in the child's emotional development, several approaches have been formulated over the years which deal with the needs of both the child and the parent. The approach utilized in the current study is based on parental training sessions for parents whose child is in art therapy. Children often need emotional therapy to deal with difficult issues or as a form of reinforcement. These include anxieties, fears, social difficulties, transitions and changes in life (for example starting first grade, residential relocation or parental divorce), anger management, developmental difficulties, depression, and others. In this approach, alongside therapy for the child, intermittent training sessions are held with the parents during which the therapist explains and describes the current status of therapy with the child (subject to confidentiality). The parents disclose and update the therapist about any issues at home and in the educational and social environments of the child. In the sessions with the parents, there is both training and a shared exploration of issues relating to parental behavior, while maintaining a clear and defined focus on the child. This training is part of a simultaneous therapeutic approach to the parent and child as defined by Chazan (2003) where therapy takes place separately for each individual (in separate sessions) by the same therapist. This approach posits that the therapist is the focal point between the parent and the child in transference and countertransference processes. Simultaneous therapy aims to connect up elements between parent and child, and is dependent on the therapist's ability to perceive the broad family structure when working with them, thus making interactions between the two individuals possible and heightening the understanding of the internal representations of both. This approach expands on the classical therapeutic view by examining the parallel processes and events that the parent and child experience with the same therapist (Nilsson, 2006).

Art-based parental training taps creative processes and the observation of the artwork as part of the parental training process (Deaver and Shiflett, 2011). Art therapy in itself is a therapeutic approach that has only developed in recent decades. The theoretical rationale of art therapy is that the creative process inherently has a therapeutic effect on the creator (Pratt, 2006). In the last 20 years, a broad theoretical and research foundation has been established based on the therapeutic potential of art therapy (see for example, Maujean et al., 2014; Schweizer et al., 2014) which rests on the idea that artistic expression does not only concern the end product, but that the process of creation and the end product together encourage significant mental processes.

The therapeutic approach in this study was based on the notion that the encounter between the world of art and the world of therapy creates a rich triangular relationship between the therapist, the client and the artwork. The presence of art materials in the therapy room provides parents with the opportunity to take part in a visual creative experience that utilizes their imagination and enables the symbolic and nonverbal expression of unconscious content (Schaverien, 2000; Case and Dalley, 2006).

Over the years, several authors have referred to the integration of art into parental training, specifically in parent-child art psychotherapy (Proulx, 2003; Lai, 2011; Buck et al., 2013,

2014; Regev and Snir, 2014). These authors argue that the use of creative materials may help parents overcome inhibitions and connect to unconscious memories, fears and wishes, and understand early conflicts that may be sources of difficulties in the relationship with their child through the language of art. In research on the integration of parental training and art therapy, a few studies have been conducted in the context of parent-child art psychotherapy in individual or group settings (Ponteri, 2001; Hosea, 2006; Plante and Berneche, 2008; Ya-hui et al., 2011; Pielech et al., 2013). Despite the small sample sizes, these studies all confirm the importance of art therapy with parents, and suggest that it affects the parent-child relationship and the child's self-perception positively. They also indicate that there is a significant need for parental training accompanied by therapeutic work with the child or with the parent-child dyad. However, no research to date has isolated the influence of art-based parental training as part of the art therapy process.

To respond to this need, the current study implemented quantitative research methods to examine the efficiency of an innovative working approach to art-based parental training interventions. Specifically, it examined whether the combination of art-based interventions during parental training (for parents whose child is receiving art therapy) would contribute more to the parent-child relationship, affect the parents' self-perception of parental functioning, and improve the child's daily functioning than verbal parental training (control group A) or no parental training (control group B).

It was posited that the intervention group (parental training with art-based interventions) would show a significant improvement in the outcome measures compared to control group A (verbal parental training) and control group B (no parental training) both in terms of the parent's and the child's perceptions. Four hypotheses were formulated:

1. The intervention group will show a significant improvement in the children's view of their self-perception following the intervention compared to the other groups.
2. The intervention group will show a significant improvement in parental perceptions of the relationship with their child following the intervention compared to the other groups.
3. The intervention group will show a significant improvement in parental perceptions of parental satisfaction and efficiency following the intervention compared to the other groups.
4. The intervention group will show a significant improvement in the evaluation of therapy outcomes by the art therapist in terms of the therapeutic bond, therapeutic openness/involvement, and overall evaluation of therapeutic outcomes following the intervention compared to the other groups.

METHOD

This quantitative study included an intervention group and two control groups that were evaluated before and after a 10 month intervention program (pre-post design). The groups were assigned randomly, such that each participant had an equal probability of being placed in the intervention or control group.

This helped ensure that there would be no systematic differences between the groups before treatment.

Participants

The sample was composed of 87 families (children and their parents), aged five to eight (kindergarten to second grade) enrolled in the educational system and who were referred to art therapy by the counselor or the school psychologist for emotional and social difficulties, such as anxieties, fears, transitions and changes in life (for example starting first grade, residential relocation or parental divorce), developmental difficulties, behavioral problems and low self-esteem. The families were divided into three research groups: (1) 29 families, which comprised 33% of the sample, received parental training with art-based interventions (intervention group); (2) 30 families, which comprised 35% of the sample, received verbal parental training (without integrating art-based interventions, control group A); (3) 28 families, which comprised 32% of the sample, did not undergo parental training at all, apart from an initial familiarization session and a summary session with their child's art therapist (control group B). The study also included the 14 art therapists who treated these families, which was composed of 11 certified art therapists (with three to ten years of experience in the field) and 3 third year students from the School of Creative Arts Therapies at the University of Haifa, who were selected after being interviewed by the head researcher.

Research Instruments

The data were collected using five questionnaires which were completed by the children, parents and art therapists twice during the study, pre-treatment and after termination (pre-post design). All five questionnaires were translated into Hebrew, They were as follows:

Personal Information Questionnaire

The questionnaire was created specifically for this study and was completed at the beginning of the therapeutic intervention process. Parents were asked to provide personal information about the child and the family, and to answer an open question whether they were facing difficulties in their relationship with their child. In this study, the questionnaire was completed by one of the parents.

PSPCSA (pictorial scale of perceived competence and social acceptance for young children; Harter and Pike, 1984). This questionnaire examines the child's self-perception as perceived by the child. All of the items on the boys' questionnaire are identical to those on the girls' questionnaire. A high numerical value indicates high self-perception. The child's self-perception includes the constructs of perceived competence and perceived social acceptance, which are measured using a projective test composed of 24 items, which are divided into four scales: perceived cognitive abilities, perceived physical abilities, perceived acceptance by peers, and perceived acceptance by the mother. The responses are rated on a Likert scale ranging from 1 to 4 from "very true" for the child with the highest perception of ability (4) to "not at all" for the child with the lowest perception of ability (1). In the current study, the children completed the

questionnaire with the help of the art therapist. The Cronbach's alpha for these subscales is reported to be ranged from 0.50 to 0.85, and the internal consistency for the entire questionnaire was 0.85 (Harter and Pike, 1984). In the current study, the Cronbach's alpha values as follows: perceived cognitive abilities $\alpha = 0.92$, perceived physical abilities $\alpha = 0.81$, perceived acceptance by peers $\alpha = 0.71$, perceived acceptance by the mother $\alpha = 0.55$, for a total score of $\alpha = 0.79$.

RFMQ (relations with father/mother questionnaire; Mayseless et al., 1998). The original questionnaire was designed to assess the perceptions of teenagers, aged 13–17 regarding their relationships with their parents. Tal (2001) used the original questionnaire as a baseline but modified it to assess parents' perceptions of their relationships with younger children. The original questionnaire was made up of 63 items, whereas the later version has 55 items, divided into six scales: emotional intimacy, communication, reciprocity, control and supervision, open confrontation, and alienation and rejection. The responses are rated on a Likert scale from 1 to 6; a high score indicates that the parents assess their relationship with the child as positive. The Internal consistency in a repeated test for the original questionnaire was between 0.85 and 0.93 (Mayseless et al., 1998). The internal consistency for the adjusted questionnaire (Tal, 2001) was 0.74. In the present study, the questionnaire was completed by both parents; the Cronbach's alphas for the subscales were: emotional intimacy $\alpha = 0.83$, communication $\alpha = 0.85$, reciprocity $\alpha = 0.62$, control and supervision $\alpha = 0.71$, open confrontation $\alpha = 0.85$, alienation and rejection $\alpha = 0.73$, for a total score of $\alpha = 0.93$.

PSES (parental satisfaction and efficacy scale; Johnston and Mash, 1989). This questionnaire, which assesses parental functioning, is composed of 17 items and is comprised of two factors: parental satisfaction and parental efficacy. Each factor has three components (parental satisfaction which covers degree of frustration, anxiety and motivation, and parental efficacy which covers degree of competence, problem solving skills, and parental resiliency). The responses are rated on a Likert scale from 1 (not at all) to 6 (strongly agree), with a high score indicating high parental functioning. Internal consistency for parental satisfaction was reported to be 0.75, and 0.76 for parental efficacy (Johnston and Mash, 1989). In the current study, the questionnaire was completed by both parents and the Cronbach's alpha for the subscales were: parental satisfaction $\alpha = 0.78$, parental efficacy $\alpha = 0.79$, for a general item reliability score of $\alpha = 0.84$.

TSR (therapy session report—therapist's version; Kolden, 1993; Orlinsky and Howard, 1996). This self-report questionnaire was developed to examine the therapist's experiences and perceptions during therapy sessions and evaluates the client's progress in the short term. Handelzaltz-perry (2007) used the original questionnaire as a baseline but modified it to assess therapist's perceptions of each one of the therapy participants individually: mother, father and child. The original questionnaire was made up of 56 items divided into seven scales, whereas the later version was composed of 29 items, divided into three scales: therapeutic bond, therapeutic openness/involvement, and overall evaluations of treatment outcomes. Each item

is scored on a Likert scale ranging from 1(not at all) to 5(strongly agree); responses are summed to obtain the overall score where a high score indicates high therapist evaluation. The internal consistency for the original questionnaire for therapeutic bond was reported to be 0.78, 0.74 for therapeutic openness/involvement (Kolden et al., 2000), and 0.80 evaluations of treatment outcomes (Kolden, 1991). In the current study, the questionnaire was completed by the art therapists and the Cronbach's alphas were $\alpha = 0.86$ for the therapeutic bond (scale tested for each of the participants, mother $\alpha = 0.86$; father $\alpha = 0.84$, child $\alpha = 0.81$), $\alpha = 0.84$ for therapeutic openness /involvement (scale tested for each of the participants, mother $\alpha = 0.81$; father $\alpha = 0.79$, child $\alpha = 0.82$), and $\alpha = 0.81$ for evaluations of treatment outcomes.

PROCEDURE

The art therapists who worked with the children in this study met with the child's parents in a parallel process with the intervention group and with control group A. This process was composed of 8 to 11 individual sessions with the parents every 3 to 4 weeks, in a period of 10 months. The parents in control group B only met twice with the therapist, once for initial familiarization session at the commencement of their child's art therapy and a summary session once more at the end of the process. They did not receive parental training at all. The duration of each session with the parents was 50 to 60 min to allow for a meaningful conversation, artistic creation and the processing of the creative process (in the intervention group). For the intervention group, art-based interventions were combined with parental training in six to ten of the sessions. The therapists worked according to a standard protocol of exercises and suggestions for artmaking with various materials, which were consolidated into an "Arts-based Guide for Parental Training" prepared by the first author and other experts in the field. This guide included two main parts: the first part dealt with the parental training protocol based on the principles of the parent-child psychotherapy approach (Harel et al., 2010). This protocol was composed of recommended topics for discussion with the parents in the context of their relationship with their child. These included (1) Asking for a description of the difficulties the parents needed to cope with in their daily activities with their child; (2) Observation of the parents' communication with their child; (3) An examination of the parents' backgrounds in the context of their current behavior; (4) An examination of the patterns, thoughts, beliefs, and values that they transmit to their children; (5) An integration of the processes the parents experience in parental training and the child experiences in art therapy.

As part of the parental training process, there was collaborative thinking between the therapists and the parents regarding changes and their application in their day-to-day interactions with their child. This section also comprised the therapeutic protocol for art therapists for the control group A (verbal parental training). The second part of the guide was composed of 20 exercises and structured ideas for art-based therapeutic intervention techniques with parents so as to ensure

as much similarity as possible. The exercises incorporated the use of different materials such as crayons, markers, colored pencils, gouache, clay, plasticine and collage work. The structured exercises had a number of sections such as how to arrange the setting, materials used in the exercise, detailed instructions for the therapist, and emphasis on talking points with the parents about the process and the artistic product. The exercises were compiled from 15 interviews with art therapists who use art-based intervention techniques in parental training (Shamri-zeevi et al., 2015), as well as the clinical experience of the first author.

The art therapy sessions with the children and the parental training sessions with the three groups were conducted by certified art therapists and third year students from the School of Creative Arts Therapies at the University of Haifa, with the provision of professional supervision from the University. The art therapists treated children from all three groups and were blind to the research objectives and questions.

ETHICS

Approval for this study was obtained from the Ethics Committee of the Faculty of Social Welfare and Health Sciences at the University of Haifa (Israel) and the Chief Scientist of the Ministry of Education, and protected the rights and privacy of all participants. Upon completion of the study the questionnaire identification key and the research reports were destroyed, leaving no identifying information about the participants in the results.

STATISTICAL ANALYSIS

To test for differences in demographic variables between groups, a Fishers' Exact Test ($p(X^2)$) and a Bonferonni proportion test (see Table 1) were conducted. Table 1 lists the frequency of children in the sample according to gender and age for the three groups. When the effect was significant, this was taken into account when calculating the significant differences of the variable.

TABLE 1 | Children's gender and age as a function of group.

		Parental training with art-based interventions	Verbal parental training	No parental training	n	p^*
Child's gender	Male	41%	67%	54%	47	ns
	Female	59%	33%	46%	40	ns
	Total	29	30	28	87	0.051
Child's age	Five	21%	10%	39%	20	ns
	Six	28%	13%	29%	20	ns
	Seven	24%	37%	14%	22	ns
	Eight	28%	40%	18%	25	ns
	Total	29	30	28	87	0.046

* p (Fishers' Exact Test) and Proportion Bonferonni.

A series of preliminary analyses were conducted to examine whether the demographic variables had an effect on the dependent variables. For this purpose, one-way ANOVAs were conducted using multiple comparisons of the subgroups with Tukey's *post-hoc* analysis. These examined which variables should be included in the multivariate analysis (see Table 2).

FINDINGS

Means and standard deviations for the three groups' (intervention group and two control groups) outcome measures at pre-treatment and termination for all sub-scales of first to third hypothesis are provided in Table 3.

The first hypothesis posited that in comparison to the two control groups, the intervention group would present with a significant improvement in the children's view of their self-perception. To examine the differences, a two-way MANOVA was performed to test the effect of art based parental training (independent variable) on the four self-perception sub-scales (dependent variables): perceived cognitive abilities, perceived physical abilities, perceived acceptance by peers and perceived acceptance by the mother.

We then examined whether there was a group effect on the sub-scales. As shown in Table 4, there was a significant multivariate effect of intervention group on the different sub-scales for self-perception [*Roy's Largest Root* = 0.118; $F_{(4, 165)} = 4.88$, $p < 0.01$, $\eta^2 = 0.106$]. If significant differences were found for group on the sub-scales, the effect of group on each of the self-perception sub-scales was examined separately with a one-way ANOVA. A Levene's test was conducted to examine the homogeneity of the variance across groups for each of the dependent variables. Table 5 presents the results of the one-way ANOVA on self-perception for each sub-scale and the aggregate variable. There was a significant differences between groups for three of the four self-perception sub-scales: perceived cognitive abilities [$F_{(2, 167)} = 2.24$, $p < 0.05$], perceived acceptance by peers [$F_{(2, 167)} = 4.34$, $p < 0.05$] and perceived acceptance by the mother [$F_{(2, 167)} = 2.62$, $p < 0.05$]. However, no significant differences were found between groups on the perceived physical abilities sub-scale [$F_{(2, 167)} = 0.47$, *n.s.*].

Given the significant differences between groups in terms of the child's perceived cognitive abilities, perceived acceptance by peers and perceived acceptance by the mother, follow-up analyses were conducted to identify the source of the differences between

TABLE 2 | Summary ANOVA results for the significant effect of the different variables on the groups and on the research variables.

Demographic differences	All research groups	PSPCSA (Total)
Child's age	0.046	
City	<0.0001	
Mother's education	0.012	
Child's gender		<0.0001
Art therapist		<0.0001

TABLE 3 | Mean differences and standard deviations for the three groups for all sub-scales.

	Parental training with art-based intervention		Verbal parental training		No parental training	
	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>	<i>N</i>
SELF-PERCEPTION OF CHILD'S SUB-SCALES						
Perceived cognitive abilities	1.39 (1.41)	58.00	1.67 (1.49)	58.00	1.41 (1.37)	56.00
Perceived physical abilities	0.85 (1.23)	58.00	1.59 (1.37)	58.00	1.15 (1.29)	56.00
Perceived acceptance by the mother	0.82 (0.98)	58.00	0.62 (0.89)	58.00	0.76 (0.99)	56.00
Perceived acceptance by peers	0.36 (0.94)	58.00	0.55 (1.12)	58.00	0.03 (0.99)	56.00
Aggregate variable of child's self-perception	0.85 (0.82)	58.00	1.11 (0.79)	58.00	0.84 (0.83)	56.00
PARENT'S PERCEPTION OF THE RELATIONSHIP WITH THE CHILD SUB-SCALES						
Emotional intimacy	−0.16 (0.77)	29.00	0.11 (0.54)	30.00	−0.01 (0.63)	28.00
Communication	−0.08 (0.61)	29.00	0.10 (0.88)	30.00	0.06 (0.75)	28.00
Reciprocity	−0.05 (0.46)	29.00	0.11 (0.66)	30.00	0.11 (0.88)	28.00
Control and Supervision	0.10 (0.59)	29.00	0.24 (0.65)	30.00	−0.04 (0.54)	28.00
Open confrontation	0.14 (0.44)	29.00	0.19 (0.72)	30.00	0.08 (0.53)	28.00
Alienation and Rejection	−0.08 (0.55)	29.00	0.00 (0.62)	30.00	0.22 (0.65)	28.00
Aggregate variable of parent's perception of the relationship with their child	−0.02 (0.44)	29.00	0.13 (0.37)	30.00	0.07 (0.43)	28.00
PARENTAL SATISFACTION AND EFFICACY SUB-SCALES						
Parental satisfaction	0.98 (0.55)	29.00	1.04 (0.62)	30.00	1.11 (0.63)	28.00
Parental efficacy	0.15 (0.44)	29.00	−0.02 (0.74)	30.00	0.15 (0.80)	28.00
Aggregate variable of parental satisfaction and efficacy	0.56(0.42)	29.00	0.51(0.52)	30.00	0.63(0.48)	28.00

TABLE 4 | Summary ANOVA results for all self-perception and social acceptance of the child sub-scales.

	Roy's largest root	<i>F</i>	<i>df error</i>	<i>df</i>	<i>p</i>	η^2
ONE WAY						
Constant	0.077	3.15	164	4	0.016*	0.071
Parental training with art-based intervention	0.118	4.88	165	4	0.001**	0.106
Child's gender	2.644	108.41	164	4	0.001**	0.726
Art therapist	0.027	1.09	164	4	0.361	0.026

* $p < 0.05$.** $p < 0.01$.

groups using Tukey's HSD. The results are presented in **Table 6**, and show a significant differences between the intervention group and control group A in terms of the child's perceived cognitive abilities [$M = 0.39$, $SD = 0.16$, $p < 0.05$], the child's perceived acceptance by peers [$M = 0.22$, $SD = 0.20$, $p < 0.05$] and the child's perceived acceptance by the mother [$M = 0.42$, $SD = 0.16$, $p < 0.05$]. Thus scores were higher after integrating art-based interventions in parental training than in the verbal parental training group. The other differences between groups were not significant. Thus the first hypothesis was partially confirmed.

The second hypothesis posited that the intervention group would exhibit significant improvement in the perception of the parent's relationship with the child. To examine the differences between the intervention group and the two control groups, a two-way MANOVA examined the effect of art based parental training (the independent variable) on six sub-scales of the parent's perception of the relationship with the child (dependent variables): emotional intimacy, communication,

reciprocity, control and supervision, open confrontation and alienation and rejection. As shown in **Table 7** there was no significant multivariate effect found in the intervention group between the different sub-scales examining the perception of the parents' relationship with their child [*Roy's Largest Root*=0.091; $F_{(6, 77)}=1.17$, $n.s.$, $\eta^2 = 0.08$]. The small effect of the therapeutic method suggests that changes in the therapeutic method most likely cannot account for the changes in the outcome of the parents' perception of the relationship with the child, but that other variables, aside from the therapeutic method, may explain these changes in the parents' perception of the relationship with the child.

Although no significant differences were found on the different sub-scales, the effect of the groups on each of the sub-scales was examined separately by a one-way ANOVA. Levene's test was conducted first to examine the homogeneity of variance across groups for each of the dependent variables (see **Table 8**). This test showed that for each of the sub-scales representing the parents' perception of the relationship with the child, the variance

TABLE 5 | Summary one way ANOVA results of intervention group for self-perception of the child.

	<i>F</i>	<i>df error</i>	<i>df</i>	<i>p</i>	Levene's <i>F</i>	Levene's sig.
Perceived cognitive abilities	2.24	167	2	0.035*	0.49	0.612
Perceived physical abilities	0.47	167	2	0.502	0.26	0.770
Perceived acceptance by the mother	2.62	167	2	0.028*	1.11	0.332
Perceived acceptance by peers	4.34	167	2	0.017*	3.76	0.025*
Aggregate variable of child's self-perception	0.43	167	2	0.204	0.09	0.913

P* < 0.05.TABLE 6 |** Summary of follow-up analyses for significant perception of self-ability and social acceptance of the child subscales.

	Parental training with art-based interventions		Verbal parental training	
	<i>M</i> (<i>SE</i>)	<i>p</i>	<i>M</i> (<i>SE</i>)	<i>p</i>
Perceived cognitive abilities	0.39 (0.16)	0.037*	0.28 (0.15)	0.195
Perceived physical abilities	−0.18 (0.16)	0.759	−0.05 (0.16)	1.000
Perceived acceptance by the mother	0.42 (0.16)	0.027*	0.13 (0.16)	0.161
Perceived acceptance by peers	0.22 (0.20)	0.049*	0.13 (0.19)	0.160
Aggregate variable of child's self-perception	0.10 (0.10)	0.875	0.17 (0.10)	0.229

**P* < 0.05.

was homogeneous across groups; hence a one-way ANOVA for each sub-scale met the statistical assumptions. **Table 8** presents the results of this one-way ANOVA and indicates that there was no significant difference across groups for any of the sub-scales of the parents' perception of the relationship with the child, or in the aggregate variable. Therefore, the second hypothesis was not confirmed.

The third hypothesis posited that in comparison to the control groups, the intervention group would present with a significant improvement in parental satisfaction and efficacy following the art-based intervention in parental training. To examine the differences between the intervention group and the two control groups a two-way MANOVA was conducted on the two sub-scales of parental satisfaction and efficacy (dependent variables).

First we examined whether the magnitude of the group effect differed across subscales for parental satisfaction and efficacy (and in relation to the aggregate variable).

As shown in **Table 9** there was no significant multivariate effect found for the intervention group between the different sub-scales of parental satisfaction and efficacy [*Roy's Largest Root* = 0.008; $F_{(2, 81)} = 0.30, n.s., \eta^2 = 0.00$].

Even though no significant differences were found for the effect of the manipulation on the different sub-scales, the effect of the groups on each parental satisfaction and efficacy sub-group was examined separately using a one-way ANOVA. For this purpose, a Levene's test was conducted first to examine the homogeneity of variance across groups for each of the dependent variables (see **Table 10**) which showed homogeneity of variance for each parental satisfaction and efficacy sub-scale indicating that a one-way ANOVA for each sub-scale met statistical assumptions. **Table 10** presents the results of the one-way analysis of variance. No significant differences were found

between groups in the sub-scales or in the aggregate variable. Therefore the third hypothesis was not confirmed.

The fourth hypothesis posited that the art-based parental training group would show significant improvement as evaluated by the art therapists in terms of therapeutic bond, therapeutic openness/involvement, and in the overall evaluation of the therapeutic outcomes following the intervention, in comparison to the control groups. To test this hypothesis, a one-way ANOVA with a Tukey's *post-hoc* follow-up analysis was used to compare the means of the intervention group and the two control groups. As shown in **Table 11**, no differences were found between control group A (verbal parental training) and control group B (no parental training). A significant difference was observed between the intervention group and the control groups for the three sub-scales of the therapeutic evaluation related to the mother, father, and child, as reported by the art therapists.

The findings indicated that art therapists' perceived a significant improvement in the intervention group in terms of the children's therapeutic openness/involvement ($M = 3.45, SD = 0.63, p < 0.001$) in comparison to control group A. There was a marginally significant improvement [$M = 3.56, SD = 0.86, p < 0.1$] in the therapists' perceptions in terms of therapeutic openness/involvement of the father by comparison to control group A. In terms of the therapeutic bond there was a significant improvement in the intervention group in terms of the art therapists' perception of the mother [$M = 3.84, SD = 0.49, p < 0.05$], the father [$M = 3.80, SD = 0.42, p < 0.05$] and the child [$M = 4.16, SD = 0.63, p < 0.001$] in comparison to control group A. In terms of the overall evaluation of therapeutic outcomes, the art therapists' perceived improvements in the mother [$M = 4.14, SD = 0.79, p < 0.05$] and the child [$M = 4.99, SD = 0.98, p < 0.001$] in comparison to control group A. Hence,

TABLE 7 | Summery variance of one way and two way MANOVA of the parents' perception of the relationship with their child.

	Roy's largest root	<i>F</i>	<i>df error</i>	<i>df</i>	<i>p</i>	η^2
ONE WAY (BOTH PARENTS)						
Parental training with art-based intervention	0.091	1.17	77	6	0.329	0.08
Child's age	0.111	1.40	76	6	0.223	0.10
Parent's education	0.027	0.34	76	6	0.912	0.02
City	0.067	0.85	76	6	0.533	0.06
TWO WAY (THE IMPACT OF PARENT)						
Parental training with art-based intervention	0.044	0.88	121	6	0.509	0.03
Parent	0.015	0.30	120	6	0.933	0.01

TABLE 8 | Summary ANOVA results for all parent's perception of the relationship with the child sub-scales.

	<i>F</i>	<i>df error</i>	<i>df</i>	<i>p</i>	Levene's <i>F</i>	Levene's sig.
Emotional intimacy	1.43	81	2	0.244	0.01	0.988
Communication	0.50	81	2	0.603	0.04	0.961
Reciprocity	0.38	81	2	0.685	0.85	0.429
Control and supervision	0.59	81	2	0.552	0.07	0.925
Open confrontation	0.04	81	2	0.959	2.63	0.078
Alienation and rejection	1.24	81	2	0.294	0.37	0.689
Aggregate variable of parent's perception of the relationship with their child	0.79	81	2	0.454	0.23	0.788

the results of the ANOVA analysis and the Tukey's *post-hoc* analysis suggest that the fourth hypothesis was confirmed.

DISCUSSION

The aim of this study was to examine the efficiency of an innovative working approach in the field of parental training that integrates art-based interventions. The objective was to better understand the relationship between the art-based therapeutic process and its results. Specifically this study explored whether the integration of an art-based intervention in parental training (with parents whose child was in art therapy) would contribute to the parent-child relationship, affect the parents' self-perception in terms of their parental functioning and improve the child's daily functioning.

The hypotheses dealt with the differences between the intervention group (art-based parental training) and the two control groups (verbal parental training—control group A, and no parental training at all—control group B). Overall the prediction was that the intervention group would show better results than the control groups on all indices.

The Child's Self-Perception

The first hypothesis was partially confirmed. Three of the four sub-scales (perceived cognitive abilities, perceived acceptance by peers and perceived acceptance by the mother) increased significantly in the intervention group compared to the control groups. However, no significant differences were found between the groups in the sub-scale that examined the child's self-perception of physical abilities.

The term 'self-perception' is defined in the professional literature (Jacobs et al., 2003) as the sum of all attributes, abilities, attitudes and values that a person believes describe him or her. A significant function of self-perception in children is to set behavioral and motivational goals that are congruent with the way they perceive themselves, and to guide their social behavior and other activities (Harter, 1999). In several art therapy studies (Omizo and Omizo, 1989; Regev and Guttman, 2005), mixed findings have been reported for 4 to 10 year olds' self-perceptions when integrating art therapy into group therapy, parent-child psychotherapy and individual therapy. Omizo and Omizo (1989) found that there was an improvement in self-perception in two out of four scales, whereas Regev and Guttman (2005) observed no change in the self-perception of primary school-aged children.

Driessnack (2005) suggested that drawing makes it easier for children to communicate. In his overview, he found that children who are interviewed may respond more succinctly to questions as a result of their inability to retrieve information or understand a concept or event. By contrast, when children draw, they can generate new internal clues to events and thus organize the narrative in a way that makes it easier for them to communicate with their environment. It can be assumed that when parents draw, they connect to their children's experience which enabled them to perceive their children's abilities, which in turn may have had a positive effect on the children's self-perception in the intervention group. Gavron (2013) argued that artwork and the observation of the artwork both promote a process of "metaphorical insight" that makes art meaningful during parental sessions and allows for the acquisition of insight above and beyond describing and representing internal feelings

TABLE 9 | Summery variance of one way and two way MANOVA of parental satisfaction and efficacy.

	Roy's largest root	F	df error	df	p	η^2
ONE WAY (BOTH PARENTS)						
Parental training with art-based intervention	0.008	0.30	81	2	0.738	0.00
Child's age	0.018	0.71	80	2	0.495	0.01
Parent's education	0.032	1.29	80	2	0.281	0.03
City	0.009	0.36	80	2	0.694	0.00
TWO WAY (THE IMPACT OF PARENT)						
Parental training with art-based intervention	0.016	0.97	248	4	0.379	0.01
Parent	0.003	0.20	123	2	0.818	0.00

TABLE 10 | Summary ANOVA results for all parental satisfaction and efficacy sub-scales.

	F	df error	df	P	Levene's F	Levene's sig.
Parental satisfaction	0.12	81	2	0.883	0.01	0.989
Parental efficacy	0.26	81	2	0.769	2.26	0.111
Aggregate variable of parental satisfaction and efficacy	0.29	81	2	0.749	0.57	0.567

and sensations. Even the use of creative materials on its own allows parents to be exposed to and access their own unconscious content which may enable them to adopt an additional conduit for observing themselves and their own children. When parents take part in a therapeutic experience that promotes creativity and play with art materials, they may allow themselves to connect, appreciate, and start to accept the “child core” within themselves, which at times has been forgotten or become a distant memory.

In this study, two indices that exhibited a significant increase in the intervention group concerning children's perceptions were the communication skills of the children with peers and with their mother, a finding that is consistent with theory and other studies (Oppenheim et al., 1997; Laible et al., 2004). These studies reported that the degree of warmth and emotional closeness that children feel when they see representations of the relationship with their parents is positively associated with adaptive behavior and good social ability with the peer group. Stern (2004) argued that self-esteem is based on an elementary level of awareness of self-processes that begins in infancy and is based on children's relationship with their mother and father figures. In this way, the mother produces a supportive framework for the development of the self in which the child feels valued and loved (Bretherton, 1990).

The hypothesis regarding the child's self-perception of physical abilities was disconfirmed. One possible explanation is that art therapy does not necessarily enhance or improve a child's physical abilities. The Regev et al. (2012) study of the effects of movement therapy on mother-child relationships and the child's self-perception found that in this kind of therapy, which emphasizes physical and motor skills, there was an improvement in the physical abilities perception index (in terms of measures before and after mother-child movement therapy interventions).

There was a significant increase in three out of the four self-perception indices in those children whose parents underwent art-based parental training sessions as compared to control group A. It should be noted that the children were the ones who received treatment and were the actual agents for measuring change. Only the children whose parents received art-based parental training reported that they sensed a change in their relationships with their parents, which led to an increase in the child's sense of self-worth. This may indicate that the parents, for their own reasons, were not yet willing to recognize the change in their child's behavior and relationship whereas the children reported a significant change. This is discussed in more detail below.

Parents' Perception of Their Children

The second and third hypotheses, which addressed the parents' perception of their children and the relationship between them, assumed that the intervention group would show a significant improvement in the indices measuring the perception of the parent-child relationship, parental satisfaction and efficacy following the intervention compared to the two control groups. These hypotheses were not confirmed.

There are several possible explanations for these findings. The first relates to time. In this study, the intervention took place over a period of 10 months on average. Although for children this may be a reasonable period of time to create a change in self-perception (in terms of perceived cognitive abilities, perceived acceptance by peers and by the mother, as can be seen in the first hypothesis), this may not be sufficient to bring about profound conceptual and practical changes in the parents' perception of their relationship with the child and their own self-perception (Toren and Shechtman, 2010). Within the intervention group, there was an increase in terms of the level of awareness of the difficulties and problems faced by the parents in their relationships with their children, as compared to the control

TABLE 11 | Analysis of variance with Tukey's *post hoc* of the three groups to examine the effect of therapy as perceived by the art therapists.

Research Groups		Mother				Father				Child			
		N	Mean	SD	Mean	N	Mean	SD	Mean	N	Mean	SD	Mean
Therapeutic bond	Parental training with art-based interventions	29	3.84	0.49	0.03*	17	3.80	0.42	0.01*	29	4.16	0.63	0.00*
	Verbal parental training	30	3.54	0.54		14	3.37	0.50		30	3.47	0.76	
	Total	59	3.69	0.54		31	3.61	0.50		28	2.57	0.69	
	Fixed			0.52				0.46		87	3.41	0.94	
Therapeutic openness/involvement	Parental training with art-based interventions	29	3.74	0.84	0.48	17	3.56	0.86	0.050	29	3.45	0.63	0.00*
	Verbal parental training	30	3.60	0.66		14	3.07	0.65		30	3.08	0.68	
	Total	59	3.67	0.75		31	3.34	0.80		28	2.25	0.83	
	Fixed			0.76				0.77		87	2.94	0.87	
	Random											0.72	
	Random											0.70	
Overall evaluation of therapeutic outcomes	Parental training with art-based interventions	29	4.14	0.79	0.02*	17	3.88	0.78	0.49	29	4.99	0.98	0.00*
	Verbal parental training	30	3.63	0.93		14	3.64	1.15		30	3.93	0.98	
	Total	59	3.88	0.89		31	3.77	0.96		28	2.68	0.72	
	Fixed			0.86				0.96		87	3.75	1.19	
	Random											0.93	

$p < 0.05^*$.

groups. This suggests more time was needed for the parents to process the content that arose during the sessions than allocated in this study.

In addition, although the therapy period in this study was relatively short, the intervention protocol with the parents was not defined as a short-term dynamic therapy protocol, and therefore was not implemented as such. Short-term dynamic therapy (BDP—brief dynamic psychotherapy, or STPP—short term psychodynamic psychotherapy) is based on the principles of the psychoanalytic approach (Molons, 1998). Mann and Goldman (1982) presented a model based on the psychoanalytic approach to the concept of both realistic time and symbolic time. In this approach a central issue is selected for the limited time frame of the therapy. In outcomes research (some of which are comparative studies) conducted in the short-term dynamic approach, therapy has dealt with parental training, children with behavioral difficulties, and children with depression (Tsiantis et al., 2005; Trowell and Miles, 2011; Enebrink et al., 2015). The findings indicate that this type of therapy with these populations is effective. Enebrink et al. (2015), who conducted a study on 104 families, reported that a training process of only four sessions with the parents, over a period of 4 months, improved the parents' ability to show empathy toward their children, instill rules and boundaries, and increased parental efficacy and the well-being of the child.

In the current study parents met with the art therapist once every 3 to 4 weeks in the parental training groups (intervention group and control group A) and not as part of a standard therapeutic process in which the sessions take place once a week. Working according to the short-term dynamic approach with art-based parental training should be examined in further studies. Hence, the time frame of 10 months allotted in the study may

have been too short and did not fully utilize the therapeutic protocol being examined. It is also possible that several extra sessions or the implementation of a short-term dynamic therapy approach would have resulted in greater perceived efficiency of parental training as assessed by the parents.

Parents may have had feelings of anger and frustration as the termination of the parental training process approached. This could have been experienced as forced termination and not welcomed at that stage. These feelings may have been expressed in the questionnaires they completed at the end of the parental training sessions. Forced termination was defined by Rosenfeld (1977) as a conclusion to therapy prompted by the therapist rather than by an improvement or progress in therapy or a decision by the client to leave. This definition emphasizes the unilateral nature of forced termination, and underscores the active role of the therapist in terminating the therapeutic relationship. Even though the final date of the therapeutic process was known and predetermined in the therapeutic/training process in this study, termination could still have been experienced by the parents as non-optimal and may have caused feelings such as insult, anger, abandonment and loneliness. Results from a number of studies (Fortune et al., 1992; Anthony and Pagano, 1998) indicate that the termination of the therapeutic process can trigger negative emotions in clients such as denial, anger, sadness, loss and anxiety, as well as positive feelings such as pride, a sense of accomplishment, maturity, and independence. However, when facing a forced termination, negative emotions will often appear more strongly. Keith (1966) coined the term "transfer syndrome" which refers to an increase in levels of anxiety experienced by the client when facing with the forced termination of the therapeutic process. He listed several symptoms that may make the process easier

for the client, including downplaying the importance of therapy, its outcomes and the therapeutic relationship (Zuckerman and Mitchell, 2004).

Evaluation of Therapy Outcome Measures by the Art Therapists

The art therapists' therapy session reports also shed light on the advantages of parental training with art-based interventions and confirmed the fourth hypothesis. Namely, there was an improvement in the intervention group as compared to the two control groups for the indices in that the art therapists reported that in their opinion, the mothers, fathers, and children progressed on almost all scales. At the end of the process, the art therapists reported the efficiency of the training in a different and more positive manner than the parents. These results are consistent with studies that have examined the therapeutic relationship in which the therapist and the client were asked to evaluate the process and effectiveness of therapeutic outcomes (Manne et al., 2012; Holmqvist et al., 2016; Coyne et al., 2017). The therapists were more inclined to evaluate the therapy sessions in a more positive light than their clients. It should be noted that in this study the art therapists evaluated the therapy more positively than the parents despite being blind to the hypotheses. Furthermore, each art therapist treated families from all groups, which reinforces the validity of their reports. A combined outcome study that examined the perception of therapists and clients as to their expectations, the therapeutic relationship and the effectiveness of therapy found that the basis for differences in the assessment of therapy had to do with differences in their expectations and their interpretations of the components of the therapeutic process (Sewanee et al., 2017). For example, clients expressed a desire for more constructive therapy, they valued the therapist's support and validation during the sessions and were assisted by the therapists' suggestions and ideas. By contrast, the therapists who assessed the clients' desire to explore the therapeutic relationship wanted more time for therapy.

Second, the art therapists' perceptions of change the fathers underwent were positive, but to a lesser extent than for mothers and children. Studies have shown that fathers undergo less of a change in parental training (for example Tiano et al., 2013; Niec et al., 2015). In a study by Niec et al. (2015) composed of 120 mothers and fathers of children aged two to seven who coping with behavioral difficulties, fathers reported less readiness for change, a decreased sense of confidence in their ability to create a change in their relationship with their children, and perceived the parental training sessions as less important and effective than did the mothers.

CONCLUSION AND RECOMMENDATIONS

Overall, the findings underscore the importance of art and creativity in children's emotional development. This study innovates by addressing the ways in which the relationship between parents and children in therapy can be improved by integrating art-based intervention techniques.

Future research should aim to develop focused, research-based approaches integrating art-based interventions into parental training sessions which can serve as significant tools for art therapists who work with children and their parents in the clinical field. Further development of this approach will enable art therapists to use creative tools in their work with parents much like when using them with children to enhance parents' reflective and empathic skills with their children.

The practical contribution of this research lies in its design of innovative directions and methods of treatment through art. It suggests a different approach to helping children with emotional difficulties who engage in art therapy. Whereas assistance is typically given to the children themselves, and sometimes verbal parental training is provided, this study attempted through a holistic approach, to view parents as creators so as to better understand the therapeutic process their children are undergoing, and to open a window onto emotional processes, experienced by parents of children with emotional difficulties. From a theoretical point of view, there have been no systematic studies examining models of art-based parental training. The results of this study have important practical implications. First, art therapists will be able to better determine the most appropriate methodology to work with parents. Second, art therapists can better gauge where to focus and deepen their relationship with parents, as a function of the child's difficulty. Third, art therapists will be better able to work in the clinical field by implementing the Art Based Parenting Guide that was written especially for this study. Fourth, other mental health professionals who do not use art as the primary instrument in their work may find art based interventions to be useful when working with parents.

This is the first time this type of data has been collected or presented in the form of a structured working model. Follow-up studies (as suggested above) should endeavor to encourage the development of focused, research-based models of integrating art-based interventions into parental training, which can serve as significant tools for therapists working with children and their parents through art in the clinical field.

This study has several limitations. A larger sample would enable a more thorough examination of the effect of combining art-based interventions with parental training sessions. Expanding the age range to the end of the latency period (age 12) would allow for a broader view of age-specific characteristics and parent-child relationship patterns. Finally, to define the contribution of art-based interventions in parental training, another avenue would be to lengthen the period of parental training to 18 months. Assessing other protocols such as dynamic work in a short-term, goal-oriented psychodynamic approach would shed light on the ways in which a significant relationship between the therapists and the parents can be established. It may also allow for simultaneous termination of the research process with the end of the parental training therapeutic process. Another direction for further research would be to examine mother-child and father-child relationships separately. Such studies would enhance techniques of integrating art-based interventions in parental training.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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ACKNOWLEDGMENTS

We gratefully acknowledge The Academic College of Society and the Arts, Israel, for financial support toward the open-access publishing fee for this article.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The Body Speaks: Using the Mirror Game to Link Attachment and Non-verbal Behavior

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OPEN ACCESS

Edited by:

Girija Kaimal,
Drexel University, United States

Reviewed by:

Alessandro Talia,
Universität Heidelberg, Germany
Elizabeth Manders,
Drexel University, United States
Katherine Myers-Coffman,
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 23 April 2018

Accepted: 06 August 2018

Published: 23 August 2018

Citation:

Feniger-Schaal R, Hart Y, Lotan N,
Koren-Karie N and Noy L (2018)
The Body Speaks: Using the Mirror
Game to Link Attachment
and Non-verbal Behavior.
Front. Psychol. 9:1560.
doi: 10.3389/fpsyg.2018.01560

The Mirror Game (MG) is a common exercise in dance/movement therapy and drama therapy. It is used to promote participants' ability to enter and remain in a state of togetherness. In spite of the wide use of the MG by practitioners, it is only recently that scientists begun to use the MG in research, examining its correlates, validity, and reliability. This study joins this effort by reporting on the identification of scale items to describe the non-verbal behavior expressed during the MG and its correlation to measures of attachment. Thus, we explored the application of the MG as a tool for assessing the embodiment of attachment in adulthood. Forty-eight participants (22 females, mean age = 33.2) played the MG with the same gender-matched expert players. All MG were videotaped. In addition, participants were evaluated on two central measurements of attachment in adulthood: The Adult Attachment Interview (AAI) and the Experience in Close Relationship questionnaire (ECR). To analyze the data, we developed the "MG scale" that coded the non-verbal behavior during the movement interaction, using 19 parameters. The sub-scales were reduced using factor analysis into two dimensions referred to as "together" and "free." The *free* factor was significantly correlated to both measurements of attachment: Participants classified as having secure attachment on the AAI, received higher scores on the MG *free* factor than participants classified as insecure [$t(46) = 7.858, p = 0.000$]. Participants, who were high on the *avoidance* dimension on the ECR, were low on the MG *free* factor [$r(48) = -0.285, p = 0.007$]. This is the first study to examine the MG as it is used by practitioners and its correlation to highly standardized measures. This exploratory study may be considered as part of the first steps of exploring the MG as a standardized assessment tool. The advantages of the MG as a simple, non-verbal movement interaction demonstrate some of the strengths of dance/movement and drama therapy practice.

Keywords: mirror game, attachment, non-verbal behavior, exploration, dance/movement therapy, drama therapy

INTRODUCTION

From the day a baby is born, the experience of relating to others is present and the complex weave of self in relation to others is being built. The significant interaction between the caregiver and the infant consolidate the "schema of being with" (Stern, 1983) long before language is available. The earliest learning about relationship, hence, is implicit, through the body, involving non-verbal behavior (Payne, 2017).

While the systematic assessments of relationships in childhood rely heavily on observation including verbal and non-verbal account (i.e., the strange situation procedure; Ainsworth et al., 1978; the emotional availability scales; Biringen et al., 2000), to date, the systematic examination of relationships in adulthood presented in the literature is based mostly on verbal report as the main source of information. In this preliminary study, we look at non-verbal interaction in adulthood using a common imitation exercise, the mirror game (MG), used in drama therapy and dance/movement therapy. We hypothesized that dyadic interaction in the course of play and movement holds valuable information that is linked to attachment style. In the present study, we used the MG to examine the non-verbal expressions of attachment, connecting between a solid psychological construct to the practice of drama therapy and dance/movement therapy.

Drama Therapy and Dance/Movement Therapy

One of the contributions of Creative Arts Therapies (CATs) to psychotherapy is the emphasis, in addition to explicit verbal communication, on other means of expressions such as the use of images, metaphors, sounds, choices of materials, rhythms, movement, playfulness, etc. (Cattanach, 1999). These means of communication and assessment provide opportunities to work with populations that are limited in their verbal expression (such as people with Intellectual Disabilities) and to deepen the understanding with all client groups, regarding implicit processes and information.

The body as a means of communication is not a new notion. In recent years, however, the body and its relation to emotions (Fuchs and Koch, 2014), cognition (Gallese, 2005; Ziemke, 2016), interpersonal relationship (Vicaria and Dickens, 2016), and therapeutic processes (Ramseyer and Tschacher, 2011; Koole and Tschacher, 2016) have received greater attention both in the clinical practice and in research (Payne, 2017). There is a growing emphasis on the notion that body movement, and non-verbal behavior are another important channel to investigate, not only with children, or non-verbal populations, but as an important means by which we can gain insight into the way human beings interpret, express, and interact with the world around them.

The use of the body as a central component in the therapeutic processes is inherent to both drama therapy and dance/movement therapy. *Drama therapy* is an active, experiential approach that facilitates change through the core elements of drama and theater, i.e., play, role, narrative, and performance (Jennings, 1992; Jones, 2007). *Dance/movement therapy* is the psychotherapeutic use of movement and dance to promote emotional, social, cognitive, and physical wellbeing (American Dance Therapy Association [ADTA], 2016). Hence, for drama therapists and dance/movement therapists the non-verbal behavior is an integral part of their practice, using various techniques to elicit this kind of expression.

The Mirror Game

Imitating, mirroring, or “joining” the other person’s movements or gestures are examples of common techniques used in dance/movement therapy (Koch et al., 2015; Koehne et al., 2016) and in drama therapy (Johnson, 2009). The MG used in this study is an exercise in imitation that has a clear structure. Players imitate each other’s movements in three rounds, which make it possible to experience different roles and interactions: in the first round one player leads and the other follows, in the second round they switch roles, and in the last round there is no designated leader or follower. The MG is commonly practiced in theater, drama therapy (e.g., Boal, 2013), and dance/movement therapy (McGarry and Russo, 2011), and it is used to enhance empathy and emotional understanding of others, and to promote participants’ ability to enter and remain in a state of togetherness (Schechner, 1994).

Although the MG is common practice in drama and dance/movement therapy, only recently has it become the target of thorough scientific scrutiny, reflecting the gap between clinical practice and empirical evidence. Interestingly, most studies on the MG were conducted by researchers from various disciplines other than arts therapies (i.e., physicists, computer scientists, neuroscientists), who showed a growing interest in using the MG as an experimental paradigm for measuring states of “togetherness” (Noy, 2014).

Some early studies on the MG used a device whereby players move handles along parallel tracks in one dimension, which provides automated quantitative indicators for the quality of interaction during the MG (Noy et al., 2011; Hart et al., 2014). The first of these studies found that players showed intervals of “togetherness motion” in which motion was complex, smooth, and synchronized. Togetherness motion occurred most frequently when no leader or follower was designated (Noy et al., 2011). This work on the MG received a comment in *Nature* (Shadan, 2011) owing to its pioneering contribution, which made possible the quantification of the encounter between two players.

Subsequent works found correlations between physiological parameters and the experience of togetherness in the MG (Noy et al., 2015b); studied the individual vs. shared characteristics of motion (Hart et al., 2014; Noy et al., 2015a); developed a computerized version of the MG with implications for rehabilitation (Zhai et al., 2014); used the MG to measure the link between synchrony and improvisation (Gueugnon et al., 2016); used the MG as a socio-motor biomarker for schizophrenia (Słowiński et al., 2017); and explored group dynamics during the MG (Himberg et al., 2018).

What are we missing by not having the CAT perspective in MG studies? All dyadic studies on the MG mentioned above used a machine or computerized version of the MG. The rich, clinical version of the MG, as commonly used by dance/movement therapists and drama therapists, has not been studied systematically to date. Following the methodology of the exact sciences, previous MG studies used a reduction of the data of the movement interaction, which enable an accurate quantification of the motion encounter. The present study sought to examine the MG in the way it is used in clinical settings (hence, full body mirroring, with no machine involved) and to validate

its richness and complexity. To do so, we relied on knowledge of dance movement and drama therapy in the data analysis of the full-body MG.

The MG and Attachment

Because the MG is first and foremost an interpersonal exercise, we sought to map the expressions of the interpersonal encounter during the MG, and to connect the MG to one of the most influential theories on human relationship: attachment theory (Bowlby, 1969/1982; Ainsworth et al., 1978). According to attachment theory, human beings are equipped with an attachment behavioral system that evolved to ensure proximity to a caregiver who provides (especially to young children) protection and assistance in times of distress (Shaver et al., 2000), and a “secure base from which to explore the world” (Ainsworth, 1964, p. 54). Attachment behavior conveys a social system in which confidence in the availability and responsiveness of close others organize contact-seeking and exploratory behavior (Crowell et al., 2002).

A central tenet of attachment theory is that individuals differ in their quality of attachment varying in secure vs. insecure attachment. Differences formed in the course of early child–caregiver relationship facilitate the development of mental representations of self and other, known as the internal working model (IWM, Bowlby, 1979). These IWM organize feelings, thoughts, and behavior over the life span (Bowlby, 1979; Miljkovitch et al., 2015).

Consolidation of the IWM and of the attachment patterns begins with the first relationship between child and caregiver. This early relationship is built on a series of body-to-body interactions. The somatic experience is the primary source from which children gain knowledge about emotions and relationships with others (Damasio, 1994). The ways in which the caregiver interacts and attends to the needs of the child are the main source for the implicit knowledge regarding the self in relation to others. Thus, the sense of self in relation to the other is first and foremost a body sense (Ogden and Fisher, 2015).

While the majority of approaches to the assessment of attachment in childhood depended heavily on observation of behavior that takes into account non-verbal information, studies of attachment in adulthood focused mainly on verbal account, interviews, and self-report (Crowell et al., 1999; Farnfield and Holmes, 2014). In the present study, we used play for assessment of adults’ participants and observe the behavior in the game. The CATs have adopted an approach suggesting that movement, play, and the use of imagination are not attributes that belong exclusively to childhood. The use of movements and games as part of assessment and intervention, connecting body, movement, and attachment is therefore inherent in drama therapy and dance/movement therapy.

The topics of attachment and its non-verbal expressions in adulthood have received little research attention. Some examples include studies that investigated the correlation between personal space and attachment classification (Kaitz et al., 2004). Studies exploring attachment classification and body response to lexical stimuli (Fraley and Marks, 2011)

found that attachment classification is correlated to non-verbal expression like comfort with distance, and the action of pushing and pulling. Some of the clinical literature has also described expressions of attachment in body and movement (e.g., Schore, 2011; Porges, 2011; Damasio and Carvalho, 2013; Ogden and Fisher, 2015). Hence, there is a lack of experimental paradigms for studying attachment in adults based on non-verbal expressions

In our first work on the topic of the MG and attachment, we found a correlation between the way people played the one-dimensional MG, using the MG device, and their attachment classification (Feniger-Schaal et al., 2015). Based on the kinematic measures indicated by the device, we found that people with secure attachment played a more complex and less synchronized game, than did people with insecure attachment. These results reinforce the notion of exploration and openness as an important attributes of attachment security. Our results showed that the two behavioral systems of attachment and exploration intertwined (Bowlby, 1979, 1969/1982; Ainsworth et al., 1978; Elliot and Reis, 2003).

The MG device enabled high-resolution measures that showed significant results that connected attachment classification with microanalysis of movements. However, reduction of the interaction using the MG device is limited in its clinical implications. Furthermore, the measurement device allows limited expression of the IWM because it is constrained to movement in only one dimension. Therefore, we sought a lifelike, naturalistic, and rich interaction, applicable to clinical practice, so that therapists using the MG would have a systematic way of gaining information based on the MG, and of planning their interventions with the MG. From a research perspective, the simplicity of full-body MG, which requires no special technology or equipment, has potential value for future investigations.

The Present Study

The aim of the present study was twofold: to develop a way of analyzing the non-verbal interaction during the MG and to validate it using key measurements of attachment in adulthood: the Adult Attachment Interview (AAI; George et al., 1985/1996, unpublished reference) and the Experience in Close Relationship questionnaire (ECR; Brennan et al., 1998).

We hypothesized that the MG includes elements that provide access to the non-verbal expression of attachment patterns. There are at least two such elements. First, because the MG involves interpersonal encounter, it can activate the participant’s procedural knowledge about how to interact with another person (regulate emotions, search for proximity, or synchronize with the other). Second, the MG entails exploratory behavior in which participants play together and search for various patterns of movement. The MG can therefore tap into the participant’s IWM, especially in the first stage of the game, when the participant leads and must both initiate motion and to make sure not to “lose” the follower. In this role, the participant must negotiate needs second by second, which presents an opportunity to assess attachment-related behavior. In this pilot study, we explored the ways in which different attachment styles are manifested in the non-verbal encounter of the MG.

MATERIALS AND METHODS

Ethics Statement

The Institutional Review Board (IRB) at the University of Haifa approved the described experiments, including the written consent procedure (approval number 086/13). All the participants provided written informed consent to participate in the study.

Participants

Forty-nine participants started the study. One participant quit at the interview session, therefore we analyzed the data for 48 participants, 22 females, mean age = 33.2 ($SD = 7.3$), mean number of years of education = 19.5 ($SD = 2.6$). All participants were Israeli Jews. 44(91.7%) spoke Hebrew as their first language, four others spoke either English, Russian or other European language. Four participants (8.3%) defined themselves as Orthodox Jews, Five others (10.4%) defined themselves as Conservative Jews, 39 (79.59%) defined themselves as non-religious. Twenty-seven of the participants were married, nine were in a relationship, four were divorced, and eight were single. Thirty-eight had no previous experience with the MG, nine had some, and one participant had extensive experience with the MG. Thirty-six had no improvisational experience of any kind (movement, music, drama), 10 had some experience in improvisation, and two had extended experience (see the descriptive statistics of the participants in **Supplementary Table S1**). Participants were students and staff at the Weizmann Institute of Science, who volunteered to take part in the study.

Procedure and Measures

Participants attended two sessions. In the first session, they played the MG with a gender-matched expert player (research assistant) aiming to control for gender differences in movement (Bente et al., 1998; Lozza et al., 2018). In the second session, participants completed the ECR questionnaire and were individually administered the AAI. This study was part of a larger project that explored the MG paradigm to study adult interaction (see Hart et al., 2014; Feniger-Schaal et al., 2015, Feniger-Schaal and Lotan, 2017).

The Mirror Game

Participants were instructed to play the MG, which involved mirroring each other's movements while assuming the different roles of leader and follower (see **Supplementary Material** for the complete MG instructions, and **Figure 1** for examples of the MG). The MG consisted of three rounds of five minutes each: in the first round the participant led, in the second the experimenter, and in the last round there was no designated leader. All games were videotaped. In this study we focused mainly on analyzing the first round, in which the participant led and the research assistant was following. This round is the first interaction between the participant and the experimenter, and therefore movement is less biased by leadership on the part of the expert player. In addition, one measure in the MG scales reflected the complete game and assessed whether there were any differences between the first round and the other two rounds. We also evaluated the



FIGURE 1 | Examples of the MG: each participant played with a research assistant of the same gender. Note: all participants shown in this figure provided written informed consent for the publication of this image.

third round and examined the shifts between the role of leader and follower.

The MG Scales

The MG scales (MGS) were developed for the purpose of the present study. The question that guided our observation of the games was: How is it for the participant to meet with another person? In the first stage, two researchers watched the videos and identified various components that pointed to individual differences in the MG. This process involved bottom-up (based on the video) and top-down (based on theory) method.

The identified components were then defined as a scale ranging 1–5 (1 = the negative end of the scale, 5 = the positive end). The development of the scales was based on theories used in dance/movement practice and on the observation method derived from attachment studies. More specifically, the definitions of the scales were influenced by the Emotional Availability Scales, which are commonly used to analyze parent–child interaction in attachment-related studies (EAS; Biringen et al., 2000), the Strange Situation Procedure (Ainsworth et al., 1978), Laban Movement Analysis (Laban, 1975; Levy and Duke, 2003), and Kestenberg Movement Profile (Kestenberg-Amighi et al., 1999/2018). We also resorted to our clinical experience as drama therapists and dance/movement therapists. In general, we were searching for communication of affect and for various ways of expressions relating to the encounter with the partner in the game.

Next, three “new” coders (hence, not the researchers that initially developed the scales) watched the MG videos and strived to reach reliability. Only the scales that – reached reliability were included in the final coding system. This process resulted in 19 scales that are described in the *MG Scales* manual (Feniger-Schaal et al., 2015, unpublished reference) and summarized in **Table 1**. **Supplementary Table S2** presents the inter ratters reliability if the MG behavior scales. The coding system focused on the following themes: *body movements*: which body parts participate in the game, which planes of movement were used and explored, the use of personal distance; *quality of movement*: tension, flow, pace; *exploration*: how rich and versatile the movements were; *affect*: negative affect, having fun, sharing affect; *minding the other*:

making reference to the other, connecting and disconnecting eye contact, gaze aversion, arching, competing with or teasing the other; *unusual behavior*: behavior that seems odd or bizarre in the context of the MG.

The Adult Attachment Interview

This hour-long semi-structured interview involves a series of questions about childhood relationships with one's parent's respondents support their descriptions of relationships with specific episodic memories (George et al., 1985/1996, unpublished reference). Respondents are also asked about possible bereavement and abuse. The interview is transcribed verbatim and coded using the Main and Goldwyn (1998, unpublished reference) system. Individuals are assigned to one of three main classifications, based on their discourse during the AAI. The secure-autonomous (F) classification is

associated with responses that are coherent, clear, relevant, and reasonably succinct. Participants labeled *F* are generally "free to explore" their childhood memories, both good and bad. The main characteristics of the Secure-Autonomous group are an open and flexible manner of exploring their childhood experiences, and the way these experiences influenced them as they are today. The transcripts of Insecure-Dismissing individuals (*DS*) tend to be characterized by idealization (overly positive generalizations not substantiated by specific memories) and/or insisting on their inability to recall specific memories. Dismissing individuals also tend to rely mostly on themselves and to minimize the significance of past experiences. This group is characterized by rigidity and lack of openness to explore various points of view regarding their childhood experiences. The narratives of insecure-preoccupied (*E*) individuals are typically lengthy, emotionally charged,

TABLE 1 | The MG scales.

The Scale	Description	Scoring
1. The "greeting"	Coding the first 45 s of the game, the way the player presents him/herself and begin the game	High score for appropriate checking of the encounter with the other and adapting to the beginning of the game
2. Breaks	Coding the times when the MG stops (breaks), i.e., the participant asks questions (after the first minute), burst into laughter or tears, or stops the game in any other way	High scores for no breaking of the game
3. Flow/shift	The flow of the movement	High score for flow of movements that seems to emerge from the previous movements
4. Pace	The pace of movement (changes from slow to fast)	High score for a pace that the partner can follow
5. Body parts	The use of the different parts of the body: limbs vs. the center of the body; robotic movements vs. soft and round movements in which the joints are used	High score for rich use of the body including the center of the body, and the performance of shape like movements (as opposed to robotic)
6. Directions of movement	The use of different movement planes: vertical, sagittal, and horizontal.	High score for the use of combinations of planes
7. Distance	The distance between the players	High score for exploring different distances between the players
8. Tension/relaxed	Physical indication of tension in the body and face, for example flexing the shoulders, or frowning the eyebrows	High score for relaxed, no-tension affect
9. Negative affect	Facial expressions of negative affect such as anger, boredom, irritation	High score for mostly positive affect
10. Having fun	Enjoying the encounter, positive affect, playfulness, having fun playing together	High score for the player appearing to enjoy most of the game
11. Shared affect	The players sharing affect like a smile or a facial expression that expresses moments of shared positive emotion	High score for moments of sharing positive affect
12. Competitiveness/teasing	Movement that calls for competition and even a sense of teasing	High score for little competitiveness or teasing
13. Reference to the other	Looking at the other to see whether the partner can follow the movement	High scores for referring to the partner during the game and checking the partner's ability to follow
14. Arching	Stretching the back backward in a way that disconnects eye contact	High score for no arching
15. Eye contact	Making eye contact	High score for eye contact during most of the game
16. Gaze aversion	Using movements (other than arching) that actively disconnect eye contact	High score for no gaze aversion
17. Exploration	The extent to which the participant explores a variety of movements	High score for exploratory game in different dimensions (pace, space, use of the body, etc.)
18. Unusual behavior	Performing unusual behaviors during the MG, for example, pretending to sleep throughout the game or moving only the pelvis for the entire game	Dichotomous scoring for the presence or absence of unusual behavior
19. Leader/follower	Coding the roles the participant assumes in the third round of the game: whether the player takes the lead, follows, or there is a constant shifting between roles	High score for balanced shifting between the roles of follower and leader

and lack relevance and coherence. They may also display a passive tone and could be difficult to follow. Additional classification is the Unresolved-Disoriented (U), which shows signs of disorientation when discussing potentially traumatic events. Unresolved transcripts were also assigned a secondary classification (autonomous, dismissing, or preoccupied), which best describes the discourse when not discussing loss or abuse. Finally, the *cannot-classify* (CC) classification indicates a text narrative that does not fit into any organized (DS, E, or F) AAI placement. This is most often the case when the text demonstrates a striking or unusual mixture of mental states (Hesse, 1996).

The interviews were transcribed verbatim, and identifying information was removed before coding. Transcripts were coded by Nina Koren-Karie, a certified AAI coder trained by Mary Main and Erik Hesse. For reliability, a second certified AAI coder scored 21% of the interviews. Both coders were blind to all other project data and to the analysis and scores of the other coder. The rate of agreement across the five classifications, based on 21% of transcripts, was 97%, $\kappa = 0.96$, $p < 0.01$. Intraclass correlation (ICC) between the two coders' scores was 0.88.

Attachment Orientations

Attachment orientations were assessed with a Hebrew version of the Experiences in Close Relationships questionnaire (ECR; Brennan et al., 1998). Participants rated the extent to which each item was descriptive of their feelings in close relationships on a 7-point scale, ranging from 1 = Not at all to 7 = Very much. Eighteen items assessed attachment anxiety (e.g., "I worry about being abandoned"), and 18 assessed avoidance (e.g., "I prefer not to show a partner how I feel deep down"). The reliability and validity of the scales have been repeatedly demonstrated (Brennan et al., 1998; for a review, see Mikulincer and Shaver, 2005). In our study, Cronbach's alphas were high (0.84 for anxiety and 0.85 for avoidance). Mean scores were computed for each scale, and the two scores were not significantly correlated ($r = 0.093$, $p = 0.53$).

RESULTS

AAI Analysis

All participants were interviewed, and the interviews were scored using the standard methodology. Participants were classified as secure (F, 22 participants, 45.8%) or insecure. In the insecure category, most were in the subcategory of insecure-dismissive (DS, 21 out of 26). Three participants had an insecure-preoccupied (E) classification, one an unresolved classification (U), and one interview was assigned to the "cannot classify" (CC) group. Because of the small number of participants in the E, U, and CC groups, we opted for comparing between the secure and insecure groups.

Attachment Orientation

Based on the ECR questionnaire, we found that the mean score of avoidance in our sample, on a scale of 1–7, was 2.65 ($SD = 0.868$), and the mean score for anxiety was 3.33 ($SD = 1$).

Attachment Scores and Background Variables

First, we tested for correlation between background variables and attachment measures. We found no significant correlation between the attachment scores and demographic variables (language, family status, religious beliefs, socioeconomic status, previous experience with improvisation, MG, drama, or dance movement, exercise routine, number of years of education, marital status, mother tongue, and number of children). The only exception was a significant gender difference in the ECR questionnaire for avoidance scores [$t(31.85) = 2.2$, $p = 0.035$, $d = 0.73$], but not for anxiety [$t(32) = 0.53$, $p = 0.59$]. The mean avoidance score for men ($M = 2.94$, $SD = 1.02$) was higher than for women ($M = 2.33$, $SD = 0.58$), as has been found in other studies (see meta-analysis regarding ECR and gender differences, Del Giudice, 2011). Therefore, we entered gender as a covariate in the following analysis.

Links Between AAI and ECR

No significant differences were found between the AAI secure vs. insecure classification on the anxiety [$t(46) = 1.5$, $p = 0.25$] and avoidance [$t(46) = -1.6$, $p = 0.12$] dimensions.

MG Analysis

Table 2 presents the descriptive statistics of the MG scales.

Unusual behavior was the only category measured on a dichotomous scale because we could not define a range. Either the behavior looked exceptionally bizarre or not. Eight participants (16.6%) showed unusual behavior during the MG.

Next, we performed factor analysis to identify subgroups of variables that tend to vary together, and in this way reduce the scales into a few main domains [we used also a robust principal component (PC) analysis that yielded the same results]. We did not include in this analysis the *unusual behavior* scale because

TABLE 2 | MG scales mean and SD.

Mirror Game Scale	Mean	SD
Greeting	4.52	0.87
Breaks	3.5	1.53
Fluent/shifts	3.81	1.28
Pace of movement	4.17	1.14
Body parts	4.04	1.32
Directions of movement	4.23	1.23
Distance	4.22	1.24
Tension/relaxation	4	1.30
Negative affect	3.85	1.2
Having fun	3.23	1.29
Shared affect	3.5	1.68
Competitiveness/teasing	4.56	0.99
Reference to the other	3.94	1.31
Arching	4.08	1.54
Eye contact	3.73	1.14
Gaze aversion	3.21	1.46
Exploration	2.92	1.35
Leader/follower	3.81	1.54

of its binary character. We used a varimax rotation for the procedure, which assumes that non-zero correlations between the factors are theoretically tenable and plausible. We found that the first two factors explain 52% of the variance (PC1: 34%, and PC2: 18%, see **Figure 2**).

The first PC, which we named *free*, included MG scales that reflect how easy or difficult it is for the player to play, and how open the player is to the experience of the game. The scales included in this subgroup relate to affect (for example: having fun, negative affect, tension); and scales that capture how explorative the player is (for example, the use of different movement directions and distance, different body parts, exploration of different movement patterns, etc.). The second PC, which we named *together*, included MG scales that focus on the way people were engaged in the encounter with the other (for example, eye contact, gaze aversion, arching, greeting, making reference to the other, teasing or competing with the other, and shifting between the roles of follower and leader) (see **Table 3** for the loading of the different scales on each of the PCs).

Attachment Classification and MG Behavior

Because some of the measures were not normally distributed, we used Mann–Whitney tests in the analysis to calculate the difference between secure and insecure attachment on the two MG behavior factors. Results show a significant difference between the secure and insecure groups on the *free* MG behavior ($U = 116$, $n_1 = 22$, $n_2 = 26$, $p = 0.000$, $r = -0.16$), but not on the *together* (**Figure 3** illustrates the distribution of the MG behavior *free* for participants with secure vs. insecure attachment classification). Participants classified as secure on the AAI, received higher scores on the MG behavior *free* factor than did participants classified as insecure.

We also examined the differences in the dichotomous *unusual behavior* measure and its connection to attachment classification. Using a chi-square test, we found a significant difference, so that all the eight participants who performed *unusual behavior* during the MG receiving an insecure classification on the AAI [$\chi^2(1) = 8.123$, $p = 0.004$].

Next, we examined the correlation between the ECR dimensions, *avoidance* (controlling for gender) and *anxiety*, and the two MG behavior factors, *free* and *together*. Results show significant correlation between the avoidant dimension and the *free* factor ($r = -0.285$, $N = 48$, $p = 0.007$), so that participants who were high on the *avoidance* dimension were low on the *free* factor. Bootstrap results showed a 95% confidence interval lower limit of -0.637 , and upper limit of -0.148 . For the *anxiety* dimension, the results were non-significant ($r = 0.271$, $N = 48$, $p = 0.06$), but only a trend toward significance showing that participants who were high on the anxiety dimension were also high on the *free* factor. Neither the *anxiety* nor the *avoidance* dimension correlated significantly with the *together* factor. Comparing *unusual behavior* with results for the *anxiety* and *avoidance* dimensions showed that participants who performed unusual behavior were significantly lower on the *anxiety* dimension

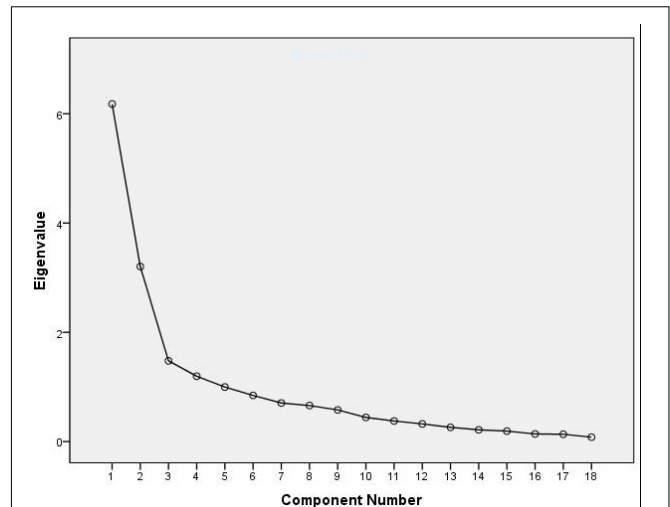


FIGURE 2 | Scree plot showing the number of components that explain the variance in MG behavior. A factor analysis was conducted on 18 scales of MG behavior. The scree plot shows that two of these factors explain most of the variability, as the line begins to straighten after the second factor.

($U = 85$, $n_1 = 8$, $n_2 = 40$, $p = 0.03$, $r = -0.3$), but showed no significant difference on the *avoidance* dimension.

Finally, we used regression to examine whether two different attachment measures, AAI and ECR, contribute to predict the MG behavior beyond the contribution of gender. As shown in **Table 4**, a significant regression equation was found [$F(3,44) = 11.67$], $p < 0.001$ with an overall effect size $R^2 = 0.443$. The AAI classification (secure or insecure) and the ECR avoidant dimensions (low or high on avoidance) each contribute independently to explain the variation in MG behavior on the *free* factor.

DISCUSSION

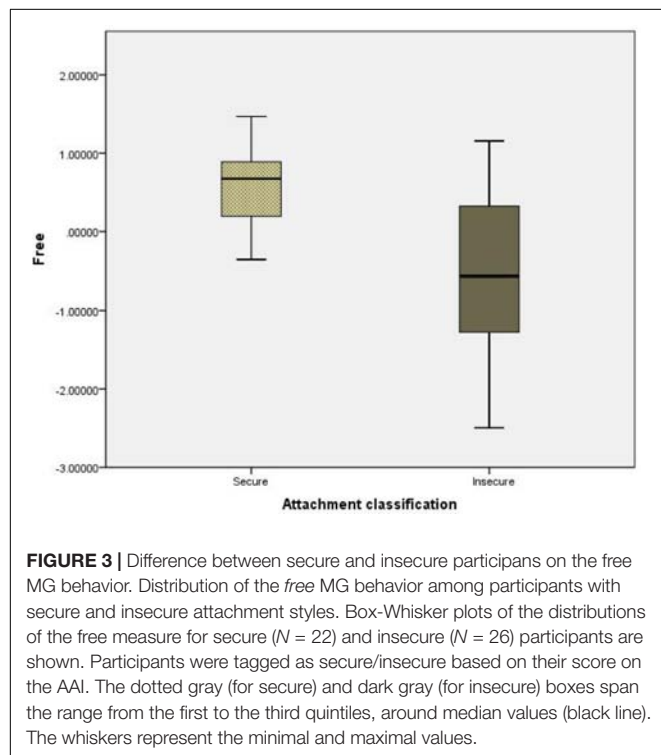
Studies of attachment in adulthood tend to rely heavily on verbal reports. Non-verbal expression, however, may carry valuable information on interpersonal interactions, and therefore it serves as yet another channel for exploring expressions of attachment. This study used play and movement of adults to examine correlates of attachment. The results point to a connection between the MG behavior and two central measures of attachment, the AAI (George et al., 1985/1996, unpublished reference), and the ECR questionnaire (Brennan et al., 1998). Thus, movement interaction during dyadic play revealed information that is linked to attachment style.

Attachment is first consolidated during non-verbal interaction in childhood. The social engagement system is built upon a series of face-to-face, body-to-body interactions with an attachment figure. This implicit relational knowledge begins to be represented long before the availability of language and continues to operate implicitly throughout life (Lyons-Ruth et al., 1998). It is therefore no surprise that during an encounter people express

TABLE 3 | Loading of the MG scales on the two (PCs): free and together.

	Component	
	Free	Together
Greeting	0.188	0.782
Breaks	−0.076	0.565
Flow/shift	0.340	0.554
Pace of movement	0.128	0.501
Tension	0.765	−0.027
Distance	0.551	0.463
Eye contact	0.194	0.728
Gaze aversion	0.174	0.737
Arching	0.138	0.519
Having fun	0.826	0.326
Negative affect	0.795	0.277
Shared affect	0.752	0.312
Body parts	0.773	−0.134
Movement direction	0.755	−0.105
Reference to the other	0.258	0.687
Exploration	0.635	0.197
Competitiveness	−0.330	0.485
Leader/follower	−0.192	0.685

*Rotation Method: Varimax with Kaiser normalization. *The higher loading of the two PCs marked in bold.



their attachment style also non-verbally. Recognition of non-symbolically based representational system expressed through behavior has been a central contribution of infant research (e.g., Ainsworth et al., 1978; Tronick, 1989; Beebe and Lachmann, 1994). The present study characterizes non-verbal expressions

in a dyadic encounter in adulthood by providing preliminary evidence of the connection between non-verbal behavior and attachment classification.

The findings of the present study show that the main component differentiating between secure (on the AAI) and low avoidance (on the ECR) participants on one hand, and insecure and high avoidance participants on the other, is the capacity to play in a “free” way, hence, playing in a flexible and explorative way with positive affect. Participants with secure attachment showed higher scores on the scales of having fun, rich use of body parts, and movement planes, displayed more shared affect with the other, and demonstrated a more exploratory game than did participants with insecure attachment. Furthermore, secure, low-avoidant participants showed lower negative affect and tension than did insecure participants. Using statistical methods, we grouped these non-verbal expressions and called it *free* to explore. Mary Main (George et al., 1985/1996, unpublished reference) marked the secure-autonomous group on the AAI with the letter *F* to indicate that the main characteristic of this group is being “free to explore” their childhood memories and their mental world. In the present study, we expanded this understanding into the physical world, showing that people with secure-autonomous attachment classification are available to use their body in a more flexible, complex, relaxed, and open way during an interpersonal encounter. Hence, the sense of freedom, with a positive affect, and the ability to be physically explorative was found to be a central feature of the secure group.

Exploration emerged as a significant component that correlates with security of attachment. This is not surprising, as the exploration behavior system is deeply rooted in Bowlby’s theory (Bowlby, 1969/1982). A central tenet of attachment theory is that the operation of the attachment system is closely intertwined with that of the exploration system (Ainsworth et al., 1978), and the link between attachment classification and exploratory play found in our results supports this idea. Other research has found empirical support for the centrality of exploration in the study of attachment in adulthood and infancy. For example, Elliot and Reis (2003) described in their paper: *attachment and exploration* -four studies that support the link between security of attachment and the motivation to explore in an academic context. Feeney and Thrush (2010) found a connection between attachment style and exploration activity in the presence of the spouse, with attachment style being predictive of exploratory behavior. Bernier et al. (2014) reported that secure-autonomous mothers, as measured by the

TABLE 4 | Multiple regressions predicting free MG behavior.

	<i>B</i>	<i>SE B</i>	β
Gender	−0.589	0.236	−0.297**
AAI classification	−0.903	0.230	−0.455***
Avoidance	−0.434	0.141	−0.377**
R^2		0.443	
F		11.673***	

* $p < 0.05$; ** $p < 0.005$; *** $p < 0.001$.

AAI, showed maternal behavior that supports autonomy and exploration when interacting with their child which in turn was related to the child's secure attachment. The present findings add on to these studies, showing the connection between exploration during a dyadic movement interaction and the attachment of adults.

The MG behavior factor *free* showed significant correlation with the avoidant dimension, but only a trend toward significant correlation with the anxiety dimension. The directions of the correlations were opposite: a high score on the avoidant dimension correlated with a low score on the free factor, and a high score on the anxiety dimension showed a trend toward significance with a high score on the free factor. These results confirm once more that the two dimensions of avoidance and anxiety are different from one another (Mikulincer et al., 2011). In addition, it suggests that the avoidance dimension may be connected to deactivation of exploration. Similar results were reported by Elliot and Reis (2003), who showed that avoidance, rather than anxiety, is negatively linked to exploration.

Looking into the different scales of the MG, the *unusual behavior* scale correlated strongly with insecurity. Eight participants displayed behavior marked as exceptionally bizarre, which could not be captured by any of the other scales and therefore was marked on the scale we named *unusual behavior*. Participants who scored positive on this scale showed odd, out of context, or disoriented behavior in the way they presented themselves and interacted with their partner in the MG. These behaviors resemble that of disorganized infants in the Strange Situation Procedure, who present conflicted and disoriented behavior during reunion with their caregiver (Lyons-Ruth and Jacobvitz, 2016). Previous studies show that the classification of parents as unresolved on the AAI was found to be linked to disorganized attachment classification in infants (Lyons-Ruth et al., 2005). Unresolved classification of parents was also linked to odd, out-of-context behavior of these parents and their adolescents during interaction (Obsuth et al., 2014). Therefore, unusual behavior in the MG may reflect a subcategory of insecurity in our sample. Because of the small sample size, however, in the present study, we grouped together all insecure subgroups, and therefore could not test the nuances of the different insecure categories. A larger sample study is needed to further investigate the meaning of unusual behavior during the MG.

Similar to the results of other studies, the different attachment measures: The ECR dimensions and the AAI classifications did not correlate in our study (Roisman et al., 2007). However, the *free* MG behavior correlated significantly with both the AAI categorical classifications (Main and Goldwyn, 1998, unpublished reference) and the ECR dimensions (Brennan et al., 1998). Each of these measures represents a different school of thought, and the relation between the measurements has been debated both theoretically and empirically (Roisman et al., 2007). The AAI, better represented in developmental psychology, assesses current state of mind regarding childhood experiences (Main et al., 2008). The ECR self-questionnaire, better represented in social psychology, measures the way adults report attachment-related thoughts and feelings regarding adult relationships

(Cassidy and Shaver, 2008). In the present study, we showed that the MG behavior correlated with both these measures. These findings suggest that the procedural knowledge manifest in the dyadic movement during the MG expresses both the history of relationships and the way in which relationships are being perceived at present time. Both aspects regarding relationships correlate with the way people move, and therefore are encapsulated in the body.

Our results may imply that the MG behavior could act as a mediator between parental representation (on the AAI) and the quality of parent-child relationship, so that the bodily expression may explain the link in the intergenerational transmission of attachment patterns (Shah et al., 2010). Over 20 years ago, meta-analytic results confirmed the association between caregiver attachment representations and child-caregiver attachment (Van IJzendoorn, 1995). Since then, a large number of studies sought to explore the way in which the mother's narrative about her childhood history (as measured by the AAI) is transmitted to the child and reflected in the child's attachment patterns (Verhage et al., 2016), with no final conclusion that fully explains this attachment transmission "gap." The way parents use their body may carry both their childhood history and their present interaction in relationships with their children, and affect the child's attachment to the parent. Thus, the parent's body movement may explain the attachment transmission gap. These assumptions, which need further investigation, have possible clinical implications for designing parent-child interventions that focus on the parent's body expression.

The significant correlations found in the present study were only with the *free*, not with the *together* factor. The *free* factor explains around 34% of the variance in the MG behavior and therefore seems more substantial than the *together* factor. In future studies, the different scales grouped under the *together* factor can be examined in greater detail separately, to understand how it relates to attachment classification in adulthood. In addition, the correlations between the AAI classification and the *free* factor, although being significant, were underpowered and explained relatively low percentage of the variance therefore needs further investigation in future study with a larger sample.

This preliminary study brings to the fore the practice of drama and dance/movement therapy. Dance/movement and drama therapists base their therapeutic interventions on imitations, and mirroring (Butler, 2012; Ogden and Fisher, 2015; Koehne et al., 2016) using dyadic movement interaction. The present research validates the notion that observing and working on a body level which carry attachment signals can be a meaningful avenue for both assessment and therapeutic processes. More specifically the MG is being used in clinical settings without having been adequately researched. A scoring system can help support further investigation of this technique, both as an assessment tool for progress in intervention and in the design of aims and special areas in movement intervention. This exploratory study is a first step in the development of the MG as a standardized assessment tool. Based on our results, future studies may simplify the coding of the MG and use the classification of *free* as a main dimension, replacing the 19 scales.

Our findings showed a connection between the MG behavior and prosocial factors, hence attachment. Therefore, the MG can be used to assess the prosocial abilities of people with specific difficulties in these areas. We recommend examining whether focused practice of the MG improves the performance of the MG behavior and other intervention outcomes, including diminishing of pathological symptoms.

Some of the strengths of the MG, alongside the rich information provided by the implicit (non-verbal) movement expression, are its simplicity and the possibility to bypass the need for verbal report. At the same time, when trying to use the MG as an assessment tool, various motor, and physical limitations, which are not necessarily related to socio-emotional abilities, may act as confounding factors. Therefore, for some people the ability to express their inner world through movement is limited by physical disabilities. Furthermore, movement has a strong cultural component. Our pilot study was conducted in a certain cultural context with a small sample and limited cultural diversity. Although attachment theory received considerable validation in cross-cultural studies (Mesman et al., 2016), further research is needed to validate our findings regarding non-verbal behavior in various cultural contexts.

The present results expand our previous study of one-dimensional movement using the MG device and its relation to attachment classification. Both studies show the connection between dyadic movement and attachment and shed light on exploration as a central characteristic of secure low avoidance adults. Our findings were significant, but showed a small effect size, and thus need further support. Moreover, this pilot study was limited in its distribution of attachment classifications. Having treated the insecure sub-classification as one group, we

cannot draw conclusions about the differences between insecure dismissing and insecure preoccupied attachment styles. Follow-up studies with a more representative sample, covering all insecure attachment groups, could help clarify the expression of attachment in the MG more thoroughly, and contribute to the development of the MG as an assessment tool for prosocial abilities in general, and for attachment in particular.

AUTHOR CONTRIBUTIONS

RF-S initiated and designed the study. YH helped in developing the MG scales and analyzing the data. NL brought her expertise in dance/movement therapy and assisted in developing the analysis of the movement. NK-K contributed her expertise in attachment research and analyzed all the attachment interviews and conceptualized the results. LN helped to design the study and write the paper.

ACKNOWLEDGMENTS

We thank Prof. Uri Alon for his precious guidance. We also thank all the research assistances, the students, and the participants who volunteered to take part in this study.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01560/full#supplementary-material>

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The reviewers EM and KM-C and handling Editor declared their shared affiliation.

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“When You Thought That There Is No One and Nothing”: The Value of Psychodrama in Working With Abused Women

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OPEN ACCESS

Edited by:

Hod Orkibi,
University of Haifa, Israel

Reviewed by:

Anabella Shaked,
Adler Institute, Israel
Nikos Takis,
The American College of Greece,
Greece

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 16 May 2018

Accepted: 31 July 2018

Published: 23 August 2018

Citation:

Bucuță MD, Dima G and Testoni I
(2018) “When You Thought That
There Is No One and Nothing”:
The Value of Psychodrama in Working
With Abused Women.
Front. Psychol. 9:1518.
doi: 10.3389/fpsyg.2018.01518

This paper discusses how psychodrama methods and techniques can empower abused women and stimulate changes in their victim role. Through an in-depth exploration, we sought to gain an insider’s perspective of the experiences of change and perceived outcomes for abused women, which could contribute to optimizing gender violence intervention. Theoretically, the study is grounded in the female co-responsibility and *trans*-generational transmission of women’s victim role from mother to daughter. A mixed methods experimental design employing an explanatory sequential approach to data collection was implemented. A total sample of 33 abused women (15 in the experimental group, and 18 in the control group) was involved in studying the impact of a psychodrama intervention combined with an ecological intervention. Spontaneity and wellbeing, considered in this study as dimensions of empowerment, were measured. Phenomenological interviews were conducted with 7 women 3 months after the psychodrama intervention ended, and with 6 women 5 years later. Data was analyzed using the Interpretative Phenomenological Analysis method. The matrix of themes that emerged reflects four overarching themes: the victim, the group experience, the process of change, and the corollary of change. Benefits perceived by the women include trust, hope, increased self-esteem, empowering, and courage to make decisions and changes. Findings describe three paths of change for women who participated in an empowering-oriented psychodrama intervention program: the Proactive – Resilient type, the Active – Resistant type, and the Repetitive – Non-Resilient type. Role-reconstruction and the interruption of trans-generational victim pattern were clear for the proactive type and possible for the active type, while the repetitive type showed minor changes but remained stuck in the victim pattern. As no claims to generalizability can be made, further research is needed to verify the proposed typology on larger samples. Psychodrama, as an action method, can empower abused women and has the potential to stimulate action in women’s lives and initiate adaptive coping strategies leading to resilience. The study ends with several suggestions for assisted resilience specialists.

Keywords: psychodrama, abused women, victim role, change process, interpretative phenomenological analysis

INTRODUCTION

Domestic violence is a complex phenomenon which cuts across all social classes, countries and periods of human history. It is one of the most widespread forms of violence among people, and it affects women in particular. If fundamental changes are to take place in women's condition, they themselves must take an active role (World Economic Forum, 2012). The European Convention on Preventing and Combating Violence Against Women and Domestic Violence (Istanbul Convention) has provided a gender analysis framework that explicitly recognizes domestic violence as a serious violation of human rights and has thus become one of the most important instruments for tackling this social aberration and making Europe a safer place (Council of Europe, 2011). In addition, a number of European civil society networks have joined forces in the European Coalition to end violence against women and girls to raise awareness of the fact that certain women face a greater risk of violence because of their cultural background, where religious and traditional models are still core factors (European Women's Lobby, 2017). Those factors have crossed our history like underground rivers that resurface just when they seem to have disappeared for good. Indeed, as Faludi (1991) points out, there has been a wide backlash against women lately, a backlash that has not been restricted to the United States, but also affects many other countries in the Western world. In Faludi's view, the halting progress toward women's social and political emancipation thorough extensive affirmative action programs has been a sequence of two steps forward and one step back. Resentment of female affirmative action has been matched by resistance to this democratic development. Both social (macro) and personal (micro) forms of backlash are cultural in origin and derive from a basic prejudice against women. Among the European Eastern countries in particular, the post-1989 transition from socialism to capitalism and democracy has produced a substantial regression in women's condition. The erosion of social rights after the collapse of the socialist state has been accompanied by an anti-minority rights backlash, while many capitalist or conservative politicians have sought to reinforce class, gender, and race privilege, in line with the more traditional Western patriarchal model (Metcalf and Afanassieva, 2005). Today more than ever, Eastern Europe women are seen as sexual objects. This objectification and the habit of regarding women as men's property can be seen as root causes of such phenomena as trafficking, domestic violence, rape, sexual harassment and verbal abuse (Kruckenberg, 2010; Coleman and Sandfort, 2014). In Romania, despite the European Union's policy efforts to solve those problems, this backlash has increased women's long-standing submission to traditional values, to the opposite gender and, all too often, acts of violence against them.

Several Romanian studies have drawn attention to the country's high tolerance of domestic violence in all its forms (Muntean and Munteanu, 2011). The most recent statistical report by the Romanian police shows that 16,122 cases of violence against women were recorded in 2017 (Reteaua Pentru Prevenirea Si Combaterea Violentei Impotriva Femeii, 2018). We can assume, however, that the real numbers are much higher. The findings of the European Union Agency for Fundamental

Rights [FRA], 2014 survey on violence against women across the 28 member states indicate that only 17% of the Romanian respondents reported their most serious incident of violence to the police, and only 1% turned to social services, while for Europe as a whole, around 33% of victims contact the police and social services on average (European Union Agency for Fundamental Rights [FRA], 2014). Although there is sufficient evidence that Romania is still not able to comply with international provisions regarding the efficient protection of victims and implementing services for them (Adorjani, 2012), significant steps have been made in developing social policy, community responses and training specialists in the field (Dima and Beldianu, 2015).

The Intergenerational Mandate and the Eastern Europe Backlash

Any social program that hopes to change the current situation must first change the cultural premises and associated stereotypes, since culture is often responsible for the way women and the issue of violence against them are viewed and addressed. We believe that domestic violence occurs as a result of the backlash that seeks to maintain and/or restore the traditional separation between natural and social tasks.

One of the world-wide effects of this backlash has been to reinforce sex and maternal roles, which weigh more heavily on Eastern Europe women than in the past (Occhipinti, 1996; Saxonberg and Sirovatka, 2008). The most important effect is that women's expectations of getting married and becoming a mother are now stronger, which has a huge influence on their relational condition and existential choices. From this perspective, as was mentioned during the Beijing Conference, the mother-daughter relationship plays an essential role (Kaplan, 2001). The intergenerational mandate from mother to daughter and the related patterns of reproduction can inhibit young girls' individuation processes because of this patriarchal influence. "Just take it as it comes" is the traditional way mothers have taught their daughters to resign themselves to traditional social and intimate oppression, abandoning aspirations to a mature agency and a better life (Meyers, 2001; McLeod, 2015). Indeed, as DiQuinzio (1999, 2013) shows, mothering requires consideration of women's difference, since it jeopardizes feminism's claims for women's equal individualist subjectivity, and risks recuperating the inequality and oppression of women, especially the view that all women should be mothers, want to be mothers, and are most happy being mothers. In every culture, motherhood is often associated with female achievement; women are still under severe pressure to become mothers and to bear children, and thus accept that childbearing is a natural and necessary part of their life. As this leads to an idealization of mothering as an extension of emphasized femininity, women who are socially employed may feel guilty or be accused of selfishness when they pursue goals which disregard the primary duty of motherhood. The pressure on women to bear children does not derive merely from personal viewpoints, but draws mostly on cultural symbolism, which is transferred through the mother-daughter relationship, and thereby influences women's individual attitudes.

The Empower Project and the Present Study

Against this backdrop, the Empower Daphne Project (2011–2012; Testoni et al., 2013b) addressed the specific role of motherhood in domestic violence. This action research project conducted in Romania, Italy, Austria, Portugal, Bulgaria, and Albania aimed to empower women who fall victims of violence, mobilizing their coping strategies for greater resilience. By using psychodrama and active methods, the project made women aware of how the dynamics of their role and position in society had influenced their own lives, enabling them to change their situation. The victims were encouraged to rewrite their life experiences through psychodrama and story-telling.

Psychodrama has a significant advantage as a means of changing behavior, since it is based on theories of action, spontaneity and creativity (Dayton, 2013). It engages the person holistically: body, mind and emotions. On the psychodrama scene, the protagonist enacts his/her inner world, exploring parts of it with the support of the other group members, who play their assigned roles (auxiliary ego) (Moreno, 2009). Psychodrama offers a living laboratory in which former victims, in a safe clinical environment, have the chance to contemplate and experience their own lives, meet themselves, their perceptions of self and their relational experience. It enables women to process the roles taken on and change behavior through “exploratory, healing role play and role training” (Dayton, 2013, p. 6). Psychodrama aims to access the experience of spontaneity in order to produce new and creative solutions to old problems (Kipper, 1998). These techniques emphasize the “changing role,” which is a key element in promoting resilience.

Research Aim and Questions

The main aim of this paper is to illustrate how psychodrama methods and techniques empowered and stimulated changes

regarding the victim role of abused women who participated in a psychodrama intervention program. The focus is on an in-depth exploration in order to offer an insider's perspective of the experiences of change of abused women which could contribute to optimizing gender violence intervention.

The research question is:

How do the data from interviews with abused women about their group experiences and perceived outcomes help explain the results of a psychodrama intervention program focusing on empowerment?

MATERIALS AND METHODS

A mixed methods experimental design employing an explanatory sequential approach to data collection was implemented (Creswell and Plano Clark, 2018, p. 199).

The quantitative component was part of the Empower Daphne Project (2011–2012; Testoni et al., 2013b) (**Figure 1, phases I and II**, November 2011 – June 2012) and consisted of an experimental design ($N = 33$; two experimental groups: $n = 15$, control group: $n = 18$) that investigated the impact of psychodrama group intervention on spontaneity and wellbeing.

The qualitative dimension of the study consisted of an in-depth exploration of the group experiences and perceived outcomes for abused women 3 months after the psychodrama intervention had ended (phase III, September – October 2012), and again 5 years later (phase IV, October – December 2017). The Interpretative Phenomenological Analysis Method (IPA) (Smith, 1996) was chosen for its two complementary commitments – ‘giving a voice’ and ‘making sense’ – which provide a platform for gaining an ‘insider's perspective’ (Larkin et al., 2006). Shaw (2001, p. 48) argued that IPA is particularly suitable for investigations that concern the “uniqueness of a person's experiences, the way experiences are made meaningful and

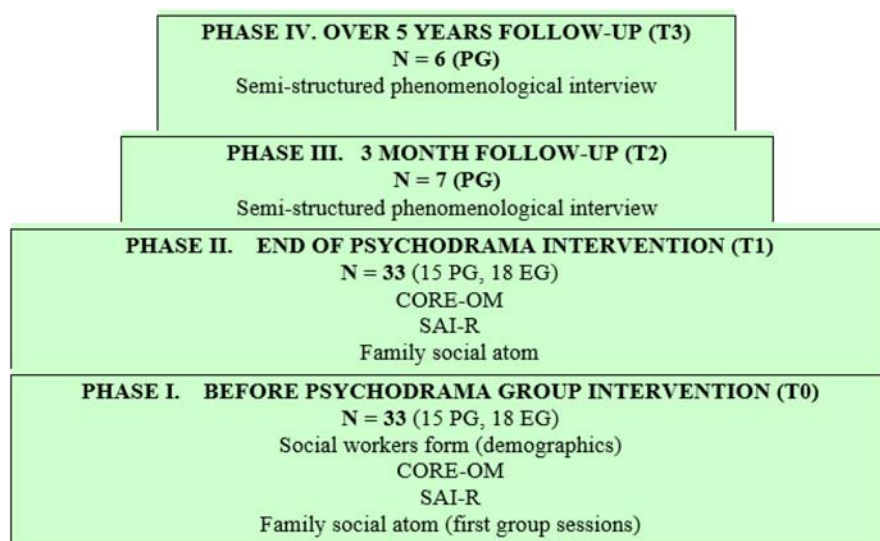


FIGURE 1 | Research phases and data collection.

how these meanings manifest themselves within the context of a person, both as an individual and in their many cultural roles.”

Participants

A convenience sample was used.

Access was granted through a voluntary organization, Home of Hope, which was a partner of the Romanian Association of Classical Psychodrama (ARPsiC) in the Empower Daphne Project. Home of Hope supports abused women through a project entitled “Preventing and Combating Domestic Violence” which uses the ecological intervention framework (Bucuța et al., 2012).

The 2011–2012 Empower Daphne Project was carried out in accordance with the guidelines of the University of Padova Scientific and Ethics Committee.

The sample included a selection of women who were Home of Hope clients during July – November 2011. They were informed regarding the project and the voluntary nature of their participation and were given the choice of participating in either the experimental group or the control group. Informed consent was given in writing. The specialists from Home of Hope acted as contact persons for any questions regarding the study. Upon their voluntary decision, $n = 20$ women were included in the control group and $n = 16$ in the experimental group. One woman withdrew from the experimental group during the intervention. During data analysis, two participants from the control group were excluded because of incomplete data.

The total sample thus consisted of $N = 33$ abused women, $n = 15$ in the experimental group (Psychodrama Group – PG; PG1: $n = 8$; PG2: $n = 7$) and $n = 18$ in the control group (Ecological Group – EG). The age range was 19 – 62 years for the total sample ($N = 33$; $M = 33.18$; $SD = 9.15$), 19 – 45 years ($M = 31.20$; $SD = 9.42$) for the experimental group, and 21 – 62 years ($M = 34.83$; $SD = 8.84$) for the control group. All women had experiences of abuse. Except for two students, all participants had one to five children.

The experimental group was divided into two psychodrama groups: PG1 ($n = 8$), consisting of women living at home, and PG2 ($n = 7$) consisting of women living in a shelter for victims of abuse. The women in PG1 were followed up longitudinally. The sample profile is described in **Table 1**. Pseudonyms are used to maintain anonymity.

Procedures

The research phases and data collection are described in **Figure 1**. The quantitative component used social workers’ case information forms (demographic data), the Revised Spontaneity Assessment Inventory (SAI-R) and the Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM). Qualitative data was collected using a semi-structured phenomenological interview.

The **Revised Spontaneity Assessment Inventory (SAI-R)** (Kipper and Shemer, 2006) is a questionnaire initially devised by Moreno to assess spontaneity, later completed and revised by Kipper and his colleagues. The SAI-R is designed to measure the intensity of the presence of spontaneity by posing one question: “How strongly do you have these feelings and thoughts during a typical day?” The question is followed by a list of 18 adjectives and phrases describing feelings and thoughts, which are rated on a five-point Likert scale from “1 = very weak” to “5 = very strong,” where higher scores indicate higher spontaneity.

The **Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM)** (Evans et al., 2002) is routinely used as an initial outcome measure of wellbeing and treatment outcomes for individual patients. The CORE-OM contains 34 simply worded items answered on a five-point scale ranging from “not at all” to “most or all the time,” covering four areas: wellbeing, commonly experienced problems or symptoms, life or social functioning, and risk to self and others. A total score is also calculated. Overall, the measure is problem-scored, higher scores being indicative of more problems. The scale has good sensitivity to change.

Both SAI-R and CORE-OM were used to evaluate the clinical efficiency of the interventions and were cross-culturally validated in the Empower Daphne Project (Testoni et al., 2013a).

Semi-Structured Interview

An interview schedule was formulated and applied in a flexible manner, using a phenomenological approach (Smith et al., 2009). Interviews ranged from 60 to 100 min in length. Participants were asked to give their written consent for the interview to be recorded.

The dimensions of the interview are:

1. Psychodrama group experience
2. Perceived impact of psychodrama techniques and activities
3. Perception of change

TABLE 1 | Sample profile of the psychodrama group followed up longitudinally (PG1).

Participant No.	Age range	Marital status	Children	Education	Follow-up at 3 months	Follow-up over 5 years
1	20–25	Single	0	University	No	No
2	36–40	Divorced	2	High school	Yes	Yes
3	20–25	Single	0	University	Yes	Yes
4	40–45	Divorced	1	High school	Yes	Yes
5	40–45	Married	3	High school	Yes	Yes
6	36–40	Divorced	1	High school	Yes	No
7	36–40	Divorced	1	University	Yes	Yes
8	45–50	Divorced	1	University	Yes	Yes

4. Perception of self
5. Messages for other victims of gender violence

In addition to these common dimensions, the 3-month follow-up (T2) included the individual and trans-generational history of abuse, while the 5-year follow-up (T3) explored significant experiences/events during this period.

The Ecological Intervention

The World Health Organization [WHO] (2002) ecological approach to abuse conceptualizes interpersonal violence as a multifaceted phenomenon grounded in an interplay among many factors at four levels – the individual (e.g., personal history, biological factors), the relationship (e.g., intimate partners, family, friends, peers), the community (e.g., schools, neighborhoods, workplaces), and the societal (e.g., economic and social policies, social-cultural norms). This framework is useful to identify, and cluster intervention strategies based on the ecological level in which they act. The ecological intervention was carried out by social workers from Home of Hope and consisted of counseling oriented toward identifying needs and resources and building a support network around the person. Social actors such as health professionals, police officials, lawyers or child protection officers were involved.

The Psychodrama Intervention

Psychodrama was used as part of a psycho-social intervention program aiming to empower abused women. Before the group started, the psychodramatist had one individual session with each member to prepare the women for the group and build therapeutic alliances. The psychodrama intervention program consisted of a total of 25 2-h sessions, provided on a weekly basis. When the project ended, Home of Hope offered follow-up after-care for those who still needed support. The group psychodramatist had 10 years of experience in using psychodrama and was supervised by the national Empower Daphne project coordinator/psychodrama trainer and supervisor to ensure treatment integrity and fidelity.

The sessions are summarized in **Table 2**, where they are grouped according to an adaptation of Tuckman's group development stages (cited in Yalom and Leszcz, 2008): forming (sessions 1 – 6), norming (sessions 7 – 10), performing (sessions 11 – 21) and adjourning (sessions 22 – 25). The table presents the main objectives of the intervention and provides some examples of activities and the techniques used. Each session consisted of a warm-up, psychodramatic group or protagonist work, processing and sharing emotions and ending rituals.

Data Analysis

Quantitative data were analyzed using SPSS 21. Descriptives and reliabilities (standardized Cronbach's alphas) were calculated. The non-parametric Wilcoxon signed rank test was used to compare mean ranks between pre- and post-test within the experimental group. Analysis of covariance (ANCOVA) was used to compare the experimental and control groups, while statistically controlling for the effects of the differences at pre-test.

Qualitative analysis was based on a total of 13 verbatim transcripts (7 from T2, 6 from T3). Each transcript was analyzed until an IPA matrix of themes emerged; common themes and discrepancies were searched for until a group matrix for T2 and one for T3 were generated. These two matrices were analyzed for consensual themes and one IPA matrix emerged, capturing the experiences of women longitudinally (Smith et al., 2009). This is the basis of the narrative report.

IPA results “reflect the researcher as much as the researched” (Brocki and Wearden, 2006, p. 99). Credibility was established by consulting two IPA analysts who discussed the intermediate matrices and agreed on the final IPA matrix of themes. A member check was carried out with one woman (Elliott et al., 1999).

Quantitative Results

The reliabilities of the questionnaires (standardized Cronbach's alphas) were excellent for the total sample ($N = 33$), for both SAI-R (T0: $\alpha = 0.94$; T1: $\alpha = 0.93$) and CORE-OM (T0: $\alpha = 0.93$; T1: $\alpha = 0.93$). Reliabilities calculated for independent samples, pre-test and post-test are also good and very good as detailed below:

1. Experimental group ($N = 15$): SAI-R (T0: $\alpha = 0.89$; T1: $\alpha = 0.86$) and CORE-OM (T0: $\alpha = 0.90$; T1: $\alpha = 0.95$)
2. Control group ($N = 18$): SAI-R (T0: $\alpha = 0.94$; T1: $\alpha = 0.95$) and CORE-OM (T0: $\alpha = 0.93$; T1: $\alpha = 0.89$)

Descriptive results presented in **Table 3** indicated that the difference between T0 and T1 with SAI-R points to an increase in spontaneity for both the experimental and the control group. The mean differences for CORE-OM between T0 and T1 show a tendency to decrease – denoting an increase in wellbeing – for both groups, indicating that both psychodrama and ecological interventions can support abused women in their recovery process.

Furthermore, we analyzed the experimental group using the non-parametric Wilcoxon signed rank test. Results illustrated in **Table 4** show no statistically significant improvement in spontaneity (SAI-R) between pre- and post-test. For CORE-OM, the results for the Problems scale are statistically significant, indicating a decrease in experienced problems or symptoms; the mean score and standard deviation at pre-test were T0: $M = 19.47$, $SD = 8.73$, while at post-test T1: $M = 14.05$, $SD = 9.20$. Results for the Non-Risks items are marginally significant ($p = 0.06$), showing a tendency to decrease self-risk behaviors: the mean score and standard deviation at pre-test were T0: $M = 50.03$, $SD = 11.48$, while at post-test T1: $M = 44.35$, $SD = 10.99$. The total CORE-OM score is also marginally significant ($p = 0.06$), pointing to an improvement in wellbeing. Hence, the mean score and standard deviation at pre-test were T0: $M = 51.68$, $SD = 13.03$, while at post-test T1: $M = 45.67$, $SD = 13.15$ (**Table 3**).

Analysis of covariance (ANCOVA) was used to compare the experimental and control groups, while statistically controlling for the effects of the differences at pre-test. Results presented in **Table 5** do not identify statistically significant differences between the experimental and control groups, as the control group also showed improvements between pre and post-test.

TABLE 2 | Summary of psychodrama sessions.

Stages/Session No.	Objectives	Main activities	Techniques
Forming 1 – 6	<ul style="list-style-type: none"> • Reduce anxiety and develop trust and safety • Interpersonal knowledge • Expectations and needs • Developing group identity 	<ul style="list-style-type: none"> - Energizing and relaxation exercises - The “heart symbol” (heart-shaped pillow) of the group, resources they contribute - The “circle of compliments”: “I liked today that you. . .” - Group identity and ritual group greeting 	
Norming 7 – 10	<ul style="list-style-type: none"> • Developing group cohesiveness • Social and family network exploration • Knowledge of family life stories 	<ul style="list-style-type: none"> - Family social atom drawing and in action - Emotions related to abuse and resources - “My family of origin” and “My present family” 	Double Mirror Concretization Role-reversal Role-play Encounter Protagonist work Sharing
Performing 11–21	<ul style="list-style-type: none"> • Distribution of power in the family • Mapping aggression and the aggressor in their lives • Exploring the understanding and meaning-making of male violence against women • Exploring the mother role • Exploring self and self- changes • Activate internal and external resources 	<ul style="list-style-type: none"> - “Power relations among strong and weak animals,” “hunting”: associations with abusive relations in their families (origin, present) - “My mother’s portrait” and “I as a mother” (or imagined mother) – write and share - “I now” and “desired I” - “The circle of violence” 	Family social atom/corrective atom Empty chair Personification of emotions Sociometry Relaxation techniques Plus-reality/future projection
Adjourning 22–25	<ul style="list-style-type: none"> • Connection to safety and security • Exploring the life line and resilience • Evaluation of the group experience and separation 	<ul style="list-style-type: none"> - Imaginary travel in a secure place, existing or dreamed - Life line concretization and resources - “The Healing place and ritual” - TV campaign about men’s violence against women with key messages for the public - “Letter to myself” about group experience and self-changes - Empowering messages 	Balcony

TABLE 3 | Descriptive data of spontaneity and wellbeing scores at T0 and T1.

			Pre-test (T0)		Post-test (T1)	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SAI-R	Experimental		55.89	11.83	59.45	10.38
	Control		38.39	13.19	49.33	11.21
CORE-OM	CORE-OM Total	Experimental	51.68	13.03	45.67	13.15
		Control	61.22	13.10	52.71	11.49
	CORE-OM Wellbeing	Experimental	7.47	1.96	7.67	1.50
		Control	8.33	2.11	8.72	2.47
	CORE-OM Problems	Experimental	19.47	8.73	14.05	9.20
		Control	26.78	8.84	19.39	7.55
	CORE-OM Functions	Experimental	23.08	4.25	22.67	3.35
		Control	23.67	5.79	22.86	5.58
	CORE-OM Risks	Experimental	1.67	2.53	1.27	2.66
		Control	2.44	2.71	1.72	1.60
	CORE-OM Non Risk	Experimental	50.03	11.48	44.35	10.99
		Control	58.78	11.36	51.01	10.61

To conclude, the results show that it seems possible that psychodrama contributed to a positive trend of improving wellbeing, especially in terms of problems and risks. As regards spontaneity, the experimental group showed no statistically significant improvement compared to the control group.

However, while questionnaires were able to identify only minor differences between the improvements shown by women participating in the psychodrama program and those who only received ecological intervention, the observations and comments of the two psychodramatists indicated more complex changes.

TABLE 4 | Wilcoxon signed rank test for experimental group (pre- and post-test results).

Scales	Experimental Group Wilcoxon Signed Rank Test	
	<i>z</i>	<i>p</i> *
SAI-R Pre-test/Post-test	−0.99	0.16
CORE-OM Total Pre-test/Post-test	1.59	0.06
CORE-OM Wellbeing Pre-test/Post-test	−0.47	0.32
CORE-OM Problems Pre-test/Post-test	1.82	0.03
CORE-OM Functions Pre-test/Post-test	0.29	0.39
CORE-OM Risks Pre-test/Post-test	0.94	0.17
CORE-OM Non Risk Items Pre-test/Post-test	1.57	0.06

**p* (one-tailed) was calculated for the uni-directional hypothesis.

TABLE 5 | Covariance analysis (ANCOVA) for experimental and control group.

Scales	ANCOVA	
	<i>F</i>	<i>p</i> (1-tailed)
SAI-R Pre-test/Post-test	0.64	0.43
CORE-OM Total Pre-test/Post-test	0.32	0.58
CORE-OM Wellbeing Pre-test/Post-test	1.05	0.31
CORE-OM Problems Pre-test/Post-test	0.65	0.43
CORE-OM Functions Pre-test/Post-test	0.02	0.89
CORE-OM Risks Pre-test/Post-test	0.00	0.96
CORE-OM Non Risk Items Pre-test/Post-test	0.51	0.48

**p* (one-tailed) was calculated for the uni-directional hypothesis. *N* = 33: *n* = 15 experimental group, *n* = 18 control group.

Further analysis was thus carried out based on phenomenological interviews.

QUALITATIVE FINDINGS

This study does not claim to be representative; the main objective is to explore the processes in depth and create meaning. It centers on “giving voice” and “making sense” of women’s experiences, perceptions and views (Reid et al., 2005), thus gaining an insider’s perspective to help explain the results of the psychodrama intervention program focused on empowerment. Consequently, we aim to offer information which could contribute to optimizing gender violence intervention.

The matrix of themes that grounded the results is presented below (Table 6).

Theme 1: The Victim: “Shut Up, Let It Be and Suffer”

The first theme comprises the life experience of the participants, women who were victims of violence and establishes the context for the subsequent themes. It provides an answer to the question of *where* exactly the participants began the long and difficult pathway toward change.

TABLE 6 | IPA matrix of themes.

Theme	Subtheme
The Role of Victim	(1.1) The role of victim (1.2) The generational model
The Group Experience	(2.1) The difficulty of receiving help (2.1.1) Shame (2.2.2) Lack of trust (2.2) The relationship with the group therapist (2.3) The perceived impact of action methods and techniques
The Process of Change	(3.1) The basis of change - The perceived effects of psychodrama intervention (3.2) Relations (3.3.1) The relationship with one’s daughter or son (3.3.2) The relationship with one’s mother (3.3.3) The relationship with one’s life partner
Corollary of Change	(4.1) Decisions made over 5 years (4.2) Self-perception (4.3) The significance assigned to the psychodrama intervention

1.1. The Role of Victim

All participants in the study have their own experience of abuse and violence. All forms of abuse are present in the women’s life histories: from verbal to physical, sometimes even life-threatening abuse. One of the participants reports: “. . . he threw things at me, anything he could grab [. . .] he seized me by the throat [. . .]. And he threw me to the floor and spat on me” (Maria, 2012).

Many of them lived in terror: “that fear. . . that he would do it, that he would come and kill me...” (Diana, 2012). Silence, putting up with humiliation, terror, being careful not to provoke the perpetrator were all part of their survival strategies: “. . . I was silent and that bothered him more and he had all kinds of outbursts and I started being afraid that my life and my children’s were threatened...” (Maria, 2012).

The difficulty of ending an abusive relationship is common to all participants. The reasons invoked by most of them are the lack of financial independence, no place to go, no job, family pressure (especially the mother’s) and sometimes poor health: “. . . if only I had a job, or my health was better, I would have done otherwise...” confesses Maria. They all “gave another chance” to the abusive husband: “. . . I always gave him another chance. I thought he would change” (Mona, 2012).

1.2. The Generational Model

With one exception (Mona), all participants in the study found themselves to be the third generation of victims of violence. Although they faced extreme violence, the great majority of participants’ grandmothers and mothers stayed in an abusive relationship. In trying to find an explanation, all participants invoke the same reasons: social pressure (Romanian patriarchal society), faith (religion), and motherhood. For example, one of the participants says: “poor dear... (Grandma) lived in a society in which nobody listened to you if you told them what you had to suffer as a woman; they would listen to the man. . .” (Maria, 2017).

One generation later: "...she (mother) would have thought of divorcing, but at that time, Ceaușescu's time, there was the shame of divorcing... kids without a father!" recalls Erna, 2017.

Ina explains her grandmother's and mother's decision to stay in the abusive relationship by invoking the religion, customs and mentality of those times: "their elders taught (grandma and mother) that the moment you marry someone and take the oath before the holy shrine, before God that you are going to be together, you are not allowed to leave as you are going to upset God... and she swore she would stay with him (grandpa) until death did them part, and she stayed, plus she had the children" (Ina, 2012).

Maria's account is illustrative of how the victim model was transmitted from generation to generation: "She (grandma) was a fighter, there was no divorce or separation at the time [...]. And then mother handed it down to me, this model of misplaced obedience. Yes, obedience, shut up and let it be and swallow it, a model mother took up somehow and handed it down to me... I used to live with this model, I took it with me in my marriage and... my daughters saw it for a while..." (Maria, 2012).

Theme 2: The Group Experience: "Just When I Thought No One and Nothing Could Help Me"

2.1. The Difficulty of Receiving Help

All women stated that they had difficulty in asking for and receiving help.

The good relationship built up with the specialists (one psychologist and one social worker, both trained in psychotherapy) during the ecological intervention carried considerable weight in their decision to participate in the group.

2.1.1. Shame

Group participation was initially accompanied by fear, anxiety, shame, holding back. Maria's account illustrates the struggle with shame all the participants experienced in their lives: "Yes, I was ashamed of the situation I ended up in, what I knew about life, what I wanted my marriage to be like and where I was at the time... I was ashamed of those around me, of myself, of the choices I had made, of my family, my daughters, my mother and my brothers." (Maria, 2012). For most of them, joining the group initially meant "to complain, to display all your problems" (Mioara, 2012) and accepting the fact that they cannot manage for themselves: "...I think I was simply ashamed to admit that I was in trouble, I thought that meant I was incapable (Erna, 2012).

2.1.2. Lack of trust

The abuse experience led to mistrust the idea that someone might help them: "... if the man closest to you, the man you loved and offered the best you had could act like that, why would some strangers treat you better?" (Maria, 2012).

The conviction that they cannot be helped, that only they can help "by themselves" was unanimously shared: "Before I came to the group, I absolutely refused to believe that anyone else could help me... I have to help myself..." (Erna, 2012).

2.2. The Relationship With the Group Therapist: "She Came Close to Us in Steps of Smoke"

Fear, mistrust, shame were overcome only with the help of the group psychotherapist. The first meeting was perceived with considerable anxiety. All participants described the psychotherapist's attitude as unobtrusive, affectionate, delicate and mindful; that was the only thing that engendered trust from the very beginning. Erna reports: "She treated me, us, the girls, in a very delicate way, and that brought me pleasure and a feeling of trust, belonging and self-value" (Erna, 2012).

Maria described the psychotherapists' attitude with a metaphor: "...step by step, slowly, Ema (the psychotherapist) came closer to us in steps of smoke" (Maria, 2012).

Understanding, encouraging, and appreciating women's efforts to participate in the group was a major part of the decision not to abandon the intervention program.

For most of the women, the relation with the psychotherapist was the first model of another type of relationship which generated a new experience.

For some women, the therapeutic relationship was the first experience of being accepted, valued and loved, which brought the light of hope into their life and motivated them to change: "and if Ema treated us with respect, dignity and patience – after all, this means love for the other – and I thought that if she (the therapist) wants to help me, a person I'd never met before, if God loves me, if the girls (the other participants in the group) agree to interchange [...] that means that self-love exists and I have to find it and build it for me (Maria, 2017).

2.3. The Perceived Impact of Action Methods and Techniques

The feelings and emotions engendered by the psychodrama techniques were powerful and diverse: both positive and negative, and experienced, more than a few times, as strange and odd.

Ludic, psychomotor activation and mental imagery activities were perceived by the great majority of the participants as an antidote for anxiety and a way to facilitate self-confession: "...the initial relaxation games [...] Yes, we were relieved and somehow we were able to open up more easily" (Paula, 2012). The connection with the present, with the "here and now" was another perceived effect of these activities, claims Ina: "there were little games and we focused effectively upon what happened here, and then negative outer things were left out there that moment..." (Ina, 2017). Moreover, they were among the first activities that allowed participants to access positive emotions: "an island of positive emotions, in a sea of negative emotions" (Mona, 2012).

The Mirror, another technique perceived as being helpful and having an impact, stirred powerful positive emotions and new experiences. "...and I received so much... it helped me remember who I can be" (Mona, 2012).

The activities that are most frequently cited as having the largest impact, both in 2012 and 2017, are **role-play** and **role-reversal**. For most participants, role-play is a chance to work on resistances, thus making action and interaction possible: "...that role-play, the interplay with the others... whether you want it or not, you interact, you cannot avoid it..." (Erna, 2012). Other

times, it enabled them to build new experiences, which generated contents and new positive emotions. “The great benefit here is the fact that it helped me understand and to keep the hope alive that not all men are like that, that somewhere there is a good man...” (Maria, 2017).

The most difficult and disturbing experiences were engendered by role-reversal. “Inversions, well, disturbed me and moved me a great deal, but they helped me for the future, for the years to come, to understand her (the mother) and become closer” (Maria, 2017).

All women experienced the role of protagonist, that of auxiliary ego and the witness. The experience is described in terms such as “odd,” difficult, and engendering strong negative emotions. The women’s defenses and resistances were severely tested. Maria reports: “Emotions were very strong, sometimes I felt like quitting, although the voice of reason said that it was ok and there was a struggle between reason and sensibility, I was telling myself I’m not going there anymore, I can’t take any more of that pain...yet I continued to go, I came” (Maria, 2012). Another participant says: “It seemed weird to me the moment where my group colleague was, say, my mother or my daughter or my friend or my husband, the impact was large. There were moments when I cried, those when my hair stood on end, moments of very, very strong feelings” (Paula, 2012).

After 5 years, most of the participants appreciate that the most impactful and beneficial experiences are still those engendered by role-reversals and role-playing. For many of them, those experiences led to an increase in emphatic capacity, to improving the ability to identify and express one’s own emotions and thoughts, to a change of perspective: “. . .they were some of the toughest moments (the inversions with mother), it’s hard to be in the other’s shoes and...Yet this is how I started to understand and later to accept!” (Mona, 2017).

Concretization was perceived as being of great help in understanding the psychic and social realities participants were facing. The great majority recalled the activity in which the therapist concretized the cycle of violence. “The very moment I saw that circle enacted, the way violence kept repeating, I really understood what was happening to me” reports Diana (2012).

A few participants told us about the way the activities using **future projection** helped them experience their inner power: “I envisioned for myself the professional role I was going to have 5 years later. That was tough, but I managed to feel confident, capable and fulfilled,” says Mona (2012).

Intense experiences sometimes led to **catharsis**. If experienced, catharsis meant releasing and relief: “I felt liberated and so light” (Mona). Observing it as a witness led to fear and also to identification and a raw model of courage. As Maria describes: “. . .she had such a reaction... she got down on her belly and burst out sobbing. I got so shaken... I was also scared... how can I put it... that shook me deeply and eventually I was happy she could do that, and I couldn’t... because of so much that was shut up and restrained, I couldn’t manifest like that, although I was doing it in my heart” (Maria, 2017).

Theme 3: The Process of Change

This theme offers an insider’s perspective of the process of change, as it was felt, experienced and explained by the study participants. It represents “the participants’ voice” which answers the question of *how* changes occurred in their lives, starting from the group experience.

3.1. The Basis of Change – The Perceived Effects of Psychodrama Intervention

Once they were “taken into care” by the therapist and as the group was organizing and becoming cohesive, and while they experienced trust, safety, respect and revaluation, women built a base for change.

Breaking of silence presupposes overcoming shame and the courage to talk. “And when I saw the others in the group I thought ‘Oh, God’ how many women I see suffering and I thought: away with the shame, it’s no use, it just makes me sink more, I went deeper from where I wanted to get out, and acceptance intervened in time” (Maria, 2012). For all participants, telling their story of a life filled with violence not only means beating the shame, but is also a great act of courage and power. Those who succeeded became raw models for the others: “Their power (the colleagues’) helped me open up too. . .” (Mona, 2017).

Releasing and relief

Breaking silence provides a feeling of releasing the pain, of relief. All participants had moments of releasing the negative emotions accumulated over time. “I remember that once I cried here, I also cried at home and all that crying made me feel good, all that pain... it takes out all the pain and I felt lighter the next day, stronger the third day, like when you get out of the morass and take a shower. Yes, that smell of mud doesn’t go away that easily and I felt lighter. . .” (Maria, 2012).

Understanding the pattern/insight

Though participants became aware of the pattern conveyed during their childhood, the level of understanding and acceptance differs. One participant says: “I’ve got the awareness that this issue of self-mistrust and lack of forgiveness for myself actually came from my childhood... I don’t know and I didn’t even spend time thinking whether that caused my marriage failure... because... that would hurt a lot (Erna, 2017). Another was able to go deeper: “...and I realized while I was coming here (to the group) that I have to clean up inside myself so that things fall in place around me”. She goes on to say: “I understood and also accepted. . . that problems come from my childhood, from a bad family model, from a model of wife and mother which was handed down to me as being very important, it was the best my mother could do, what can I say...” (Maria, 2012).

Hope and optimism

Sharing life stories enabled participants to identify and compare themselves with the other women. In most cases, this comparison led to the conclusion “I’m not the only one having problems” (Mioara, 2012) and “my problems are not even as big as the others” (Paula, 2012). Those findings, and also the activities designed to activate inner resources and re-build self-image, engendered feelings of trust, hope, power and determination

to make changes and go further: "...They would fill me with optimism, I mean look at them with their tough problems and they continue to fight, and they have such drive, they don't let themselves be dragged down..." (Erna, 2012).

Courage, as an inner resource activated by the group experience, figures in all participants' remarks. "I had no idea of this courage inside myself [...] When I came here I realized that was courage, I defined that myself, ultimately that is courage, no matter what..." (Maria, 2012). Courage and power occur together in all participants' accounts.

Empowering and the determination to take action

For the great majority, one of the greatest benefits of participation in the group proved to be power. Initially, the power to hold on, as in Erna's case (Erna, 2012): "... it was like a rescue, as if I was receiving power, no matter what the theme of the session." It was the power to fight and finally solve things and change. More participants understood that "if you have a problem, don't hide it under the carpet, because it will come after you eventually, as it is not solved" (Erna, 2012). The power they have achieved allowed many participants to face reality, no matter how painful that would be, to accept and assume pro-active behavior: "I realized I wasn't the only one who has problems, that others have problems too, but only facing the situations will help you make some changes in your life" (Paula, 2017). In other cases, the benefit came from the newly found capacity, practiced within the group, to see the situation from another perspective, which gives space for hope and trust that there are solutions: "Yes, and I saw it differently (the situation), not necessarily better, but as I could detach myself from it, it wasn't mine anymore and thus I could see the solution." (Erna, 2012).

3.2. Relations

3.2.1. The relationship with one's daughter or son

With one single exception, all participants who are mothers speak about changes in the relationship with their children. If the role of being a mother previously made them stay in the abusive relationship, a decision heavily influenced by the fear that they would not be able to raise the children on their own, this role later gave them power, strength and motivation to fight and change the way they related to their children. This was especially true after they became aware that the victim role had been handed down to them transgenerationally: "I realized that I gave my children a poor model of what it means to be a woman, wife, mother, as I took it from my mother or from generation to generation and I went into it in the wrong way, and I had to make a change..." (Maria). Most of them initiated the change since the group intervention: "I started with my daughter... by beginning with small moments, with reverberations until you arrive at important life events, I applied these..." (Maria).

In most cases, not only did the participants stop transmitting the victim model, but they also started to build and convey another model started to be built and delivered, one based on understanding, communication and expressed love, self-confidence and respect. Maria says: "I saw that if I love

myself and respect my moment, the child will also respect that, and I felt good, she felt good, I had my moment, it was perfect both for me and for her" (Maria, 2017). Personal change generated changes in the way they related to their own children: "I feel the change in that I don't want to be like her (mother), and [...] my principle is to be closer to the children, to show them love, as this is what I missed" (Paula, 2017). Improved communication with self and others is also reflected in the quality of the relationship with the children: "This is what the group mostly taught me... to stop hiding, [...] and now I try to talk as much as I can with him and with myself" (Erna, 2017).

In one case, the relationship with the child stayed on the same coordinates after 5 years. In 2012, Mioara said: "I wished she (mother) could have understood this need to not live with an alcoholic father... but [...] I am living the same issue in turn, I also have a girl, I am supposed to take care of her and her needs." Five years later, she reports how she reproduces the model in which she was raised herself: "anyway I always had this aggressiveness, often uncontrolled, I beat her when it was hard for me... after that I felt sorry."

3.2.2. The relationship with one's mother

Most of the participants also made changes in the mother-daughter relationship. Most of the women in the group claim that the intervention helped them understand their mothers better. They understand their mothers were victims themselves: "...she also inherited it from grandmother (the role of victim) ... that's what she saw at home (violence)." In this way, they gave meaning to their mothers' powerlessness to get out of the abusive relationship, and to protect them from experiencing the abuse. What helped most of them was: "To have the opportunity to speak to her (during the group activities), as I've never talked with my mother about certain aspects and pain, hers and mine..." (Mona). Another woman said: "I was able to put these issues (on the scene) so as not to bother me anymore" (Paula, 2012), and after 5 years she says she feels "this reconciliation... she has been trying to understand her and come to grips with what the situations were then" (Paula, 2017).

Maria's account describes the process of restructuring the relationship with her mother: "I managed 1 year after the group ended, by repeated trials... we both cried, we also fought... but the result was that I managed to talk to her and really discuss things". The process was difficult, but "I was left with that (from the group), if it was hard for me to play her role for several minutes, she is the one who lives it, I wonder how she feels, how are things for her? And that helped me to keep going." Nowadays, "it is not a very close relationship, yet we are not as far from one another as we were...it is a decent relationship, marked by peace, calm, and respect and... it's a great achievement for me..." (Maria, 2017).

In a single case, both women, mother and daughter, find themselves in the same vicious circle: "She still judges me for not being able to choose well. And I wonder who generated this entire situation? Isn't that my mother? Somewhere, she was always wrong. Tolerance for alcohol; this is the mistake... and it is also mine. I took it over" (Mioara, 2017).

3.2.3. *The relationship with one's life partner*

Participants progressed in different ways over the 5 years. To some, progress meant experiencing relations in which they faced the old patterns. Talking about the moment she made the decision and had the power to break out of the addictive relationship, Ina refers to the group experience: "I think that the moment people talk, as happened in the group, the brain registers it anyway, it keeps the information there and shows it when needed and then you react to this kind of thinking. . ." and she continues ". . . the moment he was aggressive to me, something broke inside" and "I could see my past, I could see my father or my grandfather in the past and what they did when they were drunk and I said NO" [. . .] At present, her decision is to become independent and enter a relationship which is free from the past conditioning. "This is how I see things, it is good to go out with people you resonate with, yet don't try to save them, I think I practically tried to save this guy (the lover), because I may have wanted to save my father, and I couldn't. . . and there's nothing there to save, if he doesn't want to save himself, going there and trying is pointless. . ." (Ina, 2017).

Maria, after a period of time spent by herself, had an 8-month relationship. "I've seen what it means to be loved, to be given things, to receive and not only to give, to be respected, I saw the effects of saying no, of setting limits, I saw that if I set some limits, he respects that, he doesn't mind and even if he does mind he makes an effort to understand. . . I saw what it means to be treated with dignity" (Maria, 2017).

During those 5 years, the other three participants made smaller changes in this role: Mona gave up a relation that did not fulfill her, Erna, although in a new relationship, feels that "he is a good man. . . yet I don't know why I can't be more involved," and Paula, the only one who stayed with her husband, says after 5 years: "he's better, I understand him better. . . I'm calmer. . . he still upsets me." Yet Mioara, although she managed to leave her alcoholic and violent husband – "I told him it was over. I could make that difference" – entered another relationship, again with an abusive man who is also an alcohol addict: "I am aware of the fact that I slipped into the old pattern again and I ended up, maybe without realizing it, by taking back that door mat" (Mioara, 2017).

Theme 4: The Corollary of Change

This theme describes *where* the participants arrived 5 years after the group work ended and what significance they assign to the group psychodrama intervention.

4.1. Decisions Made Over 5 Years

During the 5-year period, all the participants faced having to make important decisions. For most of them, the first and most important decision was to stop being a victim; it was a decision they had made 5 years ago, during the group intervention. As Maria (2017) asserts, "I won't be a Cinderella again! Because a woman, I've learned, wasn't born to be a Cinderella. She was born to be respectable, to be loved, to love, to stand up, to live with dignity, not covered in ashes."

Some of the women decided to separate from the abusing partner, others decided to try a new relationship, yet others

decided to re-evaluate their social relations and to enjoy having new people around. For two of the participants, the social network is being re-structured after 5 years. While Ina considers that changing her social network is a consequence of growing up: "...I think it is normal, in one's thirties to have other interests and another circle of friends" (Ina, 2017), to Maria, the whole restructuring of the social network was a part of the long and difficult process of change: "After the experience I had (of victimhood) and all that I've learned in this group, I decided to leave everything behind me, to clean up my life, to get rid of toxic people, false friends and... to start a new life."

They all report that their decisions in the professional sphere led to better jobs. For some participants, success in their career became one of their greatest achievements as well as one of their greatest resources (Maria, Mona, Ina). Mona claims: "I've learned to have courage to want more; because I am competent. I am now just where I wanted to be (a psychologist)" (Mona, 2017). For Mioara, the job is the same challenge as it was 5 years earlier: she can't stay longer in one place, so she leaves.

Participants had to make important decisions concerning where they live. Some of them changed their living place: Maria made a radical decision and moved to the countryside, 80 km away from her old home, starting a new life, while Mona started building her own business.

4.2. Self-Perception

For two of the participants, the group experience meant the beginning of a transformation they perceive as fundamental. In 2012, Ina found herself in an addictive relationship with a man whom she also worked with, and she feared being on her own, while in 2017 she claims: "...I want to say that I have a completely different life right now [. . .] I'm organizing things on my own, I'm not expecting a man's help, I mean I can do it and I'm not afraid anymore to do it alone." Her plans for the future are: "Well, I even have starting my own business in mind." Maria defines herself by the progress she made: "...starting from here, from the group, I raised myself and the rest came. . . like with dominoes: dignity, then power, then I found out what it means to be respected by those around me, because when I respect myself and feel worthy of love, I really am loved and respected [. . .] I am aware now that I am a valuable woman." And she continues: "yes, I am a happy woman. . . it's not about an ideal happiness, it's about living your daily life beautifully" (Maria, 2017).

For three other women, those 5 years, despite certain difficulties, also meant development, growth. While before the group intervention, Paula described herself as being: "...kind of introverted, I used to torment myself inside. . . and I revolted," afterward she says: "now I've learned to be myself first of all, so that they may also see me as I am [. . .] more communicative and I can say what I feel. . .". Mona also talks about trust, authenticity and the courage to make decisions and accept the results: "I started to grow even then (during the group period). Now I have trust and courage and power to do things."

Erna (2012) described herself as: "generally pessimistic, disappointed in myself because of the failures I've had. . .". Concerning the group experience, she says: "I think I've woken up. . . it finished too soon for me, I think I would have needed

more time...I felt like I climbed up the stairs, even if I immediately add that I haven't solved everything. . . yet I feel this growth...". When referring to the last 5 years, Erna says that: "I could even boast by saying that when I was hopeless or I thought I couldn't make it anymore or that it was too much and too difficult, I remembered those times (the group) when I had such drive and trust..." (Erna, 2017).

Only one participant reports that after 5 years things are worse than before. "I hurried up toward something else, I walked on the same pattern. . .and I couldn't take it anymore... so I went lower..." (Mioara, 2012)." She has remained the prisoner of old patterns.

4.3. The Significance Assigned to the Psychodrama Intervention

When asked to summarize the group psychodrama intervention experience in a few words, all participants, no matter what their journey during the last 5 years was like, talked about getting help and the feeling of not being alone anymore: "It has helped me a lot to understand that I was not the only one who has troubles (Mioara, 2017)"; they also mentioned trust, safety, power and hope.

The significance they found in the group psychodrama experience refers to the traces, deep or less so, left in every participant's life and destiny. To Erna, "it was like a ray of light, I held on to something, I became more aware of certain issues."

For Ina, it was "a part of evolution. . . of releasing my inner demons." Maria speaks about the way in which, through the psychodrama experience: "I have built myself, I've got rich. . . , I've finally made that jump on the trampoline, I was able to evolve, to get up and see the world. . . , and it's so beautiful, seen from above, because if one stays in the dust, they think that's normal, being in the dust." Most participants feel something that Erna (2017) best articulates: "I really thank God I've got that chance."

DISCUSSION

Contrary to our expectations, the findings from the questionnaires administered at the end of the psychodrama intervention program show no significant difference between the experimental and the control group as regards spontaneity, and differences that reached only marginal statistical significance for wellbeing.

However, the findings show a positive trend of improvement for both samples, indicating that both psychodrama and ecological interventions are able to support abused women in their recovery process. In the psychodrama group, quantitative results show that participants experienced a decrease in symptoms and problems (Problems scale), a reduction in risk behaviors (Non-risk items), and an improvement in wellbeing (total score). Building on this basis, the qualitative findings are meant to offer an insider's view into the perceived impact of the psychodrama intervention program focusing on empowerment.

This study is innovative in the following respects: first, it is a longitudinal long-term follow-up of an intervention designed to offer psycho-social support to victims of gender violence; second, it provides an insider's view and in-depth analysis of the change

process stimulated by an empowering-oriented psychodrama intervention program; third, it proposes a three-path process of change typology.

The findings shed light on *where* the women started their recovery (from the victim role), *what* was helpful (therapeutic alliance, action methods and techniques, specific psychodrama activities), *how* change occurred and *where* the participants are now in their lives (5 years from the psychodrama group intervention), as a corollary of change.

With only one exception, all participants have "families haunted by violence" (Muntean and Munteanu, 2011, p. 70) and are third-generation victims. The meaning they ascribe to taking over the victim role contains elements of the traditionalist perspective and religious motivations. From generation to generation, mothers raise their daughters to accept subordination and male oppression (McLeod, 2015), including aggression. On the other hand, progress in social awareness, social policy and social service development (Dima and Beldianu, 2015), although slow, creates a more helpful context for abused women to put an end to the generational model. Psychodrama helped them recognize and understand their victim role and, most importantly, their co-responsibility for their own subordination and destiny of violence (Testoni, 2008), and thus initiate changes. In that sense, psychodrama as group therapy can offer an alternative social framework for change.

For all participants, the idea of participating in a group was accompanied by anxiety, shame and lack of trust. All of them had difficulty receiving help (Van der Kolk, 2015), a common theme being the belief that "no one and nothing can help them."

All women acknowledged the key role played by the therapeutic alliance in helping them to begin developing a sense of trust and safety. The need for a gentle touch (Kellermann and Hudgins, 2000) reported by other studies is metaphorically expressed by one participant: "(the therapist)...came close to us in steps of smoke" (Maria). Results show how the relationship with the therapist becomes a new model of relationship that is based on respect, being valued, unconditional acceptance, care and trust. The issues of building trust and safety came across as very challenging for all participants. Building a secure base (Bowlby, 1969) is crucial and must be the foundation for all interventions (Van der Kolk, 2008).

For all women, the psychodrama group experience offered a "culture of non-condemnation and non-blame" (Redondo et al., 2009, p. 6), which gave them the courage to share their life stories and thus break the silence. Abused women experienced the power of therapeutic group factors, especially of universality (the common factor – abuse), hope, catharsis and corrective recapitulation of the primary family group through psychodrama scenes. Group cohesiveness, altruism, socializing, and interpersonal learning were also important (Yalom and Leszcz, 2008).

The findings indicate that the psychodrama therapist fulfilled the function of containing double (Hudgins, 2007) and mirror for victimized women, thus creating the conditions for the fusion and individuation experiences. The 'double' technique made it possible to emphasize the feeling of belonging and sharing others' inner contents (Dotti, 2002).

Some of the women appreciated the positive impact of the empowering mirror in regaining the feeling of personal value, just as psychodrama literature emphasizes the role of the mirror in activating the observing self (Kellermann, 2007), challenging the participants to self-observation, and facilitating awareness. During the psychodrama sessions, women have the occasion to mirror themselves in the group, leading to identification and recognition. The findings show that most women recognized and took on the role of victim. Mirroring also allowed them to recover some parts of the self which had been lost in experience by the victim – such as courage, dignity, and self-worth – and helped them in taking steps toward assuming new roles. This is consistent with Kellermann's observation that our true self mirrored – “validating mirroring” – “allows the blossoming of the true self” (Kellermann, 2007, p. 91).

The psychodrama techniques which were appreciated by the participants as having the greatest impact were role reversal and role playing. Role playing, an expression of the holistic person, one of the mechanisms of change (Boria, 1997), was highly appreciated because of its ability to activate positive emotions. Van der Kolk (2015) found that role playing can reactivate brain areas dedicated to pleasure, which have been rewired under stress and trauma.

Role play leads to the development of autonomy (Dotti, 2002): from being dependent persons, “stuck in a role,” they learn to take on new things – initially in semi-reality, in plus reality, in the secure environment of the group and then in the reality of everyday life (e.g., Maria confronted her mother; Erna her ex-husband; Paula her psychologically abusive partner). The findings are in agreement with Dayton's argument (Dayton, 2013) that, to reduce the anxiety and newness of a role, it should be practiced in a safe environment. Role play may have promoted improved capacity for cognitive processing and action within relations, as shown by Versari (2014).

Role reversal was considered by all the abused women to be the most difficult experience. In some cases, it generated an intense emotional catharsis. Women in the psychodrama group experienced both facets of this catharsis, its healing power and potential for re-traumatization, which is acknowledged in the literature on abuse (Kellermann and Hudgins, 2000; Hudgins and Toscani, 2013). This risk was addressed by strictly respecting the structure of a psychodrama group session: warm-up, psychodramatic group or protagonist work and sharing. For example, all participants felt that psycho-motor activation at the beginning of the sessions and sharing emotions and rituals at the end were very useful. Integrating attachment theory into psychodrama group work emphasized the attention paid by the psychodramatist to the four core needs and related processes: safety (therapist, guarantor of safety), comfort (e.g., warm-up activities to reduce anxiety, sharing), regulating proximity (role playing, family social atom), and predictability (session structure, ritual activities) (Baim, 2014).

Role reversal was what helped participants gain insights and activated their spontaneity, flexibility and creativity, leading eventually to a perceptive decentering and the possibility of creating new roles. Most of the women gained a significantly better understanding of the other, and a better understanding

of themselves. According to Kipper and Ritchie's (2003) meta-analysis, role reversal and double are the most effective techniques of psychodrama.

The encounter technique allowed the participants to experience the tele in the psychodrama group to train their empathy (Kellermann and Hudgins, 2000; Dotti, 2002) and to discover authenticity in encountering their peers. For some of them, authentic relationships start to take the place of transferential relationships. As the self is made up of the roles we play (Moreno and Moreno, 1975), the findings show that some women restructured their roles and identity. Five years after the completion of the psychodrama program, a significant proportion of the women manage to self-describe as authentic people and attribute this fact to the experience of the psychodrama group (Paula, Maria, Mona, Ina).

To conclude, we could say that psychodrama, as an action method, has the potential to stimulate action in women's lives and initiate adaptive coping strategies leading to resilience. This is consistent with Sung-Hee's (2009) findings that psychodrama has a significant effect on helping domestic violence victims get ready to make practical changes.

Our findings show that the participants' path after the end of the psychodrama group intervention was neither linear nor quiet. Moreno explains that conserving an old role, such as the victim role, might have inhibited change, but simultaneously provided a sense of stability and security. A warming up phase thus stimulates a spontaneity state (*status nascendi*), necessary for the development of new, creative solutions (creative phase) (Moreno, 1980). Schacht (2007, p. 37) calls attention to the fact that people “will probably have to cycle through the phases of the spontaneous-creative process a couple of times unless their new roles are stable enough”.

On the other hand, Pourtois et al. (2013, p. 60) develop a scheme for interpreting the resilient phenomenon. They propose a model that integrates the analysis of post-traumatic human behavior with concepts of resilience, resistance, non-resistance and non-resilience. The four concepts constitute “escape strategies used by people who have suffered a major trauma.”

Thus, our in-depth analysis of women's starting points – the victim role, change processes and outcomes over 5 years – indicated that change takes place along three paths, which differ according to the type of change in the victim role and the victim's resilience. These paths are the basis for our proposed typology:

- (1) **Proactive – Resilient type** (Maria, Ina): shows high resilience, feels inner strength and self-esteem (re)gained, acts based on her own initiative, makes decisions, proposes and makes changes in her own life, has sufficient determination to create favorable contexts and to act toward achieving own goals; over time, she rebuilds her role as a partner, mother and daughter. Self-perception changes significantly, it is reinvented; the reconstruction of identity can be the crowning achievement of this change. Is aware of the victim model and transmission pattern and has the power to put an end to the *trans-generational* transmission.

- (2) **Active – Resistant type** (Paula, Erna, Mona): although this type shows resilience, the strength in fighting the problems of life prevails; the woman comes into contact with her inner strength, improves her self-image, is active, shows improvement in some areas of psychological and social functioning; enacts some changes in her personal life; can enact changes in some roles – as mother and daughter, for instance – and makes adjustments in her role as partner. Has a vacillating evolution with possible stagnation or even relapse. Has some awareness of the victim model and its transmission pattern, may put an end to the trans-generational transmission.
- (3) **Repetitive – Non-resilient type** (fr. *desilience*) (Mioara): no substantial changes in the role of partner, mother, daughter; continues to perceive human relationships in the form of submission and dependency; on a personal level, has feelings of desperation and alienation; has a high risk of seeking refuge in religious cults/groups. Has some awareness of the victim model and transmission pattern but cannot put an end to it and preserves her main role as a victim.

If we agree that resilience is a dynamic process (Ionescu, 2013), we agree that each woman can navigate from one category to another, at different points in time, depending on the complex interplay of internal and external factors.

Limitations of the Study

The typology presented here is based on data from 6 abused women and is valid for this sample. It offers a framework for understanding the change path and can be useful in calibrating intervention services to reflect the characteristics of each type. However, we can make claims to generalizability, and further research is needed to verify this typology.

Another limit is the small convenience sample, where participants were assigned to the experimental and control groups on a voluntary basis, rather than randomly. Thus, it is possible that participants volunteering for the experimental group were more resilient and open to change, or in another phase of their healing process. Also, the possibility that several of the reported effects occurred by chance cannot be ruled out.

Follow-up was possible for only one of the two psychodrama groups, consisting of women living at home. Exploring the experiences of sheltered women could emphasize different aspects. In addition, women participating in the control group could not be tracked and there are no follow-up data for this group.

To conclude, this study does not aim to be representative, as its main objective is to explore processes in-depth and find meanings.

CONCLUSION

The study sought to demonstrate the value of psychodrama in working with abused women and show how methods and techniques can empower them and stimulate changes in their victim role.

In working with women victims of abuse, the therapeutic relationship is fundamental to the intervention, and must be built slowly and gently to develop a sense of trust and safety. In addition, the psychodramatist must be aware and careful when assuming the roles of double and mirror for the abused women. The psychodrama psychotherapist has an active and proactive role, avoids a neutral approach and favors a direct, authentic human relationship experience that can be configured as positive. Our findings indicate that the good therapeutic relationship entailed a balanced activation of the three functions named by Moreno (1953) – producer, therapist, and analyst.

The most helpful techniques in changing the victim role were role reversal, role playing, empowering mirror and concretization. The women who showed the greatest change after 5 years considered that role reversal was the most impactful experience and helped them initiate the changes they made. On the other hand, all participants perceived role reversal as being the most difficult experience, which draws attention to the risk of re-traumatization. We recommend that it be used carefully, mindful of both its benefits and risks: its ability to activate the spontaneity and creativity needed to create new roles, and the danger that it can re-traumatize.

We could say that psychodrama, as an action method, has the potential to stimulate action in women's lives and initiate adaptive coping strategies leading to resilience. We identified three paths or directions of change for women who participated in an empowering-oriented psychodrama intervention program. On the basis of these paths, we propose a typology: the Proactive – Resilient type shows high resilience, significant changes in roles and is capable of ending the trans-generational transmission of the victim role; the Active – Resistant type can enact changes in some roles and may put an end to the trans-generational transmission; the Repetitive – Non-resilient type, with no substantial changes in roles, remains caught in the victim pattern. As women can navigate from one category to another, services should be calibrated accordingly.

Our findings allow us to suggest that specialists and providers of assisted resilience to victims of gender violence can build trust and safety, a nurturing and caring attitude, and activate intra-psychic strengths and empowerment by using role-play in a secure environment to practice new, feared or wished roles. Therapists working with abused women, either in groups or as individuals, can use psychodrama techniques such as empowering mirror, validating mirror, containing double, concretization, role-play and role-reversal.

To minimize the risk of re-traumatization, professionals should consider an empowering-oriented psychodrama model in the initial phases of working with abused women, until they are strong enough and prepared for psychodrama therapy. In addition, it is essential that therapists respond to women's need for safety and comfort through warm-up activities (which reduce anxiety) and sharing, as well as the need for predictability through the session structure and ritual activities.

Among its strengths, this study provides an insider's view into the process of change experienced by women participating in a psychodrama intervention program and proposes a three-path typology of the change process. While no claims to

generalizability can be made, future research could verify this typology.

Including psychodrama among the psycho-social services offered to abused women can be a valuable contribution, especially as regards empowerment, role-reconstruction and interruption of the *trans*-generational pattern.

ETHICS STATEMENT

The 2011–2012 Empower Daphne Project was carried out in accordance with guidelines of the University of Padova Scientific and Ethics Committee. The protocol was approved by the University of Padova Department of Applied Psychology Scientific and Ethics Committee in 2010. All subjects gave their written consent in accordance with the Declaration of Helsinki.

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AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

FUNDING

The first part of this study, the Empowerment of Women Environment Research (EMPoWER) Project, was supported by the European Daphne III program under grant agreement no. JUST/2010/DAP/AG/1348 1.05.2011 – 30.04.2013. The second part of this study was a project financed from Lucian Blaga University of Sibiu research grants LBUS-IRG-2016-02.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Perspectives on Social Suffering in Interviews and Drawings of Palestinian Adults Crossing the Qalandia Checkpoint: A Qualitative Phenomenological Study

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OPEN ACCESS

Edited by:

Changiz Mohiyeddini,
Northeastern University, United States

Reviewed by:

Girja Kaimal,
Drexel University, United States
Guido Veronese,
Università degli Studi Milano-Bicocca,
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 11 March 2018

Accepted: 09 August 2018

Published: 28 August 2018

Citation:

Nagamey NM, Goldner L and
Lev-Wiesel R (2018) Perspectives on
Social Suffering in Interviews
and Drawings of Palestinian Adults
Crossing the Qalandia Checkpoint:
A Qualitative Phenomenological
Study. *Front. Psychol.* 9:1591.
doi: 10.3389/fpsyg.2018.01591

The current study examined the psychological experience of Palestinians who daily cross an Israel Defense Forces (IDF) checkpoint to reach their schools or places of employment. The study employed an interpretative phenomenological analysis of semi-structured interviews and drawings to capture a depth insight regarding the psychological meaning of crossing the Qalandia checkpoint on a daily basis among 20 adult participants (10 males, 10 females). Three themes emerged. The first theme described deep feelings of distress and desperation and included the categories of humiliation and dehumanization, non-existence, rage, and pessimism and helplessness. The second theme concentrated on the participants' coping strategies of avoidance and dissociation, which usually characterize maladaptive trauma coping style, as well as exhibited aggressiveness toward their fellow community members, while the third theme described the social fragmentation of the Palestinians' solidarity. Furthermore, three pictorial phenomena emerged from the participants' drawings: squared restricted drawings, the use of multiple black tiny objects, and the use of split drawings. These phenomena supported and validated participants' verbal expressions. We suggest understanding these findings in light of the term "social suffering."

Keywords: humiliation, social suffering, war and conflicts, Palestinians, projective drawings, checkpoints

INTRODUCTION

Hundreds of millions of people around the world are affected by political conflicts that create widespread suffering, experiencing a wide range of psychological and mental symptoms (Veronese and Barola, 2018). One of these conflicts is the Israeli-Palestinian conflict, which has existed for most of the past century and endures with no foreseeable resolution (McNeely et al., 2014). The term *Palestinians* refers to "the people who lived in British Mandate Palestine before 1948, when the state of Israel was established, and their descendants." (3, p. 837). Estimates indicate that three-quarters of the Palestinian population were dispossessed between 1947 and 1949 to neighboring Arab states, becoming refugees (Pappe, 2006; Rogan and Shlaim, 2007). This traumatic ejection, which is called by the Palestinians "the Nakba" (or catastrophe), is deep-rooted in the collective memory of the Palestinians and is still felt by third-generation refugees, especially those living in refugee camps (Baker and Shalhoub-Kevorkian, 1999).

Living under conditions of chronic conflict and a generations-long history of political turmoil and suffering in the occupied Palestinian territories (Gerner, 1991; Giacaman et al., 2009; B'Tselem, 2018) has led to substantial impairment in individuals' mental and physical health among Palestinian adults (e.g., Giacaman et al., 2004, 2007a,c; Barber and Schluterman, 2009; Rabaia et al., 2010). These have been manifested in a wide range of symptoms of anxiety and depression, including sleeplessness, uncontrollable fear, fatigue, and hopelessness (Giacaman et al., 2004), as well as health complaints including emotional and somatic scales (Abdeen et al., 2008; Giacaman et al., 2011) and PTSD symptoms (Abdeen et al., 2008). These symptoms were magnified by exposure to warlike events, such as the sounds of bombs, tear gas, shooting, and physical harm and humiliation (Giacaman et al., 2007a,c; Abdeen et al., 2008), creating feelings of being mentally exhausted, broken, and destroyed and hampering a sense of security and safety for one's self, family, and home, (McNeely et al., 2014).

Rejecting the use of psychopathology categorizations, recently, scholars have moved from investigating psychopathology into studying Palestinians' subjective well-being and quality of life under the contextual conditions of social, psychological, political, and economic threats and human insecurity (Giacaman et al., 2007b, 2009; Mataria et al., 2009). According to this approach, clinical language fails to capture the range and nuances of experience related to Palestinians' well-being. Thus, a contextual approach that takes into account aspects of humiliation and social suffering within an ease-disease continuum ranging from mental well-being to mental disease should be adopted (Giacaman et al., 2007b, 2009, 2011). In general, quantitative studies have demonstrated severe impairments in Palestinians' subjective well-being and quality of life (Mataria et al., 2009; Harsha et al., 2016). Perceptions of social instability, humiliation, and psychological suffering have been associated with lower levels of well-being (Giacaman et al., 2007a; Veronese et al., 2017). Qualitative research that concentrated on Palestinians' quality of life revealed a holistic and fluctuating characterization of mental and physical well-being, including reports of a lack of happiness, diminishing energy and competency, a sense of fragmentation, physical complaints, and illness (Giacaman et al., 2011). The Israeli military occupation, including the severe movement restrictions, and poor living conditions were top determinants of Palestinians' well-being, because of the daily problems they caused. Political freedom and participating and being involved in democratic processes were considered as essential contributors to Palestinians' quality of life (Giacaman et al., 2007b). These studies underscore the importance to further explore the subjective experience of Palestinian well-being. Following this proposal, in the current study, we explored Palestinian's well-being in the context of the checkpoints.

Checkpoints: Definition

The UN defines checkpoints as any staffed physical impediment or barrier to travel within a territory. In the Israeli-Palestinian context, checkpoints refer to a subset of a broader infrastructure of closures within the West Bank, whose purpose is to restrict movement of people and resources within the Palestinian

territory and between Palestinian communities (Giacaman et al., 2011). They are different than "crossings," which delimit the border between the Palestinian territories and Israel. Checkpoints vary in material, form, placement, and function and impose different requirements for passage (Giacaman et al., 2011; Harsha et al., 2016). However, movement is only possible using a pass system, which identifies every Palestinian by mechanisms such as a color code or a biometric identification card that can be applied for (Veronese et al., 2017).

Historical Background Regarding Checkpoints in Israel

Restrictions on Palestinian mobility in the West Bank have existed since 1967 with Israel occupying the rest of historical Palestine territories, including the West Bank, East Jerusalem, and the Gaza Strip (Giacaman et al., 2009). These restrictions were established by the IDF and were a vital aspect of the first Intifada (the first popular resistance against the Israeli military occupation) during 1987–1993 (Longo et al., 2014) which led to a series of increasingly controlling acts such including school and university closures, destruction of houses, exiles, land seizures, and arrests (Gerner, 1991; B'Tselem, 2018).

An official policy of restriction of Palestinian movement in the West Bank was established as a result of the 1991 Gulf War, following the Israelis' fear of the Palestinian reaction to the war (Tawil-Souri, 2009; Tawil-Souri, 2010). The development of a more serious system of closures followed Oslo II's discussions at Taba in 1995 when the West Bank was officially divided into sections under Israeli control and Palestinian control. In response to this new division of territory, Israel enforced new restrictions on Palestinian movement to protect Israeli settlements within the West Bank. Israel further tightened control over movement in the West Bank after September 2000, when the second Intifada started resulting in the establishment of a network of hundreds of checkpoints and road barriers (Giacaman et al., 2007a, 2009; Mataria et al., 2009). Finally, although Israel withdrew its settlers from the Gaza Strip in 2005, by the end of the second Intifada in 2005, a comprehensive network of checkpoints had already emerged, and on November 15, 2005, an Agreement on Movement and Access (AMA) was signed, in which Israel assured the facility of movement of people and goods within the West Bank.

Furthermore, since 2005 the concept and the construction of the checkpoints have undergone fundamental changes by the Israeli government, which transformed checkpoints into terminals, in an attempt to create an appearance of legal and regular border crossings (Goldner and Scharf, 2012a). The structural changes included both architectural and administrative forms (e.g., changing the checkpoints into terminals, operating the checkpoints by both private "security" companies and IDF soldiers), while the conceptual changes have mainly been semantic and are part of the Israeli government's ongoing attempt to redefine "terminals" as legitimate border-crossing points (Mansbach, 2009; Amir, 2013).

To date, studies on checkpoints are relatively rare, critical in nature, and adopt sociological and political points of view.

They have described the construction and the functions of the checkpoints as an economic and commercial arena (Amir, 2013; McNeely et al., 2014), the mechanisms through which violence are justified (Kotef and Amir, 2011), or the Palestinians' political opinions toward peace processes (Longo et al., 2014). To the best of our knowledge, only one study has discussed the psychological impact of border-crossing experiences. However, that study was conducted with Palestinians from Syria and described the psychological effects of crossing the border between Lebanon and Syria. The study demonstrated participants' feelings of forbidden life and social death (Heide-Jørgensen, 2014). In the absence of research exploring the psychological influences of repeatedly passing through a checkpoint, using the framework of Palestinians living under conditions of chronic conflict, the current study endeavored to examine the mental experience of Palestinian adults who pass daily at the Qalandia checkpoint.

MATERIALS AND METHODS

Participants

Twenty adult participants (50% females) between the ages of 19 to 58 ($M_{\text{age}} = 13.47$, $SD = 0.34$) who cross the Qalandia checkpoint participated in the study. The participants were recruited using snowball sampling with two inclusion criteria: All participants had to be Palestinian in origin and live in or near the Qalandia refugee camp. Fifteen participants (75%) lived in Kufar Akab, an Arab neighborhood of Jerusalem, which is mostly located in the northern part of the city. The neighborhood is located near the Qalandia refugee camp, about 2 Km south of Ramallah and 8 Km north of the center of Jerusalem. Estimates regarding its number of residents range between 18,000 and 80,000. Seventy percent of its residents are in the municipal area of Jerusalem, and 30% are in the area under the responsibility of the Palestinian Authority. Four participants lived in the Shuafat refugee camp, a Palestinian refugee camp located in northeast Jerusalem. It is the only Palestinian refugee camp within the municipal boundaries of Jerusalem, with an estimated 8,000 to 20,000 residents. One participant lived in the Qalandia refugee camp.

Many people who live in Kufar Akab and the Qalandia refugee camp have two houses. One is a small house in East Jerusalem, whose address is registered with the Israeli Ministry of the Interior and grants them their rights as Palestinians with Israeli residency, while the second house is bigger and serves as a residence. This participant's house was built in the Qalandia refugee camp but in area C, which is under Israeli supervision. Participants had to cross the Qalandia checkpoint on a daily basis and have Israeli residency (a blue identity citizenship card) that permitted them to cross the checkpoint. We excluded from the study Palestinians from the oPt because they do not have Israeli permission to regularly cross the checkpoints on a daily basis. All the participants were Muslims. Fifty-five percent of the participants were employed, and 25% were students; 50% were single, 35% were married with children, and the remaining 15% were divorced.

Setting

The study was conducted at the Qalandia checkpoint. The Qalandia checkpoint is the largest and most frequented passageway for Palestinians who need to cross between the occupied West Bank and East Jerusalem for work, school, getting to a hospital, or visiting relatives. Around 26,000 Palestinians pass through Qalandia daily on foot, by bus, or by car and they must follow Israeli authorities' instructions. Queues form at the checkpoint from before the break of dawn. Traffic conditions at the checkpoint vary from hour to hour. Sometimes the authority checks are quick, but at other times there is lengthy questioning or delays. Thus it is impossible to predict how long it will take to pass the checkpoint. However, during rush hours (mainly between 4:00 to 5:00 am and between 5:30 to 7:30 pm) persons crossing take into consideration that thousands of people have to pass together and that crossing the checkpoint will take at least an hour and a half and sometimes even 3 h. There are also times that the checkpoint is unexpectedly closed and then crossing is not permitted at all.

Procedures

Following receiving ethical approval for the study from the Committee to Evaluate Human Subject Research of the Faculty of Health Sciences and Social Welfare of the University of Haifa, the first author, who is an experienced music therapist, met the participants separately for an unlimited amount of time in their home. The researcher explained the aim of the study and obtained participants' written consent. During this session, both verbal and non-verbal techniques were used to capture participants' experiences of the checkpoint crossing. First, a semi-structured interview was conducted in Arabic and recorded (and later transcribed and translated into English). Next, participants were asked to engage in the drawing task. Participants were told that they were entitled to stop the interview or the drawing task at any point. The artworks and recorded interviews were stored safely under a code number with no identifying details.

Due to the sensitive nature of this study, participants were given the personal contact information of the researchers, who are all experienced therapists. The participants also had access to public support centers if they experienced any distress or if any questions arose. Throughout the process of writing and consolidating this research, every effort was made to ensure that the life stories and artworks of the participants were presented respectfully, without changing any of the facts or the essence of the content.

Instruments

The Semi-Structured In-Depth Interview

The purpose of the semi-structured interviews was to gather the in-depth meaning of participants' passing the Qalandia checkpoint on a daily basis. The interviews were based on a questionnaire guide, which was composed of a list of open-ended questions aimed to elicit descriptions of the participants' experiences and how they influenced their lives. It included questions such as: "How is it for you to pass through checkpoints?" "Please give a metaphor to illustrate this

experience.” “Please describe the most significant experience that you remember regarding passing through the checkpoint. Explain its significance to you.” “In what way is passing through the checkpoints influenced your life?”

The Drawing Task

As internal distress is, in many cases, covert, this study, as have many others, used drawings by the participants to provide an additional channel of learning about their inner experience (e.g., Lev-Wiesel and Liraz, 2007; Goldner and Scharf, 2012a). Participants received a blank sheet of paper, size A4 (21 cm × 27.9 cm) and a package of crayons with twelve colors, and were requested to draw an image that reflected their experience with the checkpoint. The drawings could portray their experience abstractly or figuratively. The use of drawings is considered a useful tool among scholars and clinicians, as it allows the expression of hidden or repressed thoughts and feelings in a relatively rapid and simple way by passing the censorship defensive mechanism. In particular, since traumatic events are often recalled in a fragmented, dissociated, and non-verbal manner the use of drawings can provide a unique approach for research by allowing the trauma to reveal itself in a visual form (Malchiodi, 1998; Rubin, 2005; Gantt and Mills, 2009). The assumption is that by using colors, shapes, and motifs in visual content, the unconscious can be expressed, adding layers of meaning to the stated verbal content (Betts, 2006; Ellis, 2007; Lev-Wiesel and Liraz, 2007). The use of an integrated approach that involves the use of both visual and word-based research methods offers a way of exploring both the multiplicity and complexity that is the basis of much social research interested in human experience (Guillemin, 2004; Betts, 2006). In the current study, we focused on the inner psychological meaning of daily crossing the Qalandia checkpoint and looked for additional channels of expression.

The Analysis

Interpretative phenomenological analysis (Smith et al., 2009) was deployed while analyzing the interviews to achieve depth insight regarding crossers' perceptions and meaning construction prior to the establishment of a theoretical interpretation. Each interview was looked at separately, and the analysis by the three authors started with an intensive reading and rereading of the interview transcripts and notes so the researchers were familiarized with the contents. Any significant and potential meanings were noted and written down. A preliminary list of initial categories was created from which a second list connecting the themes was created, illustrating the clustering of these themes into a smaller number of higher-order ones that were checked against participants' phrases to ensure they supported the connections made. A table of themes was then developed by giving a name to the clusters of themes to form superordinate themes.

The analysis of the drawings was conducted by the first and the second authors, who are experienced creative art therapists. The second author is also an experienced researcher in the field and specialized in using and developing art-based assessments. The analysis of the drawings was conducted using

a phenomenological analysis approach in *art therapy* (Betensky, 1995; Hazut, 2014). The analysis focuses on the particular way in which individuals perceive their lives by identifying common repetitive pictorial phenomena, which refer to certain features of the pictorial art such as lines, colors, shapes, images, textures, contrasts, massive areas, space, and the relations between them (Simon, 2001; Huss et al., 2012; Thyme et al., 2013). Next after, the information that emerged from the analysis of the various drawings was gathered into broad, global, and aggregate pictorial phenomena based on the organization, aggregation of signs in the drawings, and general impression. Namely, we search for similar pictorial styles in various drawings to understand certain experiences. In the end, interpretive psychological theories that assess mental functioning through compositional and stylistic elements were used to produce meaning from the phenomena (Huss et al., 2012).

To ensure inter-coder reliability, both regarding the drawings and the interviews, we performed thematic content analysis or pictorial phenomenological analysis separately. Subsequently, we compared individual analyses, discussed disagreements, and looked for conformity regarding theme and pictorial phenomenon content and the interpretation of meaning. We rejected themes considered to make a minor contribution to understanding the examined phenomenon to achieve parsimony.

Finally, the research team includes both Palestinian and Israeli researchers who are interested in the psychological impacts of various trauma situations. The use of a mixed research team group and the application of a reflexive approach and transferability to detect the researchers' perspectives, positions, values, and beliefs (Barry et al., 1999; Malterud, 2001) may have assisted in minimizing any hidden agendas or preconceptions. On a personal note, the Israeli authors felt compelled to find out how Palestinians experience the checkpoints, believing that the two populations are destined to live side by side forever in this region, so attaining a broader understanding of the Palestinians' suffering through narratives and drawings is necessary. The Palestinian researcher grew up in East Jerusalem and used to cross the checkpoints on a daily basis. Today, as a Palestinian citizen of Israel, she usually visits her family and crosses the checkpoints once a month with her family. She wished to learn about the suffering of the Palestinians she meets and its relation to her identity as a Palestinian.

FINDINGS AND DISCUSSION

The Interviews

The analysis of the interviews yielded three central themes. The first theme described deep feelings of distress and desperation as manifested explicitly and implicitly. This theme was comprised of subthemes of feelings of humiliation and dehumanization, non-existence, rage, and pessimism and hopelessness. The second theme focused on the participants' coping strategies, concentrating on aspects of habituation and dissociation, while the third theme described the social fragmentation of the Palestinians' solidarity (for a summary of the interviews' themes and drawings' phenomena, see **Table 1**).

TABLE 1 | Verbal themes, subthemes, and pictorial phenomenon.

Interviews	Drawings
Themes	Phenomenon
(1) Deep feelings of distress and desperation	(1) Squared restricted drawings
(2) Coping styles	(2) The use of multiple black tiny objects
(3) Fragmentation of the palestinian solidarity	(3) The use of split drawings
	(1.1) Feelings of humiliation and dehumanization
	(1.2) Feelings of non-existence, danger, and dying
	(1.3) Feelings of rage
	(1.4) Feelings of pessimism and helplessness

Deep Feelings of Distress and Desperation

Feelings of humiliation and dehumanization

Two central feelings that participants expressed were humiliation and dehumanization. Feelings of dehumanization are clear from the interviews: participants described themselves as “thrown objects” that were required to be inspected. They reported having to obey any given order or face additional inspections, delays, or severe punishment. “The soldiers don’t see that we are human beings crossing the checkpoint.” “If you blow your horn or even show that you are in a hurry, they [the soldiers] will catch you . . . He [the soldier] will yell at you, ‘Come! Pull over!’ . . . and they delay you.” (Sh., male, 33, driver) Other checkpoint crossers felt that the dehumanization went much further. They remarked that to follow the soldiers’ orders, they were forced into adopting abnormal, humiliating behaviors, and ultimately they felt like animals. Furthermore, participants constantly used the word “human” during their interviews to emphasize their loss of human identity, namely the sum of the components that define the essence of being human, such as meaning making, adopting values and moral behavior, and pursuing life goals (Agustin, 2009; Albarello and Rubini, 2012; Génova and Quintanilla Navarro, 2018). For example, participants said, “They treat us like animals. When I am obliged to make my daughter poop in the car! It means we have no dignity.” (M., female, 34, engineer) “We feel like we are not human beings.” (A., male, 25, cook; H., male, 27, worker). “I feel I’m an abnormal human being.” (Sh., female, 37, teacher).

While feelings of humiliation are apparent from the above descriptions of dehumanization, the sense of humiliation was further evident in participants’ descriptions of their relationships with the soldiers. Many participants compared their relationships with the soldiers to the relationship between detainee and jailer, in which the soldiers represent commanders in charge of the prisoners and they, the checkpoint crossers, represent the detainees. Some of the participants used the words “cage,” “prison,” and “jail” to describe the denial of dignity, which conveyed checkpoint crossers’ feeling of being psychologically trapped. They explained how the soldiers’ orders had to be obeyed to ensure crossing the checkpoint. They compared themselves to

prisoners, criminals, and guilty suspects, which lent an additional sense of danger to the experience. They said: “We are imprisoned here.” (R., male, 23, social worker) “It’s just the same as a prison . . . they inspect you every day.” (S., male, 46, driver). “If you sit quietly in your car you will pass.” (Sh., male, 33, driver) “Stop!” [says the soldier] We stop. ‘Go!’ [says the soldier] We go.” “When I cross the checkpoint, I’m a suspect. I feel like I am accused of something, and I don’t know what it is.” (A., female, 54, school counselor). “While I’m standing in line waiting, he [he soldier] comes to me and orders, ‘get out of the car!’ . . . He just didn’t like the way I looked. He told me to park my car on the right side of the lane! 15 min passed, 30 min passed, then he came to inspect the car as if he was searching for something. He brought the dogs for an additional inspection, he made the dogs circle around the car, nothing! There was nothing, he just intended to delay me.” (M., male, 53, driver).

Another humiliating aspect of the checkpoint crossers’ relationship with the soldiers was the setting up of the soldier as “superior” and the passenger as “inferior.” Participants described the soldiers’ behavior as sometimes rude, lacking empathy, apathetic, and inhuman. All the participants in the study agreed that the soldiers’ mood determined whether that day’s crossing would be easy or difficult or whether the inspection would be conducted in a respectful or humiliating manner. For example, checkpoint crossers said: “He sits in a high chair, putting his legs through his window, and we are forced to see and tolerate his arrogance.” (S., female, 19, student) “They [the soldiers] are bossy all day and night and think we count for nothing.” (N., female, 19, student) “He [the soldier] brought the dogs for an additional inspection; he made the dogs circle around the car, nothing! There was nothing; he just intended to delay me.” (S., male, 46, driver) Others believe that the soldiers deliberately use unjustified power designed by the Israeli government to amuse the soldiers or degrade the checkpoint crossers. “They bring the worst inhuman soldiers to the checkpoints to humiliate us.” “Usually the soldiers use us to make fun of us.” (I., female, 54, teacher).

In describing their relationship with the soldiers, participants also expressed feelings of being tormented and assaulted, by using the words *Marmata*, *Atta’tas*, and *Sammet Baddan*. *Marmata* means “being held by the hair and pulled sharply from one side to another.” *Atta’tas* denotes “destroying someone and making them feel miserable and ruined,” while the expression *Sammet Baddan* means “the insertion of poison or toxic material inside the body.” They described figuratively the torture and the aggression that the body and soul must confront. For instance, participants said: “I go through *Marmata* every time I cross the checkpoint.” (S., female, 19, student; S., female, 24, cleaner; H., male, 26, chef’s assistant).

The emotion of humiliation has been recognized as a central emotion among Palestinians in the oPt. This emotion has been defined as an internal negative experience of the victim as a result of being intentionally unjustly treated and degraded (Giacaman et al., 2004). It can be experienced on an individual as well as on a societal level and thus can yield massive negative effects. Furthermore, researchers have suggested that humiliation is a central deliberate tactic used by dominant groups aiming to violate dignity and basic human rights as a form of

political control and that it has profound, negative consequences (Lindner, 2001; Giacaman et al., 2004; Giacaman et al., 2007c). It seems that this description corresponds to the experience of the study participants, who experienced daily dehumanizing treatment by soldiers. According to the participants, the soldiers took advantage of their power by treating the checkpoint crossers as their masters or jailers and using unjustified power deliberately to frighten and degrade the travelers to the extent that they felt robbed of their dignity and humanness.

Feelings of non-existence, danger, and dying

Another major theme that was expressed in the interviews was the feeling of death and non-existence. Checkpoint crossers routinely used the metaphors of “dying,” “going to the grave,” and “annihilating” to describe the experience of death they faced at the checkpoint. “Checkpoints are death!” (R., male, 58, worker) “When I approach the checkpoint, it feels like I am going to the grave.” (A., male, 25, cook).

Over and over, participants described the feelings of nihilism, worthlessness, invisibility, and irrelevance. They stated: “The soldiers don’t look at us in the first place, they don’t see that we are human beings crossing the checkpoint.” (S., female, 19, student) Checkpoint crossers felt that their lives had no meaning or value at the checkpoint. Some participants, based on their own experiences and others that they witnessed, talked about the danger of losing one’s life at the checkpoint by making the slightest mistake. They underscored the need to be constantly alert to any signal of imminent threat while standing in line. For instance, a few participants stated: “You might get shot if you make a slight mistake [e.g., move or speak when not told not to do so], that’s why we must be careful and take extra precautions.” (R., male, 23, social worker; Sh., male, 33, driver; M., male, 20, student) “When a person moves forward in line, if he doesn’t notice any gesture from the soldier, he might get shot, it happened to me, but I didn’t get hurt, thank God.” (M., male, 53, driver) “When the terminal is empty and someone is crossing alone, a mistake may occur, especially if this is their first time, if they missed the right route, or if they are used to crossing by car and don’t know the rules for those who cross by foot. You might get shot if you make a mistake, that’s why we must be careful and take extra precautions.” (M., male, 20, student) This sequence of idioms aligns with previous findings regarding Palestinian human insecurity in the oPt, comprised of constant feelings of concern and fears regarding home displacement, loss of home, economic welfare, worries about the future, and safety of life (Qouta et al., 2008; Mataria et al., 2009; McNeely et al., 2014).

This situation they experienced as unbearable raised a series of questions for the checkpoint crossers as to what was considered normal or abnormal. They contemplated the normality of their reality and longed for the normal life that they had lost. Seeking to better understand their situation from a logical perspective, the participants raised questions regarding the ability of normal persons to endure the amount of suffering that they endured. They questioned whether people in other places would tolerate this abnormality: “I ask myself daily, why? Why us? Why are we living like this?” (S., female, 26, psychologist). “Do you think those who live in Tel Aviv would tolerate living in the fear,

stress and daily pressure to reach their university?... Why are we, Palestinians, forced to live like this and the rest of the world doesn’t?” (S., female, 19, student).

Feelings of non-existence and being destroyed, devastated, and psychologically drained have been described as prominent fears of the oPt Palestinian, serving as risk factors in demolishing Palestinians’ well-being (McNeely et al., 2014). We suggest that the intensity of the feelings of non-existence, danger, and dying reported here can be understood in light of the impossible and exhausting demands upon the Palestinians to live their lives in a way that normalizes the abnormality while keeping them on the threshold of catastrophe and disaster. The experience of the threshold, because of its instability and liminal nature, hampers the perception of certainty of time and space radically (Handel, 2009). Normalizing the abnormality, it undermines checkpoint crossers’ sense of normality and existence.

Feelings of rage

Some of the participants described feelings of rage, literally and metaphorically using embodied metaphors. These descriptions can be understood as a natural human impulse in response to the frustration and the experienced humiliation (Mohamad, 2007). For instance, some participants used explicit expressions of anger and rage while crossing, saying: “While crossing the checkpoint I feel enraged.” (Z., female, 48, teacher) “If I were able to smash him, I would.” (I., female, 54, teacher) Other participants widely used the word “blood” and its transformation to “boiling,” “burnt,” or “poisoned” to illustrate their level of rage and the agony they experienced. “I feel my blood boil. I boil on the inside.” (S., female, 24, cleaner; Z., female, 48, teacher; Sh., male, 33, driver) Some of the participants used the metaphor of insertion of poison into the body to represent the pathological and the toxic situation that invades and spreads out into their lives and imposes psychological danger. They stated: “The congested traffic that we face daily poisons our body.” (M., female, 34, engineer) “We have given a name to the checkpoint; it is the ‘blood poisoning’! ... We ask each other, where are you going? We answer, to the blood poisoning.” (S., male, 46, driver).

Embodiment-metaphorical language to describe anger is a universal form to express anger (Maalej, 2004). In this case, aspects of the language are structured by the features of our bodies and the functioning of our bodies in everyday life (Goschler, 2005). It appears, in the present study, that this kind of language helps the crossers to communicate their life-threatening and exhausting experience that seems beyond their understanding and their attempt to escape from the feelings of weakness and helplessness. The feeling of rage can be seen as a normal counterreaction of adjustment and strategy for preserving a sense of self-coherency that blurs in the relationship with the offender, control, and self-worth (Van Velsor and Cox, 2001). In this respect, rage may be seen as a natural response to the offender for the unjust treatment, in order to achieve a certain justice and subjective well-being (Tripp et al., 2002).

Feelings of pessimism and helplessness

Feelings of pessimism helplessness was pervasive throughout the checkpoint crossers’ answers, with the interviewees expressing

physical tiredness and mental exhaustion. They felt depleted of energy, stating: “I become pessimistic when I reach the checkpoint . . . the checkpoint has not only affected my life, it has executed me.” (A., male, 25, cook) “Damn this life! Why? I hate work and the day I go to work.” (Sh., female, 37, teacher) “I go to work in order to give of my positive energy, but after I cross the checkpoint, all that energy is gone and substituted with negative energy that accompanies me all day long. I am tired of going through every day.” (S., female, 19, student).

The feelings of pessimism and helplessness were also evidenced by the checkpoint crossers’ perception of time. Participants maintained a fatalistic, helpless, and hopeless attitude about the present. Their description of their present life was narrowed to the survival of the checkpoint physical conditions, such as opening hours and the length of waiting time, emphasizing the loss of time and money, with sentences such as “To leave at 5 means I gained 1 h, it’s like winning gold.” “After I cross it I feel I got released from all of the pressure I went through while crossing.” (R., male, 58, worker).

Reference to the future was almost absent from the interviews, while feelings of helplessness dominated the conversations. Participants perceived their reality as a fatal destiny that one could not change (although at times seeming to find support in their Muslim faith). “I have nothing in my hand that I can do or change, and the only complaint is to God.” (S., male, 46, driver) “The situation at the checkpoint is hopeless.” (H., male, 26, chef’s assistant) “I’m fatigued. There is no solution.” (S., female, 26, cleaner) By contrast, reference to the past was mainly warm, sentimental, and nostalgic. Participants longed for the time when they moved freely from one place to another, saying, “There were days when I used to finish my working day at 4 or 5 pm, then come home and take all the family and go to Tel Aviv; there were no obstacles on the way.” (R., male, 58, worker).

In addition, during the course of the interviews, participants described having no control over their time. The checkpoint was perceived as a significant obstacle in their lives, as they could not make any plans without bearing in mind their limited ability to predict the events at the checkpoint. To illustrate, most participants used the words “it depends” as a key phrase to demonstrate their state of being conditioned and unsure about their daily routines. “A huge part of my life has become a complete mess because I can’t plan anything!” (A., female, 54, school counselor) As a result, they feel deprived and robbed of their basic rights and needs, such as the right to control their time and consequently their life. “I feel a portion of my time and life is lost, I lose hours and precious moments.” “I feel someone is robbing me. I feel they are stealing part of my life . . . my entire being.” (Z., female, 48, teacher).

Although this pessimistic, hopeless cognitive style is akin to the phenomenon of learned helplessness (Seligman, 1972, 1975), which refers to the disposition of individuals to remain passive and accept adverse situations after exposure to repeatedly painful or aversive stimuli (Seligman, 1975), these feelings cannot be seen as typical symptoms of mental despair but rather as an expression of social suffering that is associated with the injustice and violence of the occupation. This claim is consistent with criticism more broadly that diagnostic categorization of disorders and pathology

is applicable in normative situations of sadness and suffering (McNeely et al., 2014).

Coping Styles

Prior studies in armed conflict areas identify both adaptive and non-adaptive coping styles to preserve a certain degree of well-being. Whereas the adaptive coping style includes strategies of seeking humanitarian help, enhancing literacy and education, increasing political involvement (Punamäki, 1990), meaning making, and seeking spiritual and social support (Kulogğlu-Karsli, 2013; Say, 2017), the less adaptive coping styles were comprised of avoidance, denial, and emotion-focused coping strategies (Punamäki et al., 2008; Mousa Thabet and Vostanis, 2017). In our study, in response to the extreme difficulties and to better acclimate themselves to their daily challenges, participants responded in various ways that consisted of cognitive and behavioral coping strategies of habituation, including tactics of adaptation and acceptance, as well as mental defensive coping mechanisms of dissociation, manifested in disengagement and complete ignoring of the soldiers. Cognitively, participants reported accepting the situation of the checkpoint and referring to it as “normal.” They stated: “The checkpoint has become routine in our everyday life, and we deal with it automatically.” (Sh., female, 37, teacher) “I have to tolerate this situation because it’s compulsory, and we can’t do anything about it.” (S., female, 26, psychologist) Behaviorally, the dominant response among the coping styles was avoidance: unless it was essential, participants avoided entering the checkpoint and interacting with the soldiers. They stated: “I think a thousand times before I go to visit relatives.” (A., female, 54, school counselor) “I’m not willing to reach the checkpoint unless I’m obliged; otherwise, I stay home.” (A., male, 26, cook) Other coping styles included appropriating extra time for the crossing, using social media to assess the situation at the checkpoint, and learning the soldiers’ behaviors before the inspection, to better predict and achieve a sense of control over the situation.

The intensity of negative and distressing feelings that were caused by the daily crossing compelled the participants to dissociate themselves and to disengage emotionally from the soldiers, even refusing to recognize them. “I have quit confronting them [the soldiers], I don’t have time to argue with her [the soldier], I have to pass.” (I., female, 54, teacher) “In a period of time, I used to have a huge amount of rage whenever I approached the checkpoint, as if I was waiting for a slight click to fight with them, but now I have been exposed to a lot of things by them [the soldiers] so I decided to nullify them. Now, I can’t recall any face of a soldier, I cross each day, but I don’t distinguish any of them, I don’t remember them.” (Z., female, 48, teacher) “If I keep recalling their faces, my life will be affected, so to keep my psychological state comfortable, I decided to cancel their faces.” (A., female, 54, school counselor).

These defensive coping strategies of habituation and dissociation are aimed to bypass and ease the checkpoint crossers’ emotional pain, fear, self-harm, exposure to violence, and humiliation (Stellrecht et al., 2006). They are typical to trauma survivors in the context of armed conflicts (Peltonen and Punamäki, 2010), adult refugees

(Finklestein and Solomon, 2009), and war veterans (Kashdan et al., 2010) and are similar to those described in studies that have investigated the effects of collective traumatic events, such as civil war, war conflicts, and disaster situations (Abramowitz, 2005; Somasundaram, 2007, 2010). Specifically, in the case of habituation, the repeated exposure to pain and violence may cause acclimatization to the violence that makes it less aversive and in some cases may lead to aggressive behaviors toward the self or others (Guerra et al., 2003; Lev-Wiesel, 2005; Joiner et al., 2007), while in of dissociation, in attempt to disengage from traumatic memories the traumatic experience is not fully integrated into one's existing cognitive schemas (Lemos-Miller and Kearney, 2006; Shelef et al., 2014).

It appears that in the present study that these reactions serve as adaptive responses in the short term as they serve as a protective function by reducing conscious awareness of the overwhelming emotions during the crossing. Nevertheless, it should be noted that the dichotomy into adaptive and non-adaptive coping styles is especially appropriate for Western society and clinical situation and does not take into account massive situations of collective trauma.

Fragmentation of the Palestinians' Solidarity

Checkpoint crossers reported the adoption of aggressive tactics toward members of their community and mourned the loss of their social solidarity and posited that the checkpoint dismantles the cohesion of their community by undermining its ability to act as a group (Somasundaram, 2007). In particular, the waiting time at the checkpoint led people to adopt an offensive manner toward each other. They described the waiting area as an area of anomie and chaos, lacking rules and order, characterized by a wild competition to try to cross more rapidly. Participants said: "The craftiest and experienced person [ironically], is the one who comes in front of other people, skips all the traffic congestion and crowded people, and arrives first at the line." (Sh., male, 33, driver) "I might upset five people to gain 5 min." (S., male, 46, driver).

Even though many participants shared and recollected the same humiliation, pain, and suffering, they did not feel caring and sympathy for others' pain while waiting in line. Emphasizing the change in the nature of people and the transformation from victims into aggressors, they asserted, "We have been transformed into a people who violate each other." (I., female, 54, teacher) "We are being oppressed by both the Arabs and the Israelis." (S., male, 26, driver) "When you ask those crossing the checkpoint by car to give you a ride some people turn their faces and look toward you arrogantly." (Sh., female, 37, teacher).

The fragmentation of solidarity was also revealed in participants' descriptions of checkpoint crossers' treatment of Palestinian children, who sell goods at the checkpoints. On the one hand, people expressed sorrow for the children who were required to earn even a little bit of money. On the other hand, they described their irritation at these children, who urge drivers and pedestrians to buy their goods. One of the checkpoint crossers asserted, "This generated a gap between how people would normally handle or treat children and how they treat children at the checkpoint. Some people tend to reject

talking to them or simply ignore them, which is something they don't usually do when talking to children anywhere else." (Z., female, 48, teacher).

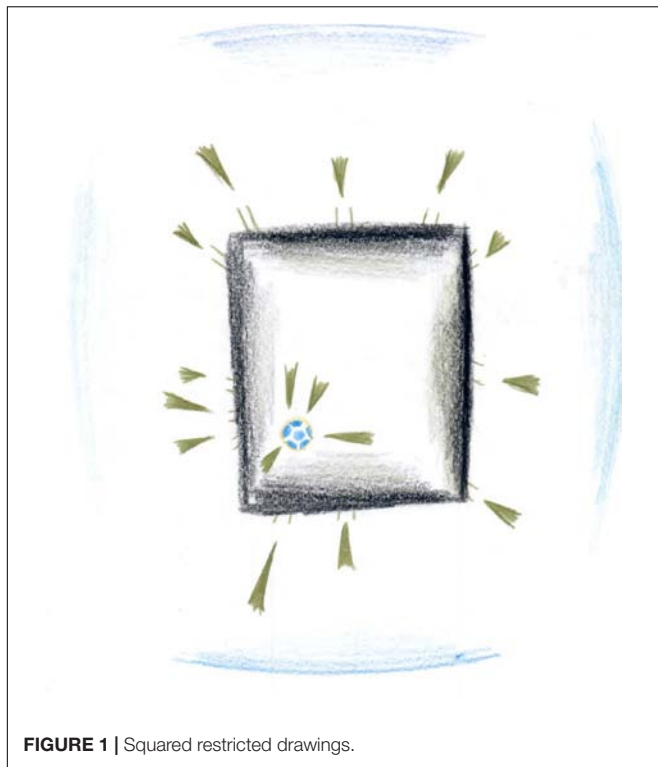
The fragmentation of social connectedness and the social fabric has been suggested as a central aspect of social suffering, war zones, and conflict areas (Erikson, 1978; Abramowitz, 2005). Communities trapped in trauma cycles often are breeding grounds for severe social problems and chronic violence. In particular, traumatized communities are vulnerable to exploitation, radicalization, societal fragmentation and polarization, which are sources of tribal violence (Riedel, 2017). Several explanations have been suggested to better understand participants' offensive behavior toward each other. Fanon's theory (Fanon, 1963) on politics and violence may be useful. The theory proposes that abnormal aggressive behavior exhibited by colonized individuals reflects a defensive operation to master passively endured trauma through active repetition to avoid re-experiencing feelings of helplessness, terror, and anxiety (Lewis and Bucher, 1992; Garland, 1993). On a psychological level, the aggressive behavior can be understood as a replication of the abusive behavior as part of the habituation process and identification with the aggressor (Guerra et al., 2003). Another explanation has been proposed by Riedel (Riedel, 2009, 2017). She suggests that in collective trauma situations, individuals move on an aggression-depression axis in an attempt to deal with harsh reality. In some cases, the aggression is directed inward, while in others, it is directed outward, causing the fragmentation of the society and diminishing its solidarity. Thus, categories such as perpetrator and victim no longer apply.

The Drawings

One of the strengths of the present study is the inclusion of a projective technique to learn about the participants' inner experience through identifying several pictorial phenomena in the participants' drawings, which enabled another layer of the experience of the participants' helplessness and vulnerability to be revealed. Previous works have examined the associations between artistic expressions and trauma (e.g., Lev-Wiesel, 2005; Avrahami, 2006; Huss et al., 2012), with the assumption that the encoding of traumatic memories may occur via a photographic visual process (Johnson, 1987). Our analysis yielded three pictorial phenomena that emerged from the participants' drawings: squared restricted drawings, the use of multiple black tiny objects, and the use of split drawings in red-black color combinations. Generally, the drawings validated participants' verbal descriptions regarding their experience of helplessness, humiliation, rage, and internal distress.

Squared Restricted Drawings

One fundamental phenomenon of drawings that emerged from the artworks of the participants was that of squared restricted drawings, which appeared in 7 of the 20 drawings. It was manifested in the depiction of squares, borders, and barriers. These squares were often emphasized or doubled. In some cases, within the squares, different types of objects (people, balls, and bombs) were trapped in a square and could not get out?

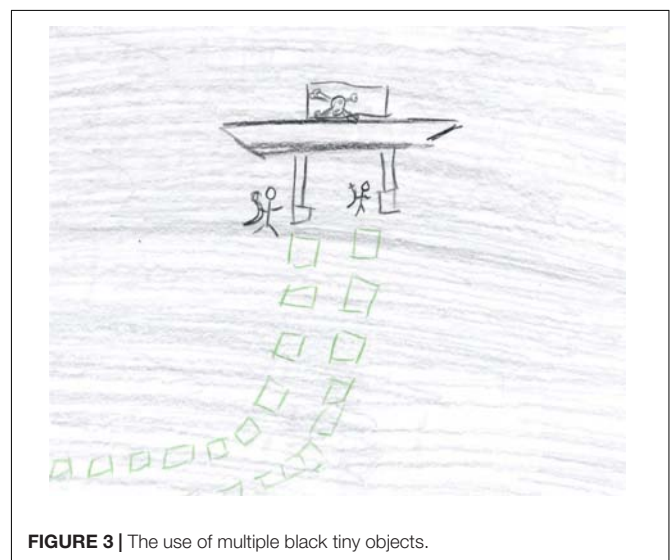


Furthermore, the color scale of these drawings was relatively limited, and there was almost no referral to the surroundings.

The overall impression was of imprisoning, lack of a way out, and helplessness instilling an overall feeling of restraint (see **Figures 1, 2**). This feeling of “no way out” was also revealed in participants’ descriptions of their drawings. For instance, in **Figure 1**, a black square trapped a ball. The participant stated: “I drew a ball, the ball represents me. I drew a ball because I feel they play with us just like a ball.” (R., male, 23, social worker) Concerning **Figure 2**, the participant said: “I drew a prison with a crowd of people and they only have one place to leave it.” (S., female, 19, student). This impression aligns with the description of feelings of pessimism and helplessness which was revealed in participants’ interviews. In addition, this brings into line with previous studies that suggested that the use of squares serves as an expression of internal distress and a negative emotional state. For instance, in a study that compared emotional content drawn on circle versus square formats, the researchers found happier and more positive emotional content expressed within the circle format, compared to angry or hostile feelings revealed on the square format (Slegelis, 1987).

The Use of Multiple Black Tiny Objects

The second phenomenon, which was revealed in twelve of the drawings, was the use of multiple tiny objects that concretely depicted the checkpoint. These drawings included multiple, crowded, anonymous, and primitive small figures-multiple tiny squares or cars organized in lines that crowded the edges of the page. The dominant color of these drawings was black (see **Figures 3, 4**). In some cases, the weapons of the soldiers were



included. Despite the number of objects, the tininess of the objects and the anonymity of the figures generated an overall impression of humiliation, vulnerability, danger, and loneliness, maybe to reflect the helplessness of the society, validating participants’ narratives regarding their perceived humiliation and insecurity. Moreover, the density of the objects produced a sense of suffocation and dying as also revealed in participants’ stories (see **Figures 3, 4**). The sense of vulnerability also manifested in participants’ narratives. For instance, S., 33, a truck driver who drew **Figure 3**, described his drawing: “I feel that there are persons whom their job is to take our souls away and they anticipate seeing me having a stroke.” H., 26, a sheaf assistant who drew **Figure 4**, wrote on his drawing the word “Jungle,” which denotes a place of survival, a place where only the strongest survive.

The use of tiny and anonymous figures or objects may reflect participants’ inner sense of vulnerability, incompetence, and non-existence. It is precisely the large number of similar objects created as if on a production line and the attempt to create order

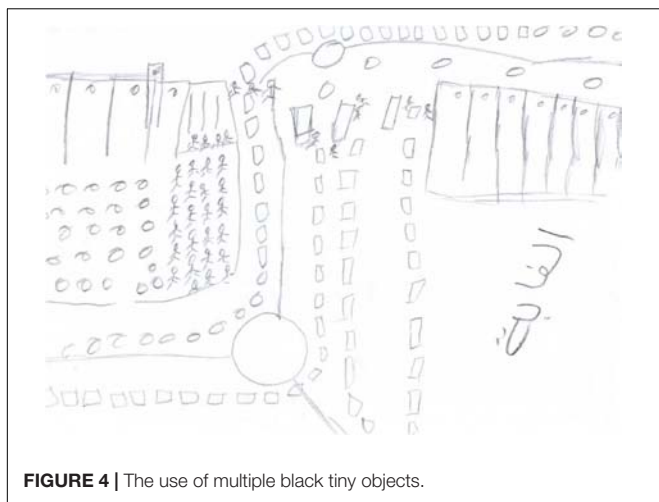


FIGURE 4 | The use of multiple black tiny objects.

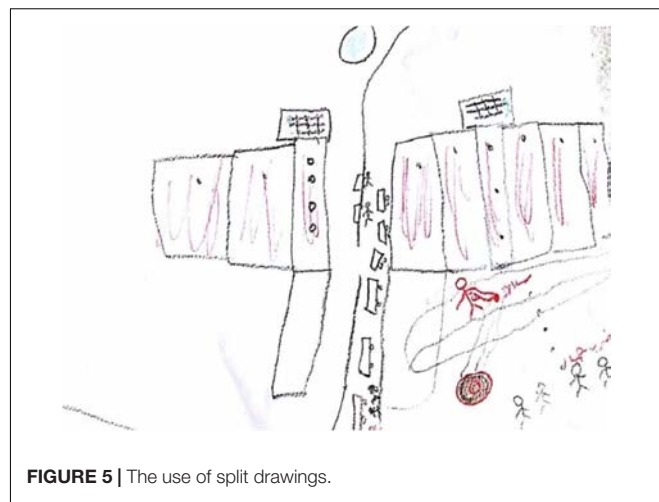


FIGURE 5 | The use of split drawings.

that reflects the participants' sense of helplessness. The use of tiny figures has been found in studies of children's drawings, in which the tiny figures mirror the child's powerlessness, vulnerability, and anxiety (Carroll and Ryan-Wenger, 1999; Saneai et al., 2011; Goldner and Scharf, 2012b). Moreover, researchers have suggested that perseveration in drawings usually indicates a lesser degree of psychological well-being (Slegelis, 1987). Furthermore, multiplicity of figures in drawings were found to be used by survivors of childhood sexual abuse, reflecting their sense of inner fragmentation (Lev-Wiesel, 2005).

Moreover, these drawings were mostly depicted in the color black. Researchers have suggested that people in different emotional states choose and interact with colors in different ways (Lev-Wiesel and Dapna-Tekoha, 2000; Withrow, 2004). Studies have indicated that while emotionally well-adjusted individuals respond to color openly, people who are more emotionally distressed eschew color when possible, using limited color scales (Wadeson, 1971; Gantt and Tabone, 1998). In particular, black as a symbol represents primal ancient darkness, the blurred, and the unknown (Eisenbach et al., 2015). In addition, there is a broad consensus across cultures that black as a symbol represents death, mourning, sorrow, sadness, evil, grief, or mortification (Adams and Osgood, 1973; Cooper, 1978). Thus, in the present study, it seems to disclose, similar to participants' narratives, the helplessness, sadness, and agony of the participants, as well as their lack of energy and passivity.

The Use of Split Drawings

The third phenomenon was the use of split drawings, which manifested in five drawings that were divided into two parts by barbed wire fences, barriers, roads, and X forms. Sometimes these drawings were drawn in a red-black color combination. In some drawings, the splitting line signifies the difference between the catastrophic present and the anticipated future. For instance, M., 34, an engineer, wrote on her drawing (see Figures 5, 6) "before crossing the checkpoint who is a Palestinian who is obliged to live in a cage."

The split drawings may reflect participants' sense of fragmentation and the coping mechanism of dissociation as was

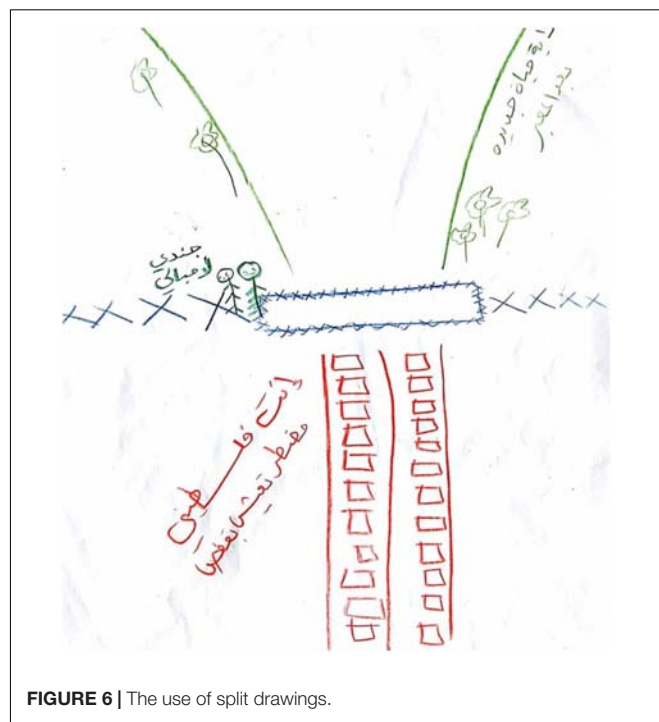


FIGURE 6 | The use of split drawings.

also emerged from participants' verbal description. The use of split drawings was found among survivors of childhood sexual abuse and aligned with the defensive mechanism of dissociation (Riedel, 2017) that was also described by the participants. The red and black color combination creates drama and emphasizes the contrast. While black represents death, bereavement, and suffering, the color red signifies love, passion, energy, power, and fertility, as well as blood, pain, anger, struggle, and revenge (Adams and Osgood, 1973; Withrow, 2004).

In the present study, and comparable to the participants' verbal content regarding their feelings of anger, red appears to represent crossers' pain, blood, and injury in addition to their towering rage and their desire for revenge and achieving justice. Challenging the feelings of despair and depression,

this combination may reflect the natural inclination of the psyche to move from destruction to life and into achieving a sense of control (Lev-Wiesel, 2005). Empirically, several studies involving “life-threatened children” (including adults who were sexually abused as children, earthquake victims, and children with leukemia) reveal a substantial prevalence of the colors red and black in their artwork (Cotton, 1985; Gregorian et al., 1996; Eisenbach et al., 2015).

Conclusion

The current study sheds light on the psychological experience of Palestinians who were repeatedly passing through Qalandia checkpoint using findings gathered using both verbal and non-verbal research techniques. The analyses of the findings showed that enduring the abusive and threatening life experiences of the daily crossing generated immensely heightened psychological vulnerability, not just at the individual level, but at the community level, as part of continuous and extensive suffering. This was displayed in the adaptation of specific passive dissociative coping styles, fatalistic time perspectives, and fragmentation of the social fabric. Thus, we suggest referring to Palestinian distress not only on an individual level but considering their suffering as “social suffering” (Giacaman et al., 2004).

Clinical Implications

The study results reflect the psychological symptoms that Palestinians endure and social mechanisms that they employ in their daily journey crossing the Qalandia checkpoint. Being aware of the small effect size of trauma-focused interventions carried out in war-affected zones (Veronese and Barola, 2018) and the difficulties in isolating the suffering at the checkpoints from the suffering of everyday life, we suggest, with caution, developing programs to enhance Palestinian resilience, taking into account the checkpoint crossings. Specifically, we propose

strengthening the Palestinian sense of solidarity and cohesion within the community as well as boosting their sense of control (Veronese and Barola, 2018) by relying less on defeatist coping styles. At the same time, the Israeli government should develop intervention programs for its soldiers to help them deal with the complexity of the situation, while addressing the Israeli security needs as well as the suffering of the Palestinians.

Limitations and Future Studies

Nevertheless, several limitations of the current study should be acknowledged. First, the findings of the present study reflect the experience of adult Palestinians crossing the Qalandia checkpoint, which involves aspects of the long-lasting political conflict. Thus, it is difficult to isolate the issue of the checkpoint from the daily, multilevel, and complex traumatic reality of Palestinians in oPt and social and cultural discrimination against Arabs living in Israel. Furthermore, this study is written from a psychological perspective rather than a sociopolitical one. Hence, future studies may wish to analyze the distress of the participants in light of local and global political processes, such as the failure of the peace process and the weakness of the Palestinian Authority. Also, by adopting a qualitative research design, the current study neither investigated the prevalence of the symptoms nor examined quantitatively the processes that generate these symptoms. Future quantitative studies should investigate how prevalent participants' symptoms are and how they are revealed. Further studies also should examine children's experiences regarding crossing the checkpoints.

AUTHOR CONTRIBUTIONS

NN conducted the interviews. NN, LG, and RL-W analyzed the interviews. NN and LG analyzed the drawings. All authors were involved in the writing of the article.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Effectiveness of Art Therapy With Adult Clients in 2018—What Progress Has Been Made?

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OPEN ACCESS

Edited by:

David Gussak,
Florida State University, United States

Reviewed by:

Maria Luisa Rusconi,
University of Bergamo, Italy
Nancy Gerber,
Drexel University, United States

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 27 March 2018

Accepted: 02 August 2018

Published: 29 August 2018

Citation:

Regev D and Cohen-Yatziv L (2018)
Effectiveness of Art Therapy With
Adult Clients in 2018—What Progress
Has Been Made?
Front. Psychol. 9:1531.
doi: 10.3389/fpsyg.2018.01531

In the year 2000, an important art therapy literature review addressed an essential question—does art therapy work? It discussed 17 articles dealing with the issue of the effectiveness of art therapy. Two decades later, this research field has extended its scope and is flourishing. Several current reviews of research work have described the broad range of methods implemented today, which includes qualitative and quantitative studies; other reviews have focused on art therapy with specific populations, or by age group. The aim of this systematic literature review is to contribute to the ongoing discussion in the field by exploring the latest studies dealing with the effectiveness of art therapy with a broad scope of adult clients. We conducted a comprehensive search in four databases and review of every quantitative article that has addressed outcome measures in the art therapy field from 2000 to 2017. This paper presents the latest 27 studies in the field that examine the effectiveness of art therapy with adult clients and divides them into seven clinical categories: cancer patients, clients coping with a variety of medical conditions, mental health clients, clients coping with trauma, prison inmates, the elderly, and clients who have not been diagnosed with specific issues but face ongoing daily challenges. It underscores the potential effects of art therapy on these seven clinical populations, and recommends the necessary expansions for future research in the field, to enable art therapy research to take further strides forward.

Keywords: art therapy, effectiveness evaluation, adult, systematic review, clinical populations

In 1999, nearly two decades ago, the American Art Therapy Association (AATA) (1999) issued a mission statement that outlined the organization's commitment to research, defined the preferential topics for this research, and suggested future research directions in the field. One year later, Reynolds et al. (2000) published a review of studies that addressed the therapeutic effectiveness of art therapy. They included studies that differed in terms of research quality and standards. In eight studies by different authors, there was a single group with no control group; in four studies, there was a control group, but no randomization of the participants between the experimental group and the control group; and in only five studies was there randomization of the experimental group and the control group (RCT - Randomized Control Trial). They concluded that there was a substantial need to expand research in the field of art therapy to better determine the most appropriate interventions for different populations.

Two decades later, the field of research in art therapy has developed considerably. There are several reviews in the field that describe the expanding body of research work. Some of these reviews present studies that have examined the effectiveness of art therapy, without distinguishing between

different populations. For example, as an extension of the work and review by Reynolds et al. (2000), Slayton et al. (2010) reviewed articles published between 1999 and 2007 that measured the outcome of art therapy sessions with different populations. Their review included qualitative studies, studies based on a single client in therapy, studies with no control groups, studies with a control group but with no randomization, and a small number of studies with a control group and randomization. They concluded that there has been progress in the field, but further research is needed. Four years later, Maujean et al. (2014) summarized high-quality studies that implemented RCT that focused on art therapy with adults. They found eight such studies that were conducted between 2008 and 2013. Seven reported beneficial effects of art therapy for adult clients, but they also concluded that more reliable controlled studies were needed to draw conclusions.

Together with these comprehensive reviews, many literature reviews have appeared in recent years discussing specific populations and a range of research methods. For example, in the field of art therapy for adults, Holmqvist and Persson (2012) overviewed art therapy studies on clients with psychosomatic disorders, eating disorders, or facing crises, based on case studies and intervention techniques. They concluded that there were not enough studies to prove that art therapy is effective for these specific disorders. Similarly, Geue et al. (2010) and a year later, Wood et al. (2011) examined art therapy with cancer patients. They assessed quantitative and qualitative studies and found that most studies have dealt with women suffering from breast cancer. They also documented the intervention techniques that were specifically used with this population, and reported that overall, the quantitative studies reported an improvement in a number of emotional domains faced by these clients. Another article by Huet (2015) reviewed articles dealing with ways to reduce stress in the workplace through art therapy intervention techniques. In this article, a total of 11 articles were discussed that employed different research methods. The authors focused on describing different ways to use art therapy in this context and argued that there has been a gradual emergence of a vast body of knowledge that reinforces the benefits of art therapy for people working in stressful work environments.

In the past three years, a number of literature reviews of controlled quantitative studies have dealt more specifically with the issue of the effectiveness of art therapy in treating specific populations. Schouten et al. (2015) overviewed quantitative studies in art therapy with adult trauma victims. They found that only six studies included a control group (only one of which included randomization) in this field. Half reported a significant reduction in trauma symptoms and another study found a decrease in the levels of depression in clients treated with art therapy. They pointed out that it is difficult to produce quantitative meta-analyses in art therapy given the limited size of the groups and because the evaluation is often based on several therapeutic methods that are used simultaneously. Further Uttley et al. (2015a,b) reviewed all the studies dealing with art therapy for adult clients with non-psychotic psychiatric disorders (anxiety, depression, and phobias). They found 15 randomized controlled quantitative studies of which 10 indicated that the

therapeutic process was effective (positive changes following therapy in comparison to the control group). They were unable to conduct a meta-analysis due to the clinical heterogeneity and lack of sufficient information in the studies. In addition, they reviewed 12 qualitative studies that provided data on 188 clients and 16 therapists.

This article deals with research that focuses on measuring the effectiveness of art therapy. It addresses two major challenges. The first is the definition of the term “effectiveness.” We adopted the definition suggested in Hill et al. (1979); namely, “the attribute of an intervention or maneuver that results in more good than harm to those to whom it is offered” (p. 1203). The current review takes a positivist perspective (Holton, 1993) and relates to the measurement of effectiveness reported in quantitative studies that have been conducted in the field. Since the field of art therapy is still young, the scope of research is limited and the quality of research is diverse, which makes it difficult to create a comparative review that presents the knowledge in the field and draws thorough conclusions. Therefore, our review is based on the systematic review framework proposed in Case-Smith (2013) who divided the studies she reviewed into three levels of evidence. Level 1 refers to randomized controlled trials (RCT’s), level 2 refers to nonrandomized two-group studies, and level 3 refers to nonrandomized one-group studies.

The second challenge has to do with the definition art therapy. We applied the standard definition provided by the American Art Therapy Association:

Art therapy, facilitated by a professional art therapist, effectively supports personal and relational treatment goals, as well as community concerns. Art therapy is used to improve cognitive and sensorimotor functions, foster self-esteem and self-awareness, cultivate emotional resilience, promote insight, enhance social skills, reduce and resolve conflicts and distress, and advance societal and ecological change (American Art Therapy Association, 2018).

This definition makes it clear that art therapy is a process that takes place in the presence of a certified art therapist, and indicates different areas where an effect or outcome in therapy can be expected as a result of this form of treatment.

Thus, the research question was formulated according to “PICOS” components (The PRISMA Group et al., 2009): Is art therapy effective for adult clients as measured in results published from 2000 to 2017, in various quantitative studies corresponding to Levels 1, 2, 3 (Case-Smith, 2013)? These studies assessed the effectiveness of art therapy on variety of indices including symptoms and physical measures, health or mental health assessments, quality of life assessment, or coping resources. These indices were typically evaluated through questionnaires and occasionally by projective drawings or physiological indices.

By posing this question, this systematic review joins the ongoing discussion in the field on the level of effectiveness of art therapy with adult clients. This forms part of the academization process in the field of art therapy, which involves attempting to relate intervention techniques in the field with their significance for theoretical research.

METHOD

The search for relevant articles was carried out during the month of January 2017. Four major electronic databases were searched: Medline, PsycInfo, Scopus, and Web of Science. We searched for the term “art therapy” in the databases combined with the terms “Effectiveness,” “Efficacy,” “Outcome,” “Measurement,” “Treatment,” and “Intervention.” We restricted the search in the databases to articles published in English since the year 2000 for reasons of recency and the continued relevancy of the findings. In addition, all the literature reviews in the field (such as those reviewed above) were examined to locate additional articles that were pertinent to this study.

During the initial screening stage, the abstracts were read by both authors (who are certified art therapists) to exclude those that were irrelevant to the purposes of the study. At this point 151 articles remained (see **Figure 1**).

In the next stage, the remaining articles were read and selected if they met the following inclusion criteria (see **Figure 1**):

- Reported a quantitative assessment of the effectiveness of art therapy on a sample of clients. Hence case studies, method descriptions, qualitative analyses, and literature reviews that did not meet these criteria were omitted. A total of 80 articles were removed at this stage.
- Enabled the assessment of the unique impact of art therapy. We thus omitted articles that described the use of a combination of therapeutic intervention techniques with a variety of art mediums simultaneously, not only visual art. A total of 14 articles were omitted at this stage.
- The art therapy was conducted in an ongoing manner in the presence of a certified art therapist. We thus omitted articles that described art intervention techniques that were not used in the context of therapy or were used in one-off art therapy interventions or therapy sessions with a non-certified art therapist. A total of 17 articles were removed at this stage.

Articles that met these inclusion criteria were defined as articles that examined the “effectiveness” of Art Therapy, and that quantified the impact of art therapy in a measurable way. A total of 37 studies were located in 40 articles (three studies were published in two different articles each). Of the 40 articles, 27 dealt with adult populations and are covered in this systematic review. This article categorizes mentioned articles in terms of the levels of evidence proposed by Case-Smith (2013).

FINDINGS

The findings derive from the 27 studies that we considered to have met the inclusion criteria. The choice to present the studies as a review rather than as a meta-analysis is due to the emergent nature of the field of art therapy. There is insufficient research in the field and the differences between studies and the indices measured are so great that it was impossible to produce a meta-analysis that would yield meaningful results (much like Uttley et al.’s conclusion, 2015a,b). In addition, the authors discussed the issue of the clinical categorization until full agreement was reached, to enable the reader to access the knowledge in the field

in a way that will allow and encourage researchers to continue to conduct research. For samples where there has been more research (for example, art therapy with cancer patients), this area could have been separate and examined in and of itself, and relevant conclusions specific to this population could have been drawn. However, for other populations there was often a scarcity of studies which led us to group and categorize populations with similar characteristics (for example, medical conditions).

The next section presents the findings categorized into seven clinical categories. Different research methods were used: 17 of the articles (15 studies) used a comparison group with randomization (Level 1), five articles (four studies) used a comparison group without randomization (Level 2), and five articles used a single group without a comparison group (Level 3). In addition, there was a notable gender trend in that nine of the articles only examined women whereas only two of the articles exclusively referred to men. Sixteen did not define the research population by gender.

Category 1: Cancer Patients

The first category consisted of art therapy with cancer patients (see **Table 1**). Six studies that examined effectiveness have been conducted with this specific population since 2006 and have been described in seven different articles (Monti et al., 2006, 2012; Oster et al., 2006; Öster et al., 2007; Bar-Sela et al., 2007; Svensk et al., 2009; Thyme et al., 2009). Five of the six studies were randomized (Level 1) and five dealt with women, most of whom had breast cancer. The total sample size ranged from 18 to 111 clients, most of whom were treated individually. Most of the therapeutic processes were short-term and ranged from five to eight sessions.

Some of the studies utilized different streams of art therapy. For example, the largest study of 111 participants, (Monti et al., 2006) included a mindfulness-based art therapy intervention—a combination of art therapy with mindfulness exercises. The measurement indices were very different for these studies and included questionnaires that examined physical symptoms, coping resources, quality of life, depression, anxiety, and fatigue. One specific study (Monti et al., 2012) also dealt with fMRI measurements. The findings of this category suggest that through relatively short-term interventions in art therapy (primarily individual therapy), it is possible to significantly improve the emotional state and perceived symptoms of these clients.

Category 2: Medical Conditions

The second category consisted of art therapy with clients coping with a variety of medical conditions that were not cancer-related (see **Table 2**). Three studies examining the effectiveness of art therapy have been conducted since 2011, each of which deals with a completely different medical condition and employs a different research method. The earliest study dealt with art therapy with clients with advanced heart failure (Sela et al., 2011). This study had a sample size of 20 clients who were randomly divided into two groups (level 1). The clients participated in group art therapy for 6 weeks. A 2013 study addressed art therapy with clients coping with obesity (Sudres et al., 2013). This study examined 170 clients who were randomly divided into two groups (level 1).

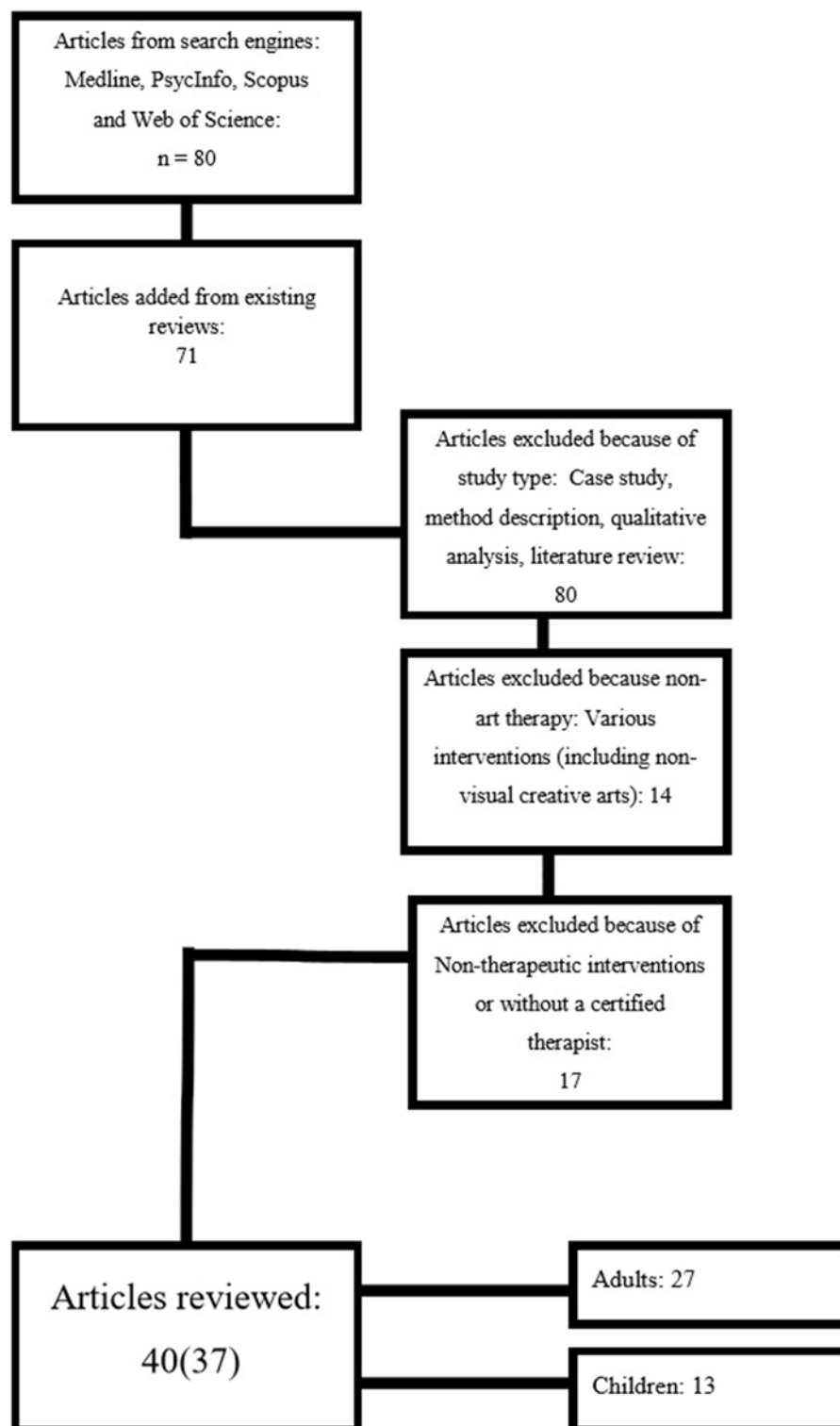


FIGURE 1 | Search process.

One group consisted of 96 clients who received art therapy for 2 weeks. A 2014 study addressed art therapy with 25 clients with HIV/AIDS (Feldman et al., 2014), who received art therapy in

individual or group settings and did not include control groups (level 3). The duration of the therapeutic process was one or more sessions. Despite the considerable differences between the

populations and the indices measured, these preliminary studies present an introductory description that points to the potential of art therapy to assist these populations.

Category 3: Mental Health

The third category covered art therapy with mental health clients (see **Table 3**). Four studies have been conducted since 2007 (two articles written on the same study—Crawford et al., 2012; Leurent et al., 2014, see **Table 3**). Research in this category falls into two main diagnostic areas. The first covers two studies on individuals with schizophrenia (Richardson et al., 2007; Crawford et al., 2012; Leurent et al., 2014) that involved randomization (level 1) with large samples (90–159 clients). The therapeutic process ranged from 12 sessions to a full year of therapy and included group therapy. The variety of indices that were used in these studies include measures of function, relationships and symptoms. Despite the attempt to use different types of research indices, in both studies, little or no effect was found to be associated with art therapy. Two studies were classified into the second diagnostic area: one addressing clients with psychiatric symptoms (Chandraiah et al., 2012) (level 3) and the other addressing women coping with depression (Thyme et al., 2007) (level 1). The therapeutic process ranged from 8 to 15 weeks. The findings reported in both studies suggested a change occurred in the duration of the therapeutic process. However, since neither study compared clients who received art therapy with those who received no therapy, it is difficult to evaluate the effectiveness of art therapy. Hence, the accumulated results of the studies in this category suggest that further research is needed to assess the effectiveness of interventions in art therapy for clients dealing with mental health issues.

Category 4: Trauma Victims

The fourth category included art therapy with clients coping with trauma (see **Table 4**). In this category, two studies have been conducted since 2004, both with randomization (level 1). The first study (Pizarro, 2004) was composed of a sample of 45 students who participated in two art therapy sessions. These students had dealt with a traumatic event, which could occur at different levels of intensity and at various stages in their lives. In addition, the comparison was made between an art-therapy group and two comparison groups where one underwent writing therapy and the other experimented with artwork, regardless of the traumatic event. Despite the attempt to use a wide range of indices, including symptom reporting and emotional and health assessments, and perhaps because of the short duration of therapy, this study failed to find significant results.

The second study (Kopytin and Lebedev, 2013) examined a sample of 112 war veterans who participated in 12–14 art therapy sessions. In this study, in which the definition of the traumatic event was more specific and defined by involvement in war, an attempt was also made to measure the level of improvement through a wide range of research indices, including reports of symptoms, emotional state, and quality of life. For some of the indices, there was a significant improvement compared to the control group.

These two articles thus present an inconsistent picture of the beneficial effects of this intervention, which may depend on the indices measured, the duration of therapy, and possibly the type of traumatic event.

Category 5: Prison Inmates

The fifth category deals exclusively with David Gussak's extensive research on art therapy with prison inmates (Gussak, 2004, 2006, 2009a,b) (see **Table 5**). In this area three effectiveness studies have been conducted since 2004 (two articles were written on the same study; see **Table 5**). The first examined an intervention group without a control group (level 3), in contrast to the other two studies which did include control groups (level 2); the sample sizes ranged from 48 to 247 participants in the 2009 study. The art therapy intervention was carried out in a group setting and lasted 4 weeks in the first study to 15 weeks in the most recent study. Initially, Gussak used measurements solely from drawings (FEATS), but in later and more comprehensive research, depression and locus of control were also assessed. In the three studies, there was a reported improvement attributed to the art therapy intervention, as seen in the emotional state of the prison inmates.

Category 6: The Elderly

The sixth category covered art therapy with the elderly (see **Table 6**). Three effectiveness studies have been conducted since 2006: one study was conducted with healthy Korean American older individuals (Kim, 2013), the second study involved older individuals coping with depression (McCaffrey et al., 2011), and the third dealt with older individuals with moderate to severe dementia (Rusted et al., 2006). In all three studies, the participants were randomly divided into groups (level 1), in a group therapy setting, with a sample size of 39–50 clients. The number of sessions ranged from 6 to 40. The authors of these studies were interested in a variety of indices. In both the study of elderly Koreans and the elderly coping with depression, various aspects of the emotional state of the clients were measured. Art therapy was considered to have led to an improvement on these measures. In a study of older people with dementia, many observational measures were used to assess emotional states, behavior, and abilities, but change was found only in some of them.

The findings suggest that art therapy seems to have a beneficial effect on older individuals who are coping with a variety of challenges in their lives, as reflected in the changes in the indices in these studies.

Category 7: Clients Who Face Ongoing Daily Challenges

The seventh category consisted of art therapy with clients who face ongoing daily challenges that do not fall into one diagnostic category (see **Table 7**). Three studies have been conducted since 2008, two of which address issues such as stress, distress, and burnout of individuals working in various health professions (Italia et al., 2008; Visnola et al., 2010). These studies were carried out without randomization; in one study (Visnola et al., 2010) there was a control group (level 2), whereas in the other (Italia

TABLE 1 | Cancer patients.

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
A randomized, controlled trial of mindfulness-based art therapy (MBAT) for women with cancer	Monti et al. (2006)	N = 111 Randomly assigned to Mindfulness-based Art Therapy (MBAT) intervention (n = 56) Wait list control group (n = 55)	Women diagnosed with cancer. Each subject was between four months and two years of an original diagnosis of cancer (or remission). Patients were excluded if they were terminal, or had a current psychiatric diagnosis of a major mood disorder, psychotic disorder, or significant cognitive deficits as determined by their physicians.	MBAT - a supportive-expressive group therapy that includes skills training in mindfulness meditation and group art therapy tasks.	The intervention consisted of eight consecutive weekly meetings of two and a half-hours each. Home assignments included the practice of mindfulness meditation 6 days a week for 30 min	Baseline and post-intervention (at weeks 8 and 16).	The Symptoms Checklist Revised (SCL-90-R), The Global Severity Index (GSI), The Medical Outcomes Study Short-Form Health Survey (SF-36).	As compared to the control group, the MBAT group demonstrated a significant decrease in symptoms of distress (as measured by the Symptoms Checklist-90-Revised) and significant improvements in key aspects of health-related quality of life (as measured by the Medical Outcomes Study Short-Form Health Survey).
Art therapy improves coping resources: A randomized, controlled study among women with breast cancer	Oster et al. (2006)	N = 41 Randomly assigned to Intervention group (n = 20) Control group (n=21)	Women aged 37-69 (Median = 59) with non-metastatic primary breast cancer, referred to the Department of Oncology at Umeå University Hospital in Sweden for postoperative radiotherapy.	Individual art therapy intervention.	Five sessions, one hour each.	Baseline (start of radiotherapy) and 2 and 6 months after baseline.	Interviews, Diaries, Coping Resources Inventory (CRI).	There was an overall increase in coping resources among women with breast cancer after taking part in the art therapy intervention. Significant differences were found between the experimental and control groups in the social domain on the second and third occasions. Significant differences were also observed in the total score on the second occasion. The results showed a connection between participation in art therapy, talking about protecting one's own boundaries, and scoring higher on the CRI compared to the control group. There was also an association between the control group, repertoire conflicts, and lower scores on the CRI.
Art therapy for women with breast cancer: the therapeutic consequences of boundary strengthening	Öster et al. (2007)							Level 1

(Continued)

TABLE 1 | Continued

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
Art therapy improves depression and influenced fatigue levels in cancer patients on chemotherapy	Bar-Sela et al. (2007)	N=60 Intervention group - patients who participated in 4 sessions or more (n = 19) participant group - patients who participated in 2 sessions or less (n = 41)	Cancer patients aged 25-72 (Median=59) receiving chemotherapy.	The art therapists instructed each patient personally every week (Anthroposophical art therapy - painting with water-based paints). The sessions took place in a small room with eight workstations which was the maximum capacity for working with patients at the same time.	A variable amount of sessions - Once-weekly art therapy sessions. The patient chose how long to spend in the session, from a few minutes to more than an hour.	Before every session, relating to the previous week.	Hospital Anxiety and Depression Scale (HADS) and the Brief Fatigue Inventory (BFI).	BFI scores were significantly higher in the participant group. In the intervention group, the median HADS score for depression was 9 at the beginning and 7 after the fourth appointment (significant difference). The median BFI score went from 5.7 to 4.1 (Non-significant). The anxiety score was in the normal range from the beginning.
								Level 2
Art therapy improves experienced quality of life among women undergoing treatment for breast cancer: a randomized controlled study	Svensk et al. (2009)	N = 41 Randomly assigned to Intervention group (n = 20) Control group (n = 21)	Women -control- Median age=55 Intervention -Median age = 59.5 undergoing radiotherapy treatment for breast cancer.	Individual art therapy sessions.	Five sessions, one hour each.	Baseline (start of radiotherapy) and 2 and 6 months after baseline.	WHOQOL-BREF and EORTC Quality of Life Questionnaire-BR23	The results indicated an overall improvement in QoL aspects among women in the intervention group. A significant increase in total health, total QoL, physical health and psychological health was observed in the art therapy group. A significant positive difference within the art therapy group was also seen concerning future perspectives, body image and systemic therapy side effects.
								Level 1
Individual brief art therapy can be helpful for women with breast cancer: A randomized controlled clinical study	Thyme et al. (2009)	N = 41 Randomly assigned to Intervention group (n = 20) Control group (n = 21)	Women aged 37-69 with breast cancer. Exclusion criterion was a preexisting physical or psychiatric illness.	The intervention in this study provided the participants with five individual sessions of art therapy where they were encouraged to express their feelings and thoughts.	Five sessions, one hour each.	Baseline (start of radiotherapy) and 2 and 6 months after baseline.	Structural Analysis of Social Behavior - The SASB, Symptom Check list-90 The SCL90.	The hierarchical regression analyses suggested that art therapy was related to lower ratings of depression, anxiety, and somatic symptoms, as well as a lower level of general symptoms.
								Level 1

(Continued)

TABLE 1 | Continued

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
Changes in cerebral blood flow and anxiety associated with an 8-week mindfulness programme in women with breast cancer	Monti et al. (2012)	N = 18 Randomly assigned to Mindfulness-based Art Therapy (MBAT) (n = 8) Education control group (n = 10)	Women aged 52-77 who had been diagnosed with breast cancer between 6 months and 3 years prior to enrollment and were not in active treatment.	MBAT - a supportive-expressive group therapy that includes skills training in mindfulness meditation and group art therapy tasks.	Eight consecutive, weekly meetings of two and a half hours each in length.	Baseline, immediately after.	The fMRI imaging protocol consisted of five perfusion fMRI (using ASL) scans performed with a fixed order: 'Resting 1,' Neutral task (i.e. control), Meditation task (Body Scan), Stressor task, and Resting 2'. The response to the programme was evaluated utilizing the Symptom Checklist-90-Revised (SCL-90-R) as a behavioral rating.	Subjects in the MBAT group demonstrated significant increases in CBF (blood supply to the brain in a given period of time) at rest and during meditation in multiple limbic regions, including the left insula, right amygdala, right hippocampus and bilateral caudate. Patients in the MBAT programme also presented a significant correlation between increased CBF in the left caudate and decreased anxiety scores. In the MBAT group, responses to a stressful cue resulted in reduced activation of the posterior cingulate. The results indicated that the MBAT programme was associated with significant changes in CBF, which correlated with decreased anxiety over an 8-week period.

Level 1

TABLE 2 | Medical conditions.

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
The influence of medical art therapy on quality of life and compliance of medical treatment of patients with advanced heart failure	Sela et al. (2011)	N = 20 Randomly assigned to Intervention group – Art Therapy (n = 10) Control group - routine clinical visit only (n = 10).	Patients with advanced heart failure.	A medical art therapist guided group A to express their feelings using art materials.	Met weekly for 8 weeks (First and last visits were individual, 6 group meetings).	Baseline, immediately after.	The Ulman, (a MAT diagnostic tool), the Minnesota Living with HF and compliance questionnaires.	Baseline Ulman, compliance and Minnesota scores were similar for the two groups. By the end of the study, the Ulman score improved significantly in the AT group compared to the control group as did the compliance score. In the AT group, the Minnesota score improved significantly in 7 patients and did not change in 3, while in the control group it improved in 2, did not change in 6 and worsened in 2. Level 1
Therapeutic patient education with art therapy: Effectiveness among obese patients	Sudres et al. (2013)	Randomly assigned to N = 170 AT (n = 74) Group 1 - without Group 2 - with AT (n = 96)	Obese patients. Group 1 – Mean age=54.4 Group 2- Mean age = 54.5 The exclusion criteria were the following: diabetes, personality disorder diagnosis, presence of any antipsychotic or personality disorder requiring treatment, and the use of non-stabilized antidepressant or anti-anxiety treatment in the last 6 months.	Structured AT session workshops.	5 sessions, 2 hours each, over 2 weeks	Baseline, at the beginning of TPE program before the AT sessions (T0), after the two-week TPE program (T1) and at follow-up 6 weeks after the end of the TPE program (T2).	Torrance Tests of creative Thinking (TTCT), The Clinical Scale of Mediatized Therapies.	Significant weight loss was observed in both groups after 6 weeks following the TPE program. Group 2 subjects receiving art therapy showed an increase in quantitative indicators of creativity as well qualitative indicators as compared to Group 1 without AT. However, Group 1 without AT displayed a consistent reduction in all quantitative and qualitative indicators of creativity during and after the TPE program. Level 1
Process and Outcome Evaluation of an Art Therapy Program for People Living With HIV/AIDS	Feldman et al. (2014)	Only intervention group – (N=25)	Adults living with HIV/AIDS – Mean age = 44.1, did not receive art therapy services prior to the baseline assessment.	Attended one or more individual or group art therapy sessions or open studio sessions.	One or more sessions.	Baseline and 6-month follow-up.	Depression Severity - The Patient Health Questionnaire (PHQ-9), The clients' health-related quality of life - The Short Form Health Survey (SF-12).	Statistically significant changes from baseline to 6-month follow-up in the desired direction were observed for both of the primary outcomes. Level 3

TABLE 3 | Mental health.

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
Exploratory RCT of art therapy as an adjunctive treatment in schizophrenia	Richardson et al. (2007)	N=90 Randomly assigned to Intervention group – Art Therapy (n = 43) Control group - standard psychiatric care (n = 47)	Adults patients – Intervention group – Mean age = 39.6. Control group – Mean age = 42.6. Diagnosis of chronic schizophrenia of at least two years' duration and excluding those: (i) with organic illness, (ii) with a prior referral to AT services in the previous 2 years, (iii) currently receiving another formal psychological treatment, or (iv) currently admitted to inpatient care.	Group interactive art therapy was conducted according to the guidelines set out in Waller (1993, pp. 22 – 34). Through the availability and use of art materials and associated imagery the therapist promotes a climate in which the service user can learn about and understand those patterns of behavior which are causing distress.	12 weekly sessions of one and a half hours.	Baseline, immediately after, and at 6- month follow up.	General socio-demographic, clinical and health care utilization information, HONOS Scales rated in collaboration with the CPN, Brief Psychiatric Rating Scale (BPRS), Social Functioning Scale (SFS), Inventory of Interpersonal Problems (IIP-32), Scale for the Assessment of Negative Symptoms (SANS), Lancashire Quality of Life Profile (Perc QoL), Brief Symptom Inventory (BSI).	Art therapy produced a statistically significant positive effect on negative symptoms (assessed by Scale for the Assessment of Negative Symptoms) but had little and non-significant impact on other measures. Level 1
The outcome of short-term psychodynamic art therapy compared to short-term psychodynamic verbal therapy for depressed women	Thyme et al. (2007)	N = 39 Randomly assigned to Art psychotherapy (n= 18) Verbal psychotherapy (n = 21)	Women with depression – aged 19-53 (Mean = 33.8).	Individual art psychotherapy	AT group – average of 15 weeks. VT group - average of 20 weeks.	Baseline, immediately after, 3-month follow-up.	The Impact of Event Scale (IES), The Symptom Check List 90 (SCL-90); Beck Depression Inventory (BDI); Hamilton Rating Scale of Depression (HRSD).	Participants in this study reported fewer depressive symptoms at the termination of psychotherapy compared to the initial level, and they reported even fewer symptoms at the 3-month follow-up. Observer-rated depressive symptoms showed a similar decline. The effect-sizes suggested a moderate to large change. The group variable did not contribute significantly to the analysis. Level 1
Efficacy of Group Art Therapy on Depressive Symptoms in Adult Heterogeneous Psychiatric Outpatients	Chandraiah et al. (2012)	Only intervention group – (N = 18) (Final sample - only 10 participants who attended 4 or more sessions)	Adult psychiatric outpatients aged 18-57 at a university medical center.	Group art therapy (6-8 in a group) - The beginning of each session was devoted to art making, usually 45-60 minutes, and the remaining 30 minutes was reserved for discussion.	8 sessions	Baseline, immediately after.	CES-D questionnaire - measures the level of depression experienced in the past week.	There was a statistically significant difference in the pre-treatment to post-treatment CES-D scores. Level 3

(Continued)

TABLE 3 | Continued

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
Group art therapy as an adjunctive treatment for people with schizophrenia: a randomized controlled trial (MATISSE)	Crawford et al. (2012)	N = 159 Randomly assigned to Intervention – art therapy (n=86) Control – activity groups attended at least one group (n = 73)	Adults aged 18 years or over (Mean = 41), had a clinical diagnosis of schizophrenia, confirmed by an examination of case notes.	Art therapy groups. Participants had up to eight members. Members were given access to a range of art materials and encouraged to use these to express themselves freely.	Weekly sessions of 90 min for an average period of 12 months.	Baseline, 12- and 24- month follow-up.	Completed by the researcher - Global functioning - using the GAF Scale, the Positive and Negative Syndrome (PANSS) Scale, Medication - using the Morisky Scale, the European Quality of Life-5 Dimensions (EQ-5D), the Adult Service Use Schedule (AD-SUS).	No differences in primary outcomes (12 months) were found. Differences in secondary outcomes were not found, except that those referred to an activity group had fewer positive symptoms of schizophrenia at 24 months than those randomized to art therapy.
Moderating factors for the effectiveness of group art therapy for schizophrenia: secondary analysis of data from the MATISSE randomized controlled trial	Leurent et al. (2014)						Completed by the participant - the Social Function Questionnaire (SFQ), the General Well-Being Scale, the Client Satisfaction Questionnaire (CSQ). Completed by the participants' key worker - the four-item Service Engagement Scale (SES), Data on occupational and housing status, Any incidents of suicidal behavior, Global functioning - using the GAF Scale, details of any period of inpatient treatment. The Positive and Negative Syndrome Scale (PANSS), The Morisky scale, The Engagement and Acceptance Scale (EAS), Interview	The clinical effectiveness of group art therapy did not significantly differ between participants with more or less severe negative symptoms or between those who did and did not express a preference for art therapy. Level 1

TABLE 4 | Trauma victims.

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
The Efficacy of Art and Writing Therapy: Increasing Positive Mental Health Outcomes and Participant Retention After Exposure to Traumatic Experience.	Pizarro (2004)	N = 45, Randomly assigned to Write-stress (n = 15) Art-stress (n = 15) Art-control (n = 15)	Undergraduate students. Write-stress – ages 18-20 (Mean = 18.47). Art-stress – ages 17-37 (Mean = 19.87). Art-control – ages 18-20 (Mean = 18.67).	Write/Art-stress - What I would like to have you write/draw about for the next two sessions is your most stressful or traumatic current or past experience. Art control - What I would like you to draw about over the next two sessions is your interpretation of this (photograph of a still life).	Two one-hour sessions were scheduled for each participant. The sessions were at least 1 day apart and at most 10 days apart.	Baseline, 1 month follow-up.	Demographic information, the General Health Questionnaire-28, the Global Measure of Perceived Stress, the Physical Symptoms Inventory, and the Shortened Version of the Profile of Mood States.	The write-stress condition presented a significant decrease in social dysfunction compared to the art-stress condition and to the art-control condition. Participants who completed artwork reported more enjoyment, were more likely to continue with the study, and were more likely to recommend the study to family and friends. The study was unable to demonstrate concrete health benefits from art therapy.
Humor, Self-Attitude, Emotions, and Cognitions in Group Art Therapy with War Veterans.	Kopytin and Lebedev (2013)	N = 112 Randomly assigned to Experimental group (n = 62) Control group (n = 50).	War Veterans aged 25-53 (Mean experimental group = 38; Mean control group = 35). The inclusion criteria were that participants had been diagnosed with having nonpsychotic mental disorders and had been involved in military campaigns. Patients were excluded from the study if they experienced severe mental disorders and were over 55.	Group sessions usually consisted of 5 to 8 patients. Each session was structured with warm-up activities, a main art- based activity with discussion, and closure.	Three times per week in after-lunch sessions that lasted 2.5 hours. The course of art therapy lasted one month and included 12 to 14 sessions.	Baseline, immediately after.	Symptomatic Checklists, SCL-90, Questionnaire of Depressive Conditions, the Integrative Anxiety Test, The self-report General Condition-Activity-Mood Test, The Silver Drawing Test (SDT) and Draw A Story assessment (DAS), The World Health Organization Quality of Life Questionnaire, The Humor scale.	When used as a brief intervention, group art therapy may exert a positive influence on war veterans and particularly on their symptomatic status, personality functioning, cognitive abilities and creativity and quality of life. Although these positive effects also were observed in the control group, they were less evident than in the experimental group. Scores on the DAS and SDT for emotional content, self-image, and cognition significantly increased for the experimental group after one month of art therapy; such increases were absent in the control group.

Level 1

TABLE 5 | Prison inmates.

Article Title	Author (year)	Sample (size and Group groups)	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
Art therapy with prison inmates: A pilot study.	Gussak (2004)	Only intervention group (N = 48)	Male inmates aged 21-63 medium- to maximum-security. Six groups of eight members - art therapy interventions developed from simple to complex and from individual art tasks to more interactive group projects.	Twice a week for 4 weeks.	Baseline, immediately after.	The Draw a Person Picking an Apple from a Tree evaluation - (FEATS), Survey - developed specifically for the pilot study by the primary investigator - seven categories focusing on the inmates' interactions and compliance with prison rules and expectations.	There was significant change in seven of the 14 scales of FEATS: Prominence of Color, Color Fit, Implied Energy, Space, Integration, Details of Objects, and environment and Line Quality. No results regarding the survey.
The effects of art therapy with prison inmates: A follow-up study.	Gussak (2006) -	N = 44 Intervention group (n = 27) Control group (n = 17)	Male inmates aged 21 to 59. Four groups - art therapy interventions developed from simple to complex and from individual art tasks to more interactive group projects.	Once a week for 8 weeks.	Baseline, immediately after.	The Draw a Person Picking an Apple from a Tree evaluation - (FEATS), The Beck Depression Inventory-Short Form (BDI-II).	BDI-II - The experimental group had significantly greater decrease from pretest to posttest than the control group. FEATS - The experimental group's rotation was greater than the control group's rotation.
The effects of art therapy on male and female inmates: Advancing the research base.	Gussak (2009a)	N = 247 Intervention group (n = 98 women + 75 men). Control group (n = 29 women + 45 men)	Inmates Intervention group - women - ages 25-51. Intervention group - men - ages 22-50. Control group - women - ages 20-47. Control group - men - ages 24-51. Medium to maximum adult correctional facilities.	One session period lasted 15 weeks, one session per week.	Baseline, immediately after.	The Beck Depression Inventory-Short Form (BDI-II), the Adult Nowicki-Strickland Locus of Control Scale (ANS), The Draw a Person Picking an Apple from a Tree evaluation - (FEATS)	Overall, the results of the BDI-II and the ANS supported the hypotheses, while the FEATS did not.
Comparing the effectiveness of art therapy on depression and locus of control of male and female inmates.	Gussak (2009b)						The results indicated a trend toward significance in a greater improvement in mood and internal locus of control in female inmates than male inmates.

Level 2

Level 2

TABLE 6 | The Elderly.

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
A Multi-center Randomized Control Group Trial on the Use of Art Therapy for Older People with Dementia	Rusted et al. (2006)	N = 45 Randomly assigned to art therapy or activity groups.	Patients Women – ages 74-92 (Mean=84.05) Men – ages 67-92 (Mean=80.33) diagnosed with mild to severe dementia. Inclusion criteria were diagnosis of dementia (mixed origin), attendance at day care or residential facility, previous diagnosis by consultant psychogeriatrician, confirmatory diagnosis from medical records. Exclusion criteria were additional psychiatric disorders.	Art therapy or activity groups (with a maximum of six participants per group). For the art therapy groups, a group-interactive, psychodynamic approach was employed.	One hour each week for 40 successive weeks.	Six assessment points - (at baseline, ten, 20 and 40 weeks into group work, with one and three months follow-up).	Cornell Scale for Depression in Dementia (CSDD), The Multi Observational Scale for the Elderly (MOSES), The Mini-Mental State Exam (MMSE), The Rivermead Behavioral Memory Test (RBMT), Tests of Everyday Attention (TEA), Benton Fluency Task, Bond-Lader Mood Scale, Skill Builders, Clifton Assessment Procedures for the Elderley (CAPE), the Rating Scale for Aggressive Behaviour in the Elderly.	This research provided clear evidence of positive and durable benefits in aspects of mental alertness, sociability, physical and social engagement in clients with moderate and severe dementia. These changes were quantitatively different from the pattern of effects achieved with a parallel programme of recreational activity. Level 1
Garden walking and art therapy for depression in older adults: a pilot study	McCaffrey et al. (2011)	N = 39 Randomly assigned to Art Therapy (n=13) Group Walking/ Guided Imagery (n=13) Independent Walking (n=13)	Art Therapy – Mean age= 74.30 (S.D.=6.4) Group Walking/ Guided Imagery Mean age= 74.60 (S.D.=4.98) Independent Walking – Mean age 73.90 (S.D.=6.79) Inclusion criteria were that participants had self-diagnosed or health care provider-diagnosed depression, were able to walk approximately 1 mile, were older than 65, and could get to the gardens twice per week for 6 weeks.	The art therapy group met with a certified art therapist. This group began by drawing a self-portrait and presenting their portrait to the entire group. New drawings and discussions took place each week. The independent and guided garden walking groups met on different days at the gardens. Participants in the walk alone group signed in and walked the garden alone.	6 weeks. The art therapy group met twice per week.	Baseline, immediately after.	Geriatric Depression Scale (GDS), <i>Positive- and Negative-Emotion Word Use</i> .	Significant decreases were found in depression for all three groups from pretest to posttest. No significant differences were noted between the groups over time. Post-ive-emotion word use increased and negative-emotion word use decreased. Regardless of intervention group, groups did not differ over time. Level 1

(Continued)

TABLE 6 | Continued

Article Title	Author (year)	Sample (size and groups)	Group Description	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
A randomized, controlled study of the effects of art therapy on older Koreans' Americans' healthy aging	Kim (2013)	N = 50 Randomly assigned to group A, the art therapy intervention group (AG) (n= 21 women and 4 men). Group B, the control group (CG) (n= 18 women and 7 men) Later, assigning them to each group (AG or CG) alternately.	Korean American older individuals – AG- ages 69–87 (Mean=77.64, S.D.=5.51) CG – ages 72–86 (Mean=78.76, S.D.=4.02). From two adult day health care programs (ADHCP)	The structure of the art therapy intervention was based on the psycho-cybernetics approach to art therapy (Nucho, 2003). Each session consisted of 10–15 min for introduction as an “unfreezing” phase, 35–40 min for individual art-making as a “doing and dialoging” phase, and 15–20 min for group discussion as an “ending and integrating” phase	AG - 4 weeks of art therapy at a frequency of three times per week (for a maximum of 12 sessions). The total session time was 60–75 min.	Baseline, immediately after.	The Positive and Negative Affect Schedule (PANAS), the State-Trait Anxiety Inventory (STAI), the Rosenberg Self-Esteem Scale (RSES);	Participants in the AG showed a greater change on the PANAS in a positive direction compared to the CG; Participants in the AG reported a greater decrease in both state and trait anxiety after the art therapy intervention compared to those in the CG; Participants in the AG showed a greater increase in self-esteem after the intervention compared to those in the CG; Level 1

et al., 2008) there was not (level 3). The sample size ranged from 20 to 60 participants. The therapeutic process lasted 9–13 sessions in a group art therapy setting. These studies suggest that art therapy can help healthcare professionals reduce levels of stress, anxiety, and burnout connected to their work.

The third article addresses art therapy for women undergoing fertility treatment (Hughes and da Silva, 2011). The sample only included an intervention group (level 3) consisting of 21 women in a group art therapy setting. This study reported a reduction in anxiety and in feelings of hopelessness. The samples in the studies in this category were relatively small and usually did not include a control group. However, there is potential for further research in this area.

DISCUSSION AND CONCLUSION

The purpose of this review was to assess whether art therapy is effective for adult clients as measured in quantitative studies published from 2000 to 2017. Notably, since the Reynolds et al. (2000) review, the body of knowledge in this field has grown and established itself significantly, and a growing number of RCT studies (level 1) have been conducted with larger sample sizes. The advantage of such studies lies in the lesser likelihood of Type I errors as opposed to other studies with no control group or studies that have a control group but no randomization. Nevertheless, there are still only a small number of studies addressing each population, and these studies differ considerably in terms of the course of the therapeutic process, the proposed interventions and the indices that were examined, hence making a meaningful meta-analysis impossible. The findings however are largely encouraging and show a growing trend toward conducting more carefully designed studies that lend themselves to validation and replication; yet—there is a long road ahead. In the past, the effectiveness of art therapy was noticeable to those involved in the field, but less to other professionals. Today, by contrast, there are impressive published findings in a variety of areas. These studies can help expand the contribution of art therapists in other areas and with other populations.

During our search, we were struck by the large number of articles which appear to present interventions in the field of art therapy, but in fact were conducted by non-certified art therapists or were restricted to a therapeutic intervention of a single session in a manner that would not be considered therapy. The existence of such studies emphasizes the continued need to define, clarify and specify what art therapy is and what it is not, and specifically to clarify that this type of therapy must be composed of ongoing sessions and be conducted by a certified art therapist who meets the criteria defined for the profession (American Art Therapy Association, 2018).

The first two clinical categories dealt with clients who are coping with a variety of medical conditions. In this section, we were surprised by the vast amount of research in the field of art therapy with cancer patients, most of which were categorized as level 1. Art therapy emerges strongly as a way to enhance their quality of life and their ability to cope with a variety of psychological symptoms. Our review supplements previous

TABLE 7 | Clients who face ongoing daily challenges.

Article Title	Author (year)	Sample (size and group)	Intervention & Treatment	Amount and duration of therapy	Assessment Points	Outcome measured	Results
Evaluation and art therapy treatment of the burnout syndrome in oncology units.	Italia et al. (2008).	Only intervention group (N = 20)	Doctors and nurses from the Regional Reference Center for Pediatric Oncology at the University General Hospital.	The program was delivered 13 weekly meetings.	Baseline, immediately after.	The Maslach Burnout Inventory.	Comparing the responses from participants before and after the intervention indicated a statistically significant decreased level of burnout. Level 3
Effects of art therapy on stress and anxiety of employees	Visnola et al. (2010)	N = 60 Intervention group (n = 30) Control group (n = 30)	Health care workers (women), ages 20-69.	The intervention group participated in an art therapy program consisting of three stages: 1) situation determination; 2) acquiring of methods of stress reduction and overcoming of anxiety; 3) awareness of self-conception and strengthening of potential (Visnola, 2009). The sessions were structured.	Nine sessions in total, 18 hours in two months. Baseline, immediately after.	The Stress Questionnaire, the Spielberger examination of anxiety with State-trait Anxiety Inventory Form Y-1, the high performance liquid chromatography method (HPLC Water Alliance with UV detection) to establish levels of cortisol in saliva.	Before and after art therapy in the experimental group, the level of the stress indicator (cortisol) over twenty-four hours and also the state of anxiety decreased significantly. The mean final stress level and situational anxiety for this group were significantly lower than for the control group. No significant changes were found for trait anxiety between groups. Level 2
A pilot study assessing art therapy as a mental health intervention for subfertile women	Hughes and da Silva (2011)	Only intervention group (N=21)	Women (Mean age = 35.7, S.D. = 2.1) attending the Hamilton Health Sciences fertility clinic for ongoing fertility care.	The eight group sessions were semi-structured and employed a different art therapy technique each week. Four to seven women per group.	Two-hour art therapy sessions once weekly, for 8 weeks. Baseline, immediately after.	the Beck Anxiety Inventory, Beck Depression Inventory-II and Beck Hopelessness Scale	Clinically and statistically significant reductions were seen in Beck Depression Inventory-II Scale and Beck Hopelessness Scale, while the change in Beck Anxiety score was not statistically significant. Level 3

reviews in the field (Geue et al., 2010; Wood et al., 2011) and shows that the findings on art therapy with cancer patients are primarily based on higher levels of evidence studies with randomization and relatively large samples.

The second category, which dealt with clients with a range of medical problems, was intended primarily to list the preliminary research in this field, due to the wide variability between the different populations. The differences in the populations treated suggests that, the measurement tools should be adapted to each type of medical issue. The only instrument that could possibly be applied to all these populations in future research is one that measures improvement in quality of life. It is surprising to note that unlike research on cancer patients, which has been considerable, there have been few studies on individuals with other medical conditions.

The third category dealt with clients with mental health issues. In this category we focused solely on adult clients (as opposed to children which will be reviewed in a separate article) and differentiated from the elderly (category 6). In addition, they were separated from clients coping with trauma (category 4). As a result, a relatively small number of studies met the strict criteria of this review regarding what could be defined as art therapy for clients with mental health issues, although some of the studies had large sample sizes and showed a higher level of evidence. For clients coping with schizophrenia, the reviewed findings are not optimistic. These data are congruent with the many articles on psychotherapy that have addressed this population and have emphasized the complexity of treating such individuals (Pfammatter et al., 2006). Studies have shown that the most effective therapeutic approach for this population appears to be cognitive-behavioral (Turner et al., 2014). Thus, future work should examine the effectiveness of the cognitive-behavioral approach in art therapy for this population. More research is also needed to better understand how art therapy can be effective with clients experiencing other mental health issues.

The fourth category addressed clients coping with trauma. While there have been few studies in this field, all of them are in a higher level of evidence. It is important to note that these studies did not assess post-traumatic stress disorder (PTSD), but rather individuals who have dealt with traumatic events. Even though the first study (Pizarro, 2004) did not confirm the effectiveness of art therapy, the limited number of sessions with each client may have been a major factor. When dealing with trauma, there is a need for thorough processing of the experience, and it is quite possible that two sessions were insufficient. The second study (Kopytin and Lebedev, 2013) reported that art therapy was beneficial when the intervention lasted longer. These data are consistent with the Schouten et al. (2015) review. Certain studies reviewed by Schouten et al. (2015) were not mentioned in our review because some were not published as articles, and others included single session interventions that were not led by a certified art therapist.

The fifth category addressed prison inmates. In this field, it is worth mentioning the work of Gussak, a researcher who has studied the field and conducted several studies with an increasing number of participants. His findings undoubtedly point to the potential of art therapy for inmates particularly in long term interventions.

The sixth category addressed the elderly. The field of geriatric art therapy has been gaining momentum in recent years (Im and Lee, 2014; Wang and Li, 2016). It is clear from the articles that group therapy sessions are particularly suitable for these clients and that it is important to continue conducting research to target effective intervention methods for this population. The research findings certainly indicate the potential of this field.

The seventh and final category dealt with clients who are facing daily challenges in their lives. The findings suggest that art therapy can be a suitable form of treatment and a way to mitigate issues such as stress and burnout at work.

Overall, this review documents the extensive research conducted in recent years; although qualitative studies were not included in this article, there is no doubt that using a variety of research methods can help expand knowledge in the field. As concerns quantitative studies, the review examined the effectiveness of art therapy for adult clients from research in the field from recent years and with reference to seven clinical categories.

The current review has several limitations. First, due to the small number of studies in the field, it includes various levels of quantitative studies. Some lack comparison groups and others include comparison groups with other treatment methods (for example verbal therapy). This variability makes it difficult to generalize across findings, but not mentioning these studies would have led to the inclusion of an even smaller number of studies. Second, in many studies there are several indices of varying types (questionnaires, drawings, physiological indices). Occasionally, only some of these indices led to demonstrable indications of the effectiveness of art therapy. Due to the complexity of the findings, we were not always able to detail these subtleties and challenges in the current review, and future researchers interested in the field should examine these specific studies closely before conducting further research on the same population. In addition, due to the limited number of studies in this field, we needed to combine various subjects in certain cases, make decisions, and create artificial categories based on our professional knowledge and judgment. For example, the article on female infertility (Hughes and da Silva, 2011) was placed in the seventh category of ongoing and daily challenges, and not in the second category of medical problems, due to the feasibility of this condition for various reasons, which are not necessarily medical.

Research in the field can be expanded in several ways. First, art therapy is a very broad domain that covers diverse populations, some of which have not yet been studied at all in the context of treatment effectiveness. Second, based on the conclusions derived from this review future studies should be planned so that they are performed by a certified art therapist, over a continuous period of time and on large enough samples. In so doing, within approximately a decade, it should be possible to produce a meaningful meta-analysis based on significant and comparable findings from the field, which could lead to more advanced and specific conclusions. Third, in order to raise the level of research in our field, it is important for researchers to devote time and thought to planning studies at the highest level (level 1). Large samples are not enough; one should also consider well-controlled studies (RCT), the blindness of the experiment, the blindness

of the participants and the experimenters to the purpose of the research, the division of research groups and so on (Liebherz et al., 2016; Munder and Barth, 2018). Finally, it is of great importance that researchers will select valid and reliable research tools that have been used extensively.

This documentation of the numerous studies on the effectiveness of art therapy was long and complex, but also filled

us with hope. We are optimistic that this article will take the field one step further in this direction.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Associations Between Perception of Parental Behavior and “Person Picking an Apple From a Tree” Drawings Among Children With and Without Special Educational Needs (SEN)

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OPEN ACCESS

Edited by:

David Gussak,
Florida State University, United States

Reviewed by:

Sheila Lorenzo De La Peña,
Florida State Hospital, United States
Amy Bucciarelli,
University of Florida, United States

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 31 May 2018

Accepted: 13 August 2018

Published: 04 September 2018

Citation:

Bat Or M, Papadaki A, Shalev O and
Kourkoutas E (2018) Associations
Between Perception of Parental
Behavior and “Person Picking an
Apple From a Tree” Drawings Among
Children With and Without Special
Educational Needs (SEN).
Front. Psychol. 9:1613.
doi: 10.3389/fpsyg.2018.01613

The present study examines and compares associations between perceptions of parental acceptance/rejection in 191 Greek school age children (84 inclusion class students and 107 typical class students, age range 10–12), and their “Person Picking an Apple from a Tree” (PPAT) drawings. Perception of parental behavior was measured by the “Parental Acceptance-Rejection Questionnaire” (Rohner and Khaleque, 2005). Drawing content was analyzed quantitatively according to a reliable rating system called the Symbolic Content in PPAT drawings (SC-PPAT: Bat Or et al., 2014, 2017). We employed k-means cluster analysis and obtained three relatively discrete PPAT scripts. Drawing content elements and scripts were found to be associated with children’s perceptions of parental behavior; these associations were found mainly among children with special educational needs (SEN) and boys. Results are discussed in terms of children’s subjective experience, clinical implications, and future research directions.

Keywords: parental acceptance-rejection, children, PPAT drawings, special educational needs, gender difference

INTRODUCTION

Children’s Perceptions of Parental Acceptance-Rejection

Research based on a range of different theories has shown consistent and reliable empirical associations between the quality of parental caregiving and child development and psychosocial functioning (Collins et al., 2002), including social competence (e.g., Attili et al., 2010), school performance (e.g., Véronneau and Dishion, 2010), and well-being (e.g., van der Kaap-Deeder et al., 2017). One of the cornerstones of the parent-child relationship is parental warmth and control (for an overview see Maccoby, 2015). In line with this, the IPARTheory (Rohner, 2016) is an evidence-based theory of socialization and development that focuses mostly on the effects of perceived parental acceptance-rejection in childhood (Rohner, 1986, 2015). Parental acceptance is demonstrated through love, affection, care, comfort, support, or nurturance of children, while parental rejection is indicated by the absence or withdrawal of parental warmth, love, or affection

(Khaleque, 2015). According to Rohner (1980, 2004), children's perceptions of parental acceptance-rejection fall within four universal categories: (a) *warmth/affection* – conveyed to the child through physical, verbal, and symbolic parental behaviors; (b) *hostility/aggression* – either physical, verbal, active and/or passive, and problems with the management of hostility and aggression; (c) *indifference/neglect* – a lack of parental concern or interest in the child; and (d) *undifferentiated rejection* – the child's belief that his/her parent/s do not really care about him or her. While research has relied on parents as the main source of information, there may be gaps between parents' and children's perception of parenting behavior (Roe et al., 2006). The child's subjective perception of parental caregiving can serve as an accurate tool for predicting a child's behavioral outcomes (e.g., Abar et al., 2015). Numerous studies using diverse research methods have found that children's perceptions of their family relationships are related to child adjustment (e.g., Grolnick et al., 1991; Cummings and Davies, 1994; Dunn et al., 2002; Ratelle et al., 2004).

Two meta-analyses found that children who perceived themselves as accepted by their parents tended to have socially acceptable behaviors and positive personality characteristics (Khaleque and Rohner, 2012; Khaleque, 2013). At the same time, empirical studies worldwide show a correlation between parental rejection and children's psychological maladjustment (Miles and Harold, 2003; Putnick et al., 2015); behavioral problems, including conduct disorder, externalizing behaviors, and delinquency (Rohner and Britner, 2002); psychological disorders (Dwairy, 2010); and decreased school performance (Putnick et al., 2015). These findings were consistent regardless of culture, age, and gender (Khaleque and Rohner, 2012). However, children's subjective experience of their relationship with their parents has implicit and non-verbal aspects (Maier et al., 2004) that are not detected through self-report tools; nevertheless, these perceptions of acceptance-rejection have been investigated mainly through the use of verbal tools only, such as interviews and self-report questionnaires (e.g., Rohner, 2015). Importantly, the child's experience of parental rejection or indifference is emotionally painful and thus it may be difficult to capture it through direct and explicit ways. Moreover, children with specific cognitive and/or emotional challenges, such as special educational needs (SEN), may also have difficulty verbally expressing their relational experience.

The Expression of Relational Experience of Children With SEN

SEN students in Greece are identified during the first year of primary school, when most of them (about 70%) require the extra support provided by an inclusion class in order to remain in a regular school and fulfill mainstream educational requirements (Koutrouba et al., 2008). SEN students with severe disabilities are placed in special education schools, and not in inclusion classes. SEN students include children with learning difficulties, learning disabilities (specific or general), ADHD, and/or emotional-behavioral (internalizing and externalizing) problems. Regarding the well-being of parents of SEN students, there is evidence of higher parental stress (e.g.,

Bonifacci et al., 2014), anxiety, and/or depression levels (Karande et al., 2009). Mothers of children with learning disabilities displayed more avoidance coping behaviors than mothers of typically developing children (Al-Yagon, 2007). Although the expectation might be that SEN students would report higher parental rejection, studies have shown that there was no difference between the self-reports of SEN and non-SEN students (e.g., Bonifacci et al., 2016). This finding can be due to various reasons, some which address the difficulties of SEN students; for instance, children with behavioral problems may experience difficulties in the verbal processing and expression of negative emotions (Hill and Sharp, 2015). Therefore, these children may process and/or express their perceived parental rejection via non-verbal means, for example through the manifestation of behavioral problems that are described in research as outcome variables (Cen and Aytac, 2017). Clinical practice descriptions reveal that children with SEN express painful emotional experiences relating to close relationships through non-verbal activities such as play (Robinson et al., 2017), and expressive art activities (Crimmins, 2006; Bat Or, 2015). We might assume that children with SEN may communicate painful and emotionally laden relational experiences with their parents through their drawings.

Children's Drawings as a Mean of Communicating Their Relational Experience

Drawing is a natural activity through which children express and communicate their experiences (Malchiodi, 1998). Thus, children's drawings have been used to understand children's subjective experiences in clinical practice (e.g., Linesch, 1994; Ball, 2002) and research (e.g., Gross and Hayne, 1998). McGrath and Carroll (2012) propose that drawing tasks be considered *broadband implicit techniques* (BITs), considering that BITs are performance-based tasks that are primarily data-gathering techniques, rather than standardized tests. BITs provide access to mental representations via multiple information channels, including automatic or poorly self-observed mental activities (McGrath and Carroll, 2012). From a psychoanalytic perspective, the content of a drawing, like dreams, conveys multiple meanings (Segal, 1991) and contains manifest as well as latent (hidden) content (Lusebrink, 1990). The images in a drawing can represent thinking, attitudes, emotions, and reflections about human situations and experiences (Milner, 1950; Vass, 2012).

Many studies have demonstrated associations between children's relational experiences and their drawings; for example, examination of family drawings as representations of attachment in middle childhood confirmed that attachment classifications based on interpretations of combined features of the drawings were related to children's attachment histories (e.g., Fury et al., 1997; Goldner and Scharf, 2011). Kinetic Family Drawings (KFD: Burns and Kaufman, 1970) were found to represent children's relational experiences, for example, parental dysfunction as related to alcoholism (Holt and Kaiser, 2001). However, the request to draw a family might be experienced by the individual as too direct, and thus may activate defenses (Kaiser, 1996).

One of the solutions for this potential limitation is to ask the individual to draw a subject that would elicit the identified target material indirectly, for example the Bird Nest Drawing (BND: Kaiser, 1996). Accumulating studies of BND drawings show associations between the BND and children's attachment representations, in particular through aggregations of indicators and global ratings (e.g., Goldner, 2014). However, drawings that contain inanimate objects may also reflect and communicate the child's relational representations; for example, the house in the House-Tree-Person technique (Buck, 1948; Buck, 1986) was considered to reflect the child's family relationships and home life, among other issues. Additionally, relationships between drawn objects on a single page are also significant when assessing a child's sense of subjectivity (Cruz and Feder, 2013).

In the present study, we examined children's perceptions of parental acceptance-rejection by means of a neutral structural drawing, "Person Picking an Apple from a Tree" (PPAT, Gantt, 1990, Unpublished), which incorporates the theme of a person in the act of reaching a goal (the apple) within a relational context of three objects (person, tree, and apple). Until recently, PPAT drawings were studied mainly for their formal elements, by using the Formal Elements Art Therapy scale (FEATS: Gantt and Tabone, 1998). However, latest PPAT analyses include symbolic content too, using a reliable scoring system entitled the Symbolic-Content rating scale (SC-PPAT: Bat Or et al., 2017). The SC-PPAT was developed according to careful phenomenological observation of PPAT drawing content, which resulted in distilled scales that measure tree characteristics (for example, strength degree), personal features (for instance, degree of activity), and the tree-person relationship (for example, the position of the trunk in relation to the person). Our rationale was that the three objects in the drawing might reflect early relationships; for example, mental representations of the mother-father-baby triangle and the nature of the various cooperative or disruptive alliances within it (Fivaz-Depeursinge and Philipp, 2014). Mental representations of relationships were considered to be scripts, which are sequences of knowledge for given situations/environments that guide the individual's own expectations and behaviors (Waters and Waters, 2006). In line with this, PPAT drawings of secure individuals (whose security may indicate parental acceptance) tended to depict a cooperative script. In contrast, insecure individuals presented non-coherent script: for example, a person reaching toward a tree whose apples are on the side further away from the person (Bat Or et al., 2015). Exploratory factor analysis of the SC-PPAT scales in a sample of adults ($N = 215$) yielded three main factors: *tree-potency* (the tree's strength and abundance of fruit, which ranges between high to low tree potency), *person agency* (the degree in which the person is active and successful in reaching the apple), and *tree-accessibility* (the degree in which the tree 'eases'¹ the picking process, for instance by bending the tree-trunk toward the drawn person) (Bat Or and Ishai, 2016). When the three factors represent a positive direction, the visual script of

the drawing reflects reciprocity and promotes a common goal (a successful apple picking). In relation to children's PPAT, there is no quantitative study, to our knowledge, that associates between relational aspects relating to school age children and PPAT content. A study that examined associations between emotional and cognitive problems of preschool children and their PPAT found gender differences: SC-PPAT scales were found negatively associated in relation to boys' emotional and behavioral problems as compared to girls' cognitive problems (Bat Or et al., 2014). The present study aimed to explore school age children's PPAT and their mental representations of parental relationships. Based on existing literature, we speculated that children who feel rejected by their parents might draw a PPAT script depicting less cooperation between the drawn objects. Gender differences were also analyzed, though we had no specific hypothesis in mind when we began the study.

Our research hypotheses were:

- (1) Perceptions of negative parental caregiving will be associated with low reciprocity PPAT scripts, represented by mixed scores on main factors of the PPAT drawings (for example, a low-potent tree with a drawn person demonstrating agency); positive parental caregiving will be associated with a reciprocal and coherent PPAT script (for instance, a potent and accessible tree with a person who has agency).
- (2) More associations will be found between perceived parental acceptance-rejection and PPAT drawings among children with SEN than among children without SEN.

MATERIALS AND METHODS

Participants

The sample of 191 Greek fifth and sixth graders (age range 10–12) was drawn from a large research project that included 644 children that were randomly selected from public schools in three prefectures of the island of Crete (Heraklion, Chania, and Rethymnon). Eighty-six percent of the participants were urban residents and 14% semi-urban residents. Since only 13% of the original sample included students from inclusion classes ($N = 84$), we randomly created a matching group ($N = 107$) that reflected a distribution of gender and class similar to that of inclusion class group. The inclusion class group was comprised of 70% boys and 30% girls, so the matching group was similarly constructed and contained 65% boys and 35% girls. N.s differences were found between the two groups in terms of gender and class distribution.

Instruments

Parental Acceptance-Rejection Questionnaire (Child PARQ)

Parental Acceptance-Rejection Questionnaire (Child PARQ) (Rohner, 1990; Adaptation in Greek in Demetriou and Christodoulides, 2006; Giovazolias et al., 2010). The current study used the short form of the Parental Acceptance-Rejection

¹It is mostly slightly easing, such as a gentle cooperative gesture, and not a significant rotation, that was described by Gantt and Tabone (1998), which characterizes pathology.

Questionnaire: Child version (*Child PARQ*: Mother version, *Child PARQ*: Father version; Rohner and Khaleque, 2005). The *Child PARQ* short version encompasses 24 items and asks children to interpret their caregiver's behavior through their own personal experiences. Participants were asked to evaluate each statement on a four-point Likert scale ranging from 1 (*almost never true*) to 4 (*almost always true*). The scales were summed and keyed in the direction of perceived rejection. Mother and Father *Child PARQ* questionnaires are identical. The Warmth/Affection Scale is composed of eight items, for example, "My father/mother says nice things about me." Scores were inverted, thus high scores indicate lack of parental Warmth/Affection. The Hostility/Aggression Scale is composed of six statements, for example, "My father/mother hits me, even when I do not deserve it." The Indifference/Neglect Scale has six items, including statements such as "My father/mother pays no attention to me." Finally, the Undifferentiated Rejection Scale incorporates four statements such as "My father/mother seems to dislike me." The Greek *Child PARQ* was found to be a reliable and valid instrument (Tsaousis et al., 2012; Artemis and Touloumakos, 2016). In the current study, the internal consistency of the total *PARQ* scores of mothers and fathers in each sub-scale were

good (Cronbach's alphas were 0.853 and 0.851, respectively, $N = 644$).

Person Picking an Apple From a Tree" Drawing Task

"Person Picking an Apple from a Tree" drawing task (Gantt, 1990, Unpublished). Although the current study did not use the FEATS scoring system, we followed the instructions proposed by Gantt and Tabone (1998) for administration of the PPAT process. Accordingly, participants were given white sheets of paper (21 by 29.5 cm) and markers in 12 colors (red, orange, blue, turquoise, green, dark green, hot pink, gray, purple, brown, yellow, and black), and were asked to draw "a person picking an apple from a tree" (Gantt and Tabone, 1998). Due to the slightly different composition of colors in the 12 pack markers sold in Greece, the gray-colored marker replaced the magenta color noted in the original Gantt and Tabone (1998) instructions.

The 'Symbolic Contents in "Person Picking an Apple from a Tree" for school-age children' (SC-PPAT/c2 Bat Or et al., 2017), comprises nine Likert-scales that range between 0 (the rated feature is absent) and 5 or 6 (the rated feature at its maximum). As can be seen in **Table 1**, the scales measure three central aspects of the PPAT drawing: characteristics of the tree (for example the number of apples on the tree); characteristics of the person

TABLE 1 | Descriptive statistics and interrater reliability for SC-PPAT/c2 scores.

Scale number	Measure	Points on Likert scale	Score number 1	Score number 5 or 6	Mean ($N = 191$)	SD ($n = 191$)	Intra-class correlation coefficient ($N = 64$)
1	Quantity of apples on the tree	6	A tree with no apples	A tree with more than 10 apples	4.96	1.43	0.984
2	Strength vs. weakness of tree	5	A very weak tree	A very strong tree	3.65	1.05	0.958
3	The degree to which the person is active/passive in apple-picking	6	The person clearly avoids picking	Extraordinary picking process effort	3.86	1.15	0.903
4	Degree of success in picking the apple	5	No contact between the person and an apple	The person holds one or more apples, disconnected from the tree	2.87	1.40	0.929
5	Contact between person and tree	5	No contact between the person and the tree	Person is contained within the contour of the tree	1.59	0.71	0.986
6	Height ratio between person and tree	6	The person is significantly shorter than the tree (1:5 or more)	The person is taller than the tree (2:1)	3.02	1.27	0.954
7	Position of the tree trunk in relation to the person	5	The tree trunk is clearly inclined away from the person	The tree trunk is clearly inclined toward the person	2.87	0.72	0.958
8	Placement of branches in relation to the person (close vs. far)	5	Branches or treetop are inclined away from the person	Branches are coming out of trunk toward the person	2.80	1.08	0.971
9	The extent to which apples are spread out on the tree either close or far from the person	5	All apples are placed on the side farther from the person	All apples are placed on the side closer to the person	3.34	1.04	0.940

(for instance, the degree in which a person is active/passive in the apple picking process); and characteristics of the tree-person relationship (for example, the position of the tree trunk in relation to the person).

The drawings ($N = 644$) were rated according to the SC-PPAT/c2 rating system; two trained raters coded 10% of each of the drawings, until they achieved substantial agreement. The inter-rater reliabilities were calculated by the Intra-Class Correlation coefficient, which ranged between good and excellent, as can be seen in **Table 1**.

Procedure

Researchers initially secured approval from the Educational Institute of the Ministry of Education as well as the ethics committee of the University of Crete. Furthermore, meetings were held with the parents of the participants to inform them of the purposes of this research. Parents were asked to sign consent forms. The research was conducted in the schools, and researchers entered the class accompanied by the class teacher. On the first day, the researchers introduced themselves and administered the *Child PARQ*-mother/father questionnaires, and on the second day they administered the PPAT drawing task. Participants were individually asked to draw a person picking an apple from a tree; no time limitation was set. Researchers assured the children that there were no right or wrong answers, and no drawing would be considered an ugly drawing. They informed the children that the questionnaires and the drawings would be collected by the researchers.

RESULTS

Descriptive Analyses and Preliminary Analyses

SC-PPAT: Descriptive, Factor Analysis, and Cluster Analysis

After inter-rater reliability was achieved, the raters coded the remaining drawings individually. As can be seen in **Table 1**, the average drawing in the current study includes a tree with equal strengths and weaknesses that bears five to six apples equally distributed. The tree inclines slightly away from the person, although the branches are neutrally placed in regard to the person's placement. The person is shorter than the tree (about 1:3), partially active in the picking process, and touches the apple but not the tree. An example for the average drawing can be seen in **Figure 1**. Considering that in this instance Greek children were asked to draw an apple tree, we note that most of the children drew a typical apple tree, in height, proportions, fruit, and form.

Confirmatory Factor Analysis (CFA) was conducted of the original sample $N = 644$ (see **Table 2**) using AMOS software version 23. In comparing the theoretical model (leaning on previous data, Bat Or and Ishai, 2016) and the empirical model, three indices showed good fit; that is, no difference was detected between the two models.

As shown in **Table 2**, three main factors were obtained, each consisting of two scales. 'Person's Agency' pertains to the

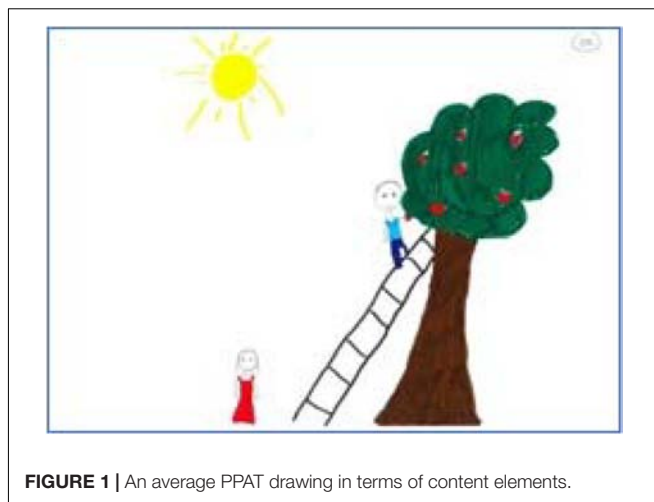


FIGURE 1 | An average PPAT drawing in terms of content elements.

TABLE 2 | Confirmatory factor analysis of SC-PPAT/c2 scales.

Measure		Factor	Estimate
Quantity of apples on the tree	<—	Tree's potency	0.319***
Strength vs. weakness of tree	<—	Tree's potency	0.914***
The degree to which the person is active/passive in apple-picking	<—	Person's agency	0.719***
Contact between person and tree	<—	Person's agency	0.645***
Position of the tree trunk in relation to the person	<—	Accessibility of tree	0.535***
Placement of branches in relation to the person	<—	Accessibility of tree	0.591***

$\chi^2 (7) = 11.94$, $p = 0.103$, $CFI = 0.98$, $NFI = 0.96$, $RMSEA = 0.033$ [90% CIL.00-0.06]. *** $p < 0.001$.

drawn person's activity/passivity in the apple picking process, and contact level between person and tree. 'Tree Accessibility' pertains to the tree's orientation toward the drawn person, including inclination of the tree trunk, and placement of branches in relation to the person. Finally, 'Tree Potency' pertains to the characteristics of the tree, including its strength, and the number of apples it bears. These factors yield a total of 68% of the explained variance.

Inter-factor associations were also measured for our sample ($N = 191$), showing only one medium positive association between the drawn 'Person's Agency' and the 'Tree's Accessibility' ($r = 0.249$, $p < 0.001$). Specifically, the stronger the person's agency in the apple picking process, the more accessible the tree is to the person.

After obtaining the three factors, we subjected the data to k-means Cluster Analysis ($N = 191$) to generate relatively discrete clusters of PPAT narrative. Drawings were grouped according to the magnitude of the main factors scores within different combinations of main factors. **Table 3** describes the clusters' centers in terms of the main factors of the drawings, and **Table 4**, the one-way ANOVA showing significant differences between the three main factors in each cluster. The significance of **Tables 3** and **4** can be best illustrated by the bar graph in **Figure 2**, which represents the three clusters in terms of the Z scores of three

PPAT drawings scripts. These scripts will be detailed, together with accompanying drawings, below.

To summarize, three clusters were identified: **Figure 3** illustrates the cluster A drawing ($n = 55$) comprised of a potent tree (strong and abundant in fruit) but not accessible (for example, inclining in the opposite direction) with a person with low agency (for example, a passive figure). This cluster was labeled “*Not joining*” because the tree and the person are not synchronized in their positions/motions in relation to the apple picking. **Figure 4** illustrates the script in cluster B drawings ($n = 47$), composed of a non-potent tree (for example, weak with only a few apples), neutral in accessibility (a bit more accessible than in cluster A, however, tree trunk is upright), and a person with medium agency (partially active in the picking process); this cluster was labeled “*Moderate efforts*.” Finally, cluster C drawings ($n = 89$) depicted a reciprocal script with a potent and accessible tree, and a person with high agency (see **Figure 5**). This cluster was labeled “*Reciprocity and actualization*.” In terms of the PPAT script, cluster C describes the most coherent scrip in relation to the reciprocity of the drawn objects, while clusters A and B reveal non-coherent scripts and lower reciprocity between the drawn objects.

Table 5 presents the range of scores, means, and standard deviations, as well as minimum and maximum scores for each PARQ category. The descriptive statistics reveal that on average, children reported lower perceived parental rejection, as manifested in low scores on Hostility/Aggression, Indifference/Neglect, and Undifferentiated/Rejected scales. The Warmth/Affection and Lack of Parental Warmth/Affection scales were inverted. Low to medium correlations (r range 0.266–0.710, $p < 0.001$), were found in the scores of fathers and mothers, thus showing similarity and

differences between the perceptions of mothers and that of fathers.

Preliminary analysis using the Independent-Sample T -test revealed that child's age had no effect on perceived parental acceptance-rejection components. We employed MANOVA to determine if child's gender and the type of class (inclusion class vs. typical class) were significantly related to perceived parental acceptance-rejection components (for mothers and fathers separately). MANOVA revealed no differences.

Gender, age, and class type differences and associations with PPAT drawings: Independent-Sample T -tests revealed that the child's age had no effect on the drawing. We used MANOVA to determine if child's gender and class type were significantly related to the PPAT drawings' main factors and found no significant difference.

Hypotheses Testing

Associations Between Perceived Parental Acceptance-Rejection and Content of PPAT Drawings

We first describe the results for the whole sample, and then results for gender groups. The associations were calculated in two ways: Pearson correlations between main factors of PPAT drawings and the criterion variables, and then associations related to parental acceptance-rejection in terms of the three clusters of drawings.

Pearson correlations between the main factors of PPAT drawings and criterion variables showed one significant negative association between the drawn person's agency and perceived maternal hostility/aggression for the whole sample ($r = -0.278$, $p < 0.001$). This means that the more the child perceived her/his mother as hostile/aggressive, the less the drawn person was active and touched the tree, or, in other words, less competent in picking the apple. We also analyzed the first hypothesis as related to PPAT's three clusters. One-Way ANOVA showed a significant difference between clusters A and C in terms of the children's perceptions of maternal Hostility/Aggression: $F(2, 169) = 4.00$, $p = 0.020$. *Post hoc* analyses found that children who reported their mother as more hostile/aggressive drew a PPAT that suggested a “*Not joining*” script (a potent but less accessible tree, and a person with low agency) in comparison to children who perceived low maternal Hostility/Aggression. Specifically, the latter drew a script of “*Reciprocity and actualization*” (a potent and accessible tree, with a person with agency).

TABLE 3 | Final cluster centers.

PPAT's main factors	Cluster		
	A	B	C
Potency of tree	4.63	2.89	4.86
Agency of person	1.83	2.85	3.22
Accessibility of tree	2.39	3.07	3.00
N	55	47	89

TABLE 4 | One-way ANOVA for factor differences within the three clusters.

		Sum of squares	df	Mean square	F	Sig.	η^2_p
Tree's potency	Between groups	130.032	2	65.016	209.556	<0.001	0.05
	Within groups	58.328	188	0.310			
	Total	188.361	190				
Person's agency	Between groups	68.645	2	34.322	113.205	<0.001	0.66
	Within groups	56.999	188	0.303			
	Total	125.644	190				
Accessibility of tree	Between groups	9.559	2	4.780	9.485	<0.001	0.18
	Within groups	94.735	188	0.504			
	Total	104.295	190				

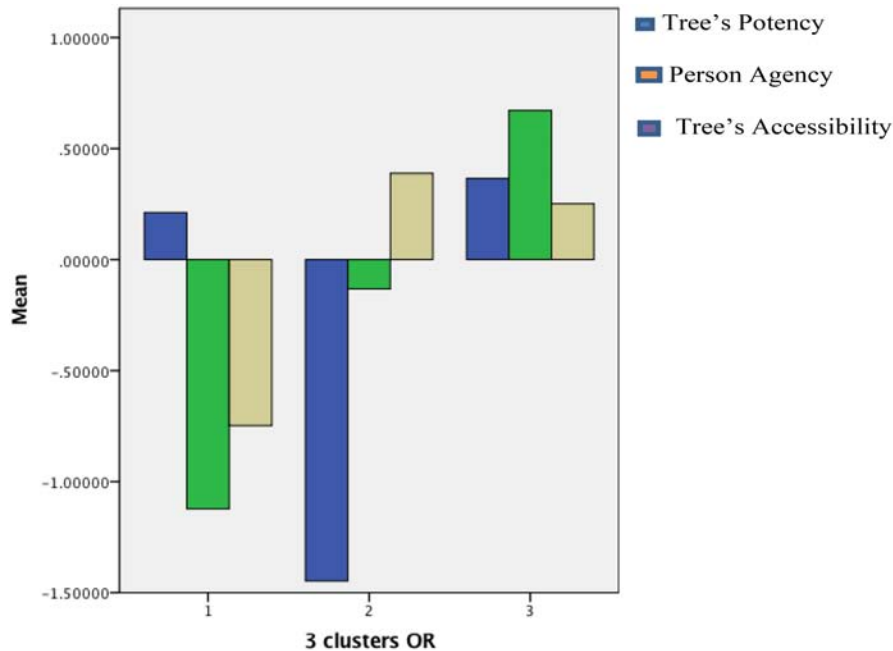


FIGURE 2 | Bar graph representing the three clusters in terms of Z scores.

We further examined these associations in relation to gender. After dividing the sample into groups of boys and girls, we found, – after applying the Bonferroni correction – two significant negative associations between perceived parental acceptance-rejection and PPAT drawings among boys only ($n = 129$). Specifically, the more boys perceived their mothers as hostile/aggressive, and/or as lacking in warmth, the more the drawn person in PPAT lacked agency ($r = -0.340$, $p < 0.001$; $r = -0.265$, $p = 0.004$ accordingly).

In terms of cluster analysis, we found a significant difference between Clusters A and C relating to maternal hostility among boys only. Specifically, a one-Way ANOVA showed significant differences between clusters A and C in terms of the children's perceptions of maternal Hostility/Aggression: $F(2, 111) = 6.32$, $p = 0.002$. *Post hoc* analyses revealed that boys who reported their mother as being more hostile/aggressive drew a PPAT that indicated a “*Not joining*” script; in comparison, boys who reported low maternal Hostility/Aggression drew a script of “*Reciprocity and actualization*.” These results confirm our first hypothesis; however, they also indicate gender differences, namely, that for the most part, associations are found between parental acceptance-rejection and PPAT mainly among boys.

Comparison of the Associations Between Perceived Parental Acceptance-Rejection and PPAT Drawings' Content Among Children With and Without SEN

After splitting the sample according to classroom types, six significant associations were found between criterion variables

and the PPAT drawings of children with SEN, while n.s. associations were found among children without SEN. After a Bonferroni correction, two negative associations were found between ‘Person's Agency’ and maternal Hostility/Aggression ($r = -0.418$, $p < 0.001$), and paternal Hostility/Aggression ($r = -0.324$, $p < 0.001$); In addition, a One-Way ANOVA showed significant differences between clusters B and C in association to perceived paternal Indifference/Neglect: $F(2, 74) = 3.52$, $p = 0.035$. In specific, children with SEN who scored high on paternal Indifference/Neglect tended to draw a PPAT that indicated a script of “*Moderate efforts*” as compared to children with SEN that scored low on paternal Indifference/Neglect and tended to draw a PPAT that suggested “*Reciprocity and actualization*.” These results confirm our second hypothesis.

DISCUSSION

The aims of the present study were twofold: to explore associations between children's perceptions of their parents' behavior toward them and their PPAT drawings, and to examine these associations in relation to classroom type. Analyses of the findings revealed also gender differences. We hypothesized that associations would be found between perceived parental behavior and PPAT content/script; specifically, positive parenting would be related to positive contents and a reciprocal script, and perceptions of negative parental caregiving would be related to PPAT drawings with negative contents and low reciprocity scripts. Associations between children's perceptions of their



FIGURE 3 | Cluster A drawing: "Not joining" script.



FIGURE 4 | Cluster B drawings "Moderate efforts" script.



FIGURE 5 | Cluster C drawings "Reciprocity and actualization" script.

parents' behavior and PPAT drawing content were found mainly among boys and among children with SEN (or both).

TABLE 5 | Descriptive statistics of children's perceptions of paternal and maternal PARQ subscale scores.

	Minimum	Maximum	Mean	SD
Father lack of warmth/affection	8	32	11.92	3.99
Father hostility/aggression	6	24	8.05	2.72
Father indifference/neglect	6	24	9.80	3.15
Father undifferentiated/rejected	4	15	5.57	2.01
Mother lack of warmth/affection	8	32	10.62	3.72
Mother hostility/aggression	6	24	7.87	3.23
Mother indifference/neglect	6	24	8.98	3.08
Mother undifferentiated/rejected	4	16	5.62	2.37

In the whole sample, we found one association between children's perceptions of maternal Hostility/Aggression and the drawing of a person with lower self-agency; nevertheless, further analysis revealed that this association was present among boys only. For this reason, we first discuss gender differences and then discuss the comparison between children with and without SEN. After discussing main findings, limitations and research suggestions, clinical implications are presented.

Associations Between Perceptions of Parental Acceptance-Rejection and the PPAT Drawings of Boys

The present study found that the more boys perceived their mothers as hostile/aggressive, or lacking in warmth, the more the drawn person in their PPAT tended to show lower agency (less active and having limited contact with the tree). No associations were found in the girls' group. This result was further strengthened by using the cluster analysis method to discern between visual scripts: boys who perceived their mothers as most hostile/aggressive tended to draw a non-reciprocal script, which we called a "Not joining" script; in contrast, boys who reported the lowest scores in maternal Hostility/Aggression tended to draw "Reciprocity and Actualization" scripts. Based on developmental norms of 10–12 years old children, their drawings are expected to display intellectual realism (objects drawn are recognizable); however, children of this age still lack the ability to draw visually realistic figures/images (Cox, 1993). Most children from the age of 8 are able to depict a human figure in action (Goodnow, 1978). These norms may further validate our findings, which revealed a link between the child's relational perceptions and the drawing of human figures that display less agency in the picking process.

Parental caregiving and the nature of the child-parent relationship shape the child's internal working models (Grossmann et al., 2006) which in turn determine personal expectations from the outside world, level of trust and sense of safety (Semrud-Clikeman, 2007). Parental acceptance is associated with higher self-esteem of children in their middle childhood (Bornstein, 2002). Furthermore, there is empirical evidence that parents who exhibit high levels of aggression and hostility toward their child are perceived by their child as threats and sources of insecurity (Grych and Fincham, 1990;

Davies and Sturge-Apple, 2007; Repetti et al., 2011). Parental behaviors of this kind can hinder the child's ability to form cooperative relationships (Semrud-Clikeman, 2007; Rudolph, 2009). This can also be explained by a model of emotional intelligence that involves the ability to perceive, understand, and regulate emotions (Mayer and Salovey, 1997). One mechanism through which children learn to manage their own emotions is by modeling the way their parents express and regulate emotions (Morris et al., 2017). On the subject of parental hostility, traditional Greek culture values family loyalty and adherence to group norms (Zervides and Knowles, 2007), and this is linked to controlling child rearing practices (e.g., Papps et al., 1995). We may thus speculate that parental hostility would be associated with lower emotional intelligence and compromised social abilities among children, and these might be reflected in a PPAT drawing that displays a non-joining script.

The results of this study pertaining to the boys' group correspond with findings from Bat Or and Ishai (2016) that showed that PPAT drawings of insecure adults represent less positive and less reciprocal relationships between the drawn objects in comparison to PPAT drawings of secure adults. Moreover, PPAT drawings of boys that reported lower levels of maternal hostility/aggression depicted a coherent script including both a strong and accessible tree with more apples on it and a drawn person who was more active in the picking process. This may reflect the child's inner script of joining and reciprocity.

Yet, the question still remains as to why we found associations only among boys, and not among girls. We suggest that there may be a salient gender difference in children's emotion expression. As a result of gender socialization, the verbal narratives of girls and women are more emotionally laden than those of boys (Fivush, 2007). Specifically, parents use a larger vocabulary of words pertaining to emotions when speaking to their daughters than when conversing with their sons (Fivush, 2007). According to Brody's (1999) theory of gender differences, parents and other socialization agents may respond to boys in ways that dampen and limit emotional expressiveness. Thus, gender socialization may provide girls with more opportunities for emotional discourse than boys (Melzi and Fernández, 2001). It could be speculated that since boys are more restricted in verbal expressions and in sharing their negative emotional experiences than girls, they could communicate their subjective experiences, especially negative emotions, through different means of non-verbal communication, such as physical aggression (see the meta-analysis of Card et al., 2008). In line with this, empirical evidence indicates that boys are more sensitive than girls to harsh physical punishment by parents, as demonstrated by conduct-related problems (Berzenski and Yates, 2013). Additionally, the observed gender difference may be attributed to common Greek sexual stereotypes, especially those related to emotional expression: fearful that they will be considered less masculine, boys tend to show less vulnerability than girls (e.g., Makri-Botsari and Karagianni, 2014).

In light of these findings, we can conjecture that the PPAT drawings allowed the boys to express indirectly their perceptions regarding emotional ties with their parents, and/or their sense

of agency, without having to engage in verbal communication (White et al., 2004). This may also emphasize the particular link between perceived maternal hostility and lack of warmth of boy's mental representations.

Association Between Perceptions of Parental Acceptance-Rejection and PPAT Drawings Among Children With and Without SEN

The results of this study indicate associations between perceptions of parental acceptance-rejection and PPAT drawings among children with SEN; specifically, between perceived paternal and/or maternal hostility/aggression and a drawn person with lower self-agency. In addition, the child's perception of paternal neglect was associated with the "*Moderate efforts*" script, while the lowest scores on paternal neglect were associated with the "*Reciprocity and actualization*" script. No association was found among children without SEN.

The results provide two main insights: the first is that the PPAT drawings of children with SEN revealed stronger affinity to their perceptions of parental acceptance-rejection than the PPAT drawings of children without SEN. Since children with SEN have cognitive and/or emotional-behavioral problems, and/or impaired verbal and non-verbal information processing abilities, we may speculate that the PPAT drawing serves as a channel to process/express parental hostility, neglect, or rejection. Children with SEN have an exceptional and cardinal need for family connectedness and support because they struggle with negative developmental outcomes (Cen and Aytac, 2017), and suffer from affiliate stigma (Banga and Ghosh, 2017). In such cases, they would be strongly affected by parental hostility, neglect, and rejection. Associations found among these children may indicate that children with SEN who experience parental rejection internalize the experience as a mental script in which the underachieving self has lower expectations of cooperation and future success. Regarding associations between paternal neglect and the PPAT scripts, it may be that children expressed their experience of paternal neglect via the drawing's script, where there is either no help (the non-accessible tree), or insufficient actions taken to reach the goal (the partially active human figure), or a lack of resources (the weak tree, with less apples on it). This visual script may serve to highlight a system of relationships that lack mutuality and collaboration.

The second contribution of this study is that it revealed associations between perceptions of father and PPAT drawings solely among children with SEN. Empirical and clinical research show that parenting children with SEN is much more complex because the child's special needs are a source of parental stress (Bonifacci et al., 2016) and a subjective burden (Banga and Ghosh, 2017). Since mothers are the primary caregivers in most families, they assist children with SEN with their homework as a daily activity, which may be potentially stressful for mothers and children alike (Bonifacci et al., 2016). The father may serve, in cases of maternal stress, as a protective agent, and add his unique view and support to the triangle (Fivaz-Depeursinge and Philipp, 2014). In line with this, in a recent study, children

with specific learning disabilities showed higher preference of fathers (Bonifacci et al., 2016). However, when the father is overwhelmed, hostile, irritated, or neglectful, the child may feel deeply abandoned, unloved, and unworthy. Associations found in the present study among children with SEN may reflect the crucial role that a father plays in the child's mind. Further research is needed to examine paternal impact on children with SEN.

Limitations and Directions for Future Research

The present study has some methodological limitations. First, the combination of drawings and self-reported questionnaires is problematic in terms of theoretical validity, since each method (verbal vs. non-verbal) may communicate different representational levels (Bosson et al., 2000; Andreou and Bonoti, 2010). Further to that, while theoretical concepts measured by a self-report questionnaire focus on specific mental phenomena, projective drawings contain multichannel information (McGrath and Carroll, 2012). In a future study, it may be worth measuring children's experience through interviews that capture respondent's defenses, affects, and less conscious layers. In addition, future research should encourage children to provide a verbal narrative for their PPAT so that children's interpretations of their own drawings can also be considered. This may contribute to further understanding their relational perceptions (Matsopoulos et al., 2017). Secondly, although social networks expand significantly in middle childhood (Bornstein, 2002; Blake, 2008), and children spend less time with family members and more with peers and other adults outside of the family, our study did not include children's perceptions of other people close to them. We thus encourage future studies to investigate these perceptions and their association with PPAT drawings; one possible subject is the child's relationship with her/his teacher. Thirdly, in light of previous findings that indicate significant associations between cognitive dysfunctions and PPAT drawings among preschool children (Bat Or et al., 2014), we recommend that a future study include measures of cognitive abilities, in order to control their possible impact on PPAT pictorial content among middle childhood children. In addition, the levels of SEN were not addressed, although they could have an impact on the PPAT drawings in terms of problem solving. And lastly, we must bear in mind assertion Gantt's (2004) that the PPAT drawing captures an emotional/clinical state rather than assesses personality. Accordingly, an additional limitation of this study may relate to the possible impact of parent-child interactions that occurred the morning of the PPAT administration.

Clinical Implications

The present study examined primary school age children, who, being in the latency stage, tend to be less verbal in communicating their experiences and perceptions regarding their attachment relationships to significant others (Blake, 2008). This underscores the importance of using a non-verbal method in the form of art-based tasks so that the clinician can learn and understand the child's subjective experience, even more so, for children with SEN (Kourkoutas et al., 2014). As they are familiar

playful tasks, drawings may serve the child and clinician in the exploration of the child's inner landscapes. The current study reveals associations between PPAT drawings of school age children and their experiences with their parents. Clinicians are thus encouraged to carefully observe the child's drawing and pay attention to the drawings' script (reciprocity and actualization, moderate efforts, and not-joining), rather than searching for single indicators. However, before establishing associations to parental relationships by means of a straightforward "dictionary approach," (Gantt, 2004), the clinician must also consider other aspects, for instance cognitive dysfunctions, motivation, and the alliance between therapist and the child. When examining perception of parental aggression or rejection, we need to take the child's sensitivity into account. Feelings of rejection from a parent may be painful, and hard to express due to shame and self-blame (Harter, 2015). The PPAT drawing task may provide a secure space for exploration of non-reciprocal or excluding relationships. The current study emphasized the possible imprint of parental aggression on the child's mind. Intervention in these cases are crucial, considering that aggressive behavior in the child's family is one of risk factors for psychological problems in childhood and adulthood (Repetti et al., 2011). **Therapeutic changes might be reflected by changes in PPAT drawings scripts. Research is recommended for further exploration of these possibilities.**

Conclusion

The present study has exemplified that factor analysis and clustering methods provide a reliable means of examining the main contents of the drawings, and discerning specific scripts that may be related to the child's relational experience. Parental rejection components were found associated to lower agency of the drawn person, and to non-coherent and non-reciprocal PPAT drawing scripts; in comparison, children that reported on the lowest parental rejection components (meaning parental acceptance components) drew coherent and reciprocal PPAT drawing scripts.

These drawn scripts might be representative of the children's internal working models, and thus influenced by their relational expectations, i.e., their hope to receive assistance from other people, how cooperatively they interact, their self-worth, and their ability to achieve goals (Grossmann et al., 2006). The present study confirms that a broader observation of drawing narratives/script is required to understand the child's subjective relational experience. This is similar to clinical work with clients, where clinicians attempt to gain access to the client's relational scripts through personal narratives (McLeod, 1997). In addition, differences found in relation to gender and SEN underscore the importance of contextual factors in understanding children's drawings.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the Educational Institute of the Ministry of Education ethics committee. The protocol was

approved by the Educational Institute of the Ministry of Education ethics committee. All parents of subjects gave written informed consent in accordance with the Declaration of Helsinki.

AUTHOR CONTRIBUTIONS

MBO together with her group of colleagues have developed the SC-PPAT rating system, and led the process of rating and analyzing drawings. AP Initiated and coordinated the research

project for her Ph.D. research. OS assisted in further refining the rating tool, and focused on the drawings and PARQ for her MA thesis dissertation. EK supervised the whole research.

ACKNOWLEDGMENTS

Special thanks to Mr. Rafi Ishai, for his creative and playful thinking, which opened up new avenues to observe and mentalize the children's drawings.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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How Art Therapists Observe Mental Health Using Formal Elements in Art Products: Structure and Variation as Indicators for Balance and Adaptability

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OPEN ACCESS

Edited by:

David Gussak,
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Reviewed by:

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University of Florida, United States
Sheila Lorenzo De La Peña,
Florida State Hospital, United States

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 29 April 2018

Accepted: 13 August 2018

Published: 05 September 2018

Citation:

Péntzes I, van Hooren S, Dokter D and
Hutschemaekers G (2018) How Art
Therapists Observe Mental Health
Using Formal Elements in Art
Products: Structure and Variation as
Indicators for Balance
and Adaptability.
Front. Psychol. 9:1611.
doi: 10.3389/fpsyg.2018.01611

In clinical practice, formal elements of art products are regularly used in art therapy observation to obtain insight into clients' mental health and provide directions for further treatment. Due to the diversity of formal elements used in existing studies and the inconsistency in the interpretation, it is unclear which formal elements contribute to insight into clients' mental health. In this qualitative study using Constructivist Grounded Theory, eight art therapists were interviewed in-depth to identify which formal elements they observe, how they describe mental health and how they associate formal elements with mental health. Findings of this study show that art therapists in this study observe the combination of movement, dynamic, contour and repetition (i.e., primary formal elements) with mixture of color, figuration and color saturation (i.e., secondary formal elements). Primary and secondary elements interacting together construct the structure and variation of the art product. Art therapists rarely interpret these formal elements in terms of symptoms or diagnosis. Instead, they use concepts such as balance and adaptability (i.e., self-management, openness, flexibility, and creativity). They associate balance, specifically being out of balance, with the severity of the clients' problem and adaptability with clients' strengths and resources. In the conclusion of the article we discuss the findings' implications for practice and further research.

Keywords: art therapy observation, formal elements, art product, adult mental health, qualitative study, grounded theory

INTRODUCTION

Formal elements of art products such as line, color and shape are often used in art therapy observation in youth as well as adult mental health care. The art therapists' underlying assumption seems to be that formal elements reflect clients' mental health problems (e.g., Cohen et al., 1986; Gantt and Tabone, 1998; Hacking, 1999; Conrad et al., 2011; Schoch et al., 2017). Observing formal elements could thus be used by art therapists to formulate their perspective on clients' functioning,

strengths and challenges and support their contribution to the descriptive diagnosis. This could help the art therapist to decide whether art therapy and which art interventions may be beneficial. This interest in the use of formal elements is reflected in a large number of studies (e.g., Elbing and Hacking, 2001; Stuhler-Bauer and Elbing, 2003; Betts, 2005, 2006; Mattson, 2009; Kim et al., 2012; Eytan and Elkis-Abuhoff, 2013; Thyme et al., 2013). These studies, however, demonstrate a wide range of opinions concerning which formal elements are relevant and how they are described and interpreted in art therapy observation and assessment. Also, prior studies used a different number of formal elements. In the diagnostic drawing series (DDS) (Cohen et al., 1986; Cohen, 1986/1994, unpublished) twenty-two formal elements are included. In the formal art therapy scale (FEATS) (Gantt and Tabone, 1998) fourteen formal elements are incorporated, in the descriptive assessment of psychiatric art (DAPA) (Hacking, 1999) five categories, and in the Nürtinger Rating Scale (NRS) (Elbing and Hacking, 2001; Stuhler-Bauer and Elbing, 2003) four categories of twenty-four formal elements. Even if similarities in these formal elements can be recognized, the way they are described differs largely. For example, regarding line some emphasize the quality of the line (Gantt and Tabone, 1998), whereas others emphasize the presence of line versus the absence of line (Cohen et al., 1986). Regarding color, the intensity of color is included in the DAPA (Hacking, 1999), whereas others include the mixture of color (Cohen et al., 1986). Additionally, diversity can be recognized in the methods used to observe and assess the formal elements. In some studies, open observation of formal elements is used to inquire into an in-depth understanding of the individual client (Stuhler-Bauer and Elbing, 2003; Thyme et al., 2013; Pénzes et al., 2015; McNiff in Gilroy et al., 2012). In other studies, specific assessment methods are used such as the DDS, in which an art therapist assesses three drawings that are made with colored pastels according to three different tasks, or the FEATS, in which a drawing made with markers is assessed.

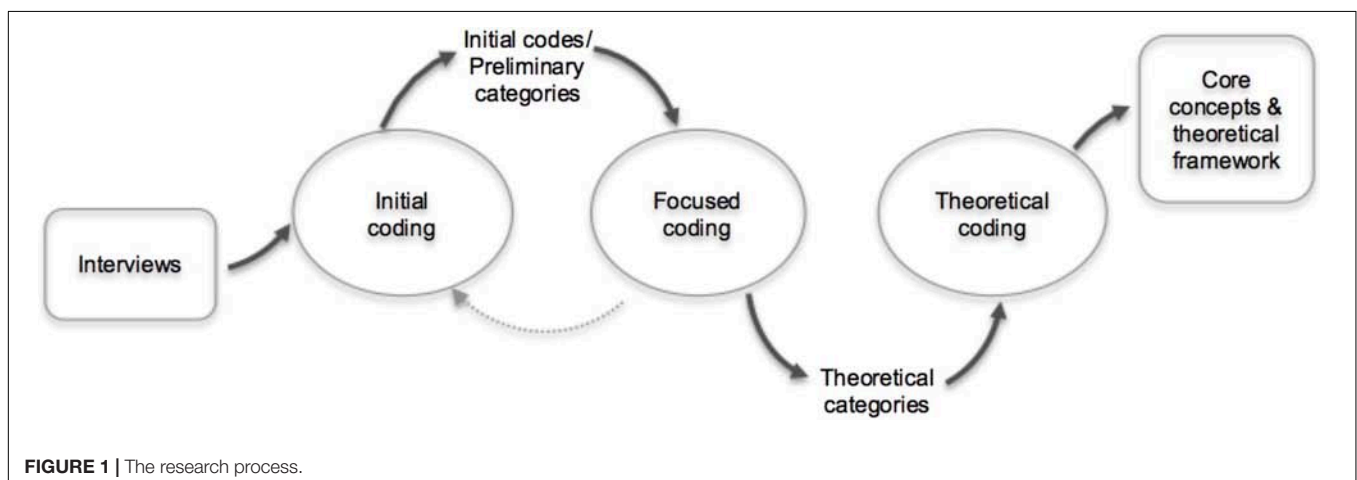
The same kind of diversity is seen in the way formal elements are interpreted. In previous studies, formal elements are related to distinctive psychological features. In most studies,

formal elements are related to disorders of the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the International statistical classification of diseases and related health problems (ICD) (Cohen et al., 1986; Gantt and Tabone, 1998; Hacking, 1999; Kim et al., 2014). Whereas in more recent studies formal elements are related to clients' strengths (Hinz, 2009, 2015; Pénzes et al., 2014, 2015) in line with perspectives on positive mental health (Huber et al., 2016) and recovery (Anthony, 1993). These perspectives have found their way into art therapy observation and assessment (Betts in Gilroy et al., 2012; Wilkinson and Chilton, 2013).

Thus, until now, literature has been far from consistent in presenting tools or suggestions directed toward the clinical use of formal elements in art therapy observation and assessment. Despite this ambiguous evidence, formal elements are very often used in clinical practice. Art therapists use existing art therapy assessment instruments in their own way, frequently developing their own assessment methods with their own favorite formal elements (Claessens et al., 2016). It is, however, unclear which formal elements art therapists find relevant in their clinical practice, how they observe and interpret them, and how art therapists relate formal elements to mental health. In this study, we will systematically investigate these aspects by interviewing art therapists with many years of experience in clinical practice. If indeed art therapists in clinical practice use formal elements in a consistent way, the outcomes of the present study may contribute to the 'body of knowledge' regarding if and how formal elements can be used in art therapy observation and assessment to estimate clients' mental health, and direct further treatment.

MATERIALS AND METHODS

In this study, we used Constructivist Grounded Theory (Charmaz, 2014). This qualitative approach inductively generates theory grounded in empirical data. Data was gathered through interviews with eight very experienced art therapists and analyzed by initial, focused and theoretical coding principles of qualitative analysis (Charmaz, 2014). See **Figure 1**.



Participants

In total eight art therapists were purposely selected from the existing professional network of a research center of arts therapies in the Netherlands¹. Participating art therapists were women with 15- >25 years experience with different populations and settings in adult mental health care. Based on the principle of theoretical sampling (Corbin and Strauss, 2008; Charmaz, 2014) they had different nationalities (Dutch, United States, and United Kingdom), diverse training backgrounds and art therapy perspectives. This diversity provided a critical exploration and variation of the concepts investigated in this study. All art therapists gave written informed consent in accordance with the Declaration of Helsinki.

Data Collection

Art Products

The participating art therapists were asked to observe six art products of five clients with diverse mental health issues (see **Table 4**). Two art products (3 and 6) were made by one client. The art products were randomly selected from a larger sample of 138 products made by 48 clients of 11 art therapists. All clients gave written informed consent in accordance with the Declaration of Helsinki. All three paintings were made with acrylic paint on paper (size: 50 × 40 cm.) over a period of 3 weeks. For the first and second painting, the clients received standardized instructions to paint a landscape; for the third painting clients were asked to create a painting without instruction. For all paintings, clients received the same paint, color palette, brushes and pencils. The sampled clients had just started treatment in art therapy in a range of mental health settings. In this stage of treatment it is common in the Netherlands that the head of treatment (usually a psychologist or psychiatrist) formulates a preliminary DSM-diagnosis that might change during the course of assessment. Art therapists do not formulate a DSM-diagnosis. In a later phase they formulate an art therapy diagnosis and contribute to a general descriptive diagnosis.

Interviews

The art therapists were interviewed using “intensive interviews” (Charmaz, 2014). The aim of these interviews was to explore in detail which formal elements the art therapists observed and how they described mental health. In particular how exactly they related formal elements to what aspects of mental health. The first six interviews took place in the work setting of the art therapist. Interview seven and eight were conducted on Skype. All interviews were videotaped. During the live interviews the art products were spread out randomly. During the Skype interviews the art products were discussed in numerical order. The interviews were conducted with an interview guide based on the research questions of this study. First, every art therapist was asked to look at the art products separately, describe the formal elements and describe the first impression she gained about the client. Second, more general questions were asked about how she would define the concept of mental health.

¹<http://www.kenvak.nl/en/>

Finally, every art therapist was asked how she would relate the formal elements of the art product to various aspects of mental health.

This guide was used as a flexible structure to ensure detailed exploration of the art therapists’ view on formal elements of the art product, mental health and the interrelatedness of formal elements and mental health. Open and investigative questions (Charmaz, 2014) were asked to pinpoint these relationships in order to gain an understanding of the diagnostic value of formal elements of art products in art therapy observation; which formal elements *exactly* are important and how are they related to *exactly* which aspects of clients’ mental health?

Data Analysis

Initial Coding

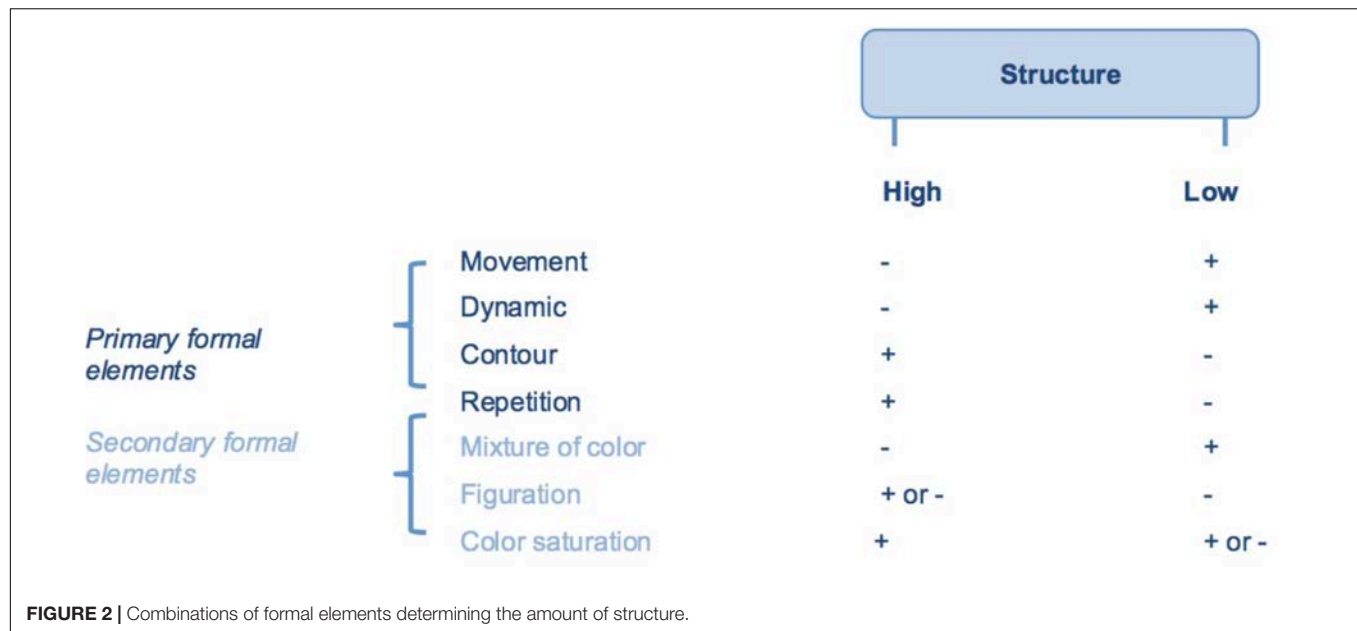
After full transcription of the interviews, text fragments were organized according to the topics of the interview guide. These topics, (1) formal elements, (2) mental health and (3) relationship between formal elements and mental health, were used as ‘sensitizing concepts’ (Charmaz, 2014). First, incident-by-incident coding took place; within each interview, each art product separately was analyzed. This analysis resulted in a set of codes.

Focused Coding

In the next stage these initial codes were further categorized by comparative analysis (see dotted line in **Figure 1**); input of all therapists and over all art products were compared and preliminary categories emerged. Codes about which most therapists agreed or that had similarities were clustered into theoretical codes regarding the formal elements, mental health and their interrelatedness. Based on the initial codes, these categories were described. Within the coding process, it became clear that some of these categories, such as several formal elements, were mentioned by almost all therapists about every art product; these became main theoretical categories. Some other categories were mentioned less often; these became sub theoretical categories. In this stage, a first perspective emerged on how the formal elements of the art product were related to mental health.

Theoretical Coding

Theoretical coding conceptualized the interrelatedness between the categories. Comparative analysis over the eight interviews supported synthesizing and organizing the links between the theoretical categories. Within this process some of the main theoretical categories were merged into core concepts. For example, the primary and secondary formal elements (see **Figure 2**) became main categories under the core concept “structure.” Of others, it became clear that they were related - but separated- main theoretical categories, such as flexibility and creativity under the core concept of “adaptability.” This led to a theoretical framework, conceptualizing the relatedness between sub- and main categories and core concepts. All were defined in detail.



Quality

The whole process of analysis was peer debriefed to ensure that the codes, categories and concepts fit the data. The results of analysis were member checked with all art therapists on two occasions; (1) after initial coding; no additions or changes were made and (2) after focused coding; the art therapists gave some refinements and elaborations that were incorporated into the analysis.

RESULTS

Formal Elements

Initial coding showed that art therapists used a variety of words (codes) related to the formal elements of the art products. Focused coding clustered these codes into seven categories (see **Table 1**). The formal elements “movement,” “dynamic,” “contour,” and “repetition” were mentioned most frequently. “Mixture of color,” “color saturation” and “figuration” were only mentioned by the art therapists when the element was dominantly present or absent within the art product.

Structure and Variation

The art therapists stated that formal elements might enhance or weaken each other and that *the combination* determined the “structure” of the art product (see **Table 1**). Structure varied between very high and very low structured.

Therapist 6: “I look for presence or absence of formal elements; which ones dominate? And how are they connected; the interplay determines the character of the art product.”

Therapist 5: “The structure of the art product consists of the interconnectedness of several formal elements and is

indicative for how stuck a person is, how much space there is for change and that influences treatment.”

Focused and theoretical coding of all art products showed that highly structured art products consisted of the presence of “contour” and “repetition” (shown as “+” in **Figure 2**) in combination with the absence of “movement” and “dynamic” (shown as “-” in **Figure 2**). Absence of “mixture of color” and presence of “color saturation” enhanced the amount of structure. “Figuration” contributed sometimes to a highly structured product (e.g., art product 3), at other times not (e.g., art product 1).


Low structured art products consisted of the presence of “movement” and “dynamic” in combination with the absence of “contour” and “repetition.” Low structure was further weakened by the presence of “mixture of color” and absence of “figuration.” “Color saturation” contributed sometimes to a low structured art product (e.g., art product 5), at other times not (e.g., art product 1 or 2).

The presence or absence of “movement,” “dynamic,” “contour” and “repetition” determined the structure of the art product. These formal elements were mentioned most frequently. “Mixture of color,” “figuration” and “color saturation” reinforced or weakened this structure. To indicate the conciseness of “movement,” “dynamic,” “contour” and “repetition” in comparison with the other formal elements, the distinction between “primary” and “secondary” formal elements was introduced (see **Figure 2**).

How formal elements are combined and how strongly they are present appeared to determine the amount of structure art therapists perceived in the art product. The more dominant a formal element was present or absent, the more *clear* the structure of the art product was high or low.

The art therapists were in agreement about clearly structured art products. The dominant present or absent formal elements

TABLE 1 | Description and illustration of formal elements.

Categories	Illustration by quotes and frequently used words	Description
Formal elements		
Movement	T2 (AP2): <i>"The movement is longer, fluent, continued and fairly monotonous."</i> (AP 5): <i>"Coarse, pretty fast and short movements."</i> Words with regard to the (1) amount: <i>a lot, little, more, less</i> , (2) character: <i>compact, short, long, round, straight, fluent, sketchy, small, large</i> and (3) Direction: <i>upward, horizontal, vertical, diagonal</i>	Movement refers to the amount, character and direction of the movement. Movement becomes visible by the brush marks.
Dynamic	T1 (AP5): <i>"There is a lot going on, it is very energetic and forceful. And at the same time it is somehow contained. By looking at the line and effect it, consciously or unconsciously, stopped."</i> T4 (AP 4): <i>"I find this art product very turbulent. There is a lot of dynamic which gives me a restless impression."</i> Words with regard to (1) A lot of dynamic: <i>lively, busy, forceful, energetic, powerful, turbulent</i> , and (2) Less dynamic: <i>static, rippling, reserved, contained, restrained, calm, timid</i>	Dynamic refers to tension (tectonic) within the art product. Dynamic varies between static, restrained and calm and fast, turbulent, energetic and forceful. It refers to the vitality of the movement made.
Contour	T8 (AP1): <i>"No fluidity, absolutely boxed-off; rigid distinctions, no overlapping, and more over; he keeps them [colors] very separate."</i> T5 (AP2): <i>"In this case, the structure consists of the combination of movement and contour [...]."</i> Words with regard to (1) A lot of contour: <i>delimitation, line marking, outline, blocks of colors, boxed off, rigid distinctions, sharp, straight lines</i> , and (2) Less contour: <i>fluent, overlap, impressionistic, pictorial, diffuse, loosely</i>	Contour refers to the delimitation that emerges when shapes are outlined or are placed straight next to each other. This leads to rigid distinctions.
Repetition	T4 (AP1): <i>"The repeated pattern of colors."</i> (AP6): <i>"There is rhythm by the twist of the brush that is repeated throughout the art product."</i> Words with regard to (1) the presence of repetition: <i>symmetry, mirroring, rhythm in movement, constancy, the same, pattern</i> , and (2) Absence of repetition: <i>no repetition</i>	Repetition refers to the return of one or more formal elements in a pattern. A high amount of repetition leads to symmetry. Rhythm refers to the repetition of movement.
Mixture of color	T8 (AP1): <i>"He is not mixing the colors, he is not playing with them, out of the bottle."</i> Words with regard to (1) A lot of mixture: <i>mixed, tone, mix on palette/ paper, hue</i> , and (2) Absence of mixture: <i>straight from the bottle, separate, distinct, pure</i>	Mixture of color refers to the amount in which the colors are mixed within the art product.
Color saturation	T3 (AP4): <i>"The colors are not completely saturated"</i> . Words with regard to (1) High saturation: <i>covered, thick, impasto, opaque, filled in/up, texture, globs, dense</i> , and (2) Low saturation: <i>thin, dry, transparent, not covered, not filled, paper comes through</i>	Color saturation refers to the density of color within the art product varying between transparent and impasto.
Figuration	T6 (AP3): <i>"There is tried to make an actual image, positioning a tree in the foreground."</i> Words with regard to (1) Presence of figuration: <i>figure, background, realistic, figurative, image, naturalistic, use of semantic color</i> , and (2) Absence of figuration: <i>abstract, basic, unrecognizable</i>	Figuration within the art product exists when there is tried to make a figurative or realistic image. Semantic use of color enhances figuration. Absence of figuration results in an abstract art product.
		
Structure	T8 (AP4): <i>"There is organization, structure, absolutely. Painting the mountain and than the buildings."</i> Related words: <i>Gestalt, Overall Character</i> Words with regard to (1) High structure: <i>organized, planned, sequence, layered, clear construction, controlled</i> , and (2) Low structure: <i>chaotic, unorganized, no structure, uncontrolled</i>	Structure refers to the way the art product is constructed and varies between clearly high and low structured. A highly structured art product is characterized as organized and planned. An art product with low or no structure is characterized as chaotic.
Variation	T2 (AP4): <i>"I see diverse movements; long, short, bended and different ways of using the paint; dry and wet. There is diversity and intention in this product."</i> Words with regard to (1) Presence of variation: <i>diversity, differences, nuances, variety, divergence, differentiation, play</i> , and (2) Absence of variation: <i>no variation, limited, uniform, regular, equal, monotonous</i>	Variation refers to the diversity that can be recognized in one or more formal elements within the art product.

T, therapist; AP, art product.

were consistently mentioned first. The art therapists were less consistent about art products that were less clearly structured. It seemed as if the art therapists hesitated and needed more time describing the formal elements. This was for example the case with art product 6 (see **Table 4**) that showed high structure but was far less structured than art product 1:

Therapist 2: "Somehow the others [art products] are more clear to me, here nothing jumps out. It is all the same, just the color is a bit different, and nothing is placed in

the foreground. Those flowers feel a bit strange. It is not connected somehow."

Therapist 5: "It has something threatening, almost as if it comes rolling toward me. It is a mountain, but it rolls in my direction. Probably accidentally painted in this manner... sort of. I don't know... there are actually just four shapes with a cloud and some dots. Kind of duality, contradiction within the art product."

Also, clear high or low structured art products demonstrated less variation. Variation emerged as a core concept by clustering

categories related to the diversity within the art product (see **Table 1**). Variation existed when a range of formal elements was present or when there was diversity within one or more formal elements (e.g., diversity in movement by the presence of short and long, bended and straight lines). All therapists mentioned the amount of variation in each art product explicitly.

Therapist 8: About art product 1: “There is little variation; no mixing of colors, not playing with them, out of the bottle and more over he keeps them very separate. Lines are repetitive, no fluidity, absolutely boxed-off, rigid distinctions, no overlapping, juncture position of colors.”

Mental Health

Anyone who expects that art therapists in these interviews used diagnostic terms such as depression and anxiety disorder in order to describe mental health will be disappointed. Art therapists were exceptionally reserved in using these terms and did not explicitly relate art products to psychopathology. However, art therapists did consider the art product as an important basis for clients’ mental state and consequently the possibilities and focus for treatment. Clients’ possibilities were mentioned more explicitly than their mental problems.

Clients’ Mental State: Balance

The art products provided cues to the art therapists about the clients’ inner world. They seemed to use an implicit conceptual model about the client’s balance. To describe this, they used a variety of terms. Most of them were related to “feeling” or “thought” (see **Table 2**).

With regard to *feeling*, all therapists mentioned emotion regulation and nearly all therapists focused on the client’s potential to regulate emotions. Art therapists extracted cues about feelings and emotions from the art products. Sometimes they referred to positive emotions (happy, lively), more often to negative emotions (anger, sadness, fear). It was as if they scanned the art product for cues with regard to the content of the emotion as well as the intensity of expression. Art therapists differentiated between clients who tended to express impulsively, i.e., physical acted on feeling, and clients that tended to express emotional, i.e., allowing and experiencing feeling.

Therapists 5: “Well, here [art product 4] it is about expressing feeling by using variation in color and movement and it seems to be about a memory or a story, whereas here [art product 5] it seems to be just about expressing emotions in an impulsive, more physical manner.”

Next, art therapists used words that could be related to *thought*. This category included thoughts, cognitions and cognitive processes such as planning, organizing, analyzing and structuring. Art therapists did not refer to the content of the cognitions but mostly to a continuum of cognitive control (see **Table 2**).

Balance existed when allowing, experiencing and expressing emotions and cognitive control were in proportion to each other. However, many clients showed themselves to be out of balance, either because of the high levels of emotion or because of the high levels of cognitive control.

Adaptability: Toward More Balance

Observation of a client’s tendency toward either “thought” or “feeling” enabled the art therapists to gain a perspective on clients’ actual balance. The art therapists stressed the importance to search for cues to estimate the client’s potential ability to achieve balance. This was related to clients’ “adaptability.” Adaptability was clustered into four categories; “self-management,” “flexibility,” “openness,” and “creativity” (see **Table 3**).

The combination of self-management, flexibility, openness and creativity determined clients’ adaptability. Art therapists were less positive about the adaptability of clients who were observed as struggling with being flexible, open, self-managed and creative (see **Table 4**).

Therapist 7: “Persons that are willing in an unfamiliar situation, to put themselves out, willing to learn and make mistakes and learn from their mistakes shows me something about their prognosis in therapy. Being able to face this task and adapt, that tells me something about their ability to learn and adapt in real life and that is a good prognosis.”

Art therapists in this study agreed that gaining a perspective on the client’s balance and the presence of adaptability gave direction to the formulation of treatment goals (see **Table 4**).

TABLE 2 | Categories of balance.

Category	Illustration by quote and frequently used words	Description
Feeling	T5 (Client 4): “It is made very fast so I wonder if this client made this from a feeling or a memory? Does this client pay attention to how it felt to make this product? Does the client recognize to be in the “fast lane” often? So it is about feeling. I imagine this was made by a more disinhibited expressive person. It seems the client lost grip on itself a bit.” Being overwhelmed, feeling, lost in emotions, affective, not in control of emotions, uncontrolled, under regulation of emotions	Feeling refers to affects and emotions and the ability to allow experience and express these. Feeling can be differentiated between “impulsive expression” (physically acting on feeling) and “emotional expression” (allowing and experiencing feeling).
Thought	T2 (Client 1): “The need to control, shape raised from an idea, it is planned, thoughtful, restrained.” Ratio, cognitive, controlling emotions, need for predictability and structure, controlled, from the head, not feeling, analytical, thoughtful, over regulation of emotion, frantic, neurotic, planned.	Thought refers to cognitions and cognitive processes that are related to cognitive control.

T, therapist; AP, art product.

TABLE 3 | Categories of adaptability.

Category	Illustration by quote and frequently used words	Description
Self-management	T5: "Specifically that balance between emotion and ratio determines the ability to choose and self-determination. If someone only acts impulsive, that person is less able to decide." Making choices, attention, self-determination, autonomy, identity, intention, position taking, and confidence.	Self-management refers to the ability to choose. This requires the ability to distance and reflect, awareness of and paying attention to a present situation. Art therapists related self-management to self-determination, identity and autonomy.
Flexibility	T7: "Someone that is mentally healthy is flexible: a person that is able and free to take in information through many means; body, mind and emotions, without blocks, obstacles and disconnections. Someone who is not mentally healthy is stuck in one way or not able to access or flexibly change between ways of processing." Tuning, interact, being able to switch in response style adequate to a give situation, being able to adjust, resilient, integration of cognition and emotion, navigate, responsiveness to the situation, versatile Absence of adaptability: rigid, stuck, blocked, fixed	Flexibility refers to the client's range of possibilities to react to given challenges, tasks, persons or situations. This requires the ability to switch between cognitive control and allowing and expressing emotions. Therapists related flexibility to resiliency.
Openness	T5: "Some sort of curiosity, openness, the ability to interact with the art material, to play with it, explore. Being open tells me something about the ability discover and learn." Taking diverse perspectives, trying something new, experimenting, openness, not seeing a mistake as a disaster, exploring, differ from the known and familiar, taking risk	Openness refers to an attitude that allows taking diverse and new perspectives. It involves curiosity, risk taking, not seeing mistakes as a disaster and daring to experiment in unfamiliar situations.
Creativity	T1: "When someone wants to change, that means he has to transform and move from A to B. That requires leaving what's familiar, expanding your horizon, facing and exploring the unknown." Discovering, unconventional, combining things into something novel.	Creativity refers to the possibility to differ from the known and leave beaten paths in order to create something novel. Art therapists related creativity to problem-solving.

T, therapist; AP, art product.

Therapist 2: "When someone over overregulates his emotions, tries to control them, treatment then is often focused on losing a bit of that control, being able to play, move and act and allow to feel. When someone under regulates his emotions, treatment is often focused on creating structure and calming down."

Formal Elements and Mental Health

Through theoretical coding, relationships between formal elements and mental health were conceptualized in which the core concepts were related; structure was related to clients' balance and variation was related to adaptability (see **Figure 3**).

Structure and Balance

Based on the observed primary and secondary formal elements, the extent to which they were present/absent and in which combination, art therapists ascertained the structure of the art product on a continuum from high to low. The structure was related to clients' balance; based on one art product, art therapists were able to estimate the client's balance. Art therapists preferred to observe at least three art products to observe if each art products had similar amounts of structure over time. If the structure of the art products did not change over time, their initial estimation of clients' balance was confirmed. The art therapists assumed that art products with clear high or low structure indicated that the client was more out of balance. Three general patterns could be recognized; (1) highly structured art products were related to *much "thought" and less "feeling"*, (2) low structured art products were related to *more "feeling" and less "thought"* and (3) art products that alternated between high and low structure were related to *much "thought" and much "feeling"*.




Variation and Adaptability

Art therapists observed the amount of variation of the art product, which they related to "adaptability". Variation was associated with experimentation, exploration, playfulness, taking risks, and discovery (see **Table 1**). These aspects were related to openness, self-management, flexibility and creativity; the categories of adaptability. Generally, more variation was related to more adaptability until a "turning point". This means that art therapists assumed an "optimum" amount of variation; absent or limited variation as well as over- presence of variation was related to limited adaptability. Art therapists stressed their preference to observe at least three art products to observe variation within art products over time. Art therapists assumed that art products with limited or no variation over time indicated less adaptability. Variation over several art products indicated openness, willingness to learn and adapt. If variation was present over different art products art therapists were more optimistic about clients' prognosis, as they associated adaptability with potential to change in therapy.

Balance, Adaptability and Further Treatment


The aim of treatment was to restore or develop balance between "thought" and "feeling" and to enhance adaptability. The art therapists in this study formulated the focus of treatment mainly on the estimated balance and potential adaptability. The focus of treatment directed the choice for art interventions. In general, the art therapists estimated that clients with a lot of cognitive control (i.e., thought) might benefit from more "affective" interventions, whereas clients with difficulties regulating their emotions might benefit from more "cognitive" interventions. Art therapists stressed the importance of the observation of clients'

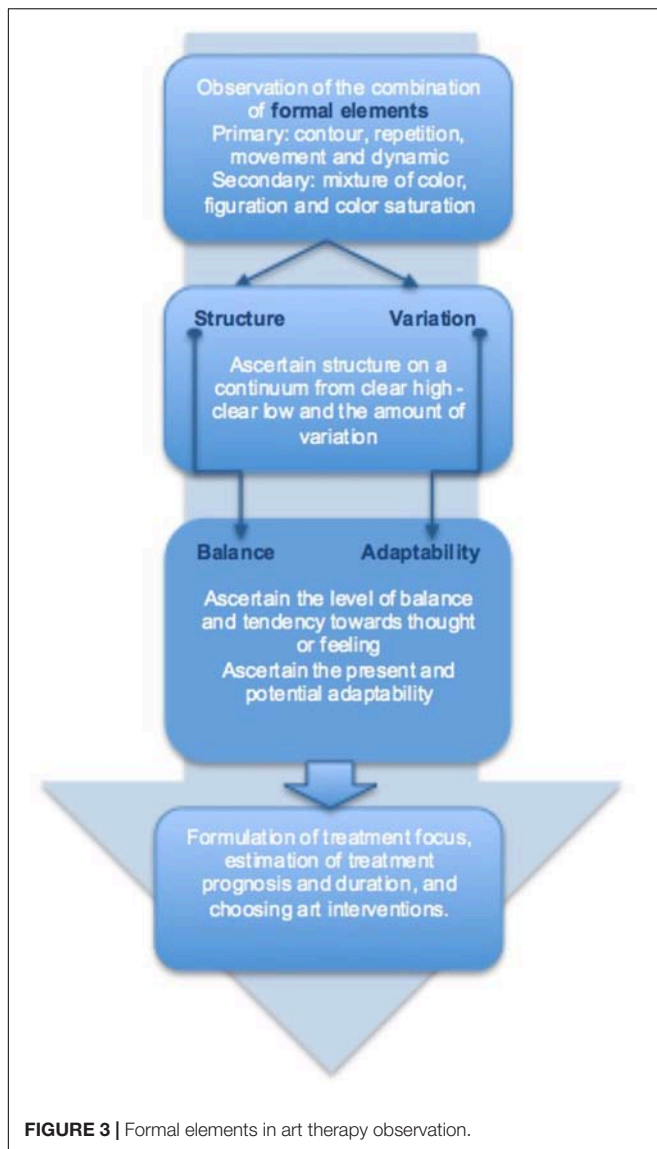
TABLE 4 | Art therapists' observation of the art products and mental health.

Art product, instruction and preliminary diagnosis by psychiatrist or psychologist	Art product		Mental health according to the art therapists in this study		Formulated focus and duration of treatment
	Combination of formal elements - > structure	Variation	(Im)balance	Adaptability	
 <p>Art product 1 Instruction: Painting free choice with acrylic paint; third session Client 1: Female, age 48, panic disorder, eating disorder (bulimia), depressive disorder, personality disorder</p>	<p>All therapists mention and agree on the clear high <u>structure</u>; <u>contour</u> and <u>repetition</u> are dominant present; the lines are placed straight to each other and the colors are, almost symmetrical, repeated. <u>Movement</u> and <u>dynamic</u> are dominate absent. The presence of <u>color saturation</u> and absence of <u>mixture of color</u> enhance contour and weaken movement and dynamic and enforce the high structure. Two therapists mention <u>figuration</u> (abstract).</p>	<p>All therapists mention and agree on the very limited <u>variation</u>; there is no differentiation.</p>	<p>Therapists find this client to be out of balance; very much <u>thought</u>; <u>cognitive control</u> and limited/ no feeling; restriction of allowing and expressing <u>emotions</u>.</p>	<p>This client is found to be the least adaptive (not <u>open</u> to experiment, not <u>flexible</u> because of the lack of variation and differentiation and not <u>creative</u> because of the need for predictability, yet some therapists mention that they find the art product powerful; a sort of statement related to <u>self-determination</u>). This client is described as anxious, neurotic and rigid. Overall, the therapists are not positive about <u>treatment outcome and duration</u>.</p>	<p>Therapists estimate that this client may benefit from affective experiences that allow access to and express feelings instead of controlling or avoiding them. However, they are cautious about how much the client needs the control of emotion as a defense. Therefore they expect more time may be needed in treatment.</p>
 <p>Art product 2 Instruction: Painting a landscape with acrylic paint; first session Client 2: Female, age 20, Anorexia nervosa purging type</p>	<p>The therapists agree on the high <u>structure</u>; all of them mention the presence of <u>rhythm</u> (repetition of horizontal lines/ <u>movement</u>), <u>high color saturation</u>, <u>figuration</u>, the calm <u>dynamic</u> and <u>contour</u> that is enhanced by limited <u>mixture of color</u> and <u>color saturation</u>.</p>	<p>All therapists mention and agree on the limited <u>variation</u>; monotonous and without differentiation.</p>	<p>Therapists find this client to be out of <u>balance</u>; <u>having tendency</u> toward <u>thought</u> and <u>cognitive control</u> out of fear to loose control over <u>emotions</u>. Three therapists find this art product a bit alarming by the lack of vitality.</p>	<p>This client is found to be limited <u>adaptive</u> (limited <u>open</u> as she seems to vary and experiment, limited <u>flexible</u> by the strong repetition, monotone movement and lack of differentiation, no <u>creativity</u> by the standard/ obvious and realistic figuration and limited yet some <u>self-determination</u> as the client seems to intentionally chooses this figuration and tries to work precise, yet not making the effort to correct "mistakes").</p>	<p>To expand this client's adaptability, the therapists prioritize stabilization and reinforcement of self-determination by enhancing affective experiences. The therapists are cautious positive about this client's ability to <u>change</u> (she seems to be less stuck/ rigid as client 1 by the presence of some movement).</p>
 <p>Art product 3 Instruction: Painting a landscape with acrylic paint; first session</p>	<p>Art product 3 The therapists agree on <u>figuration</u> (stylistic with no detail), <u>repetition</u> (rhythm of upward <u>movements</u>), <u>contour</u> (not dominate, yet present) and <u>dynamic</u> (seven therapists said to find it mechanically, one lively). Therefore the structure of this product is relatively high. Six therapists mention there is almost <u>no mixture of color</u>. Four therapists mention <u>color saturation</u> (varying but mainly transparent). These elements enhance the structure.</p>	<p>All therapists mention and agree there is some, yet restricted <u>variation</u> (a little bit more in art product 3 as in art product 4).</p>	<p>The therapists are less explicit and use diverse terms with regard to <u>balance</u>. In general this client is described as composed, tensed and tending toward <u>thought</u>; having the ability to regulate, but preferring to withhold from expressing <u>emotion</u>.</p>	<p>Therapists agree on this client's <u>adaptability</u> (some <u>openness</u> by little experimentation but sticking to what is familiar, limited <u>flexibility</u> by lack of differentiation, no <u>creativity</u> by the very basic and obvious figuration which indicates no exploration and no diversion from the first idea, some <u>self-determination</u> by the choice of figuration, however, performed accidentally not seeing other possibilities).</p>	<p>The therapists are cautious positive about <u>change</u>; the limited amount of differentiation is seen as an opportunity to reinforce in treatment. However, some therapists question the client's potential due to intellectual restrictions.</p>

(Continued)

TABLE 4 | Continued

Art product, instruction and preliminary diagnosis by psychiatrist or psychologist	Art product		Mental health according to the art therapists in this study		Formulated focus and duration of treatment
	Combination of formal elements - > structure	Variation	(Im)balance	Adaptability	
 <p>Art product 6 Instruction: Painting a landscape with acrylic paint; second session Client 3: Female, age 33, Borderline Personality Disorder (main), depressive disorder recurrent moderate, problems related to upbringing children and work.</p>	<p>Art product 6 Seven therapists immediately mention that art product 3 and 6 seems to be made by the same client. They agree that art product 6 tends to be highly <u>structured</u>, as <i>contour</i> is present by the distinction of the blocks of color. Yet there is some overlap. There is <i>repetition</i> by the rhythm of movement. <i>Movement</i> and <i>dynamic</i> are not completely absent. There is only little <i>mixture of color</i>. <i>Color saturation</i> varies between covered and dry. There is some <i>figuration</i>, mainly by the use of color. Six therapists have subjective associations, which are diverse but all related to the cloud.</p>				
 <p>Art product 4 Instruction: Painting a landscape with acrylic paint; first session Client 4: Female, age 48, Personality disorder (main), depressive disorder</p>	<p>All therapists mention the presence of <i>movement</i> and <i>dynamic</i> in combination with presence of <i>figuration</i> and some amount of <i>repetition</i>. Seven therapists mention <i>contour</i>, five mention <i>color saturation</i> varying between saturated and transparent/dry and four mention the presence of <i>mixture of color</i>. They agree that this art product is not completely chaotic or organized <u>structured</u>, yet slightly tending toward chaotic.</p>	All therapists agree on the presence of <u>variation</u> .	Compared with the other clients in this study, the therapists find this client most <u>balanced</u> ; despite having a tendency toward <i>feeling</i> , yet showing aspects of <i>thought</i> .	Therapists agree on this client's <u>adaptability</u> (<i>open</i> as she seems to be experimenting and exploring, <i>flexible</i> as she seems to differentiate, <i>creative</i> as she seems not to be restricted to what is familiar or obvious, some limited <i>self-determination</i> as her impulses may block her from cognitive control.	Therapists are optimistic about <u>change</u> . They estimate that this client may benefit from cognitive experiences to develop the ability to stop and reflect and develop more cognitive control over feelings in order to enhance autonomy.
 <p>Art product 5 Instruction: Painting free choice with acrylic paint; third session Client 5: Male, age 34, addiction (cocaine, alcohol) (main), dysthymic disorder, borderline personality disorder</p>	<p>All therapists agree on all formal elements and the rather low structure, even though it not completely lacks <u>structure</u>. <i>Movement</i> and <i>dynamic</i> (characterized as impulsive/forceful and contained/restricted at the same time) are dominant present. These are enhanced by the presence of <i>color saturation</i> and <i>mixture of color</i>. <i>Contour</i> is not completely absent; the white paper creates distinction between the paper and the paint. Also <i>repetition</i> is present to some degree; horizontal and vertical lines are layered up, yet are less repetitive as the lines in art product 1.</p>	All therapists agree on <u>variation</u> ; limited present, all though the effect of paint seems to be repeated.	The therapists find this client out of <u>balance</u> toward <i>feeling</i> by the physically, yet not completely chaotic or impulsive, expression of feeling and some <i>cognitive control</i> .	Art therapists are moderate positive about this client's <u>adaptability</u> (openness seems to be restricted by the repetition of the discovered effect of the paint, which may withhold this client from being <i>creative</i> , some <i>flexibility</i> by differentiation between expressing and structuring, presence of <i>self-determination</i>	Art therapists question this clients' <u>ability to change</u> . They estimate that this client may benefit from experiences that expand the potential to regulate affect.



individual position on the continuum of balance to choose the art interventions specific to the client's needs.

Art therapists found clients' balance and adaptability indicative for treatment duration and prognosis. They were more optimistic about the treatment duration and prognosis of clients who were more balanced and adaptive. Art therapists were alert to clients lack of balance and adaptability. They emphasized the importance of clients' capacity to deal with change; they stated that a clear lack of balance and adaptability might have a function in survival and daily functioning. Therefore, treatment might take longer and prognosis, i.e., the expected amount of change, might be more limited.

DISCUSSION

Based on art products made with acrylic paint and the instruction to either paint a landscape or create a painting without

instruction, all the art therapists in this study focus on four primary (movement, dynamic, contour, and repetition) and three secondary (mixture of color, figuration and color saturation) formal elements in art therapy observation. This implies that the art therapists in this study agree largely on the relevance of formal elements as well as their hierarchy. These seven formal elements show some resemblance to formal elements incorporated in existing studies on formal elements in art therapy e.g., "mixture of color" is also incorporated in the DDS, "color saturation" resembles "color intensity" of the DAPA, and "figuration" can be related to "color fit" of the FEATS. Some existing studies point out that individual elements mean nothing unless considered as a cluster (Gantt, 2001) or use a "profile" related to specific disorders, such as in the DDS. The findings of this study add to these studies by conceptualizing specific combinations of formal elements that construct the "structure" of the art product.

The art therapists in this study use the formal elements to estimate how clients make their art product. This is in line with existing studies in which it is theorized that formal elements reveal *how* the client makes the art product. It is this relation between formal elements and the making process that could explain why they provide information about clinically significant emotional and behavioral concerns of clients (Hinz, 2009; Conrad et al., 2011). In previous studies this was specified by the concept of material interaction (Pénzes et al., 2014, 2015).

With regard to the art therapists' perspective on mental health, results of this study show that art therapists do estimate potential psychopathology. They rarely use symptoms or specific diagnoses used in DSM or ICD. Instead, they use concepts as balance and adaptability (i.e., self-management, openness, flexibility, and creativity). Emphasis on adaptability, i.e., resources and strengths, is in line with the perspective of positive health (Huber et al., 2016) in which health is defined as "the ability to adapt and self manage physical, emotional and social challenges in life." This perspective shows resemblance to the "recovery approach" (Anthony, 1993), which focuses on fulfilling, meaningful life beyond the limitations of illness or symptomatology and emphasizes the empowerment of clients' and their potential for change and growth.

The art therapists' perspective on mental health certainly influences the way the formal elements are interpreted. Not relating the formal elements to symptoms and/or disorders, transcends any classification and is in line with other perspectives on mental health such as those of Siegel (Siegel, 2010, 2012, 2017) and Cozolino (2017) who also stress the importance of integrating "thought" and "feeling" to achieve, restore or maintain mental health and well-functioning.

If the art therapists observe clients being out of balance - which is more or less always the case in health care situations- they actively start searching for the elements of variation. Variation is associated with making choices, play, experimentation and exploration of the art materials. This relates to what in the literature is referred to as 'material interaction' (Pénzes et al., 2014, 2015). Material interaction refers to the clients' dialog with art materials' properties. Variation is subsequently related to self-management, openness, flexibility and creativity, i.e., adaptability. Hinz (2009); Lusebrink (2010), and Bucciarelli

(2011) also pointed out creativity might be a sign of mental health, which emerged...however, they did not explore this further.

Balance and adaptability are conceptualized as two separate concepts; out of balance indicates the severity of the problems, whilst adaptability indicates present or potential resources which allow change in therapy. One might say that being out of balance refers to “mental-*illness*” and variation to “positive mental-*health*.” However, the therapists in this study often mention them together and point out that these concepts are closely interrelated, i.e., the severity of the problem and the potential resources of the client are seen as two sides of the same coin. This raises the question whether and to what degree balance and adaptability are independent, distinct, concepts. Literature on this matter is divided. Some studies question the distinction between mental illness and mental health (adaptation) (Lukat et al., 2016; Van Erp Taalman Kip and Hutschemaekers, 2018). The seven formal elements that emerged in this study might enable art therapists to gain perspective on the strengths and resources as challenges of clients. The findings add to studies that relate formal elements either to specific disorders or clients’ strengths and recourses in art therapy observation and assessment. The use of formal elements in art therapy observation provides a broader perspective on the client as a person.

Critical Reflection and Implications for Practice and Future Research

This study conceptualizes three patterns of balance in combination with the variation in the art product. These patterns provide perspective on clients’ strengths, resources and challenges. It may be of interest in future research to investigate if and how the formal elements may differentiate in the way they are present between clients with diverse mental health issues.” Due to the limited number of art products included in this study, future research might include more art products to investigate if the same patterns emerge or if these patterns can be differentiated, specified or added.

Additionally, it may be useful to incorporate more than one art product of each client in future research to investigate if that leads to a more precise and differentiated observation of variation and adaptability. Even though all therapists largely agreed on clients’ variation and adaptability, they preferred more than one art product to estimate the variation.

Art therapists of three nationalities participated in this study. They cannot represent current international perspectives on art therapy assessment (Gilroy et al., 2012). However, they agreed on the formal elements and concepts of mental health. Findings of this study could be a valuable starting point to replicate the study in a broader international scope. Future research may address the potential of these concepts in contributing to the international current literature.

Existing studies on formal elements show that the formal elements observed are likely to change in response to the given task and the art media used. One could question if other formal elements would have emerged in this study when art products were made with a different task and art media. For example,

the formal element “filled space” might have emerged when art products would have been made on larger paper size, with smaller brushes and/or allowing more time.

Nonetheless, the properties of acrylic paint, allow the observation of those formal elements which enable the art therapists to observe the structure and variation of the art product. The ability to observe the structure and variation related to the level of balance and adaptability may support art therapists to formulate treatment goals to suit the individual needs and potential and to choose those art interventions that enhance or develop the client’s balance and adaptability. Previous studies point out the therapeutic potential of diverse art material properties to achieve a more “affective” or “cognitive” experience to enhance “thought” or “feeling” (Hinz, 2009; Hyland Moon, 2010; Snir and Regev, 2013; Pénzes et al., 2014). The therapeutic value of experiential interventions is pointed out in many recent studies (e.g., Cozolino, 2017; Porges and Flores, 2017). Future research may address the use of art interventions to generate different affective or cognitive experiences.

CONCLUSION

Formal elements are frequently used in clinical practice. In this study, we addressed two questions, namely which formal elements art therapists observe, and how they interpret them in terms of mental health. Findings add to the current body of knowledge. They show that the combination of seven formal elements construct the structure and variation of the art product and are indicative of clients’ level of balance and adaptability. Art therapists in this study gain insight into clients’ mental health through these concepts. This insight supports the art therapists in formulating treatment goals that suit the individual needs and potential and to choose those art interventions that ameliorate the client’s balance and adaptability.

ETHICS STATEMENT

With regard to ethics approval, this study was conducted in 2016 and an ethics approval was not required as per our Institution’s guidelines and national regulations (Dutch “Law of medical research involving Human Subjects” [“Wet Medisch-wetenschappelijk Onderzoek (WMO)”).

The participants of this study consisted of art therapists, which were interviewed with regard to their professional method of observation of art products, their perspective on mental health and how they used the formal elements of the art product to gain insight in mental health. Prior to the interviews these art therapists were provided with written information with regard to the research aims and procedure. The interviews had duration of 1–1.5 h, in which the art therapists were interviewed on a familiar and professional topic. This research procedure was not considered as a risk of bringing the art therapist any possible harm. Written informed consent was obtained from all therapists in accordance with the Declaration of Helsinki.

With regard to the inclusion of the clients’ art products, written informed consent was obtained from all clients in

accordance with the Declaration of Helsinki. Making art products with specific instructions as used in this study is common in clinical practice of art therapy and therefore considered as not harmful for clients.

AUTHOR CONTRIBUTIONS

IP developed the research design, conducted the research, and first authored this article. SvH, DD, and GH supervised the

development of the research design and research process, and co-authored this article.

ACKNOWLEDGMENTS

The authors would like to acknowledge all involved therapists and clients and Dieuwertje Abeling-Boselie for peer-debriefing. This study is a part of a Ph.D. research project at KenVaK and the Radboud University.

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- Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Studying the Efficacy of Psychodrama With the Hermeneutic Single Case Efficacy Design: Results From a Longitudinal Study

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Edited by:

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 31 May 2018

Accepted: 20 August 2018

Published: 10 September 2018

Citation:

Gonzalez A-J, Martins P and
de Lima MP (2018) Studying
the Efficacy of Psychodrama With
the Hermeneutic Single Case Efficacy
Design: Results From a Longitudinal
Study. *Front. Psychol.* 9:1662.
doi: 10.3389/fpsyg.2018.01662

Throughout the last decades, scientific and therapeutic communities have made common efforts to collect reliable information concerning the efficacy of psychotherapies. One of these initiatives has, recently, involved the psychodrama community and its desire to achieve progress in the validation of this therapy. Based on Robert Elliott's Hermeneutic Single Case Efficacy Design, we followed five participants (three women, two men, aged 27–48 years) of a psychodrama group over the course of their therapeutic process, which ranged from 24 months to 5 years. For the single case study, we selected the participant who had the longest data collecting record, including one follow-up. Participants generally reported improvement in their personal therapeutic goals, decrease in symptoms and life problems, and some showed a marked increase in spontaneity levels. In the single case, these results are confirmed, and following decision criteria it is possible to assert that the participant improved in all the variables assessed and that therapy is the main cause of these changes. Furthermore, the participant frequently rated psychodrama sessions as being helpful and stated they had a transformational impact on his life. This research contributes toward validating psychodrama as an efficient therapeutic method, hopefully stimulating practitioners to integrate therapy and research—which, for years, were considered independent and incompatible—and to facilitate their use in a complementary way.

Keywords: psychodrama, hermeneutic single case efficacy design, psychotherapy efficacy, spontaneity, single case study

INTRODUCTION

The field of psychotherapy is nowadays a complex body, where extremely diverse practices and theoretical proposals coexist. Since the very beginning of psychotherapeutic history and tradition, one of the most relevant debates has been on which practices should be considered effective and which should be considered non-effective or even fraudulent. If we go back to the 18th century and remember the polemic with Franz Anton Mesmer's treatments, based on the pseudo-scientific concept of *animal magnetism* influenced by Newton's works, we can see that the debate regarding the use of science to both inspire and assess psychotherapeutic practice has existed since the creation of psychotherapy as we know it today. Are specific therapeutic models and schools more efficient than others? Does the person of the therapist make a difference? What is the importance of

the client's characteristics? How should we measure the impacts of treatment? Is psychotherapy, as a practice, becoming more effective in general over the years? What is the role of deliberate practice in the improvement of the therapists? These are just some of the interrogations that researchers in the field have been trying to answer over the last few decades, in an attempt to overcome the fateful words of Eysenck (1952) concerning the ineffectiveness of psychotherapy (for some answers to these questions or more debate, see Elliott and Zucconi, 2006; Castonguay et al., 2010; Norcross and Lambert, 2011; Norcross and Wampold, 2011; Lambert, 2013a,b; Miller et al., 2013; Chow et al., 2015; Wampold and Imel, 2015; Goldberg et al., 2016; Goodyear et al., 2017).

One of the most important issues underlying these debates is the assessment of therapeutic progress. How should we evaluate what is happening in treatment? Should we emulate the medical model of clinical assessment, or should psychotherapy create specific models for this goal? Differently from most medical interventions, the psychotherapeutic format is based on long-term encounters between the people involved, so not only is the "what – if something –changed" an important issue, but the "how did the change occur" becomes essential to the improvement of efficacy of practice. Consequently, the work that sustains Empirically Supported Treatments increased (Sousa, 2017). Having this in mind, mixed models of research, involving both outcome and process measures, were developed. That is the case of the hermeneutic single case efficacy design (HSCED).

This research design was proposed by Robert Elliott, in his 2002 seminal work, and has been used to study the efficacy of several treatments, inspired in different psychotherapeutic models [Carvalho et al., 2008; Elliott et al., 2009, 2011; see Benelli et al. (2015) for a systematic review]. HSCED, an interpretative approach to evaluating treatment causality in single therapy cases, was suggested by Elliott (2002) as an alternative to the randomized clinical trial approach. In the attempt to respond to its limitations concerning the issue of the psychotherapeutic efficacy, a blend of qualitative and quantitative methods from different origins are proposed. We can say that the need to evaluate the causal role of the therapy process stresses the importance of HSCED. This method uses direct and indirect evidences, a rich and comprehensive collection of information about the client's therapeutic process, and takes in consideration the client as a co-investigator.

In order to build a rich case record and further establish empirical-based evidences, Elliott (2002, 2010) suggests a list of six data collecting strategies: (1) basic data from both client and therapist; (2) quantitative outcome measures, that should be used at beginning, during and end of therapy, and if possible in a follow-up; (3) Client Change Interview (CCI) (see below) in order to assess the client's view on potential changes throughout the therapeutic process and to establish connections between treatment and changes; (4) weekly simple and easy to answer measure(s) of outcome, usually the Personal Questionnaire (PQ) or another very short instrument; (5) a measure of the client's impression of the sessions, focused in the significant events that might have occurred, like the Helpful Aspects of Therapy form; and (6) notes from the sessions by the therapist.

Our research aims to study the efficacy of psychodrama as a method of group psychotherapy in which clients are helped to solve their problems not only by speaking about them but by acting them out. As stated by Wieser (2007, p. 271), "Psychodrama as psychotherapy is based on theories of spontaneity, creativity and action. It is probably due to this association that the study of psychodrama's effectiveness, in a controlled and more rigid academic way, has been neglected." Nevertheless, the discovery of the therapeutic potency of spontaneity (Moreno, 2010) and its effect on developing human interactions has been central to the process of recognizing the importance of psychodrama. The relevance of our study is directly linked to the discussion of the effects of psychodrama in several different contexts of application, clinical and non-clinical (Kipper, 1978; D'Amato and Dean, 1988; Kipper and Hundal, 2003; Orkibi et al., 2017a,b; Azoulay and Orkibi, 2018; Testoni et al., 2018) and to the need for solid methodologies that gather mixed approaches and acknowledge the complexity of this type of intervention, not always easily amenable to empirical research (Kim, 2003). All in all, as stated by Kipper and Ritchie (2003, p. 23) in their meta-analysis about the effectiveness of psychodramatic techniques, "the findings appear to shed a positive light on the issue of the validity of psychodramatic interventions and to encourage research regarding the specific psychotherapeutic effects of its basic techniques."

MATERIALS AND METHODS

This work is the result of a 5-year period of data collecting in a university clinic. The therapeutic setting was the typical psychodramatic one, with weekly sessions of around 2 h, in a group context with four to seven participants and two therapists in each session.

We will present the data in the following two ways: first, the group data as a whole and second, a single case following the HSCED rationale, as presented above.

Participants

The participants were invited to enroll in this investigation and informed about their rights and what was expected from them in terms of the estimated amount of time and data to be collected. Informed voluntary consent forms were signed by every volunteer. During the research period, some of the group participants did not take part in the research.

These participants were doing therapy in a psychodrama group, and during the research two other therapists (auxiliary egos) were part of the team at different moments. All therapists had training in psychodrama, and the director is a trainer at the Portuguese Society of Psychodrama and is one of the researchers and author of this paper. Supervision of the treatment was done periodically by training members of the same society.

The five participants in this study (several volunteers were not included because the data produced was not considered enough to perform the analysis) were three women (the youngest was 27 years when beginning treatment and the oldest was 48 years old) and two men (33–35 years old). All the participants

had university degrees and all were professionally active at the moment they began therapy.

Procedure

Participants were invited for one, in some cases two, session(s) of data collecting, previous to the beginning of therapy. All these sessions were conducted by an independent researcher, a clinical psychologist that was not part of the therapeutic team. Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM) and Revised Spontaneity Assessment Inventory (SAI-R) forms were filled by the participant, and the PQ interview protocol was used for constructing this idiosyncratic individual assessment instrument. On a weekly basis, the PQ was delivered to the participants prior to the session, and the Helpful Aspects of Therapy forms were sent via email after the session. The other outcome measures (SAI-R and CORE-OM) were filled in intervals no shorter than 6 months, depending on the availability of the participants. In these assessment moments, a CCI was conducted to assess the participant's perspective of the process. At the end of therapy, an assessment session was held, and, whenever possible, a follow-up would take place 6 months after the end of treatment. The research protocol was approved by the Board of the clinic where the study took part.

Measures

The different instruments used in this research were selected due to their pertinence to measure what we proposed, their robustness, their availability in the Portuguese language, and their international frequent use.

Clinical Outcomes in Routine Evaluation Outcome Measure (Evans et al., 2000, 2002; Lyne et al., 2006; Portuguese version by Sales et al., 2012) assesses the effectiveness of the clinical intervention and consists of 34 statements that the patients must evaluate on a five-point Likert scale, based on how frequently they experienced a certain mood during the previous week, in accordance with the following gradation: 0, "Not at all"; 1, "only occasionally"; 2, "occasionally"; 3, "often"; and 4, "very often or always." This instrument is divided into four domains: Subjective Well-being (four items), Problems/Symptoms (12 items), Life Functioning (12 items), and Risk/Harm (six items). Of the 34 items, approximately 50% relate to problems of low intensity, such as "I felt tense, anxious, and nervous," while the remaining 50% of items relate to problems of high intensity, such as "I felt panic or terror." Twenty-five percent of all items concern positive statements with reverse scores. The level of psychological distress is quantified by the total score of the test (higher scores indicate more serious problems). Cronbach's alpha coefficient for the 34 items was 0.89 and for the subscales of this measure were, respectively, Subjective Well-being (0.76), Problems/Symptoms (0.87), Life Functioning (0.85), and Risk/Harm (0.77), indicating good internal consistency reliability. The minimum score that can be achieved is 0 and the maximum 136.

Revised Spontaneity Assessment Inventory is a scale designed to measure spontaneity (Kipper and Shemer, 2006; work in progress Portuguese version by Gonzalez, 2012 and Martins and Gonzalez, 2018). Studies have shown this scale to be positively correlated with various dimensions linked with well-being,

and negatively related to measures connected to pathological functioning, thus giving empirical support to Moreno's (1953) thesis of a positive relationship between spontaneity, creativity, and health (Kipper and Shemer, 2006; Kipper et al., 2010; Gonzalez, 2012; Testoni et al., 2016). The SAI-R questionnaire, like the original SAI (Kipper and Hundal, 2005; Christoforou and Kipper, 2006) asks one initial question: "How strongly do you have these feelings and thoughts during a typical day?." The question is followed by a list of 18 items describing different feelings and thoughts, such as "creative," "happy," "excited," "uninhibited," "satisfied," and "do anything within the limits." The participants are asked to respond using a five-point Likert scale, ranging from 1 (very weak) to 5 (very strong). Cronbach's alpha coefficient was 0.92, indicating excellent internal consistency reliability. The minimum score that can be achieved is 0 and the maximum 90.

Personal questionnaire is an expanded target complaint measure, individualized for each client (Elliott et al., 1999, 2016; Portuguese version by Sales and Alves, 2016). It is generated from the PQ Problem Description Form, completed by the client during the screening process. It intended to be a list of problems that the client wishes to work on in therapy, stated in the client's own words. Usually before each session, the participants were invited to fill his/her form, in which each sentence/problem should be rated on a seven-point Likert scale, corresponding to the way that issue was considered during the previous week, with seven being equivalent to maximum disturbance. PQ data meet criteria for evidence-based, norm-referenced measurement of client psychological distress for supporting psychotherapy practice and research.

Helpful aspects of therapy (HAT) is a post-session qualitative self-report instrument developed by Llewelyn (1988) that gathers information about the client's perception of helpful and hindering events in psychotherapy (Castonguay et al., 2010; Sales and Alves, 2016; Portuguese version by Sales et al., 2007). In this instrument, participants are asked to describe particular and important aspects of the previous session and to rate how helpful or hindering these events were on a one-to-five-Likert scale (with one indicating *not hindering/helpful at all* and five indicating *extremely hindering/helpful*). Filling out the HAT becomes a routine part of the client's overall therapy experience and appears to help clients process their therapy more effectively. The most common problems appear to be responses that are very brief, vague, or global.

Client Change Interview (Rodgers and Elliott, 2015) is a semi-structured interview that lasts, in average, between 30 and 45 min and can be performed by a third party every 8–10 sessions or at different intervals, at the end of therapy, and at follow-up. Using the PQ as a base, the interviewer asks for descriptions of their attributions for perceived changes, including helpful aspects of their therapy (information on negative aspects of therapy, medication, and other sensible clinical information is also collected). For each change identified, the client was asked to answer three questions about how surprising change was, if the change would have occurred without therapy, and how important the change was. A Likert scale of 1-to-5 was used for the answers.

Data Analysis

To generate the group results, a quantitative variation analysis was performed following an HSCED-based approach. To compute the data, SPSS, version 24.0 for Windows was used (SPSS 24 Inc., Chicago, IL, United States).

To assess the evolution of the group, we carried out an in-group variation analysis for SAI-R, PQ, and CORE scales. First, the data were coded into overall scores of the scales. Second, CORE responses were categorized into more particular dimensions labeled as “Subjective Well-being,” “Problems/Symptoms,” “Life functioning,” and “Risk/Harm,” as recommended in the literature (e.g., Lyne et al., 2006). Finally, we calculated mean intensity both for overall scale scores and for sub-scales. For the five participants, we could choose four different time points of evaluation, that correspond to different treatment spans for each of them. In general, the span between these time points was around 6 months (as said before, the data collecting times were chose individually and depending on the personal availability of the participants), so the total span corresponds to approximately 2 years of treatment. In only one of these cases does Time 4 correspond to the end of treatment.

Using the HSCED (Elliott, 2002) the single case received both quantitative and qualitative data analysis. For the quantitative analysis, we used the rationale proposed by Evans et al. (1998). This being said, we carried out the descriptive statistics (mean and standard deviation) for each scale, i.e., SAI-R, CORE, and PQ at several moments. For the CCI, we calculated the frequency for each one of the dimensions. For measuring the clinically significant changes, we compared the baseline (beginning), the end of therapy, and the 6-month follow-up values with the cutoff points. This cutoff (reported as caseness in **Table 1**) allows for determining whether a client is clinically distressed (if above cutoff) or not (if below of cutoff). The publication of Portuguese values for cutoff points is still in its last phase, so we are referring to the English ones, which we know, personally from the authors, to be quite similar to theirs. This cutoff points are available on the CORE System Handbook (Core System Group, 1998). Finally, to determine the reliability of changes, we calculated two differences – before vs. after treatment and before vs. 6-month follow-up – and compared them to the reliable change (RC) index, a measure of the variation based on the standard error (SE) of the measurement which takes account of two measurements (pre/post). There are several ways of calculating the criteria for both RC and clinically significant change. The ones we used are also summarized within the CORE System Handbook (Core System Group, 1998).

FINDINGS

Group Findings

As can be seen in **Figure 1**, all CORE values show a tendency to diminish during the course of treatment (T1 is at the beginning and T4 is after approximately 2 years of therapy), corresponding to a progress of the group. CORE's sub-scales of Problems/Symptoms and Risk consistently diminished over time,

while the other four diminished from the beginning until Time 3 and showed an increase from Time 3 to Time 4.

The interpretation of the spontaneity line behavior should be made in an inverse way: the higher the results, the better the spontaneity. The spontaneity level of the group as a whole increased consistently throughout time, as can be seen in **Figure 2**.

In **Figure 3**, the PQ means of the five subjects across sessions can be seen, showing a decreasing tendency over time.

Single Case Findings

In the presentation of this case, we shall follow the HSCED rationale previously presented, and will choose a participant (that will be addressed as John), based on the fact that he was the most regular of all group members in terms of responding to the set of research measures and that it was possible to do a 6-month follow-up assessment after he finished therapy. His therapeutic process lasted 5 years.

John contacted the group director weeks before his 35th birthday in order to start psychodramatic therapy, motivated by a pervasive personal crisis which he could not solve with previous psychotherapeutic processes. He had married 5 years before, but during the weeks after marriage two impactful events occurred: the suicide of his and his wife's best friend and his cancer diagnosis. He began a successful oncological treatment and after this critical period he started to feel professionally unmotivated. After the birth of his first son, this personal crisis increased, affecting his marriage and his relationship to his parents and his only brother. He decided to go on a journey to South America and when he returned it became very difficult for him to continue his professional activity as a lawyer.

Outcome Measures

Personal questionnaire, CORE, and spontaneity assessment inventory

In his first interview for assessment purposes, the items he created for his PQ were the following (by order of importance):

(1) I feel depressed; (2) I am selfish; (3) my self-confidence is low; (4) I feel lost in professional terms; (5) It is hard for me to express emotions; (6) decision-making is difficult for me; (7) I tend to somatize; (8) I have a fusional relationship with my mother; (9) it is difficult for me to take paths that cause suffering; (10) I have a distant relationship with my father; (11) I have narcissistic features; and (12) I feel I am living a late adolescence.

Over time, near the end of treatment, he eliminated some items no longer considered as causing him suffering (ex: numbers 2, 5, 7, and 8) and brought in new ones (none of these changes in PQ will be taken into consideration in our graphic analysis). We will take a closer look at the evolution of the first six items, the ones most valued by John.

John's first assessment on SAI-R and CORE revealed major distress and personal suffering. His spontaneity score (42) was significantly below the mean score for Portuguese men (63), and his CORE results can be considered clinical in all sub-scales, with life functioning values being the most critical and the Risk scale reaching worrying values. In the following graphics, John's evolution over time can be seen.

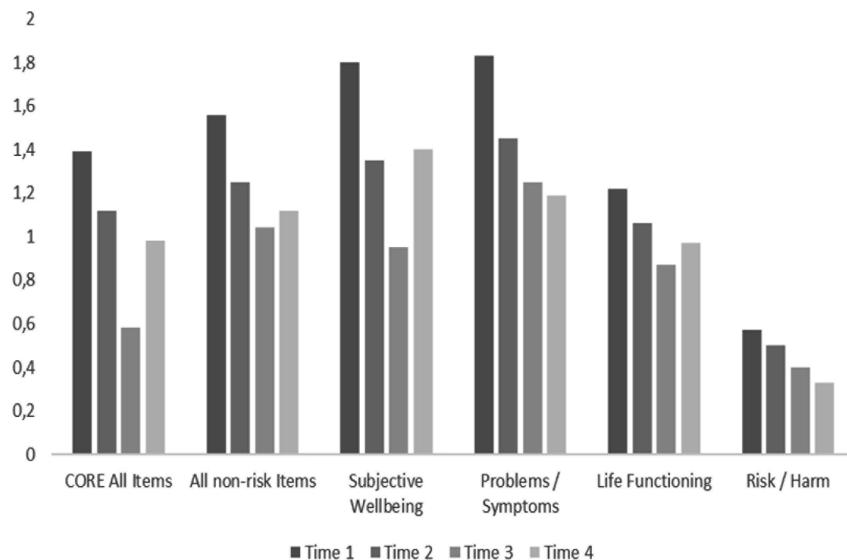


FIGURE 1 | Group CORE means of scores over time.

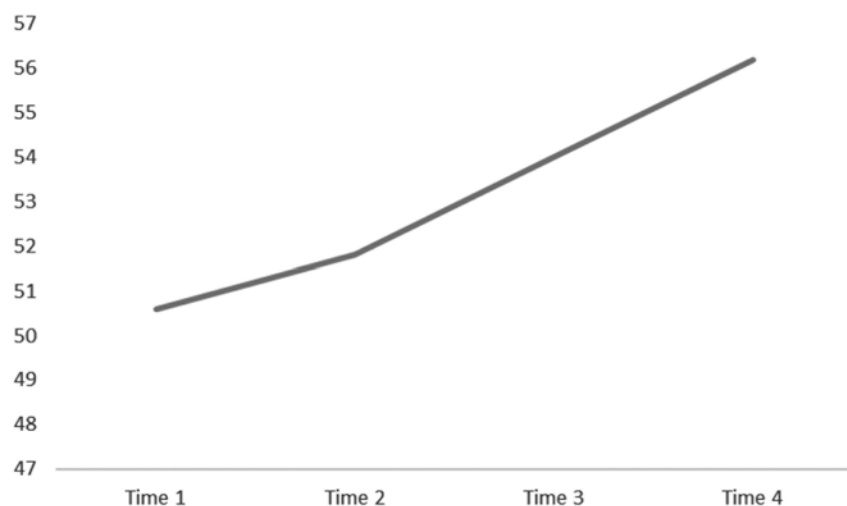


FIGURE 2 | Group SAI-R scores over time.

Both his CORE (**Figure 4**) and spontaneity (**Figure 5**) values show consistent and significant improvements over time. In the case of CORE, from beginning to end he goes from above cutoff results to below cutoff ones. In the case of spontaneity as assessed by SAI-R, he starts in a remarkably low value, to finish above the mean for Portuguese men.

To facilitate the understanding of the PQ evolution throughout the first 30 months (we do not have access to the PQ data relating to the end of therapy), we distributed sessions in groups of four and calculated the mean for each one of these groups, attempting to thus characterize in the most reliable way John's answers over a certain period of time. This allowed us to obtain mean scores for each item analyzed throughout six progressive time points (reported as Time in

Table 1) of the therapeutic process, which are shown in **Figure 6**. As can be seen, the distress attributed to the main six items of his PQ decreases throughout time.

These results can be seen in **Table 1** that can help us with criteria that allow us to decide if observable changes in results can be considered. Based on the results in **Table 1**, we can see that all of John's results in his first CORE assessment were above cutoff values, confirming his self-evaluation during the first contact with the therapist and the information given during the first interview with the researcher for the construction of his PQ. Furthermore, his spontaneity was significantly below the Portuguese mean for men ($M = 62.96$; $SD = 10.21$). The mean of his first four PQs also shows significant distress.

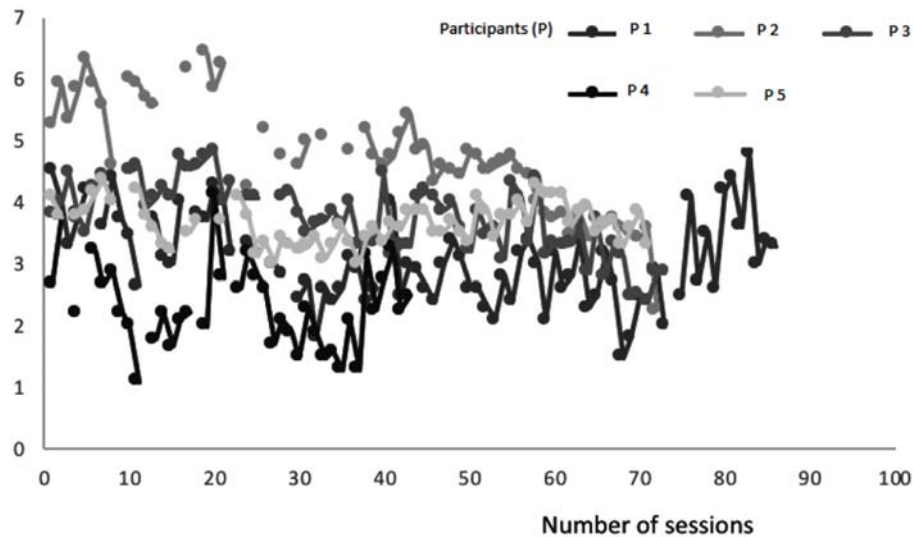


FIGURE 3 | Group PQ means of scores over time.

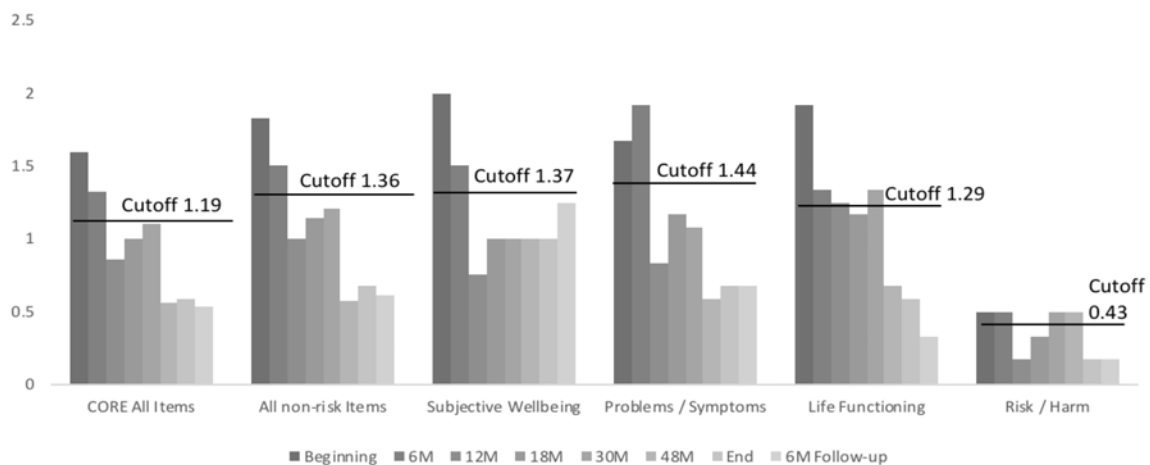


FIGURE 4 | John's evolution in CORE scales over time. M, months in treatment.

At the end of therapy, all results on his CORE (general and sub-scales scores) had gone below cutoff points. All these changes, except in the Risk subscale, can be considered reliable and clinically significant, as the difference between the values at the beginning and at the end is bigger than the minimum Required Change value. In follow-up, all these values are maintained below cutoff points, but the change in the Well-being subscale does not reach the 0.90 value needed to be considered significant.

Differences in SAI-R results are reliable and significant, and the same can be said about PQ results.

Process Measures

Helpful aspects of therapy (HAT)

John was the group participant who more frequently filled the HAT (87 forms). 160 events were described, 156 considered

“helpful,” and 4 “not helpful” or “hindering” (not being chosen to be protagonist in one specific session, unpleasant feelings about another participant in two different occasions, and the departure of a group member).

The mean rating for the aspects considered as helpful was 4.1, ranging from 2.75 to 5. The first time John rated an event on the higher point of the scale was after 5 months of therapy. In his HAT, he states that “the dramatization of my cancer and the revisiting of the emotions felt during that moment of my life were very important. It was very important to feel emotions similar to the ones I experienced when I was ill, to share them with the group and to express them during the dramatization.”

Somehow the session of the previous week could have been a warm-up for this one, as he rated with a 4.75 in the helpful scale the way the group reacted to the theme – sexuality – that he

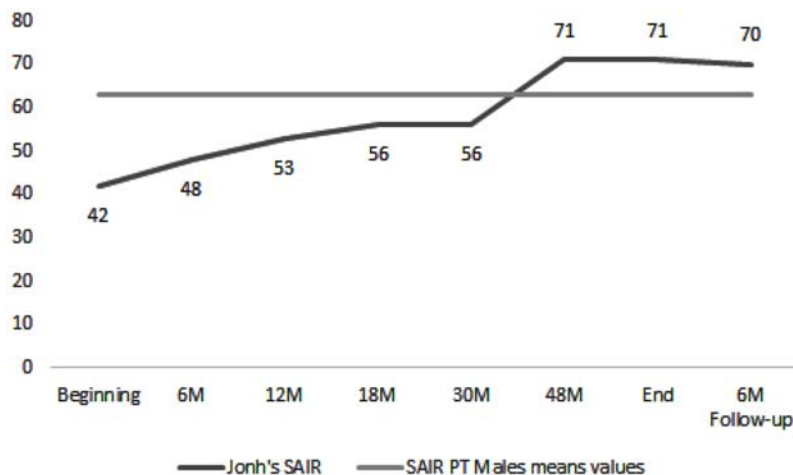


FIGURE 5 | John's SAI-R scores and Portuguese men mean. M, months in treatment.

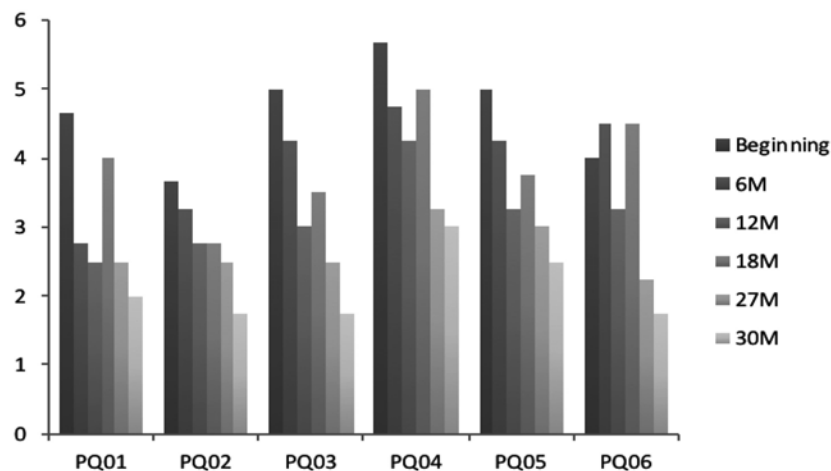


FIGURE 6 | John's means (four sessions) of PQ items values over time. M, months in treatment.

addressed on that day. That session was, in fact, a turning point in group cohesion, as stated by several members.

The second time he considered an event in a session of maximum helpfulness was 2 months later, with the sharing of another participant about his mother's suicide attempt, that made John contact with childhood memories of his own mother's depressive phases.

Several other high evaluations of helpfulness occurred in the following weeks, but only 2 months later did he rate a session with another "5," referring to a session during Christmas season in which the psychodramatic technique known as "Magic Shop" was used (Barbour, 1992). In John's words:

"Yesterday's session was amazing; during and after it, I felt a very strong positive energy that, beyond any doubt, is an energy from the group. After the warm-up, the true Christmas present arrived: the climb up the Magic Mountain (reminds me of Thomas Mann) to the Magic Shop. It was during the "way up" that I immediately felt something special, that made me say

later on that any temptation of missing the session that night had absolutely dissipated. The dramatization was a great present from the therapists, because they received us with open arms, and allowed us to go away much lighter, closer to ourselves. All this created a wave of great opening and sharing, that resulted in a very strong tuning by the end of the session, when we shared what we asked for and what we received. We left this session with a full heart! I think that, from now on, we will have an even more cohesive group, even if Marcia was not here."

In the same HAT form, he rates two other events as being very helpful (4.75): the reflection during the sharing phase about his sometimes overwhelming self-expectancies and about his difficulty opening up to others. Another aspect, rated 4.25, concerning the same session, relates to the feeling of closeness, trust, and empathy toward the therapeutic team. He particularly states that the fact that the group director was a participant in the dramatization (several versions of "The Magic Shop" technique

TABLE 1 | John's outcome data.

Scale	Caseness	RC min*	Pre	Post	Pre-post difference	6-Month follow-up	Pre 6-month difference
CORE all items	1.19	0.72	1.59	0.58	1.01 ^a	0.53	1.06 ^a
All non-Risk	1.36	0.77	1.82	0.68	1.14 ^a	0.61	1.21 ^a
Subjective Well-being	1.37	0.90	2	1	1 ^a	1.25	0.75
Problems/Symptoms	1.44	0.85	1.67	0.67	1 ^a	0.67	1 ^a
Life functioning	1.29	0.80	1.92	0.58	1.34 ^a	0.33	1.59 ^a
Risk/Harm	0.43	0.69	0.50	0.17	0.33	0.17	0.33
SAI-R	63	8.00	42	71	−29 ^a	70	−28 ^a
			Pre	30M	Diff.		
Personal questionnaire	3.00	0.53	4.67	2.13	2.54 ^a	–	–

Caseness, cutoff for determining whether client is clinically distressed; RC min, minimum value required change at $p < 0.2$; sources for values given: SAI-R, Spontaneity Assessment Inventory-Revised; CORE, Core System Group (1998); Personal Questionnaire (Barkham et al., 1996); M, months in treatment. ^aReliable improvement from therapy. * $p < 0.02$.

include the director in the role of “shop owner”) was a “first time,” “surprising,” and “rare event,” felt as “contagious generosity.”

In **Table 2**, the events considered as helpful by John are categorized using the HAMPCAS system (Cruz et al., 2016).

Client Change Interview (CCI)

Seven CCIs were conducted with John. The transcriptions are long, as some of the interviews lasted more than 1 h. Organized data from the interviews will be presented, and some examples given. For each change identified by the participant, three questions and rating scales (1–5) would be presented: “How much was the change expected?” (1, “Very much expected”; 5, “Very much surprised by it”); “How likely do you think it would have happened if you hadn’t been in therapy?” (1, “Very unlikely”; 5, “Very likely”); and “How important or significant to you personally do you consider this change to be?” (1, “Not important at all”; 5, “Extremely important”). In other words, in terms of change perception, the best answer from a participant would be the sequence of ratings 5–1–5 to these three questions.

Pertinent information about competing explanations for changes was collected. During the therapeutic process, John was not taking any medication. Supported and challenged by the group, he started several other activities, started to practice more sport, and, in the last period of his process, he joined a Biodanza group on a weekly basis. Fifty-three changes were identified,

with 60% of the changes being “somehow surprising” (rated 4 on a 1-to-5 scale). Forty-four percent of them were considered by John as “probably not occurring” without therapy, and 9.5% “unlikely to occur.” Fifty-nine percent was considered “Very important” and 19% “Extremely important.” In **Table 3**, we can see a summary of these self-attributed changes.

We performed a calculation of a value we called Client Change Index, by adding up the ratings of expectancy of change and its importance and subtracting the likelihood of change without therapy. On the last column of **Table 3**, we can see that this Index consistently increases in John’s self-rated therapeutic path. In order to have a specific criterion to choose the most significant changes from John’s CCIs, we selected the ones that had a Client Change Index higher than or equal to 7. From the 53 changes, 9 reached that criterion (**Table 4**).

These self-reported changes can be considered clinically pertinent issues, and the fact that the number of significant (according to the Client Change Index criterion) changes is bigger at the end of treatment and in follow-up is to be taken into consideration.

DISCUSSION

After presenting group and individual results from a complex and long process of data collecting, we shall reflect on the efficacy of these therapeutic processes, mostly based on the single case. Referring to the group as a whole, the scores lead us to the statement that, in general, progressively better results were shown in terms of spontaneity and the general and specific sub-scales of CORE-OM. Some of the CORE sub-scales showed an increase from the third to the fourth assessments. Consistent with these findings, **Figure 3** shows a general tendency for the means of the results obtained in the PQs of the members of the group to diminish, showing an improvement in the problematic situations they classified as important at the beginning of treatment.

These group findings are consistent with John’s case. Using recognized criteria to establish the reliability and clinical significance of changes in therapy (Barkham et al., 1996; Evans et al., 1998; Elliott, 2002) we can consider John’s improvements in CORE total and subscales scores (except Risk) from beginning to

TABLE 2 | Type of events considered helpful.

Kind of event	<i>n</i>	%
Sharing by other members	52	24
Dramatizations by other members	44	20
His own sharing	41	18.5
His own dramatization	24	11
Sharing/comments by therapists	22	10
Role reversal technique	7	3
Group games	6	2.5
Social atom technique	4	2
Sculpture technique	4	2
Other techniques and events	16	7
Total	220	100

TABLE 3 | Change along therapy as rated by John in Client Change Interviews.

Changes (Total = 53) (values are reported as means)	Change was 1 – expected 3 – neither 5 – surprising	Without therapy 1 – unlikely 3 – neither 5 – likely	Importance 1 – not at all 3 – moderately 5 – extremely	Client change index
Time 1 (7 changes)	3.3	3.6	3.3	3
Time 2 (9 changes)	3.2	2.4	3.7	4.5
Time 3 (8 changes)	3.5	2.75	3.7	4.45
Time 4 (9 changes)	3.7	2.7	4.1	5.1
End (11 changes)	3.9	2.2	4.3	6
Follow-up (9 changes)	3.7	1.9	4.3	6.1

TABLE 4 | Most important changes stated in John's CCIs.

Time	Change	Change was 1 – expected 3 – neither 5 – surprising	Without therapy 1 – unlikely 3 – neither 5 – likely	Importance 1 – not at all 3 – moderately 5 – extremely
Time 2	I am leading a healthier and more active life	4	2	5
Time 4	I am more flexible and open	4	2	5
End	I feel more serene	4	2	5
End	I no longer feel hostage to my friends	5	2	5
End	I can accept my parents exactly as they are	4	1	4
End	I can cope with mourning	5	1	5
End	I have grown closer to my mother	5	2	4
Follow-up	I am in a new relationship	5	2	5
Follow-up	I have a feeling of satisfaction and peace	4	2	5

end of treatment as reliable and significant from a clinical point of view. In general, these changes were maintained in the 6-month follow-up.

His results with the spontaneity values go in the same direction. From the point of view of psychodramatic theory and practice, this is a particularly interesting finding, as Moreno strongly related individual spontaneity with general health and wellbeing (Moreno, 1953; Kipper and Shemer, 2006; Kipper et al., 2010; Gonzalez, 2012; Testoni et al., 2016). John's PQ ratings showed a decrease during therapy. According to the same criteria used above, these changes can be considered clinically significant. Some of the items were personally removed by John for he no longer considered them significant.

The process/qualitative data written by John offer us a significant and fertile ground for reflections upon his therapeutic process. His first rating of an event as being extremely helpful (score = 5), just one session after feeling that his intimate sharing with the group about sexuality (an issue that was both important for the group, with several revelations made after his sharing, and to John, who felt totally welcomed) was very helpful too (4.75), occurred 5 months after the beginning of therapy. The therapeutic event was the dramatization of

the moment he received his cancer diagnosis, when very strong feelings appeared, some of which had apparently been suppressed in order for him to cope with the treatment. He states that the possibility of dealing with these intense and overwhelming feelings and, especially, the possibility of sharing them with the other members of the group were particularly helpful.

Reading his HAT, we can identify several of the 14 therapeutic factors in groups that were suggested by Yalom and Leszcz (2005): acceptance/cohesion, self-disclosure, and self-understanding can be easily connected to his words, but existential factors, universality and catharsis, were present in this particular session too. It was a session where John was the protagonist, and the dramatization was directed to the representation of the different qualities of feelings and emotions connected to the memories of those overwhelming and probably poorly processed times. We believe there is a clear connection between these therapeutic decisions (choosing John to be the protagonist, the selected theme, and the general and specific psychodramatic techniques used) and his view of the helpful aspects of the session, including profiting from several, group therapy advantages.

It is important to stress the information presented in **Table 2**, showing the kind of events John considered helpful: 44% of the total 220 events underlined by him address the other members sharing and dramatizations. His own sharing and dramatizations sum up around 30% of the events considered helpful. This focus on the effect of group processes in his personal therapeutic process is reaffirmed in the other two extremely helpful events stressed by John: the impact he felt from the sharing of another group member, and the group dynamic that occurred on a session with the specific technique called “The Magic Shop.” He writes about “energy from the group,” “great opening and sharing,” “very strong tuning,” and the “even more cohesive group.”

John’s CCIs can help us in several ways. First of all, in excluding some alternative explanations for his changes, that we shall discuss further on. In John’s seven CCIs, 53 changes were identified. We calculated a Client Change Index that expresses the change expectancy, importance, and likelihood of occurrence without therapy. We find it significant that this index consistently increases during treatment, that is, throughout the 5 years in the group, John started to progressively give more value to his personal changes and attributing them to psychodrama.

CONCLUSION

To conclude, we will follow the questions suggested by Elliott in his seminal paper on HSCED (Elliott, 2002) and try to use the indicated criteria in order to answer them. Among others, three questions are particularly important in the field of psychotherapy research: are participants on psychotherapy changing? Is therapy responsible for change? What in therapy is causing change?

Although we have reasons to suggest that there were changes in the group as a whole, we will focus our attention on the single case. Most of the direct evidences proposed by Elliott are met in John’s case: (a) he attributes several changes to therapy, stating that several of those important changes (**Table 4**) would probably not have occurred without it; (b) changes can be connected to therapy events (ex: the specific work on mourning and his statement that “I can cope with mourning,” or the repeated work, during dramatization, on helping him get in touch with his feelings, with other people’s feelings, through role reverse, and receive feedback from the other participants about how they experienced interacting with him, and his self-perceived change, expressed in his CCI, that “I am more flexible and open”); (c) clear and significant changes in symptoms and other indicators (CORE), in perceived suffering (PQ), and in variables positively associated with wellbeing (SAI-R) can be observed from beginning to end of therapy (**Table 1**); (d) furthermore, in several HATs it is possible to perceive that specific interventions made by the therapeutic team have a direct impact in John’s perception of the session as helpful (see the example of the session dedicated to staging the censored feelings associated with the cancer diagnosis during the dramatization).

It is simultaneously important to dismiss possible alternative explanations for changes. No pharmacological treatment was started or interrupted, no major diseases diagnosed or cured during treatment. John started to increase his physical activities

while undergoing therapy, and in the last months of treatment he entered a group of Biodanza, a non-therapeutic, non-verbal expressive practice based on dance and bodily communication. Although these might be competing explanations for some of the changes, his decision to start these activities came as a consequence of his evolution during the first months of treatment, and with respect to Biodanza, he only started it very close to the end of therapy, when the main changes were already established. Some major life events occurred (birth of a second son, end of marriage) that had an impact on John’s general state, but the birth of his son did not directly influence the values of the main assessment results and the end of his marriage was part of the cause for some of the deterioration that made him extend his final phase of therapy. This period was not reflected in the main periodic assessments because it occurred shortly after the last evaluation (48 months), previous to the end of treatment. In any case, it was considered a very stressful event, whose negative impact was dealt with in therapy.

The main changes identified cannot be considered trivial or negative, as can be read from John’s words. Good reliability and clinical significance measures were used and several different measures utilized that can help to eliminate the effect of statistical artifacts in the explanation of change. Although relational and expectancy artifacts (pleasing the therapists/researchers and wishful thinking about own change) might have had some effect on these changes, their consistency, the multiple sources confirming them, and the frequently idiosyncratic language used by John to address them minimize that possibility.

Taking in consideration the arguments presented before, we believe we can affirm that John showed considerable and clinically reliable improvements during his time in the psychodrama group, and that therapy accounts for most of the changes. Although we can pinpoint some specific therapeutic techniques that were used and that are apparently connected to aspects valued by John as helpful, further research is needed to determine that connection.

Our last comment will concern the participation in the research as viewed by the group elements, by John in particular and by the therapeutic team. In several different interviews, John and others stated that being part of this research effort, filling the forms, in particular the HATs, and doing the CCIs became part of his/their therapeutic process, as moments for taking stock of the process. Regardless of the discussion about the possible therapeutic effects of being part of a research, which is not the aim of this work, there is no doubt that part of the hermeneutics associated with this kind of scientific research has common ground with therapeutic activity and that these participants become co-researchers of their own processes of change (see Elliott, 2002).

For the psychotherapeutic team, taking part on this research project was extremely challenging and fruitful. Receiving periodic feedbacks, from a weekly to a therapy-span basis, is an enriching experience for the psychotherapist, an opinion that goes along with the recent literature on feedback systems in psychotherapy (Reese et al., 2009; Lambert, 2013a,b; Wampold and Imel, 2015). The data collected and produced challenge the therapists/researchers to better understand the basics of their

practice and to better connect it with theoretical issues, literature, and scientific methodology. It is our hope that this presentation of an experience where the roles of therapist and researcher meet will encourage others to join similar projects.

The “double hermeneutic” process referred by Elliott (2002), of a participant in therapy reflecting on his/her process of change and a researcher trying to track this path and interpret it, brought us to the creation of this paper. During the last phase of this long process, an idea took form: to contact John and ask him for a few lines about his long therapeutic process. Without the possibility of making him one of the signing authors of this work, for evident reasons, we wanted to thank him for all the energy invested in this journey. His answer to our request was the following paragraph:

“This psychotherapeutic process was one of my greatest life adventures. I quickly understood that the more I let myself go (as deeply and without filters as possible) the more respect, acceptance, and even admiration (and above all self-acknowledgment) I would receive from the group and therapists. The feeling of respect and admiration was reciprocal all along the process, of course. I was so lucky to feel loved and cared exactly for who I was and I took permission to express myself within this amazing group. Also, I had the privilege of witnessing the evolution of the other group members and, at the same time, the opportunity to strengthen the link of trust with the therapists. It was one of the most fertile and richest periods of my life and such learnings and experiences continue to flow deep within my heart.”

With his help and the help of the other participants and collaborators in this research project, we hope we could contribute to the study of the efficacy of psychodrama and, in doing so, to further validate the benefits of the profoundly human phenomenon that is the therapeutic encounter.

DEDICATION

This work is dedicated to the memory of João Silva (1936–2018), a man of the theatre, director of GTT – Group of Therapeutic Theatre, founded by him in 1968 in the Júlio de Matos psychiatric hospital and one of the most proficuous and creative theatre groups of its kind. He gave visibility to and

honored the therapeutic tradition of the theatre, during 50 years of Portugal’s sometimes turbulent recent history, and created a home for many that, throughout the years, shared their sufferings and joys on the stages built together with João. Influenced by the work of Moreno, he was himself a Man of Encounter.

ETHICS STATEMENT

In this research it was clarified that participation was voluntary and that participants had the right to refuse it at any moment without penalty or prejudice to their interests. It was made clear that the names presented would be changed. All participants provided their written consent. The study was carried out in accordance with the recommendations presented in the Code of Ethics of the Portuguese Association of Psychologists, and the protocol approved by the Board of Clínica ISPA.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication. The authors contributed equally to this manuscript. A-JG worked on the conceptualization, data collecting, analysis, and writing. PM worked with the analysis and writing. MdL worked with conceptualization, data collecting, and writing.

ACKNOWLEDGMENTS

We wish to acknowledge Paula Lucas for her priceless contribution during this research, to Elsa Mauricio Childs for her patient English review and to the students that, with their dissertations, helped with the collecting and processing of the data used in this paper: Ana Paula Santos, Ana Rita Rodrigues, Catarina Isabel Aniceto, Filipa Filipe, Filomena Soares, José Peixoto, Margarida Campelo, Margarida Soares Baptista, and Ricardo Duarte. Finally, we would like to thank the participants in this study, who made an incredible amount of professional and personal learning possible.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Art Therapy, Community Building, Activism, and Outcomes

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OPEN ACCESS

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 02 May 2018

Accepted: 03 August 2018

Published: 24 September 2018

Citation:

Feen-Calligan H, Moreno J and
Buzzard E (2018) Art Therapy,
Community Building, Activism,
and Outcomes.
Front. Psychol. 9:1548.
doi: 10.3389/fpsyg.2018.01548

This article is a descriptive study of two groups who came together through service-learning: The first group is graduate art therapy students enrolled in a research class, who partnered with six community agencies to help them prepare assignments for undergraduate service-learning students in a subsequent semester. The art therapy research students also assisted the agencies with program evaluation. The second group is the six directors of the community agencies who were preparing for service-learning students enrolled in an art history class titled Art as A Social Practice. Service-learning is an experiential pedagogy where community service is integrated into an academic course, and where the services performed meet genuine community needs. The hyphen in service-learning represents the ideal that both the students and community agencies experience benefits from the relationship, although in reality, it is often the experiences of the students rather than the agencies that receive greater attention in the scholarly research literature. The present article places focus on the community agencies that, in the process of planning for service-learners, made two unexpected requests: First they requested that the service-learners stay longer than one semester, and secondly, they requested assistance with evaluating the effectiveness of *their* programs. This article is about the efforts to respond to these requests through the assistance of art therapy research students. With growing trends in community-based art therapy practice, greater attention to the community agencies where art therapists work is necessary and valuable to art therapy preparation. The present article describes six distinctive communities, illustrating new frontiers of practice. The research students' experiences and the experiences of the community partners were assessed using qualitative methods that included pre and post-questionnaires, written reflections of students, interviews of agency directors and agency, student, and researcher focus group transcripts. This study will inform other art therapy programs who may want to use a service-learning approach to teaching research. A discussion of the promising practices of service-learning and research, as well as the challenges leads to recommendations for art therapy education.

Keywords: community, art therapy, service-learning, education, action research

INTRODUCTION

Growing trends toward community-based health care are expanding the scope of art therapy practice, requiring art therapists to better understand community needs, and to cultivate their unique skill sets for working in community settings (Ottemiller and Awais, 2016). Cultivating skills for community settings can begin in graduate programs, not only in practicum and internship but also in service-learning and research courses. At a time when leading art therapists recommend strengthening art therapy's research base by scrutinizing and prioritizing issues of importance to the field (Kaiser and Deaver, 2013; Kaiser, 2017), one could argue that strengthening community is a global priority today. Developing research skills, especially outcomes research is also a priority (Slayton et al., 2010). Educators as well are being required to demonstrate evidence that art therapy students develop skills, knowledge and also affective behaviors (Commission on the Accreditation of Allied Health Education Programs [CAAHEP], 2016) appropriate for art therapy practice. Service-learning has the potential to facilitate these priorities.

This article describes new frontiers in community-based art therapy practice and education utilizing critical service-learning to nurture partnerships between art therapy educational programs and community centers and agencies, which has resulted in increased knowledge about community (partner) needs. The article describes a service-learning program and study called ArtsCorps where art therapy research students collaborated with community agencies to assist them with program evaluation and preparation for undergraduate service-learners. Case examples from six agencies provide models for participatory research that add to the art therapy outcomes knowledge base as well as practitioner knowledge (i.e., practice-research cycle).

Service-learning is an experiential learning pedagogy where community service is integrated into the academic curriculum, and where the services performed meet genuine community needs (Howard, 2001). The hyphen in service-learning represents the ideal that both students and community experience benefits from the relationship. Some service-learning studies have been criticized for focusing more on the benefits to students than to the community partners, however (Miron and Moely, 2006; Worrall, 2007). Many service-learning publications describe a commitment to building mutual relationships and to letting members of the community identify their needs, however, what is often missing, is an approach for creating such relationships (Rosenberger, 2000, p. 37). Furthermore, few of the higher education service-learning courses build service-learning projects that are accountable for the results of the service experience on the service "recipient" (Maybach, 1996). Service-learning is used by health professions (Connors et al., 1996; McMenamin et al., 2014) but it has not been well represented in art therapy literature. In art therapy service-learning has not been used in internship (Ierardi and Goldberg, 2014) classes but not to teach research.

The present article describes one part of a larger service-learning study of ArtsCorps. The article explores the experiences of the agency directors who were preparing for service-learners

and art therapy research students helping with the preparation. The next section contains definitions of terms used that also provide the perspective of the authors.

Service-Learning, Research and Other Terms

Service-learning researchers describe different emphases of service-learning. Cipolle (2010) emphasized students' leadership roles in thoughtfully designed service experiences, with structured time to research, reflect, discuss and connect their experiences to their learning and their worldview (Cipolle, p. 4). She described the potential of service-learning to foster in students a social justice orientation to service, through an examination of issues of power, privilege, and oppression. Sometimes reference to as critical service-learning when the focus is on social responsibility, critical community issues and as a method for problem solving (Fenwick, 2001; Mitchell, 2008).

Service-learning shares qualities with action research, a term coined by Lewin (1947), to refer to problem solving strategies that encourage academic researchers and community members to work together to identify and analyze community problems, find solutions to those problems through research and test those solutions in the community (Harkay et al., 2000).

The emphasis on action research recognizes that service itself can and should be a knowledge-generating activity. When combined with appropriate analysis and dissemination of findings, it can help guide subsequent practice in a variety of settings as it works toward solving specific community problems (Harkay et al., 2000, p. 113).

From this perspective, service and research are intertwined in the process of exploring and responding to community problems, especially when the best ways to solve a community problem are still emerging.

Whyte (1991) used the term participatory action research to highlight the role of both scientists and lay persons as critical to the process of knowledge acquisition. He advocated for collaboration in all aspects of the research process, from the design to the results and discussion of action implications. CBPAR is community based participatory action research.

Community based research (CBR) is a term used by Stoecker (2008) which expands on the practice of service-learning to include research. CBR draws on the research skills students are learning to address community generated research questions (Stoecker, 2008). CBR relies on the community's participation in research, and should result in the ability of the community to gather and use knowledge relevant to them. This method and philosophy reduces the university's power and control over knowledge production by recognizing community partners as contributors of knowledge in the service-learning relationship and as partners joining together with the university to problem solve together to improve quality of life.

Consistent with Freire's (1970) "pedagogy of the oppressed" (where the educational strategies raise consciousness of economically disadvantaged groups so that they could define and articulate their own problems and collectively seek solutions),

critical service-learning involves students' raising consciousness of their privilege and the power differential.

As Harkay et al. (2000) write, "action research is an appropriate model of service-learning because it combines the best elements of democratic cooperation, methodological rigor and service. It also combines the interests of students, community and faculty oriented toward the goals of community development and democratically created social change" (p. 115).

Several art therapists have written about expanding practice to community settings (Timm-Bottos, 2006; Kapitan, 2009). The term community-based art therapy used in this article is defined broadly as "a theoretical framework that emphasizes community empowerment rather than a focus on individual psychodynamics, and provides a vehicle for community strengths and needs" (Golub cited in Ottemiller and Awais, 2016, p.144).

In this study, the faculty chose service-learning philosophy and pedagogy because of its emphasis on social responsibility, its respect for and value of the knowledge of the community partners, and the opportunity to explore problem solving together, ultimately strengthening relationships. These problem-solving strategies and collaboration qualify the art therapy students' activities as action research and service-learning. In an attempt to clarify the two classes or courses of service-learners described in this article, the art therapy research service-learners are referred to as ATRSL students. The service-learners from the art history class will be referred to as Art History service-learners (AHSL) students. Last, in this article community partner is used interchangeably with agency director.

ArtsCorps

The university in which our art therapy program resides, "Midwest State University" is a public, urban university with Number 1 rankings of the Carnegie Foundation in research and community engagement. ArtsCorps was established as one of the university's community engagement initiatives by faculty members in the arts whose vision was to strengthen local arts programs, especially because of the reductions in art education in the city's public-school system. Given the university's commitment to the city, the faculty believed the university's arts departments should be supporting local arts programs. ArtsCorps sought to support local arts agencies through connecting them with volunteers who could assist with special projects, and with service-learners who could partner with the agencies over a longer term, working together to address mutual goals and concerns.

Art therapy students had participated in service-learning assignments and internships at a variety of agencies over the years, which resulted in positive gains to all parties, but by-and-large, the gains had not been systematically documented. We wanted to document students' experiences, as well as the experiences of the agencies as they host and mentor students. We wanted to know the value students added to the agencies. When an internal university arts and humanities research grant competition was advertised, the author and other arts faculty who had previously taught courses with service-learning assignments invited six directors of community agencies who had in the past hosted our service-learners, to partner with us on a

proposal to study the impact of service-learning on students and community partner agencies. Our proposal was funded, and this allowed us to hire two graduate assistants (GA)s (the second and third authors), and in addition to provide the agencies with modest participation stipends.

Although the ArtsCorps study extended 5 years as we added community partners and service-learning courses, this article covers only the first year/beginning phase of the research study, which was devoted to studying the experiences of community agencies, and service-learners from art therapy research classes. Limiting the article in this way focuses attention on the relationships and sense of community that developed between the agencies and the art therapy program. The opportunity to collect some data from the agencies' constituents has contributed in a small way to understanding art therapy outcomes. A concluding discussion explores art therapy research and service-learning and the implications for practice and education.

RESEARCH PROCEDURE AND METHODS

The agency directors, faculty and research assistants began meeting together to plan our research study, which was carried out in accordance with the University's Behavioral Institutional Review Board, Human Investigation Committee. Students and agency directors gave written informed consent in accordance with the Declaration of Helsinki. Information sheets describing the study were provided to agency constituents. The six agencies were: (1) a "soup kitchen" that had an after school art therapy program for children; (2) a children's hospital that used community volunteers to staff their children's art program; (3) a residential substance use treatment program for homeless men; (4) an outdoor street art installation where art and recycling classes were offered to school age youth; (5) an organization that sponsored a fund raising race for cancer research; and (6) an art program for people with physical and cognitive disabilities.

At first, the faculty wanted to study students' and agencies' experiences with service-learning in an Art History class titled Art as a Social Practice, where participation in service-learning at one of the six agencies would be the main assignment. This course was scheduled for the winter semester, allowing time in the fall to prepare for the AHSL. The faculty also had planned to enlist students enrolled in an art therapy research class to assist with some basic data collection. However, the plan was modified when in a preliminary meeting, the agency directors expressed their desire for AHSL placements to extend beyond one semester, due to the time and effort on their part to train students. They also voiced a need for assistance with assessing *their* programs and their programs' impact on their constituency groups. Ordinarily in planning for service-learners, the community partners provide some general ideas of how service-learners could contribute to their agencies, and then the specific contributions are negotiated, depending on the capacities and interests of the students in the class. Although the agencies expressed a desire for research assistance, we were not sure whether the art history students

had research expertise, and thus we began to explore other options.

Because service-learning assignments were connected with semester-long courses, the university calendar seemed to be an insurmountable obstacle. Yet, as the faculty considered how the agencies' needs could be met, we realized the art therapy research students typically did enroll in two consecutive semesters: in a research methods class followed by a master's project class. We wondered whether the research students could provide some greater continuity to the agencies if they had a two-semester presence, and, since the agencies expressed interest in program evaluation, whether the research students could acquire the research knowledge they needed by assisting the agencies with their research agendas. Ultimately, both agency directors and university faculty decided this was a worthwhile option to try: The research course would be taught from a service-learning perspective, meaning that the role of the ATRSL students would be negotiated with the agency just as any other service-learning relationship, so that the capacities and strengths of all parties could be utilized to meet the needs of all parties. The ATRSL students would study the agencies, searching for opportunities that the AHSL students could undertake in the subsequent semester. The ATRSL students would consider how they could function as liaisons who could assist with preparing the AHSL students, saving some time and energy on the part of the agency directors. The ATRSL students would also assist the agencies with evaluating their programs as the major assignment in their research course. As research students the ATRSLs were learning about service-learning as well as an action research.

The agency directors were asked to begin thinking about their research questions and what they wanted to know about their programs. The syllabi for the research classes were modified so that the students enrolled could investigate what became the third area of inquiry in the ArtsCorps study: assisting agencies with assessing their effectiveness. Program evaluation was one of the research methods taught in the research courses, so this year, the students had an opportunity to participate in actual program evaluations. In sum, our three overarching research questions were:

- (1) What are students' experiences as service-learning participants, and what are the learning outcomes of their service-learning experiences?
- (2) What are community arts organizations' experiences with service-learning students, and how does the involvement of service-learning students affect the overall effectiveness of their programs?
- (3) Can/how can service-learners support community partners to assess their programs' effectiveness?

Because the faculty and the agency directors each had a stake in the success of the service-learning projects, we were all co-researchers using a participatory action research approach. The faculty, graduate assistants and agency directors met in three focus groups during the year, and in addition to these meetings, we were in regular email communication.

The art therapy research syllabi were developed in consultation with the community partners. The first of the two research courses was planned to focus on the students' learning formative evaluations that they could carry out in the agencies, in teams. The purpose of the formative evaluations was to determine the strengths as well as potential areas of need that could be addressed by AHSL students from the *Art as Social Practice* class scheduled for the subsequent semester, as well as to explore how best to assist the agencies with their program assessments. Required readings in the research courses covered service-learning, community art programs, community based participatory action research and program evaluation. **Table 1** shows the research activities and timeline of these activities.

Data Collection, Research Tools and Analysis

To assess the experiences of the agency directors and the ATRSL students, we collected qualitative data that included pre and post-course questionnaires, students' written reflections at the end of the semester, interviews of the agency directors and focus group transcripts. The questionnaires were developed by the university researchers to capture the information necessary to plan the course and evaluate learning, supplemented with some questions from standard service-learning assessments that were relevant to our particular research questions.

Each ATRSL student completed a questionnaire at the beginning of their research course to determine a baseline understanding of their experiences with service-learning, knowledge of research, and attitudes about community service. They also completed questionnaires at the end of their research course aimed at exploring what they learned. Additionally, students were asked to submit a short paper reflecting on their service-learning research experiences.

The agency directors completed pre and post questionnaires as well. In addition, their focus group attendance was recorded by a notetaker or was audio recorded.

The agency directors were also interviewed by the research students as part of their research of assignments. **Table 2** lists the data collected.

The data collection was overseen by the research director (first author) and the two graduate assistants (second and third authors). Researchers met biweekly to discuss ongoing data collection and emerging findings. Qualitative methods were used to search for themes among the questionnaires, interviews and reflections. The NVIVO Qualitative Analysis software assisted with data management, primarily to corroborate themes we thought were emerging. Each set of data was uploaded into NVIVO so that we could search for frequently used terms (to facilitate theme or node identification). We also searched for terms pertinent to our research questions, e.g., art based service-learning, agency experiences, evaluation, outcomes, etc., to help us identify themes. The main benefit of NVIVO was its ability to code multiple sets of data and to reference the source of the coded data for the researcher's ease of retrieval.

TABLE 1 | Research description and time table.

Course	Pre-fall semester	Fall	Winter
Research 1	<ul style="list-style-type: none"> • Review syllabi for research classes • Contact enrolled students to describe the ArtsCorps Research foci, and begin to generate interest • Confirm agency participation • Schedule agency focus group for service-learning course planning purposes • Finalize selection of service-learning assessments, and/or create assessments • Complete IRB application • Advertise for student assistants to be hired beginning fall 	<ul style="list-style-type: none"> • Students, faculty, and graduate assistants complete IRB training modules • Consent students and agency directors • Administer pre-SL assessment of research students and agency directors • Students in research class learn basic research methods and begin data collection strategies including formative evaluation of participating community agencies • At end of semester, provide agencies with copies of the formative evaluation. This will include recommendations for service-learning assignments and recommendations for research projects for research students in semester II • Administer post assessment for students not continuing next semester • Schedule end of semester focus group, and check in for next semester 	
Art History Course: Art as a Social Practice		<ul style="list-style-type: none"> • At end of fall semester, students enrolled in Art History (AHSL) course will be introduced to the suggested service-learning assignments identified in Sem. 1 	<ul style="list-style-type: none"> • AHSL students will consent to participate in the ArtsCorps Research • Students complete pre-SL Assessment
Research II		<ul style="list-style-type: none"> • Schedule end of semester focus group 	<ul style="list-style-type: none"> • Research assistants and students in Research II course collect baseline data of students in Art History course (AHSL students) • ATRSL students continue to work with agencies on their research agendas • Schedule post-assessment of students and agency directors

TABLE 2 | Data table.

Data describing:	Type of data:
Research students	Pre-research class questionnaire Post-research class questionnaire Reflective paper
Agency director	Baseline or preliminary (pre) questionnaire Post questionnaire Interview Transcripts from focus groups
Agencies	Other data collected by ATRSL students <ul style="list-style-type: none"> • document research • observation • focus groups

RESEARCH ACTIVITIES

Art Therapy Research Students

Prior to the course commencement, a description of the course was posted to the course's online announcement page, in order to inform students about the plan for the research courses this year. That way, students who were not interested in participating in

ArtsCorps research could wait until the following year to enroll the research courses.

As stated, the ATRSL students completed a preliminary questionnaire to obtain baseline measure of their research knowledge. All students completed the questionnaire and participated in all class activities, but only the questionnaires of those consenting to be study participants became part of the data collected. A faculty member not involved in the study administered the consents, and the instructor of the class (the author) did not know who had consented to participate until after the end of the study. A total of 16 art therapy students registered in the research classes during the two semesters; three of these students were in both classes. Twelve students consented to be in the research and there were nine completed sets of pre- and post-questionnaires.

Following consenting the students, the first classes were devoted to learning about the participating agencies through researching their websites and program materials. Basic research topics were covered, with a focus on program evaluation and CBPAR research. The data collection strategies including interview, observation, questionnaire, and document research, and the analysis of data through and using triangulation in the analysis of data, provided the ATRSL students with

opportunities to practice these research methods. The course readings covered projects similar to the ones we were undertaking (e.g., Jones, 1988; Worrall, 2007; Puma et al., 2009).

Baseline assessment or formative evaluation (Fitzpatrick et al., 2004) of the needs, strengths, goals, and missions of the organization was the major assignment. In the first semester. Because the primary purpose of a formative evaluation is program improvement (Fitzpatrick et al., 2004) it was an appropriate method to determine the options for best use of the AHSL students, and also to explore possibilities for assisting the agencies with outcomes evaluations of their programs. To conduct a formative evaluation involved researching the agencies' publicly available literature from their websites or brochures and other documents; observation of its programs, and interviews with the agency director or other personnel.

Although the goal was to ask ATRSL students to choose an agency and to work together as a team, there weren't enough students who enrolled in the first semester for everyone to work in teams. To attract more students, we opened a section of the master's project research class (the research project class for students who had already had a methods class) to run concurrently with the research methods class. We ended up with enough students so that three agencies had two students; three had one. Despite the challenges, the students learned how to triangulate data to search for patterns and themes, and then to write their formative evaluations. An oral report was presented to the agency directors in the class on the last day of the semester, and all directors were given final written formative evaluation reports. These reports contained recommendations for the AHSL students, and research recommendations for outcomes assessments, that could begin the subsequent semester with their research ATRSL students.

In addition to the potential projects for the AHSL students in the second semester, the formative evaluations also revealed potential further direction in terms of research with which the ATRSL students could assist in the second semester: Three agencies expressed interest in evaluating specific programs they offered. The Art Street Project expressed interest in evaluation of a program they called E²CA: Environment and Education, Community and Art; the children's hospital expressed interest in evaluating their "healing arts-in waiting room" program; and Recovery House requested assistance with evaluation of whether or how group art projects promote team building. The soup kitchen requested assistance with searching for literature that would inform their peace curriculum. The Special Arts was determining how to proceed with their research needs, and the cancer race, as scheduled during the second semester was focused on that event. In the second semester the ATRSL students assisted with these activities through participant-observation at the sites, interviews of the directors, and through focus groups with staff and/or adult program constituents. **Table 3** lists these projects.

Agencies

As stated, the agency directors completed preliminary questionnaires asking what they wanted in a service-learning student and types of projects they were envisioning or needed

help with. During the first semester, the ATRSL students interviewed the directors and begin the process of gathering data at each site. The agency directors attended three focus groups with the faculty and graduate research students. At the end of second semester, the agency directors completed a second evaluation about their experiences with service-learners. Because the article focuses on the ATRSL students, the agencies' experiences will be limited to their work with these service-learners.

The following describes the six agencies using pseudonyms, and a short description of the findings from the formative evaluation and second semester research activities, which were identified through the formative evaluations. Following the agency descriptions is a summary the findings of the agency directors and the ATRSL students. A list of the projects of the AHSL students is in **Supplementary Data Sheet S1**.

Recovery House

Recovery House provides residential substance use treatment for homeless men. The aim of Recovery House is to provide the resources necessary for men to become self-sufficient, while recovering from substance addiction. At the time of this project no formal art therapy was part of their program, however, an art therapist had previously been employed there, and artworks and poetry from her tenure were still displayed on bulletin boards. Although the budget prevented replacing the art therapist when she left, Recovery House used artists-in-residence to provide some arts programming. The men were fond of the mosaic tile murals they created with the assistance of the artists and which were displayed in the front lobby, on an outside wall, on outdoor benches and on garden stones. One mosaic in the front lobby was titled "Bridge over Troubled Waters," as a metaphor for their treatment. The purpose of the formative evaluation at Recovery House was to become familiar with programming currently offered to residents, to understand how the art programming enhanced the treatment program, and to learn about the needs of Recovery House that could be addressed by a service-learning student.

The formative evaluation was conducted through collecting information from the program's website, brochures and annual reports, a tour of the facility, interviews with the program director and other administrators, an exhibition of art of current and previous Recovery House residents, and conversation with current residents about the programs.

The ATRSL students were told by the residents that initially most wanted nothing to do with art, saying things like "I never did like art," or "art... and therapy? They don't really go together!" But eventually the men began to enjoy the art; some used the art making time to make gifts for their families, which made them feel good. One man described his experience with art as "taking [him] to another world"; others experienced a "child-like feeling," or just being relaxed. Referring to the Bridge over Troubled Water mural, one man said "a lot of us came together," noting the camaraderie that developed in the process of art making. Men who previously felt hopeless were now praised and encouraged to continue artistic efforts.

TABLE 3 | Projects Completed by Art Therapy Research Service-Learners in Conjunction with ArtsCorps, Semester 2.**Evaluation of Service-learning Experiences of Art History students**

Students conducted a literature review of *service-learning in higher education*, and analyzed (AHSL) student experiences with service-learning using pre questionnaire/baseline assessment data, analysis of student blogs and a post/end-of semester questionnaire. They also helped interview agency directors.

Summative Evaluations of select agency programs

Children's Hospital: Students worked with Children's Hospital to create, then refine / revise an instrument to evaluate children's satisfaction/experiences with the hospital's healing arts group participation.

Art Street: Students helped with program evaluation of the pilot E²CA program. The evaluation protocol included collecting questionnaires from child participants, observations of the program and teacher interviews.

Recovery House: Students assisted with evaluating the *Yes, We Can* mosaic project. They contributed to the development of the "pre" and "post" assessment of data investigating the extent to which the art form fostered team binding, and they were participant observers.

Program Proposal for the Soup Kitchen

An ATRSL worked on art therapy program development for the soup kitchen, at their request. This entailed a literature review on peace curricula and interviews of art therapists in similar programs. A program was proposed in writing that integrated peace curricula.

Grant for Recovery House

An ATRSL worked with Recovery House personnel to write a grant for funding for an art therapy position.

Historical research/ literature reviews

An ATSL student researched:

What programs exist that are similar to Arts Corps?

A second student researched *What are programs similar to ArtsCorps?*

A third student researched *Assessment in community agencies with arts programming* through a literature review.

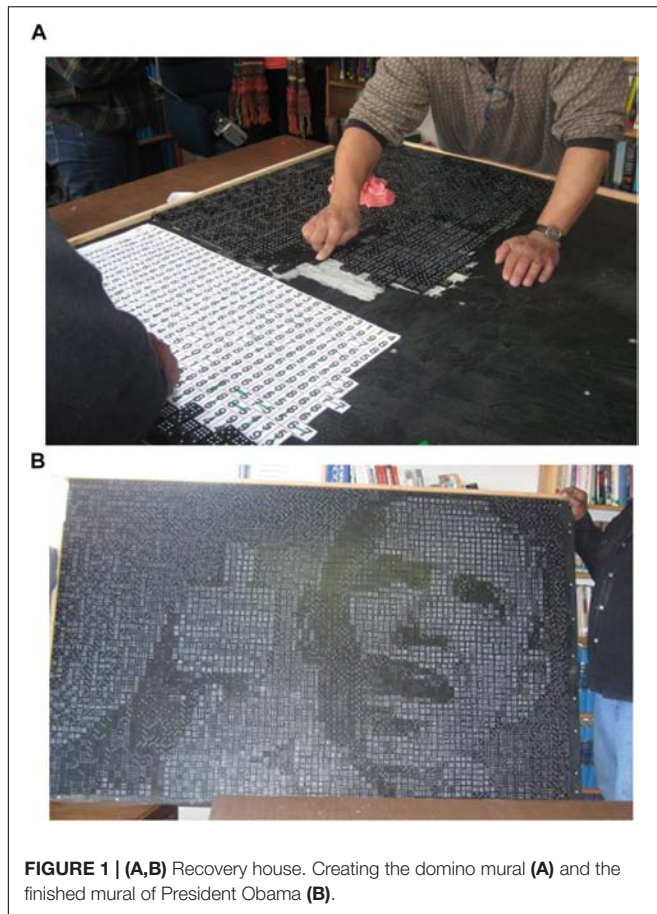
Together, the focus group, staff interviews, and the facility that prominently displayed the art indicated that the art programming at Recovery House had positively influenced the men and assisted in their recovery from addiction. The ATRSL student researchers recommended the goal of hiring another art therapist to provide therapeutic programming, in addition to the existing recreational/leisure art groups. The ATRSL students determined that an AHSL student could also support the art programming by initiating new arts programming or working closely with the current art studio volunteers to allow them to do more. Other ideas included enhancing the exhibits there or looking for venues outside Recovery House that could promote advocacy or serve as public awareness about recovery and reduce the stigma about drug addiction.

Observing the creativity of the population – the interest in mosaics especially, the Recovery House director requested assistance with evaluating whether or how group mosaic projects facilitated “team building,” noting that it is sometimes difficult to become invested in the treatment program until individuals feel a sense of belonging in the community. Additionally, participation in 12-Step recovery groups is an important facet of long term recovery. If comfort with such group experiences could be developed early in treatment, the director hypothesized, this would positively impact recovery in the long run. Furthermore, the director thought that if art making could be implicated in the process of team building, this evidence would be instrumental for future grant applications. The group of Recovery House residents voted to use their stipend from ArtsCorps participation to purchase a grid pattern designed by world-renowned mathematician, Robert Bosch that diagrammed a domino mosaic portrait of

former U.S. President Barack Obama. The men co-created the domino mosaic, and their process was evaluated by the ATRSL students, who searched for evidence of team building (**Figures 1A,B**).

In the second semester, the ATRSL students developed a summative evaluation protocol using participant observation of 11 domino mosaic sessions over 26 days; pre and post-mosaic surveys completed by participants; daily written participant self-assessments, a culminating focus group, and interview with the agency director. Throughout the 11 sessions, service-learners observed impulsivity (gluing before reading all instructions), frustration (bumping the board and needing to start over again), and competition vs. cooperation (individuals vying for leadership), but also that eventually the group collaborated and worked together as a team. The men described their process as “challenging . . . hectic at first. . . all chiefs and no Indians.” They identified “gravitat[ing] toward what they wanted to do and keep[ing] each other in check.” Most were “loners” at first but the mosaic activity facilitated interaction: “You see another part of people. . . We knew of each other but with this we came together.” About half the men indicated that they enjoyed working as a group and that it positively impacted their mood. The group was relaxing as well as stimulating, with exposure to new ideas. The participants also gained personal awareness, evidenced by such comments as: “I found out I am stubborn. . . I can’t draw” or “I can do things. . . I didn’t have to be so depressed today. . . I learned to be self-sufficient. . .”

Partially because of the interest in poetry, and also to use an art-based method, the focus group was structured so that the men could write a poem to summarize their mosaic experience. The service-learners created a word bank with words heard during the



Yes, We Did

I had use my brain
to get the pieces right and relieve the pain
We need responsibility
to reach possibility
to make the mosaic right
It could have been worse but it was all right
I was on a mission
to see the vision
I had to paid great attention to complete the mission
I think it was a great accomplishment to finish Obama
It was so fancy-free to be in this project I didn't know how to be
To complete this hustle, I had to use my muscle
It was great thing to know Obama was the King

FIGURE 2 | Yes, We Did poem co-written by participants.

art making sessions. The men were encouraged to use the words to co-create a group poem, they titled, “Yes We Did” (Figure 2) an homage to former President Barack Obama’s slogan, “Yes We Can.”

Art Street

Initiated by a Detroit artist in 1986, the Art Street Project is literally an outdoor art installation covering a residential street,



comprised of discarded objects (stuffed animals, shoes hanging from trees, television sets, car parts, etc.) assembled in ways to make social statements, combined with large paintings or sculptures by the artist (Figure 3). Art Street has been described as a public art movement and is the third most visited cultural tourist site in the city, attracting over 200,000 visitors annually. It is categorized as a non-profit art center with a mission to inspire people to appreciate and use artistic expression to enrich and improve their lives, and to improve the social and economic health of the neighboring community. The project continues to expand and build momentum by developing new programming such as a children’s art program called Education, Environment, Community and Art (E²CA), where, in the fall and spring, children learn to make art and care for their community environment, and in the winter work inside the studio of the founding artist. E²CA was established through a grant to provide a comprehensive program that helps rectify the lack of art education in city public schools and at the same time teaches children the value of the environment and community. In addition to the E²CA, Art Street offers public festivals, tours, workshops, and a young artist mentoring program. Although offering art education to children through access to Art Street has always been a part of Art Street’s mission, the E²CA program is the most extensive program to date and a big step toward bringing the Art Street philosophy into public awareness. Thus, Art Street was interested in understanding its impact.

The E²CA program endeavors to engage and educate students to take responsibility for their home and their community



FIGURE 4 | Art Street's Artist's exhibit, Streetfolk. Photo: Michelle Figurski.

in creative and resourceful ways. City schools can request to have the E²CA as part of their curriculum. The program begins with an introductory presentation and workshop at the participating schools facilitated by trained docents from Art Street. This presentation provides an overview for the teachers and students, who are then taken on an interactive guided tour of the Art Street site. The tour includes a personal visit with the artist-founder at his studio. The teachers at participating schools are provided with a seven-week, arts-based lesson plan for grades 3, 7, and 11 to implement within their standard curriculum.

Art Street wanted to measure the impact of E²CA on the children. The formative evaluation was designed to provide Art Street with useful information about factors that influence the implementation of the E²CA program and how they could collect useful data that would help improve the program. Interviews were conducted with the executive director of Art Street, her assistant, and the program coordinator of the E²CA program. In addition, the ATRSL students took a tour of the street and observed the reactions of various visitors also present. A review of program materials was also completed. The results of the formative evaluation recommended collecting multiple sources of data from the E²CA constituents: students, parents, teachers, school principal, the E²CA program coordinator, and Art Street docents in order to look for

evidence of the students' learning and applying the program concepts.

Potential responsibilities for AHSL in the next semester were recommended to include observation of the E²CA classes, and/or to assist with other aspects of the evaluation. For other AHSL students, the Art Street artist was preparing for a new installation on homelessness, and he would need assistance with that (See Figure 4).

During the second semester, two new ATRSL students followed through with the plan to evaluate the E²CA program, beginning with reading the formative evaluation written in the first semester, and developing questionnaires for students and classroom teachers based on the stated objectives of the program:

- Learn new ways to improve one's community without the use of expensive or precious materials.
- Learn the principles of how to reuse and recycle.
- Practice community building in school through collaboration and teamwork.

The questionnaires were designed to be administered to the students and the teachers at the beginning, at the mid-point and at the end of the seven-week program.

Over 120 surveys were collected from students at the two participating schools, the two teachers and the Art Street E²CA program coordinator. The survey responses from students and teachers, observations in the classroom and on-site and in-studio, indicated that some of the students involved in E²CA understood the principles of using art and recycling to improve a community, and learned various facts about the Art Street art and its history. The individual responses from students, particularly when verbalized, provided stronger evidence of their learning. However, because some students did not respond to written or verbal questioning, it is unknown whether they took away knowledge from the program.

As this was the first year of the program, the evaluation continued by ATRSL students in the second semester provided more in the way of formative data (than summative data) for program improvement. For example, an interview with one of the teachers who was asked, "How has the students' learning been impacted?" responded, "They have more awareness about recycled art, however, the classroom is currently doing nothing to promote recycling efforts." The teacher has implemented the program in school by "classroom discussion." This sort of information was useful to know in order to consider ways to improve the program. The elementary students did seem to learn something about art, e.g., "That you can make anything if you put your mind to it. . . It's more than just art. . . Some art makes us remember the past" were a few of the comments, but learning about art was not one of the program objectives. This information was also useful to Art Street as evidence of what children did learn, that perhaps could be integrated into the E²CA program to enhance it.

A Children's Hospital

The children's hospital employs one paid staff person in a role titled, Arts Advisor, who coordinates volunteers who facilitate



FIGURE 5 | Children's hospital art group.

several arts initiatives that include art making in waiting rooms, offering art projects in children's rooms at their bedsides, and group art projects led by community organizations, such as the city art museum, local pottery studios, or scout troops (Figure 5). The Art Advisor sought information to determine whether the volunteers were being used most efficiently or whether she could better maximize her resources to improve services. Of particular interest was the waiting room art making program in which art activities were offered to children and their families while awaiting their medical procedure. The Art Advisor was curious to know whether making art before a medical procedure helped to reduce anxiety among the children and their families.

The formative evaluation was conducted by one student who completed three interviews with the Art Advisor, and three observations of children's waiting room art sessions (facilitated by artists and other additional volunteers), including one session in which she participated. The ATRSL kept written reflections of her observations and cycled back to the Art Advisor with questions about her observations and her reflections. During the observations the student noticed that the volunteers did not appear to have direction or goals, but rather they were present and interacted with the children. In her reflections the ATRSL noticed the dynamics or interaction between participants and artist/student-volunteers, the therapeutic environment established and the consistency of approach of the volunteers; the goal of each group, how the arts seemed to help each person, whether they appeared to reduce anxiety; and how the arts were viewed by the hospital as a whole.

The ATRSL observed children from age one through adolescence attending the art making sessions along with their parents and siblings. She observed assigned topics in art making, free choice art making, group art projects and socializing during the art making sessions. She observed different roles of the artist and non-artist volunteers. The artists provided a creative art project while the non-artist volunteers offered drawing sheets. There was a lot of movement of the children being called back

and forth to see the doctor, so that the art making could last from 30 min to 2 h.

The ATRSL thought that in order to determine how to improve services, a survey could be designed with input from constituents: the volunteers, children and families and any other service-learners or interns. She devised a pilot survey with three questions: two Likert style questions in which children could indicate using pre drawn facial expressions whether they liked making art or whether it improved how they felt. The third question, "What did you like to make?" could be answered through a drawing, with words, or could be completed by the parent. The ATRSL collected 16 of the "pilot" evaluations completed by child participants, assisted by art facilitators (i.e., artists or volunteers) who checked appropriate faces following participants' verbal responses. All data showed "Strongly Agree" in the statement, "I liked making art during my visit"; 14 showed "Strongly Agree" in the statement: "I felt better after my art making sessions," while 2 showed "Agree" in the statement. The free choice answers included drawings of symbols like heart shapes and flowers. Other answers were: "everything, scribbling, stars, sticker squares, or collage." In addition to this survey, the ATRSL developed a survey for volunteers to ask about their hours, schedule and activities during volunteering, which was completed by three volunteers.

One outcome of this formative evaluation is the draft of the survey instrument and the student's interpretation and recommendations of next steps. Recommendations of potential roles for the ATRSL students were to recruit participants for the art making sessions, assist artists, provide art activities to the art groups; and otherwise assist or provide feedback to the volunteers. Recommendations were made to the Art Advisor as well, for example, meeting with volunteers before and after their sessions to provide information or ask for feedback for planning purposes. Recommendations to the ATRSL students for the next semester were to refine the survey, administer more surveys, and determine whether bedside art activities could also be evaluated for their anxiety-reducing potential.

One ATRSL began the second semester by observing one of the waiting room arts sessions and she also participated in creating art with the children. The ATRSL observed how the artist-facilitator introduced the project, which, for the particular session was a collage, and welcomed the children to join. There was no specific directive for the collage; but rather materials were available for children to construct a collage on a topic of their choosing. There was no discussion of children's feelings regarding their illness or upcoming procedures, just art making. The children often joined and exited the group multiple times, if they were called to provide information to the nurses. After making art, the ATRSL observed that the artist-facilitator orally presented the questionnaire (developed in the previous semester) to each of the participants.

The ATRSL student found areas to refine on the 3-question survey including a place to add demographic data (i.e., gender and age). How children learned about the waiting room art making program, and how frequently they attended the art making session were also added questions. The ATRSL furthermore, reordered the questions so that what the children

liked to make would be the second question. In the second semester, the questions were modified to be:

How many times did you make art during your stay?
 I liked making art during my visit (Strongly Agree – Strongly Disagree).
 What did you like to make?
 I felt better after my art making sessions (Strongly Agree – Strongly Disagree).
 How did you learn about this program?
 Gender, Age.

This student also noticed the circles with facial expressions did not match the words, and she reordered the items so that the feeling and the image corresponded, e.g., so that “Strongly Agree” would correspond with a smiling face.

Forty-four completed questionnaires were entered into SPSS by the ATRSL student to calculate the mean, percentage, and the minimum/maximum of each category. Among the responses was that 59.1% strongly agreed that they felt better after making art and 38.6% agreed.

Soup Kitchen

The church-sponsored soup kitchen began an art program for children who arrived after school, about 2 h before the scheduled dinner serving. The staff referred to the art program as “food for the soul.” An art therapist designed and directs the art program, which is based on the values of education, creativity and imagination. The soup kitchen allows working families to come for meals to help them stretch their income.

Because of the unique nature of an art therapy program in a soup kitchen, the director is always looking for other similar programs that could provide ideas with which to enhance the programming. In addition to the art therapist, the art therapy program is supported by volunteers who sit at tables with the children as they make art. According to the art therapist,

everyone strives in everything we do to help our children love and care for themselves and the entire Earth community, think clearly, make choices wisely and learn alternatives to violence. Our emphasis on the arts is to stretch imagination, foster creativity and offer safe expression of feelings and values. The foundation of all we do is respect for the child and support for their families.

One student headed up the formative evaluation of the soup kitchen. She read program literature, attended a volunteer orientation, interviewed the art therapist, and attended an art therapy session. She learned that the art therapy goals and projects are planned in advance by the art therapist and volunteers. One of the adults at the table conveys the goal and instructions and if there are other volunteers they assist the children, or talk with them. The children are graded on the peace practices of creativity, courtesy and cooperation. Twice a year there is a “graduation” where the children are acknowledged for their participation and their “grades” for these peace practices. The director expressed a desire to know whether similar programs like her program exist, or if there was literature about how to teach peace to school aged students.

Art History service-learners students in the subsequent semester’s class were recommended to emphasize the youth’s artistic creativity and assist with their art creations. The research students continued with the peace curriculum research. For example, in the second semester an ATRSL student completed a literature review on peace curricula, and also developed a program proposal for a peace curriculum (**Figure 6**).

Cancer Race

The Race to Cure Cancer is a city-wide race with approximately 40,000 participants that takes place annually to raise money for cancer research. It is associated with a cancer treatment center in which art therapy students have interned. The race takes place annually in the spring, which coincided with the second semester of our research study. On the 20th year of the race, the race director and staff wanted to commemorate the anniversary with a new dimension. Their vision was to offer a creative activity to race participants and their families that would allow race participants to creatively honor a loved one who had cancer, as well as to also offer a program for families with children who may be waiting for a family member to complete the race. The race personnel (agency partners) desired to enlist the help of arts service-learners to develop such a commemorative activity, but there were challenges to doing so that included determining a location appropriate for such an activity in the midst of high intensity pace of the race, no budget, and lack of storage for keeping any art created, after the race.

In the first semester, the ATRSL students conducted a formative evaluation to assess the resources and limitations involved in initiating a new annual commemorative event. Interviews were conducted with relevant personnel: the race (agency) director, the director of volunteers, and a longtime volunteer and the person who coordinated a children’s activity the previous year at the race. Additional data were collected through an email survey distributed through the cancer agency data base, observations of other fundraising events of the organization, a review of the agency’s published program materials, websites or practices of other US races. Finally, a review of literature on memorials such as the AIDS quilt helped to inform the project, and helped generate a list of potential ideas for the memorial art making activity. Ideas included a graffiti wall, sand mandalas, memory book with photos contributed by participants, group weaving, trees on which photos could be posted, performance art.

During the initial interview with race personnel, the authors posed the question, “What would you consider to be a successful event?” The responses suggested that success would be indicted if “Someone with a loss felt that they had a safe and special place to go experience the person’s memory;” Also, success would mean there was “a place for someone to think; a place to celebrate their life,” meaning both the lives of survivors and those taken by cancer.

In the second semester, the formative evaluation was shared with the AHSL student who designed and carried out the commemorative event (**Figures 7, 8**). Due to the impending race schedule, the race personnel did not think they had a need for ATRSL students in the second semester. They chose to concentrate on the service-learner from the Art as Social Practice



FIGURE 6 | A view of the soup kitchen's art room and peace tree.



FIGURE 8 | Cancer race commemorative art.



FIGURE 7 | Making commemorative beads at the race to cure cancer.

class who facilitated the creative activity desired. However, in an end of semester focus group, the race personnel expressed that

the commemorative event seemed so successful that they desired to capture participants' responses to it through an evaluation in the future.

Special Arts

The mission of Special Arts is to create an inclusive society where people with disabilities participate in, learn through, excel in and enjoy the arts. Special Arts addresses its mission in part through a program called Arts, Jobs, and Mentoring, which is a weekly after school program for teens located in two schools. Arts, Jobs, and Mentoring was the program for which Special Arts sought assistance. In this program youth participate in poetry/writing, visual art, music, and performing arts "to develop life enhancing and pre-vocational skills that prepare them for entering the world or work. . ." Special Arts was looking for methods to identify how the Art, Jobs and Mentoring program impacted their participants.

Two ATRSL students reviewed the Arts, Jobs, and Mentoring operation and assessment practices, and explored research methods that could enhance their current efforts to determine whether their goals were being achieved. The ATRSL students interviewed the director and the two teachers of the programs in each of the two schools. They read program descriptions, and observed a class. The researchers wanted to interview school personnel or survey students and parents, but this was not possible.

The data they collected revealed that transportation was a problem at one school, impacting participation and attendance. Furthermore, both schools collected data but did nothing with the data. The researchers looked for a theory of program-process that would help to reveal the problems preventing analysis of the data, as well as other in-process data collection methods that might be used for program improvement.

This formative evaluation study researched three perspectives on how to achieve Special Arts' goal of measuring the personal development of students participating in the Art, Jobs, and Mentoring program. Secondly, to capture the strengths of the artistic elements of the program, the ATRSL students planned to further investigate how other community arts programs achieved program evaluation.

In the second semester, multiple factors resulted in no AHSL student being placed at Special Arts. Had there been a student with a strong interest in the program, Special Arts would have accepted the student, however, this was not the case. Also, the director had decided to retire, and the agency was consumed with making plans following the retirement.

In order to assist Special Arts as much as possible, they were offered the assistance of a doctoral student from the university who had the kind of statistical expertise that Special Arts desired. In addition, an ATRSL completed a literature review on Assessment of Community Art Programs, and a copy of this review was provided to Special Arts.

FINDINGS/RESULTS

The findings are organized by the three research questions:

What are students' experiences as service-learning participants, and what are the learning outcomes of their service-learning experiences?

Sixteen total art therapy students enrolled in research courses in the two semesters, including three who were in both semesters' classes, despite expecting the same students to register in each of two consecutive semesters. Twelve consented to be research participants. Excerpts from the questionnaires are displayed in **Supplementary Data Sheet S2**.

The students demonstrated willingness to learn research as research participants themselves. They learned methods that would have been taught in a non-service-learning research class, plus they were able to practice the research methods with real agencies, which was according to students, "exciting" and "broadened horizons." One student wrote, "the more I learn, the more I gain," and another wrote,

Basically, I'm surprised by the interesting challenge of the master's project. I don't think I would have attempted this research on my own so I am grateful for being thrown into the deep end and excited to have the chance of possibly providing a valuable service to an organization.

The research products were also evidence of students' research knowledge gained; in particular, program evaluation. One student wrote, "Learning about the components of program

evaluation has given me ideas about how to look at programs critically, but not as a critic."

The depth of student learning is exemplified by this comment:

I've learned that defining goals and objectives clearly and knowing the purpose of the research is key in collecting useful data. . . It seems that through research the providers of a program can clarify its purpose and impact, but the trouble is most arts-based organizations don't have the time, staff, or resources to implement their own research. Something I have realized through the reading in the class is how essential the theoretical model of an organization is as well as the theory behind the research being conducted. I also have become more cognizant of collecting process data and how it can enhance and breathe life into outcomes data.

Several mentioned that this experience might be useful to them in the future if they were in the position of managing an art therapy program. One student indicated the value of interacting with volunteers or others who might be able to enhance an art therapy program.

One student acknowledged the importance of community research, that "we cannot focus on the lab only." A second commented that "although the amount of research we did was minimal, it may have a powerful impact on the community partner."

Service-learning fostered personal growth: Two students wrote about learning how to work with frustration, and "how to stick with doing things and doing your best even when you didn't want to." One student wrote that because of the stress induced by this particular course, the student "... learned more than research. The most important thing I learned was that 'it's actually ok to ask people when you need help.'" One student was "nervous about the whole interview process [but] I think I handled myself well." Another acknowledged "the experience influenced me to pursue grief and loss as a focus area."

Service-learning contributed to both positive and negative personal awareness through working with others. Two positive comments about partners were that working with a partner was enjoyable, and made it easier to brainstorm "by having someone with whom to discuss my findings or interpretations of data." Community skills, cooperation skills and compromise were also mentioned. There were difficulties noted with working as a team and the distribution of work load. One admitted not being easy to work with. One student did not "feel a connection" to the other student partner, but did feel a connection with the agency. Others wrote that the effort and time involved was more than expected and they were challenged with time management in spending time in the field with working and going to school.

There were equal numbers of opinions for and against the way the class was organized. Some students did not like pursuing a research agenda not of their own choosing, whereas others "liked that the topics were given to us to choose from rather than finding my own topic." One student wrote,

I was excited. I willingly dropped my original master's project focus to dive into something that was hopefully and going to provide useful information to serve a valuable

purpose for an arts-based non-profit organization. . . Do I feel I am doing something worthy? Yes.

What are community arts organizations' experiences with service-learning students, and how does the involvement of service-learning students affect the overall effectiveness of their programs?

During the final focus group all of the agency directors unanimously agreed that the formative research performed throughout the first semester increased their awareness about art-based service-learning. Furthermore, the first semester's research activities helped the agencies prepare for the subsequent semester when they had the additional AHSL students.

The agency directors also acknowledged the benefits of the research to their agencies: The research students helped to create new program elements or increased the diversity of programs offered; they helped to identify or develop new resources and helped serve the patient population. The directors enjoyed the mentoring relationship and they commented on the personal qualities of the ATRSL students including excitement, enthusiasm, new ideas, knowledge, a youthful point of view, sense of optimism, and belief in creativity. Despite the benefits, students cost agencies primarily in terms of time. A more detailed list of benefits is provided in **Supplementary Data Sheet S3**.

In the first semester, the agency directors answered questionnaires aimed at determining what kind of service-learner they desired, and also the types of projects with which the service-learners could expect to assist. Personal qualities were important to a successful service-learning relationship. The qualities directors said they looked for in students included motivation/passion, responsibility/commitment, independence, creativity, emotional intelligence, leadership/ability to be a role model, flexibility, preparedness.

Although the specific projects undertaken ideally are negotiated between the agency and the individual service-learner in order to engage the student's strengths and abilities, the university researchers hoped that by developing a list of potential projects, incoming ALSL students could begin thinking about the possibilities before the semester they were enrolled, possibly allowing them to begin their work right at the start of the semester. This was a small concession toward the problem expressed by agencies: that the time necessary to orient and train new students leaves insufficient time in the same semester for the students to contribute, leading agencies to feel that students' contributions are not worth the agencies' investment in the service-learning relationship.

We did not completely solve the problem about service-learning's connection to a single university semester. Based on our reflections and discussions in our bi-weekly research meetings, as well as focus group discussions, possible resolutions for scheduling problems and suitability of fit included: (1) development of clear expectations for service-learning students and agencies, (2) improved assessment of strengths of students in order to suitably match with agencies, (3) more opportunities for feedback in order to improve communication between students and agencies, and (4) establishing incentives for service-learning students to continue on in agencies to establish consistency and continuity.

Assessing Program Effectiveness and Outcomes

This article has been focused in large part on describing how the research service-learners "supported community partners to assess their programs' effectiveness" through formative evaluations and then through summative evaluations or other culminating projects useful to the agencies.

As stated, the ATRSL students attempted to respond to the needs of agencies for continuity of services over more than one semester. The research students continued their presence at the agencies in research capacities, but also as liaisons between the agencies, and the AHSL students in the second semester.

The research undertaken at Recovery House and the children's hospital, especially, have allowed for the collection of data from community participants (the constituents of the agencies) which helps to inform art therapy practice in terms of how art making is experienced by individuals.

At Recovery House, the project assessed was building a mosaic with dominoes using a grid, something that could hardly be considered art making. However, the resulting product was displayed as art and there were technical skills and process decisions necessary to accomplish it. What the project seemed to do was to foster the team building that the program desired. Perhaps not unlike the old-fashioned quilting bee, working in close proximity with other recovering persons enabled talking to one another and learning about one another. Another outcome of the *Yes, We Can* mosaic was that the men were proud of their co-creation; proud of its message to other recovering people, and proud of being in the recovery community. Collective self-esteem (Taiffel and Turner, 1986) is defined by the way a person's concept of self is derived from both personal identity and social identity – or, that part of individual's self-concept, which is based on membership in a group, and the emotional significance attached to that group. The men seemed to develop a sense of collective self-esteem about being a member of a recovering community, and they desired to share their knowledge of recovery with others.

At the children's hospital, the 44 collected questionnaires showed that 59% of the children strongly agreed and 38.6% agreed that they felt better after making the art. Both female (25) than male (18) children participated, ages 1–17. Twenty-two of them were ages 7, 8, or 9. These are some basic descriptive data about therapeutic art participation that allow for a deepening line of inquiry, such as, what about the art making made you feel better? How do you describe feeling better? These are the types of questions that could be pursued in subsequent semesters. Furthermore, service-learners could observe and collect information about the kinds of art projects that produced the most favorable results.

DISCUSSION

The value of qualitative data is that they focus on naturally occurring, lived experiences, provide rich descriptions on what life is really like and the meanings people attribute to their experiences (Miles et al., 2014). Sometimes surprises lead to important follow up. For example, we were surprised that some students had difficulty working together; we assumed that

the art therapy graduate students would be supportive of one another and have the interpersonal skills that would enable partnerships. Although most seemed to, not all did. Thus, it may be important for instructors not to make assumptions about students' abilities to work in partnerships with others, but rather to include a discussion about expectations, and work to help students develop interpersonal skills. Recovery House wanted students to assess whether or how a group art project facilitated teamwork. It is important that student researchers have some awareness of their own abilities to function as team members. How can professors foster community and relationships in a classroom? How can graduate programs facilitate interpersonal connections among its student body? If fostering community is so important, should art therapy educators do a better job at this ourselves?

The question of how students experience service-learning was intended to pertain to all the service-learning participants, such as those AHSL students. Because the ambitious research responsibilities consumed much of the time for reflection, this may have impeded the experience of the ATRSLs. It could be that students did learn more than they realized, but they might have learned even more with consistent encouragement to reflect on their knowledge construction and affective development. By definition, the research students had a service-learning assignment: they provided a service to the community that was valuable as well as relevant to the course description, yet without the consistent reflection, we believe the students missed an important component. By the end of the semester, when the students gave their presentations to the agencies, and all the students heard the presentations of their colleagues, some students remarked on the gratitude they felt to have been part of this research project. They finally seemed to recognize the meaningful work that they did. We wished we could have been more effective in cultivating a sense of activism, better balanced with managing all the other responsibilities during the semesters.

Although one motivation for engaging the research students as service-learners was their anticipated registration in two consecutive semesters, which would have allowed for continuity of presence at the agencies, as it turned out, not more than three students registered for both of the research courses. Yet, because of the effort to ensure continuity through ongoing projects, through mentoring the incoming students at the agencies, this seemed to help achieve that sense of continuity, and reduce the burden of time to orient the new students. Still, relationships are individually made, and this dilemma continues to be explored.

Community engaged scholars (McNall and Barnes-Najor, 2018) assert that student learning outcomes and community outcomes associated with CBR are largely uncharted territory. This article begins to navigate that territory. This study demonstrated a process to research that sought practical knowledge desired by the community partners. Watkins and Shulman (2008) ask researchers to reflect on whether the work we do mirrors our dream for a community or the community's dream for itself? Our research mirrored both dreams:

For the community, the university partnership provided outside perspectives on community strengths and helped identify places where service-learners could assist communities with realizing their goals. Although we did not continue with the service-learning assignment in the research classes, this shift in attitude is something we have endeavored to foster in other field based classes. That is, to approach art therapy practice less as the expert, and more as a student of the community agency, receptive to what the community can teach the university constituents. Students also begin to think less about what the agency experience can add to their resumes and more about how they can contribute to and support the agencies' goals.

The focus groups allowed agency directors to meet each other and support each other. In fact, the agency directors also requested ArtsCorps to continue to share any future opportunities for the partner agencies to collaborate with one another.

Once, one of the agencies announced a fundraiser and in a subsequent meeting someone from another agency donated a gift basket. Small gestures like these seem indicative of community building. More importantly perhaps, like the sense of collective self-esteem we believed we observed at Recovery House, something similar seemed apparent in the focus groups. As the agencies talked about their services, they did so with the sound of pride. Their own sense of identity as an arts program seemed bolstered by membership in a group of similar agencies.

The relationships between the university and the agencies continue today, and additional opportunities have developed from our relationships: Art Street was able to hire one of the AHSL students as a curator, who then was instrumental in mentoring ArtsCorps volunteers. Art Street and the Art Therapy program have applied for grants together. Currently Art Street is planning a conference studying its 30-year history to explore its contributions to its constituents and to the city. Art therapy research students will have key roles in participant observation and recording of the breakout sessions.

The children's hospital continued to study the waiting room art program. The ArtsCorps pilot led to approval of a hospital IRB, and a third research student who collected 150 surveys from children and parents, and the research continues.

Recovery House established an art therapy position, and the art therapist mentors students in service-learning and internship capacities. The ArtsCorps graduate assistants helped write a successful mini grant for the Soup Kitchen, which provided for programming for their peace camps, and they hired a second art therapist. The Special Arts program continued to accept interns, as does the Cancer Center, which also hired another art therapist. The cancer center's creative/commemorative event grew with subsequent years' service-learners. For example one student worked with girl scout troops and other community groups to make hundreds of life size cardboard figures, all painted pink for breast cancer awareness, and they were placed along the race route, with names of loved ones. The Cancer Race now desires to assess the impact of the commemorative art making on those who participated.

For 5 years, the ArtsCorps program collected data from arts service-learners; and with a total of 11 agency partners who continued to participate in focus groups on mutually beneficial service-learning programming. We collected data from four art therapy introductory classes, and two music education classes. These findings were reported in Feen-Calligan and Matthews (2016). Although we have closed the research study, we continue to have service-learning assignments in the introductory art therapy classes.

The agencies' interest in evaluations led to the idea that ArtsCorps could sponsor weekend evaluation "camps," staffed by service-learners with expertise in urban studies, social work and psychology who together could work with agencies to develop logic model evaluation plans. We successfully applied for grants that allowed us to offer two sessions of "Camp Evaluate" which were attended by two of our original research partners as well as new agencies.

As Harkay et al. (2000) write, it important to reflect on what we learned and how we could do it better. Future research could benefit from thorough planning the assessments, time and organization of the data collection, survey design and mixed methods. The study suggests that art therapy programs might benefit from teaching program evaluation and outcome evaluation of community art programs.

In summary, students gained research knowledge and skills particularly in program evaluation, a form of outcomes-based research, and they learned about agencies in greater depth than they would ordinarily have learned in experiences like internship. Knowledge of community should serve their art therapy practice. Furthermore, whether they realized it at the time, the opportunities to practice flexibility, negotiation, tolerance, and listening are good preparation for working with others.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of Wayne State University Internal Review

Board, Human Investigation Committee. The protocol was approved by the Human Investigation Committee. All subjects gave written informed consent in accordance with the Declaration of Helsinki.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

FUNDING

Wayne State University Research Enhancement Program in Arts and Humanities.

ACKNOWLEDGMENTS

The authors acknowledge the following students for enrolling in the research classes during the ArtsCorps study and for their contributions to the research: Wendy Case, Tina Doecker, Michelle Figurski, Rick Fosbrink, Rachel Grubb, Karana Hales Haywood, Leah Huber, Shiue-Jia Liao, Jacqueline Kennedy, Erika Magers, Marie Murray, Mona Patel, Amy Rostollan, Meghan Skomer, Emily Sturgill, Meah Tweh.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01548/full#supplementary-material>

DATA SHEET S1 | Art History: Art as Social Practice student service-learning projects.

DATA SHEET S2 | ATRSL student post-service-learning questionnaire.

DATA SHEET S3 | Findings from agencies.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Drawing on the Arts to Enhance Salutogenic Coping With Health-Related Stress and Loss

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The connection between art therapy and specific theories of positive psychology such as Antonovsky's theory of salutogenic sense of coherence (SOC) has been less articulated in the literature. This paper draws a methodological connection between art therapy and SOC, that is, meaning, manageability and comprehensibility, as the components of coping. This theoretical and methodological connection is then explored with a group of participants dealing with the health-stress of cancer.

Method: We conducted a large-scale, qualitative study that included fifty transcribed hours of thematically analyzed arts processes and one hundred art works, used to explore salutogenic theory within a support group for recovering oncological patients.

Results: The results point to the arts as including mechanisms that enhance meaning, manageability, and comprehensibility in an embodied and synergetic way. The art makes it possible both to separate and to 'fill' these three components, while on the other hand, integrating them into a cyclical element. We outline theoretical and methodological implications of understanding art therapy as a methodology to enact and concretize positive psychology theories, as well as presenting a protocol for using arts to enhance salutogenic coping in the context of health-related stress.

Keywords: oncological care, group work, salutogenic theory, positive psychology, art therapy

OPEN ACCESS

Edited by:

David Gussak,
Florida State University, United States

Reviewed by:

Tracy Dee Council,
The George Washington University,
United States
Rachel Lev-Wiesel,
University of Haifa, Israel

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 03 April 2018

Accepted: 13 August 2018

Published: 25 September 2018

Citation:

Huss E and Samson T (2018) Drawing
on the Arts to Enhance Salutogenic
Coping With Health-Related Stress
and Loss. *Front. Psychol.* 9:1612.
doi: 10.3389/fpsyg.2018.01612

INTRODUCTION AND LITERATURE SURVEY

Salutogenic theory, as part of positive psychology, has proposed the novel concept of 'salutogenesis' (the origin of health) for research into stress, as an approach that has contrasted with the concept of pathogenesis or the study of stress pathology and disease development focusing on trauma. The salutogenic model proposes that the goal of health research should be to identify, define, and describe pathways, factors, and causes of positive health to supplement our knowledge about how to prevent, treat, and manage negative health (pathogenesis) (Antonovsky, 1979). Thus, the state of emotional and physical health of each individual is an interactive spectrum between stress and coping (Antonovsky, 1979). Antonovsky broke down the concept of coping into the ability to conceptualize the world as manageable, understandable, and meaningful. These together create a sense of coherence (SOC) which plays an important role in the way one perceives challenges throughout life. SOC is an enduring tendency to see the world as more or less *comprehensible* (the internal and the external world are perceived as rational, understandable, consistent, and expected), *manageable* (the individual believes that s/he has the resources needed to deal with situations), and *meaningful* (the motivation to cope and a commitment to emotionally invest in the coping process

are present) (Antonovsky, 1979). Given their tendency to perceive the world as comprehensible, meaningful, and manageable, individuals with a strong SOC will be less likely to feel threatened by stressful events and will be better equipped to adjust to them (Eriksson and Lindstrom, 2005; Eriksson et al., 2007).

Interestingly, Antonovsky also claimed that salutogenesis can be intensified and consolidated over a lifetime, that is, thinking about and defining SOC can be a way to create SOC. However, he did not elaborate on how this could be done. Numerous studies recently published have shown that SOC may be considered a protective factor during adolescence and that it may contribute to moderating and mediating stress experiences (e.g., Moksnes et al., 2011, 2012; Garcia-Moya et al., 2013a,b).

However, SOC is used more as a research tool, and its concepts are abstract and intellectual when working with different cultures. The arts may be a way to embody, concretize, and internalize the elements of SOC, namely meaningfulness, manageability and comprehensibility, and thus, to enhance them. Conversely, this theory provides a more detailed framework of concepts for art therapy to focus on coping rather than on pathology, and thus, to become a relevant methodology within positive psychology. A more complex theoretical and methodological basis to integrate arts into positive psychology, or to use positive psychology within art therapy, is just emerging and needs to be connected to specific positive psychology theories in specific ways (Huss, 2015).

Art Therapy as Embodying Sense of Coherence

Salutogenic theory contains the basis of behaviorist therapy by focusing on management, but it also contains conceptual and existentialist-humanistic elements by focusing on comprehension and manageability (Carstens and Spangenberg, 1997; Amirkhan and Greaves, 2003; Luutonen et al., 2011). Focusing attention on these three elements – manageability, comprehension, and meaning – and situating these elements within specific situations and narratives may be a way of intensifying them. Art therapy can be a suitable method for enhancing embodied management elements; manageability as a type of embodied aesthetics can thus include elements beyond abstract conceptualizations, as in verbal therapy (Mohanty, 2003; Huss, 2007, 2010, 2012). Art also enhances meaning making and comprehensions by enabling these three elements to interact in the process, product, and explanation of art work. More specifically, creating arts enables enhanced stress management, but at the same time, makes it possible to reflect on the content, understanding it and reaching more enabling levels of meaning so as to create an overall SOC. In other words, the arts include a component of ‘doing’ that, in effect, is parallel to the management element. To elaborate, using art as a main methodology to express SOC components becomes an action-based activity in which the participant ‘manages’ decisions about what and how to depict on the page; figures, images, colors, materials; and more are all managed by the artist to create a narrative. Indeed, Antonovsky (1979)

recommended that the salutogenic model might be applied in action research.

In terms of comprehensibility, the literature on multi-literacy learning points to the arts as providing a concrete and spatial interactive gestalt that can incorporate multiple elements of coping, as compared to the more linear verbal analyses. This enables valuing pictures of coping that have internal compositional coherence in a complex gestalt that incorporates both the stressor, but also the context of the stress, in the relationship between figure and background. This facilitates new, integrative solutions that can include moving closer or farther away, merging, separating, or changing the size and contours of shapes, and centralizing or decentralizing the overall gestalts of the system as a way to manage them (Huss and Cwikel, 2008; Huss, 2012). This helps to reframe meaning, as well.

Overall, the arts as an embodied language are cited as involving a complex dialog between emotion, cognition, and the senses or body that prompts fast, perceptual processing and information gathering while inducing metabolic arousal that mobilizes the organism for managing stress (Nelson and Fivush, 2004; Hass-Cohen and Carr, 2008). The visual gestalt enables a broad, hermeneutic base to reach new meaning structures. Indeed, people have always used the arts to address and express pain and adversity, so as to enhance their resilience through embodied symbolic interaction and self-expression (Kaye and Bleep, 1997; Zelizer, 2003). The arts, as stated above, recreate a connection between cognition, emotion, and the senses (Csikszentmihalyi, 1990). Arts provide an accessible source for the retrieval and interpretation and reinterpretation of stressful sensory experiences, such as illness and medical interventions in the ASD period when the sensory stress image is still flexible within memory (Nelson and Fivush, 2004; Huss and Sarid, 2012).

This salutogenic conceptualization of art therapy differs from the dynamic understanding of art as a projective expression of the unconscious. It is also different from fine art that is focused on the product rather than the process. Art, as described above, including process, product, and interpretation, becomes an embodied aesthetic experience but also a broad phenomenological space for embodying and concretizing a person’s meaning, manageability, and comprehensibility in a single ‘coherent’ art work (Huss et al., 2017).

After arguing a theoretical case for the potential of arts to create a methodology for enhancing SOC for salutogenic coping, we wish to present evidence of how this works in a support group for oncological patients with the stress of treatment and recurring cancer. This fits Antonovsky’s focus on health-related stress. Dealing with cancer is a long-term coping challenge that includes both acute and long-term stress components. This research questions how the arts can be used to concretize and embody, and thus enhance, salutogenic coping.

Salutogenic Coping, Art Therapy, and Oncological Care

Cancer is a life-threatening disease that arouses great stress, although survival is increasing thanks to advances in medicine

and technology. Cancer survivors are under constant stress, suffering many types of loss and worrying about whether the illness will return. There are three central stages in dealing with cancer: the diagnosis, the treatment, and the long-term survival. Problems include fear of dying, coping with the medication, extreme anxiety issues with body image, sexual malfunction, and family problems to name a few. The connection between stress and coping with cancer has been documented in the literature. Thus, learning to cope with stress can help manage the cancer outcomes. The methods of working with the stress of cancer are diverse, and there is no single method proven most effective (Wilkinson and Kitzinger, 2000; Pérez et al., 2014).

Art therapy and oncological care can be divided into literature on art therapy as psychological intervention, and into arts in health as a more macro-oriented general orientation. Art therapy literature describes the use of arts for dealing with cancer as the space to non-verbally describe feelings and thoughts indirectly that are too anxiety provoking. Using images and metaphors can help express this fear-inducing content indirectly. This, on a systemic level, enables communication within the family to occur in the safe and distanced zone of the arts (Wood et al., 2011).

Another conception of art therapy within cancer is the use of art to 'humanize' the patient as a creative person who also has cancer. The arts provide the patient with space to express him or herself beyond the illness level as a whole person. In the context of the dehumanizing and invasive experience of hospitalization, the arts can provide a space where the patient is in control, can make decisions, and can self-regulate the amount of disclosure (Minar, 1999; Balloqui, 2005).

Arts in health literature also describes the arts as helping to humanize the hospital and to create a more welcoming and flexible environment that influences the doctors, nurses, families, and patients on a macro-level. Aesthetic pleasure helps to counteract the painful interventions and aspects of the illness. Arts are also used as a way to distract from the pain of the illness and from worries and over-thinking about the illness, such as in medical clowning (Malchiodi, 1999; Gilboa-Negari et al., 2017).

Based on the above literature, our assumption is that the arts process has inherent salutogenic elements connected to the levels of art materials, compositional elements, and discussion of the art product that embody and enhance management, meaning, and comprehensibility. This paper aims to further explore how art methods help enhance salutogenic coping with a group of recovering cancer patients.

MATERIALS AND METHODS

Research Strategy

Because this research was preliminary and explorative, hoping to create nuanced connections between arts and SOC, we utilized qualitative evaluation to understand the interaction between arts and the salutogenic theory within support groups. Our aim

was to create and to validate theoretical and methodological connections between arts and SOC. Future research, based on the findings of this paper, will be used to validate these findings quantitatively and to expand them to additional population groups.

Field of Research

This research took place in a support group at a support center in Israel for people and their families dealing with and recovering from cancer. The framework provides community psychological and psychosocial support activities for those recovering from cancer, enabling them to build a supportive social group and set of activities to replace work, such as arts and lectures, as well as social services and therapy. Most participants are between the ages of 30–60, were all female, except one, and were at different stages of their illness and of potential recovery but have not yet returned to work. Some were just experiencing remission of the illness. The demographics of the groups are thus broad and changing as it is a train group where some leave (due to illness, death, or recovery and some stay for a long time). Because of this, the groups cannot be compared, and there were constant fluxes and differences between the groups—although the methods of using the arts were replicated. In this context, we offered a 12-meeting social support group using salutogenic theory through the arts.

Protocol of Salutogenic Art Therapy Meetings

At each meeting, we presented an art warm-up, such as choosing a color symbol or using art material to express 'how I feel' today. We then asked participants to present something that was causing stress that day through art and provided subject structures for those who wanted them, such as my family or images of cancer or an upcoming event that scares me or a current dilemma. After creating the stress image, the drawer explained the image to the group, and the group helped to think of meaning, manageability, and comprehensibility components that could help to cope with the stressor. The drawer could then change their image if s/he wished, to include these coping elements.

Ethical Considerations

Researchers explained to the participants that the group was a research group exploring the usefulness of salutogenic theory through arts, and members could participate without agreeing to be part of the research (that is, all of their texts and drawings would not be used in the research). All elements were kept anonymous. We received clearance from the Helsinki hospital ethics committee for this research from Soroka Hospital, as the self-help group is connected to this hospital.

Data Sources

We transcribed the recorded, verbal interaction and photographed the art works of two groups of 10 participants each that went on for 12 weeks, each group meeting for an hour and a half. This rendered 50 h of transcribed group work time and over 100 pictures as data sources.

Additional data included ten semi-structured, retrospective interviews with participants from the groups so as to access phenomenological understanding of how they experienced the arts and how the salutogenic theory was interconnected.

Analytical Strategy

First Analysis

The interactive elements of creating an art product, explaining it, and sharing it with the group, and defining the meaning, manageability, and comprehensibility components were first analyzed narratively as an ecological whole. This meant that the analysis followed a narrative framework, moving from:

- (1) The creator's phenomenological explanation of the art work,
- (2) To the interactive process of responding to the image by the group, and
- (3) To additional thoughts of the authors when overseeing this (Huss, 2015).

Second Analysis

All of these levels were divided in terms of salutogenic SOC components. These elements of meaning, manageability, and comprehensibility in art use were clustered into overall themes.

Validity and Reliability

The triangulation of data sources, including verbal, visual, narrative, and semi-structured, and the repetition of all of the data collecting twice, worked to enhance reliability. The peer expertise of the two authors, one an expert in cancer stress and the other an expert in arts therapy, also helped to validate the paper (Morse, 1995). Additionally, the group was a shared reality group that responded to the images, and thus helped to validate the contents as in participatory research methods (Denzin and Lincoln, 1994).

RESULTS

Data Presentation and Discussion

As stated in the methods section, in order to share the first narrative element of the meetings as an interaction between the art process, product, and discussion occurring over time in the group space, we have chosen a few complete examples of specific images and interactions as illustrations.

First Analysis: Holistic Analyses of Five Examples

The following examples were chosen because they exemplify five different issues in dealing with cancer (O'Connor et al., 2011; Kwak et al., 2013). They also exemplify different connections and interactions between meaning, manageability, and comprehensibility as expressed through the art process and product.



Example No. 1: Learning to live with cancer in the long-term

Art process as manageability. (Narrative to group) "I chose clay because it enabled me to 'do' something, and the material is malleable and can be transformed into something else. It's important for me to 'do' something in order to feel that I can manage the situation. Kneading the dough is calming and enabled me to manage my emotions concerning cancer."

Meaning level from observing the image and explaining it to the group. "While placing the clay on the page, I was in constant dialog with myself about the amount of space that each part should receive and how the parts should be connected. It was important for me to put the most meaningful elements, family and work, at the top, and the cancer at the bottom."

"The black clay represents illness and death. The other colors represent other elements of life such as family (orange), career (green), religious and spiritual elements, my synagogue (white), and my social life, leisure activities, and others (purple)."

"The cancer is black, and it's at the basis of everything. In effect, the black clay is under the other colors. It's at the basis of everything, but it's in control because of my ability to utilize my spiritual beliefs."

"I think that this image shows how we have to understand that we can't separate the presence of cancer from our lives; it doesn't work. The black color is always there at the base, and so I am going to move it upward a little so that I remember its role, and I don't try to hide it again. I'm also going to enlarge the purple, which is self-care, and includes for me, sports, and meditation – and I will put the orange, the family, that is most important, in the middle..."

We see in this process of choosing materials the ability of art to create an embodied experience of manageability in the here and now of the art process. The experience of manageability is in the here and now, as compared to the lack of manageability of the illness. This embodied manageability enabled participants to overcome the 'freeze' reaction in stress situations. The description of the sensory interaction with the clay leads to cognitive flashes of understanding in terms of what each color represents. This is enabled in the relative and whole gestalt, and in turn, creates insights that are emotion-led and become meaningful in terms of the hierarchy and placement of the colors. Finally, this leads back to shifts in action – in management of the colors – as their placement is changed, based on these new meanings. This process is thus spiral, developing, and involves managing a

complex gestalt of different elements that become hierarchized and imbued with meaning.

In the shared-reality group, this became a type of salutogenic coping on all three levels, producing an example of how to manage cancer, namely, the ability to hold both fear of illness and health parts together. It also defined what gives strength, that is, activating spiritual beliefs and leisure activities so as to cope with the cancer as a long-term entity and to define what is most important. These outcomes are based on participant rather than on expert knowledge. The need to explain this art, rather than only to observe it or to let someone else explain it, created an intensification and connection between the three elements at the basis of the concept of SOC, specifically, the overall gestalt of art creating, observing, and explaining together with the compositional decisions taken in creating the art interaction to create coherence. The understood importance of activating self-care because of the comprehension is that the cancer could not be taken out of the image. This became a reason to find ways to manage it, so as to give attention to the more meaningful elements, such as the family. This example was manageability-driven with the manageability calling for a shift in understandings and meanings that was then able to impacted it.



Example No. 2: The challenge of understanding medical procedures

Artist: “This is my art work: 3 years have passed since this event, that I now understand was a huge trauma – drawing this picture, I understood that the biggest trauma was having to do special chemo treatments in Jerusalem. I became asthmatic in the middle [of the treatment], and it turned out it was the wrong machine for me. And it was such an effort to reach Jerusalem when I was so sick. I understood while I was on the machine that something was wrong and then I was told that it [the medication] had hurt my heart. I felt such helplessness and anger at myself that I hadn’t checked it out but instead trusted the doctors. I drew this page of a person whose eyes are closed (cries).”

Group Member 1: “But you did tell them that you felt something was wrong, you did what you could. . . it could have been worse. You did what you could facing a large system like a hospital, and you managed to stop the treatment. Maybe you made the damage to your heart less. You did manage it.”

Group Member 3: “And the meaning doesn’t have to be that you are helpless, or that you should be angry at yourself but that you did the best you could. We all do the best we can; we don’t fully understand the illness, neither do the doctors. . .”

Artist after this conversation, taking colors and adding glasses to the drawing: “I have changed my image from unclear eyes to glasses that show that I was trying my best to understand, and I did stop the medication. I did my best.”

In this example, we see that the subject of comprehension, that is, understanding the medical treatments, is central. The lack of comprehension led to an experience of lack of management. The missing component of new meaning (‘I did the best I could’) was provided by the group’s encouragement and shared-reality understanding. The artist actively changed (or managed) her image through this new meaning, after shifting the comprehension of the situation. The meaning shift here was dominant, leading to new comprehensions and a sense of manageability that together created SOC.



Example No. 4: Finding meaning in having cancer

Artist: “The meaning of my life was always to do everything for everyone in my family, to manage everything. I was the center, that was the meaning of being a good wife and mother. Not anymore, not since the illness. Now I know that I have to put myself first. I manage myself in a new way, I put myself first always and say, ‘Stop.’ I rest, I don’t get involved in everyone’s problems. I look after myself. Now, I manage myself differently, and this gave me new meaning to my life and to my relationship with myself. Everyone has learned to manage – everyone manages fine, maybe even better. I have understood that I am responsible for myself, that I am important to myself. I want to thank the illness for that, so I drew a red stop sign. After looking at this image, I went over the red stop sign again, in a stronger color, so as to make my message very clear to others and to myself.”

In this example, the woman describes an intense shift in comprehensibility (that she has to put herself before her family) that led to intense shifts in manageability (behaving differently in her family) and that led to finding positive meaning in her illness. In other words, the new comprehensions created new behavior and created new meaning. This is all in the explanation process and symbolized by the stop sign that she drew. The art explaining is thus more central than the art process, although the act of drawing the stop sign can be seen as an active way of managing her behavior in the family.

Example No. 5: Denial of the illness

Artist: "I drew a picture of a river; everything is calm, everything is ok. I feel ok, thank God, and I drew pebbles by the river, that I now – looking at the picture – understand that they are my sisters. They helped me so much. My husband, he couldn't stand seeing my pain. I know he loves me, but it was harder for me, and he doesn't know how to look after the house, but they came, they cooked, they helped me."

Participant: "What is that black cloud in the right-hand corner?"

Artist: "I don't know. I think, now that you asked, that that is the test result I am waiting for. There is one test result that I'm very stressed about, and I'm waiting."

In this excerpt, we see how the compositional questions of the group member ("What is that cloud?") helped to overcome denial and create comprehension of the denial itself. Through comprehending the fear of the test, the denial level of management was shifted to acknowledgment and verbalization of fear. This comprehension was then transferred to the husband's denial of the illness. Thus, explaining the art work in the group helped overcome the management style of denial.

Second Analysis: A Typology of Methods for Enhancing Sense of Coherence Through Art Creation, Observation, and Discussion

The above examples holistically and narratively show how art can enhance and connect between meaning, manageability, and comprehensibility in different ways. From these, and the additional 60 art examples, a set of central strategies for using art to enhance meaning, manageability, and comprehensibility are presented in the following lists.

Methods of creating manageability in the art-making process and explanation

- (a) Managing the art materials ('I kneaded the clay until it was soft enough to work with. . .').
- (b) Managing the compositional organization of the image ('I started by placing the black part at the bottom').
- (c) Regulating disclosure of content when explaining the image (not talking about elements, crying when explaining emotional elements).
- (d) Managing shifts in comprehension and meaning that lead to shifts in manageability in the here and now of the art process or explanation.

Methods of creating comprehension in the art-making process and explanation

- (a) Defining and filling in the gaps between the overt content level and the visual depiction metaphors, symbols, metonyms, and compositional elements such as size and shape ('I didn't know where to put the black, and then I understood I didn't want the black to be anywhere – I was not accepting the illness, i.e., 'I understood the importance of \times so I moved this shape to the center').
- (b) Defining and filling in gaps between content and composition in the art observation ('I understood that the stones by the river are my sisters').

- (c) Defining and filling in gaps through others' observations and questions (for example, when participants asked what the cloud in the corner was and it caused the drawer to face their fear of the test results).
- (d) By explaining one's image and using compositional language, new 'knowledge' about the image can be excavated by the artist ('What is the purple shape?' 'It is self-care; it includes spirituality and sports for me').
- (e) Others providing new explanations (for example, a participant saw the black shadow that the drawer did not 'see,' assumed it had meaning, and demanded an explanation for it).
- (f) Interrelationship between different elements in the spatial gestalt of art (for example, adjusting the overall placement of elements in terms of which is largest, which is most central. . .).

Methods of creating meaning in the art-making activity

The comprehension and meaning levels of the interaction with the art work are often overlapping, but meaning emerges from the intuitive actions that are observed, and hold a more emotion-laden content:

- (a) Reflecting on intuitive actions and decisions in the art-making process to understand the emotional content ('I felt that the orange was the most important part. It was important for me to strengthen the red around the stop sign').
- (b) Exploring the overall meaning levels in the context of the whole art gestalt ('While my husband is drawn at the side, my sisters are close to me. But he loves me, he just can't handle the illness').
- (c) This is the integration of the whole gestalt: what is figure, what is background, as well as integration of emotion and cognition through intuitively finding central and peripheral elements in the image and narrative.
- (d) The combination of excavating a narrative in an embodied, but also relational, way enabled meaning to be created, if we define meaning as a meeting place between emotion and cognition, or subjectivity and reality.

Art as enhancing overall SOC through integrating the three components

- (a) An interactive process between managing the art materials, understanding the content, and providing new meanings.
- (b) A process that can spirally repeat all of these stages in different orders (for example, adjusting the art work after the discussion or understanding something new while creating it). This can include both physical adjustment, or adjustment on the level of new understandings of the same image, or adjustment in terms of experiencing new meaning from the image, or all of these.
- (c) Showing which elements are lacking (for instance, there may be meaning but this is not translated to manageability or vice versa).

DISCUSSION

From the above narrative and content analyses of the data, we reached a typology of art to enhance salutogenic coping in stress situations such as in dealing with cancer. These will be discussed in relation to literature on the salutogenic theory, on coping with cancer, and on arts therapy.

We saw that the art work raised typical stressors of dealing with cancer, such as learning to live with the cancer in the long term, the challenge of understanding medical procedures, finding meaning in having cancer, and issues of denial. These were translated into narrative form through examples of specific events or situations, and into metaphorical form through symbols of different elements. The art enabled entry into the subject by how it was managed, understood, or by the meanings attributed to it. The results showed the cancer as both a traumatic event, but also, as an event that enabled a new SOC to emerge, that is, enabling posttraumatic growth. The interesting thing about the art was that it allowed for showing both the stress situation and the ways it was coped with, or the growth, simultaneously as interactive parts. Because the stressor was concretely portrayed, the ways it generated SOC could be applied directly to that stressor.

In terms of methodologies of creating meaning, manageability, and comprehensibility out of the cancer experience, we saw that manageability was created in the art-making process and explanation was achieved in managing the art materials ('I kneaded the clay until it was soft enough to work with'), managing the compositional organization of the image ('I started by placing the black part at the bottom'), regulating disclosure of content when explaining the image (not talking about elements, crying when explaining emotional elements), as well as managing shifts in comprehension and meaning that lead to shifts in manageability in the here and now of the art process or explanation.

We see above that the act of actively creating and interpreting art (rather than being interpreted or diagnosed by an expert) created a symbolic but also an embodied type of experience of interaction with and management of the 'world' through the orchestration of art materials, meanings, and compositional depictions of those meanings. This connects to theories of embodied aesthetics that go beyond the passive 'looking' and the perceptual process to include multiple components such as sensory stimuli, smell, texture, color, and movement of the art materials and of the body that create a multisensory embodied aesthetic experience (Shapiro, 2014). This embodied experience of art materials connects to perceptual and cognitive elements of autobiographical memory that create a web of cultural and personal associations around the sensory experience, enabling new understandings and meanings of the art making process while creating art (Nelson and Fivush, 2004).

Art also enables an additional type of management in that it enables tactile expression of feelings that helps to sublimate these feelings (such as pounding clay to make it softer above). Art materials come in a range of fluidity and intensity of color that can express the need for control by using pencils, or alternatively, the need for letting go by using more fluid elements such as water colors. Art materials can be contained or 'messy,' and the creator

can choose materials that regulate his emotional needs at the time (Rubin, 2001). The use of colors and shapes enables one to access, and thus manage, difficult emotions as shown by the participant who did not notice the cloud they had drawn until looking back on their art work. This distances intense emotions onto the page so that one can 'observe' the content as outside of the self. The use of symbols and metaphors also helps to regulate emotional reactions, including self-regulation and management of difficult situations. The final stage of actively changing the art work also creates a symbolic zone of management (for example, putting glasses on the eyes so as to observe medical procedures more carefully, as in example 2) (Huss, 2012, 2015).

Methods of creating comprehension in the art-making process and explanation included defining and filling in the gaps between the overt content level and the visual depiction. It also included defining and filling in gaps between content and composition in the art observation and defining and filling in gaps through others' observations and questions. By explaining one's image using compositional language, new 'knowledge' about the image can be excavated by the artist. This also occurred with others, providing new explanations. This can be explained through the mechanisms of art-making that involves an intense dialog between form and content, helping to more exactly define and redefine the content level as understood by the artist, and not by an external system, power holder, or expert. This gives voice, space, and legitimacy to all of the possible interpretations of the issue (Huss, 2015; Hafford-Letchfield and Huss, 2018). Creative problem-solving theories show how the shift to a visual language shakes the system of thinking, and thus, enables new 'visual' perspectives of the problem, in terms of its overall gestalt. This process continues into observing art. Betinsky, a phenomenological art therapist describes how engaging the client in observing 'what we see' in terms of compositional elements enables production of new explanations and associations (Betinsky, 1995; Beraby-Meyer et al., 2004).

Another element of discussing art within a group of shared reality is that it provides a range of experience of others in the same situation. This helps to situate the experience within a social context, defining the context as the problem, rather than the participant. We could see that others had also experienced difficulty understanding medical decisions, that others also understood the need to put self before family, and to accept that some family members would not be able to be supportive. This shared reality makes it possible to situate the stressors within their social context, as in critical theories, also by defining what the 'figure' is and what the background is (Kapitan, 2003; Huss, 2015).

Finally, methods of creating meaning in the art-making activity, including the comprehension and meaning levels of the interaction with the artwork, are often overlapping. But meaning emerges from the intuitive actions that are observed and that hold more emotion-laden content, reflecting intuitive actions and decisions in the art-making process in order to understand the emotional content, as well as exploring the overall meaning levels in the context of the whole art gestalt. Similarly, meaning in the discussion included the combination of excavating a narrative in an embodied, but also in a relational, way enabling meaning to be

created, if we define meaning as a meeting place between emotion and cognition or subjectivity and reality. Indeed, art making and observing has been defined neurologically as an integrative activity that integrates left and right brain functions, and as such, creates new neurological pathways between emotional and cognitive areas of the brain, enabling flexibility of thought, as against the rigid, repetitive, or fragmented thinking when under stress or after trauma (Csikszentmihalyi, 1990; Hass-Cohen, 2003).

Finally, this meaning, manageability and comprehension were adjusted and integrated to create the overall SOC. While Antonovsky discussed SOC, he did not explain in detail how these three elements interact. From this art intervention, we see that what is important is the integrative element of meaning, manageability, and comprehensibility into a complex, cyclical interactive process. This includes separating and defining each element of the salutogenic SOC. If one is missing, then it can be 'filled in' in the art-making or explaining process. This synchronicity between comprehensibility, meaning, and manageability is what creates 'coherence' in Antonovsky's terms. It is achieved on an embodied, reflective, and also interactive level. The group level was also seen to activate a collective SOC emerging from a shared reality (Liebman, 2003). This may be the biggest advantage in using art to enhance salutogenic coping. The protocol of art-making enables granting time at the end of the art-making to adjust one's image if this is wanted, based on the sharing experience (Riley and Malchiodi, 1994). We have seen that some participants adjusted their images, initiating a second spiral of management, meaning, and comprehension.

In this cycle, the image is 're-managed' and 're-imagined,' based on the comprehensions and meanings created. Thus, in the first example, a participant made more room for and enlarged the black 'cancer' shape after understanding that it could not be hidden. She also put the family at the center, as the most meaningful element for her. This second cycle can create a whole new set of meanings, comprehensions, and manageability. This may include both physical adjustment, or adjustment on the level of new understandings of the same images, or in terms of experiencing new meaning from the image, or all of these. This enables 'filling in' the element of SOC that is missing or that is weakest, so as to create an overall gestalt of solutions of the 'mind' that is comprehension, the 'heart' that is emotion, and the 'doing' that is manageability. This integrative effect is different from cognitive processing alone as in CBT, from existential- and meaning-oriented interventions and from behavioral or 'doing' interventions. The strength of art is thus similar to the strength

of the concept of SOC in that it demands an integration of all of these elements.

A limitation of this study is its descriptive and theoretical nature: that it did not measure salutogenic coping before and after the intervention or compare it to a control group to see how art impacts salutogenic coping on an empirical level. This does not enable exact replication of the study. This leads to another limitation- that we did not include quantitative methods to validate this model. Future research can go in these directions. An advantage is that it created a rationale for the connection between art and salutogenic theory. In other words, its strengths are connected to this limitation in that it enabled to carefully explore the methodological, and theoretical connections between the theory and the art use, through highlighting the specific mechanisms of art that connect to the salutogenic theory. Its strengths are providing a theory-based protocol for connecting between arts and salutogenic coping. Future research can evaluate and validate the directions outlined in this qualitative study.

This has intense implications for theoretical and methodological connections between art therapy and positive psychology, using theories of embodied relational and phenomenological aesthetics as mediating elements.

The data above showed how the arts can be used to enhance, embody, and develop the three elements of salutogenic coping – meaning, manageability, and comprehension. On the level of salutogenic theory, we learned how the arts help to concretize the framework of salutogenic theory that integrates solutions of the body or legs' doing, the "heart" and "brain," creating an embodied perceptual, emotional, and relational integration between different ways of coping. It also provided a clear methodology that is based on theory, rather than on art 'recipes' or general, romantic proclamations about art being healing.

AUTHOR CONTRIBUTIONS

EH is the first primary author, wrote first draft and initial analyses. TS is the second author, helped with analyses and editing and the conceptualization.

FUNDING

This paper was funded with the generous funding of the Ben Gurion University Faculty of Humanities and Social Sciences Interdisciplinary Grant: 2016–17.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Accumulating Evidence for Dance/Movement Therapy in Cancer Care

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This review offers a discussion of the state of dance/movement therapy (DMT), research with people living with cancer. The vast majority of extant studies published in the English language are with women with breast cancer. An examination of challenges facing DMT researchers in this area is provided, and recommendations for research foci, and priorities are outlined. These include qualitative syntheses, integration of implementation evidence with qualitative synthesis, and formal process evaluation studies.

Keywords: dance/movement therapy, review, cancer care, RCT, qualitative

OPEN ACCESS

Edited by:

Tal Shafir,
University of Haifa, Israel

Reviewed by:

Sabine C. Koch,
Alanus University of Arts and Social
Sciences, Germany
Iris Bräuninger,
Interkantonale Hochschule für
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 14 May 2018

Accepted: 03 September 2018

Published: 28 September 2018

Citation:

Goodill SW (2018) Accumulating
Evidence for Dance/Movement
Therapy in Cancer Care.
Front. Psychol. 9:1778.
doi: 10.3389/fpsyg.2018.01778

INTRODUCTION

This review aims to offer an update about research on dance/movement therapy (DMT) as a psychosocial support intervention in the context of cancer care, for both adult, and pediatric populations. The literature search was conducted with a university based web-scale discovery service housing 651 databases including PsycInfo, Alt HealthWatch, Medline, ProQuest, and CINAHL. It intersected subject terms dance therapy, DMT, and dance movement psychotherapy with cancer, psycho-oncology, and oncology, in a publication timeframe from 1960 to December 2017. The search was neither exhaustive nor systematic, yet attempted completeness within these parameters: (1) the publication was identified as research including RCTs, CCTs, and one group pre-posttest designs, using quantitative, qualitative, or mixed methods designs; (2) Full text was available in the English language; (3) Descriptions of interventions were sufficient for this author to determine if the intervention was consistent with the professional practice of DMT worldwide. This included evidence of professional training, and education of the interventionist. The determination of this third criterion may have been biased by the perspective of the author, a United States based DMT educator with 30 years of experience preparing graduate level dance/movement therapists in a university setting, plus international teaching. The sample also included studies discovered through hand searching reference lists. Projects that were research question driven, and reported systematic data collection, and analysis were considered research works. Program descriptions with vignettes, case examples, or anecdotal quotations from patients only, and basic narrative case reports were not. Studies on interventions which were reported as dance only (taught as a class, vs. conducted as a therapeutic session), were excluded. Of the 79 reports discovered in the search, 34 were excluded because they were not research reports; 20 were excluded because the intervention was not named as either DMT, dance therapy, or dance movement psychotherapy, or the intervention was judged as inconsistent with professional DMT practice; 4 were not published in English,

and 9 were not on cancer care. After removing two duplicates, 10 studies (represented in 11 publications) remained for review. As a contributor to the 2015 Cochrane Collaboration systematic review of DMT for people with cancer (Bradt et al., 2015), I have drawn from that publication, and acknowledge here the excellent work by co-authors Joke Bradt, Ph.D., MT-BC, and Minjung Shim, Ph.D., BC-DMT.

DANCE/MOVEMENT THERAPY IN CANCER CARE

As a mind/body integrated form of psychotherapy, DMT combines the benefits of dance, movement, emotional expression, social support, and creative activity in a single intervention approach. Koch and Fischman (2011), described how DMT is an embodied, enactive approach, in which patients learn to translate sensory, and affective cues into cognitions, verbalizations, and new behaviors. Behavioral engagement is built into the treatment, which is structured to help patients explore, try, and learn new ways of expressing, responding, and communicating. The body level learning that occurs in this embodied, enactive work means that newly learned patterns could be easily generalized into everyday life.

Conducted by trained, credentialed professionals, this occurs in context of a supportive psychotherapeutic relationship, and is informed by clinical assessment, which includes movement observation [typically based in the Laban Movement Analysis framework (Cruz, 2013; Serlin, 1999, Unpublished)]. Clinical methods reported in the literature on DMT in cancer care include body awareness techniques, rhythmic action with musical accompaniment, non-verbal, and verbal expression of emotions, relaxation methods (often with imagery), improvisation, and the use of symbolic, and metaphoric communication in movement. Treatment goals, and outcomes measured in published studies on DMT in cancer care include overall quality of life, stress management, and perceived stress, pain management, reduction of anxiety, and fatigue, increases in sense of vitality, and energy, body awareness, and body image, social support, and the recognition of need for support, self-efficacy, and improved self-care, meaning making, and increases in resilience, and the installation of hope. The DMT is usually offered in group therapy formats, which adds the common factors associated with all group interventions, e.g., mutual support, and lessening the sense of isolation. Further, DMT shares several common components with other complementary, and integrative health disciplines. These have been identified as follows: a whole person focus that attends to social, mental, physical, and spiritual dimensions; a therapy that is a formal discipline with education, credentialing, and ethical standards; takes an optimal health focus that is wellness oriented; is evidence informed (considering patient preferences, cultural, and clinical state along with the best available research evidence); combines with conventional care rather than positioning as alternative; uses a patient-centered approach, and gives import to the patient-provider relationship (Rosenthal and Lisi, 2014).

REVIEW OF STUDIES

Ten studies are presented in this mini-review. There are four RCTs, three controlled clinical trials, and four pre-experimental studies (with one group pretest-posttest designs). Nine are with adults, and eight of these specifically with women living with breast cancer. One is with children, and one included family caregivers of adult cancer patients.

Across all studies, the DMT offered included a combination of both movement, and verbal expression. Two offered DMT integrated with other creative arts therapies (CAT), and while most delivered the DMT in group formats, two (Madden et al., 2010; Goldov, 2012), provided individual therapy. Other variations in the DMT clinical methods used in this collection of studies may have been rooted in cultural differences, and preferences. For example, the studies by Ho and colleagues were conducted in Hong Kong with Chinese participants, and included culturally congruent elements along with the Western based DMT structures. The Sharma study offered culturally responsive DMT sessions with an ethnically mixed sample including Alaska Native people. Dance/movement therapists often integrate other movement forms into sessions, and this is true in the Sharma (2016) and Sandel et al. (2005), studies which both integrated aspects of The Lebed Method (Healthy Steps Program, n.d.), Dibbel-Hope employed the Authentic Movement method (Pallaro, 1999), for her intervention.

In this collection of studies, there is a mix of participant samples that included people in active treatment, and those who had completed treatment. Qualitative data were collected in several of these studies, and yet true mixed method data integration was generally not conducted. The three RCTs with women with breast cancer (Dibbel-Hope, 2000; Sandel et al., 2005; Ho et al., 2016a), were the only studies included in the Bradt et al. (2015) Cochrane review, and yet all of the other studies shown herein had been examined for eligibility in that review, and several were covered in other recent reviews (Boehm et al., 2014; Koch et al., 2014; Archer et al., 2015; Serlin et al., 2017). For this reason, **Table 1** below does not reiterate findings from each but instead shows other main features of studies, to inform recommendations.

DISCUSSION AND RECOMMENDATIONS

The 2015 Cochrane Collaboration review included the three RCTs with adult oncology populations, follows the Cochrane standards for review criteria, and concluded that according to those criteria there is not sufficient evidence to support claims of effectiveness at this time (Bradt et al., 2015). However, it was also noted that in those RCTs, DMT was well tolerated, with small dropout rates (Bradt et al., 2015). This indicates acceptability of the therapy, and bodes well for future studies with larger samples and more rigorous designs.

In addition, qualitative findings from various studies (e.g., Dibbel-Hope, 2000; Serlin et al., 2000; Ho et al., 2016b) suggest that there are patient perceived benefits, and improvements in

TABLE 1 | Features of several DMT studies in cancer care.

Author(s), year *	Sample	Design**	Treatment/dosage
Dibbel-Hope, 2000	N = 31 (analyzed) Women w/ Breast cancer	RCT	3 h. sessions, 1/week x 6 weeks.
Sandel et al., 2005	N = 37 (analyzed) Women w/ breast cancer	RCT	1 h. group sessions, 2/weeks x 6 weeks. plus 1/week x 6 weeks.
Ho et al., 2016a	N = 139 (analyzed) Women w/ breast cancer	RCT	1.5 h. group sessions, 2/weeks x 3 weeks.
Ho et al., 2016b	N = 104 Women w/ breast cancer	QUAL arm of Ho, et al. RCT	1.5 h. group sessions, 2/weeks x 3 weeks.
Madden et al., 2010	N = 16, Children w/ brain tumors, all genders	MM, RCT	1 h. sessions, 3/week. of CAT, including DMT
Goldov, 2012	N = 14, Women w/ breast cancer	CCT	Five individual sessions over 2 weeks.
Serlin et al., 2000	Women w/ breast cancer	MM, One group pretest-posttest w/ QUAL	Group DMT, 2 h. sessions, 1/week x 12 weeks.
Mannheim and Weis, 2006	N = 77 Women, all cancers	MM, One group pretest-posttest design	Group DMT, 90 min. sessions, 2 or 3/weeks. for average of 7 sessions.
Sharma, 2016	N = 16, All genders, all cancers, plus their caregivers	MM, CBPR	Open group DMT, 90–120 min. sessions, 1/week x 12 weeks.
Klagsbrun et al., 2005	N = 18, Women w/ breast cancer	One group pretest-posttest design	2 day workshop, 14 h. total, expressive therapies incl. DMT
Ho, 2005	N = 16, Women w/ breast cancer	One group pretest-posttest design	Group DMT, 90 min. sessions 1/week x 6 weeks.

*See reference list for full publication information. **RCT, Randomized Controlled Trial; CCT, Controlled Clinical Trial; MM, mixed methods; CBPR, Community Based Partner Research; QUAL, qualitative study or phase of study.

several aspects of QOL which were not captured in the statistical analyses. These are findings generated by careful analysis of systematically collected narrative data, usually through semi-structured interviews. Recently, the Cochrane Collaboration has promoted not only qualitative synthesis as a form of systematic review, but also guidelines for integrating implementation evidence, and qualitative synthesis in the context of systematic reviews on intervention effectiveness (Hardena et al., 2018). A qualitative synthesis from studies on DMT in cancer care, and a review that integrates the quantitative, and qualitative outcomes, using the guidelines put forth by Hardena et al. (2018) is recommended. Such a review could yield new, and better targeted foci for future RCTs by identifying the outcome variables that DMT is most likely to impact. In addition, careful process evaluation (Moore et al., 2015) could elucidate the causative assumptions in DMT for those living with cancer, and reveal possible mechanisms of change for this therapy in the oncology context.

Research published to date is hindered by several factors that could be addressed with increased coordination between researchers. Published studies have all provided good descriptions of the DMT provided, and as noted above, these reveal considerable variability in how the DMT is delivered. The range of methods used by dance/movement therapists in practice is indeed very broad (American Dance Therapy Association [ADTA], 2017), and the creative patient-centered nature of the therapy means that context, and patient preferences will always drive clinical reasoning to a large degree. Nonetheless, the

use of manualized protocols which retain the context-sensitive and improvisational aspects of practice have been piloted, and are possible in CAT research (Rolvsjord et al., 2009). It is recommended that future studies employ protocols that would permit replications. Another limitation in the research to date is that that many were designed, and reported as pilot studies, but larger follow up studies were not conducted, or reported. This is not uncommon with studies conducted as doctoral projects (e.g., Dibbel-Hope, 2000; Goldov, 2012; Sharma, 2016). At present, there are very few research faculty positions for DMT worldwide, and this puts constraints on both the depth, and volume of research studies conducted in any single clinical area. A notable exception to this for studies in cancer care is at the University of Hong Kong, where Dr. Ho and colleagues have built a robust research program with several studies in the intersection of psycho-oncology, mind/body dynamics, DMT, and the other CAT. One challenge to researchers is related to the fact that, at least in the United States at present, many DMT clinical services to people and families living with cancer is funded with hourly contracts, through philanthropy, or in training internships. This is true of other complementary, and integrative therapies, but does create an unstable clinical environment in which to conduct trials. Nonetheless, a search of the American Dance Therapy Association member directory indicates that 13% of credentialed members of the association reported specializing in either medical DMT, or palliative care, indicating both professional interest, and increasing use of DMT in contexts relevant to cancer care.

CONCLUSION

This review of studies on DMT in cancer care has several limitations. The use of English language publications only is a notable limitation. For example, at least one clinical trial (Mannheim et al., 2013; a MM CCT with $N = 115$), was omitted. Others have recently published reviews of dance, DMT, the CAT, or arts interventions in cancer care (Boehm et al., 2014; Archer et al., 2015), each with slightly different inclusion criteria, levels of completeness, use of meta-analytic statistics and ways of evaluating quality of evidence. Another limitation of this review emanates from an inconsistency among included studies, and that is that not all of them reported ethnic, and/or racial characteristics of the study samples. It is important that future publications always include this information so that the influence of culture on approaches to treatment, choices of research methodologies, and interpretation of results can be fully informed.

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This is an evolving discussion in a dynamic healthcare environment that is increasingly open to complementary therapies and the importance of embodied approaches.

AUTHOR CONTRIBUTIONS

SG is the sole author, and responsible for all material in this mini-review.

ACKNOWLEDGMENTS

The author wishes to acknowledge Joke Bradt, Ph.D., Minjung Shim, Ph.D., 2015 Cochrane Collaboration reviews of dance/movement therapy for people living with cancer, and Cheryl Dileo, Ph.D., co-author of the original Cochrane review published in 2011.

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Conflict of Interest Statement: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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“When You Make a Movie, and You See Your Story There, You Can Hold It”: Qualitative Exploration of Collaborative Filmmaking as a Therapeutic Tool for Veterans

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OPEN ACCESS

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 14 May 2018

Accepted: 21 September 2018

Published: 16 October 2018

Citation:

Tuval-Mashiach R, Patton BW and
Drebing C (2018) “When You Make
a Movie, and You See Your Story
There, You Can Hold It”: Qualitative
Exploration of Collaborative
Filmmaking as a Therapeutic Tool
for Veterans. *Front. Psychol.* 9:1954.
doi: 10.3389/fpsyg.2018.01954

Despite the availability of effective treatments for coping with traumatic experiences, a large percentage of military veterans in need do not seek help. The “I Was There” model is a new filmmaking program which is a creative-expressive tool, developed to enable veterans to reflect on their experiences and jointly create short artistic films. These artistic films articulate, often metaphorically, aspects of the veterans’ service experiences, traumatic events, and reintegration challenges. The current study employed a qualitative methodology to explore participants’ subjective experience of the program. We interviewed 50 participants following the intervention, focusing specifically on their perceptions of the filmmaking process, the aspects they viewed as meaningful, and whether and how the process affected them. Most participants reported their experience as positive and empowering. Three overarching themes emerged as significant in describing the benefits of participation: Gaining a new sense of agency, regaining a sense of affiliation, and processing the trauma. The findings are illustrated and discussed within the context of narrative therapy, as is the potential of video-based therapy, especially regarding non-articulated, sensory traumatic memories, and for the process of (re)construction of the trauma narrative.

Keywords: reintegration, veterans, filmmaking, digital storytelling, PTSD, qualitative research, narrative, art therapy

INTRODUCTION

Reintegration after military service may be a challenging process for many veterans and service members. First, military service involves a unique context of exposure to stress and trauma. Often, it involves extended tours of deployment that exceed 1 year and are carried out in locations that are far from home and from the soldiers’ natural support systems; there is also ongoing exposure to the risk of death, injury, or sexual trauma (Bowling and Sherman, 2008; Richardson et al., 2010). Therefore, reintegration requires an extended process of adjustment. Factors that can complicate adjustment include long separations, the exigencies of leaving the military and seeking new jobs, family and relationship difficulties, the existence of injuries or disabling medical conditions, aggressive behavior, and substance use (Seal et al., 2009).

The challenges of social and familial reintegration are further exacerbated when the returning service member suffers from PTSD, traumatic brain injury (TBI), or other mental or physical health conditions, such as depressive symptoms, grief responses, or compromised physical health (Hoge et al., 2007). These symptoms may interfere with a veteran's ability or willingness to directly communicate what he or she is experiencing to loved ones and/or mental health providers, further complicating reintegration and recovery. Over the past 15 years, about 2.5 million United States military personnel have served in Afghanistan and Iraq (Siegel and Davis, 2013). Around 75% of them reported multiple exposures during deployment (Tanielian and Jaycox, 2008). About 20% of them meet the criteria for PTSD (Peterson et al., 2011), and between 10 and 23% have had a deployment-related TBI (Sayer et al., 2015). There is evidence that the prevalence of reported mental health concerns and TBI increases as time since deployment increases (Polusny et al., 2011). When veterans cope with reintegration issues or stress related to their military service, the potential ripple effect can be enormous, affecting millions of other people at least indirectly (Richardson et al., 2010).

Despite the existence and availability of efficacious treatments, (e.g., prolonged exposure, cognitive processing therapy, medications), between 60 and 75% of distressed veterans do not seek treatment (Hoge et al., 2006). This finding may be explained by the stigma associated with treatment, institutional barriers (e.g., staff skill and sensitivity), and/or logistical barriers such as accessibility of service (Ouimette et al., 2011). Moreover, many veterans who do receive treatment often remain significantly symptomatic (Yehuda and Hoge, 2016). It may be that although traditional treatments for PTSD address some of the attendant symptoms of PTSD, they do not address the more complex issues associated with readjustment; for instance, veterans' sense that they have changed and must somehow communicate to others that their deployment-related experiences have led to a profound transformation. The use of a powerful creative intervention can be helpful in facilitating this important process.

Filmmaking and Video-Based Therapy

Video has been used as an element in therapy in recent years for different populations and in the treatment of various psychological issues, including post-traumatic stress disorder, or PTSD (Wedding and Niemiec, 2003; Gantt and Tinnin, 2007, 2009; Johnson and Alderson, 2008; Nanda et al., 2010). However, despite the growing use of its growing use of the video medium in various therapeutic settings, the field is still in the nascent stages of development; therefore, no consensus has yet been reached regarding what precisely constitutes video-based or filmmaking therapy or how it works to alleviate patients' suffering (Johnson and Alderson, 2008). Because films can be used in different ways and because they serve various purposes in therapy, the field is still lacking a definitive nomenclature. For example, the term "video therapy" is currently used to describe several uses of video in therapy, such as watching films (cinematherapy), video-recording oneself in order to witness and reflect on one's behavior, or making films (Cohen, 2013). Consequently, several overlapping definitions and uses of video

therapy exist. In addition, evidence of the effectiveness of using the video medium in therapy is only slowly beginning to emerge (Malchiodi, 2015). Lastly, there is a debate as to whether video- and filmmaking therapy should be considered part of art therapy or whether it should be considered its own, separate therapy. That is to say, although some scholars (e.g., Malchiodi) view video-based therapy as falling under the category of art therapy, others suggest that it differs in some essential ways from other creative arts therapies. Cohen and Orr (2015) suggest that video-based therapy shares certain common aspects with creative arts therapies including projection (where the video can be used to engage with difficult materials), the use of one's imagination, the enactment of bodily sensations and emotions, and editing, which involves creativity and sense-making (Cohen and Orr, 2015). In contrast, Johnson (2015) differentiates therapeutic filmmaking from creative arts therapies in its focus on the product, which is usually not the focus of the latter. Another significant difference Johnson describes is the film's unique relationship with the dimension of time. That is, filmmaking can be seen as being "multiply therapeutic," as it is characterized by both the benefits of the timeless arts (such as sculpture, and drawing) as well as those of the time-based arts (such as drama or dance).

Because the field is still developing, we consider it important to offer our theoretical understanding of the way we use the video medium as a therapeutic tool, as well as the practical ways in which we use it. We view the use of films and video in therapy as operating on a continuum between being very artistic and creative (i.e., and therefore falling under the rubric of the creative arts therapies) and being a form of simple, non-stylized "digital storytelling" (for a detailed description of the continuum, see Barak and Tuval-Mashiach, unpublished). The use of video in our model is positioned on the side of the artistic pole. The main theory we base our work on is the narrative approach (Angus and McLeod, 2004; Bruner, 2004; Schiff, 2017).

Theoretical Rationale for the "I Was There" (IWT) Film Program Model

According to the narrative approach to therapy, when a traumatic event occurs, it challenges one's identity in profound ways (Herman, 1992; Crossley, 2000; Tuval-Mashiach et al., 2004). It is often quite difficult to integrate the experience into one's autobiography without taking stock of how this event affects one's sense of standing in the world. Survivors may be struggling with issues of agency and control over their lives, changes in how they view the world and/or themselves, and their futures (Tuval-Mashiach and Patton, 2015). Narrative, as an organizing concept, is "the framework that is needed in the psychotherapy practice, in order to *retrieve* and *convey* the life experiences that have been stored in the body and converted into symptoms: the damage must be recovered, converted into language, related. The stories must be retrieved from somewhere far away, sometimes from far beyond the frontiers of consciousness. A person needs to be able to put the damage that has been caused into words, to "narrate" it" (Olthof, 2018, p. XXIX).

In line with the narrative theory, research has shown that being able to share aspects of one's trauma narrative is therapeutic,

as the narration of trauma gives rise to has many physical and psychological health benefits, including a decrease in PTSD symptom levels (Pennebaker and Seagal, 1999; O’Kearney and Perrott, 2006; Mowatt and Bennett, 2011; Castillo et al., 2012). Recently it has been found that even when the traumatic narrative is only being written, the therapeutic effect is not less positive than other evidence based treatments for PTSD (Sloan et al., 2018). On the basis of the narrative approach and in line with Malchiodi (2015) we view filmmaking much the way we view storytelling. The production of films is essentially a narrative process, wherein directors and their teams use digital video and audio technology to convey their messages. However, filmmaking differs from oral narration in several important ways that make it potentially more attractive and engaging for military veterans, especially younger ones. First, contrary to writing and talking, which are solitary activities, video production is inherently collaborative: It is very difficult to make a film alone. Second, PTSD is primarily a multisensorial disorder in that the memories of traumatic experiences are vivid, are auditory and visual, and often cannot be expressed in words. The more traditional verbal approach to therapy can be enhanced by adding a multisensory and more synoptic visual means of creating a narrative. Lastly, filmmaking involves symbolizing in a more explicit ways than verbal narration does (Stepakoff, 2007).

The “I Was There” (IWT) Film Program

“I was There” film intervention model was developed by Benjamin Patton as a practical implementation of video-based intervention for veterans coping with reintegration issues and service-related trauma (Tuval-Mashiach and Patton, 2015). Rather than replace existing therapeutic modalities, approaches, or professional creative arts therapies services available to combat veterans available to combat veterans, (e.g., Gantt and Tinnin, 2007, 2009), its aim has been to serve as a new approach, which is theoretically based on combining the therapeutic value of narrative reconstruction with the artistic and expressive power of the filmmaking medium.

Procedure

The program consists of four half-day sessions, during which a team of professional video editors/filmmakers supervise the sessions, with up to 15 participants per session. A mental health provider is onsite throughout every workshop. Participation is voluntary, and veterans can choose to drop out of the program at any time. The only criterion that must be fulfilled in order for a participant to attend an IWT program is that he/she is considered to be a service member and that he/she has been exposed to military-related stress or trauma. Participants fill in several questionnaires both before and after the workshop (e.g., demographic information, PTSD assessment, and measures of well-being). Participants are interviewed at the end of the workshop.

The filmmaking process is similar to the five-stage process suggested by Johnson (2015), which includes the following stages:

- (1) Development (developing and writing the story that the filmmaker wants to tell).
- (2) Pre-production (i.e., preparing to shoot the story; this stage involves storyboarding, creating shot lists, etc).
- (3) Production (the process of filming).
- (4) Post-production (i.e., editing and adding pictures, effects, and sounds).
- (5) Exhibition/Distribution (presenting or distributing the film to others).

The Program

On the first day participants learn basic directing and filmmaking skills, and conduct several filming exercises, to familiarize themselves with the video camera. On the second day, they are invited to share a topic they view as important and/or challenging in their coping with their condition, and a group discussion is encouraged, where participants listen to others’ stories and are given the opportunity to relate to them. Following this session, participants break up into small groups (3–4 people per group), coming together with others who share similar ideas and issues. During the second part of Day 2, and during Day 3, they choose a shared theme around which they will make their short film. Participants write the script, act, and shoot, all during the course of the third day, and on Day 4, in the post-production stage, they edit their films, add effects and sounds, and finalize their films. The last part of the fourth and final day is the screening of the films. The films are screened before an audience consisting of the other participants and the guests they choose to invite. During the screening, they present their films, and discuss them. Throughout the 4 days, the professional team facilitates the process of the filmmaking and assists with the technical aspects of production. The films usually involve the use of metaphors, symbols, and performance. The model for this intervention is based on three basic principles – listening, collaboration, and empowerment. The underlying rationale is that people who were exposed to trauma – whether they develop posttraumatic stress disorder (PTSD) or not – may still cope with other issues (van der Kolk et al., 2005). These include the individuals’ feelings of helplessness and despair, difficulties in making sense of the traumatic events that befell them and/or integrating them into their narratives and life plans, difficulties in communicating with others, and as a result, experiencing social loneliness and isolation (Shay, 2010; Stein and Tuval-Mashiach, 2015a,b).

As of mid-2017, nearly 40 IWT programs have been held in the United States, and several have been held in Israel as well, with the participation of more than 500 veterans; as a result, more than 300 films have been produced. The participant attrition rate has been under five percent. In terms of design and style, the films produced to date have represented a variety of media and genres, including spoken word/poetry, stop-action animation, music videos, public service announcements, marketing/promotion, comedies, documentaries, and narrative fiction. In terms of content, the films produced at the IWT film programs generally center on themes relevant to the experiences of the participating veterans, including combat, physical or psychological injury, personal loss, stigma, suicide, military sexual trauma, domestic abuse, medical retirement, transition to civilian life, parenthood and family, and spirituality. A sample of selected films produced in the programs is available here:

<http://iwastherefilms.org/featured-films/>. Currently, the impact of the programs in alleviating PTSD symptoms and improving the participants' well-being, and their effectiveness as an engagement tool for veterans, are being evaluated in randomized controlled trials, which are being conducted in collaboration with the U.S. Department of Veterans Affairs (VA). Preliminary findings show a steady and significant PTSD symptom level decline of 20% on average at the end of participation, an effect that has been found to be stable across a time period of 60 days (Tuval-Mashiach et al., unpublished).

The Current Study

This article's goal is twofold: First, we sought to qualitatively explore the experiences of program participants and to discover what it was that they perceived as meaningful and effective. Second, we wished to uncover the various mechanisms of change elicited by video therapy, given that – as previously mentioned – they are still for the most part unknown. As such, we aimed to delve into the participants' experiences, to use their subjective perspectives to help us gain a better understanding of the potential mechanisms of change underlying this approach.

MATERIALS AND METHODS

Sample

Fifty participants (40 men) were selected for the purpose of this study, out of a total of 500 veterans who have participated in the IWT programs. We used purposive sampling (Polkinghorne, 2005) with the aim of having participants from 10 different programs (five from each program), in order to represent the larger sample. The participants' ages ranged from 19 to 65 ($M = 31.6$). Of the participants, 23 were married (46%), 18 were single (36%), and the remainder were divorced or separated (18%). About 60% were parents to at least one child. The participants' military experience varied; the majority of them served in the United States Army (90%), with one having served in the Air Force, two in the Navy, six in the National Guard or Reserves, and one in the Marine Corps. In terms of deployment history, 10 participants (20%) had never deployed to a war zone, 17 were deployed once (35%), and the remaining 22 (44%) were deployed two times or more. About 30% reported being diagnosed with PTSD by a mental health professional.

Study Design and Interview Protocol

Interviews were conducted on the last day of the program, in a quiet room on the workshop site. Most of the interviews were carried out by the two first authors, both of whom are psychologists, and are trained in interview research. The interviewers adhered to a general interview protocol while also maintaining flexibility. The aim of the interview was to learn about the experience of the program participants, focusing specifically on their perceptions of the filmmaking process, the aspects that they viewed as meaningful, and whether and how the process affected them. The first question was an open question, inviting participants to talk about what it was like for them to be part of the program. They were then asked several specific

questions regarding what their expectations of the program had been, what they had hoped to get from it, about their previous therapeutic experience, what they thought about the use of video and about the filmmaking process, and what impact the process had made on them. The length of the interviews ranged from 10–20 min, and all interviews were video-recorded. For the current analysis, the first author watched all 50 interviews, and coded them for themes.

Analysis

Interviews were analyzed for categorical content analysis on the basis of the model of narrative analysis proposed by Lieblich et al. (1998). After familiarizing ourselves with the interviews, the analysis consisted of generating initial codes by deconstructing the text into identifiable units of meaning. We combined confirmatory and exploratory approaches (Patton, 2005) in an attempt to extract meanings and recurring themes. Namely, the two first authors had identified existing categories derived from the literature (e.g., curative factors in arts therapies), and were prepared to generate new codes and themes that would emerge from the data in a bottom-up process. The next stage consisted of our search for themes and categories that would organize around the emerging codes, while we also sorted additional codes into those preexisting categories. The last step of the analysis consisted of reviewing the emerging themes and scrutinizing them for consistency.

Ethical Considerations

All of the participants underwent a screening interview prior to the testimonial process in order to assess the likelihood of reactivation of traumatic experiences. In addition, with the aim of insuring confidentiality, all of the participants' names were changed (Josselson, 2007). At the first program session, the program leader emphasized that anyone who was not interested in completing the program was welcome to leave at any time. After completion of the program, participants were given their films, and were once again told that they could decide whether or not they wished to share their films and make them available to the public. Only participants who signed a consent form permitting the submission of their interviews for research purposes were included. A mental health provider was on hand throughout each workshop session, in case a participant experienced anxiety and required immediate mental health support during a session.

RESULTS

The analysis revealed three overarching themes: Regaining a sense of agency, regaining a sense of affiliation, and processing the trauma. Although within the narratives themselves there were interrelated aspects of these three themes, here, for the sake of clarification, we present them as separate.

Regaining a Sense of Agency

According to several trauma theories, (Herman, 1992) trauma by its nature ruptures one's sense of control over one's life. The

traumatic event, which is often unexpected and uncontrolled, may lead to feelings of helplessness, victimization, and a sense of compromised agency. Based on this conceptualization, our model aims at enabling participants to regain a sense of agency and control over their behavior and choices, within the process. Therefore, a core principal of the model is that veterans are free to choose their level of participation in each of the program stages, and although they are encouraged to join the discussions, or the film production, they are also free to choose their level of involvement, what and how much to share about their trauma, the group with which they prefer to work, and their role in the film production team.

From the interviews, it appeared that participants enjoyed the ability to choose the right level of involvement and exposure for them. Most participants referred to this aspect spontaneously as one of the components they perceived as most meaningful and unique about the intervention. We termed this overarching theme *regaining a sense of agency* (rather than control), because the experiences that the men and women described dealt with more than recovering control. They were related to recovering a sense of being one's own source of action and initiative. The sub-themes that were related to this notion were: *Feeling safe; viewing the role of the tutors as facilitators rather than as guides of the process; and freedom to reveal one's story at one's own pace.*

Feeling Safe

Promoting a sense of safety is common in most arts therapies and is often the focus in the early stages of therapy (Redfern, 2014). *Feeling safe* was mentioned in most of the narratives as one of the most important elements for the participants. Interestingly, because the IWT model is not built on a structured set of instructions, the beginning phases of the intervention were experienced as vague and without clear rules; participants were therefore unsure of what to expect, and that led to feelings of uneasiness. However, the moment participants understood that they were being invited to "hold the reins," they felt motivated to proactively engage in the process; this moment seemed to serve as a turning point for them.

Tom, a 24 year old veteran said:

When I came, I expected I would have to talk about my PTSD, well, F***. I don't want to do that, it's not my ideal goal of reliving things that I did so much to finally overcome and try to bring all that up. It wasn't my ideal situation. But actually, hearing what the program is about, that it's on any issue that you feel like needs to be expressed, I said, ok, well, that's cool. I think it's a better overview, not just sitting and focusing on one specific thing, because not everyone does experience PTSD, or experiences it in the same way. And it was better than I expected. It was completely better.

Several participants said they felt safe due to the non-judgmental atmosphere, and to the feeling that everyone was welcome. John described how the structure of the intervention allowed him to feel he could relax, open up, and be more engaged:

It was a different experience than many types of clinical settings where I've been. And it's different than other group

settings, where you have to talk about your feelings, and you have to explain why you're even here. . . In other settings I felt very reserved, in a lot of the appointments that I've been at, where you have a 40-min window, and you never really get a chance to really talk, you can't complete a thought. Here, the invitation, the doors are literally open. And there's something about it that says: have at it, explore, feel free to relax, feel free to explore, and you sit back and say- well, I'll take you up on that.

The sense of safety, which was created in the first stages of the intervention, enabled participants to feel in control throughout the whole process, even when it came time to discuss their own trauma. David, who was severely injured by a terrorist bombing said: "I can relive this nightmare, but in a safe environment. I'm not gonna. . . I'm in control. I can stop whenever I want."

Role of the Professionals

As part of the freedom to choose their own level and type of engagement, participants noted the different role played by the group instructors in this intervention vs. other therapists they had worked with in previous therapeutic settings. Many mentioned that the instructors were there to "think together with us," whereas others saw them as assisting the veterans in translating their ideas from an abstract place to a more concrete one, in the form of digital media. They helped them formulate their ideas, and offered editing suggestions, etc. We conclude this section with Amanda's words about validation:

. . . It gives me hope, that there is the ability for validating yourself and incorporating friends and family, not to shut everybody out, dealing with it yourself. You come to an environment like this where you can ask for help, and help can be available, and all the resources are there at your fingertips. So it kind of reaffirmed that, at the end of each day that I was here, I kind of had a lighter step, and a little more of a positive outlook. I feel like I sit upright.

The Ability to Regulate Exposure

Many participants reflected on their choices regarding their filmmaking process. Their descriptions showed that it was important for them to actively choose how much of their trauma – and which aspects of it – they wished to share. We illustrate this point through Beth's story. Beth, who is a service member, was exposed to extremely difficult material on 9/11 as part of her work-related duties. Since that time, for the following 16 years, she never talked about what had happened. Beth decided to "give the program a shot," and interestingly, decided *not* to join a group of other 9/11 female veterans, who planned to make a film on 9/11. Instead, she said:

I came to work, to get away from the girls who were in 9/11. I didn't want to go there. I wanted to work with somebody, that it could be in there, but on a positive level. I didn't want to relive the whole day, which was what the other girls were doing. So I joined someone who had a totally different idea, but putting my input somewhere there, that would be more effective for me. And it was.

This self-chosen exposure seemed to be right for Beth, as it enabled her to break out of the cycle of avoidance in which she had previously been trapped. When she shared her feelings about her trauma with the others, it occurred to her that 9/11 had been a happy day in her family prior to the terrorist attack, because of her child's birthday. Since then, "the terrorists had taken over" that date. For her, the act of creating the film, and symbolically changing the story to a story that ends with hope, was transformative. Later, she was able to watch it without arousal:

I think a lot of people can benefit from it. Because I am very stubborn and I'm very close-minded to this whole idea of going back, and re-living any kind of grief. I don't go there. I don't touch it. It's like taboo for me. So for you guys, to be able to help me with it, I think you can help a lot of other people. And I watched my film over and over, and I don't have a problem with that.

Regaining a Sense of Affiliation

When describing the challenges they faced, most veterans described feelings of loneliness and detachment. As is well documented in the literature (Stein and Tuval-Mashiach, 2015a,b), loneliness, alienation, detachment, and difficulties in sharing are part of the post-traumatic experience, and have been found to be related to distress and to dropout from therapy. From the interviews, it appeared that the intervention format, which emphasizes collaboration, eased feelings of loneliness and enhanced a sense of affiliation. Three sub-themes emerged in relation to this topic: *feeling understood, a willingness to share with others, and a sense of belonging*.

Feeling Understood

The majority of participants stated that they didn't usually like to talk about their trauma-related memories and issues, for different reasons. Jane described how she "bottled up" all her emotions because she didn't realize how severe her situation was. Jeff said he felt others wouldn't be able to understand him, so he stopped trying. Others avoided talking about their memories because they were too painful, or because they wanted to protect the people closest to them. Several participants said they never shared anything and kept their memories to themselves, and these participants were especially reluctant to share at the beginning of the intervention. After the intervention began, however, all the participants said that they liked to share and that they perceived the collaboration component of the model, which encouraged engaging with other veterans, as the catalyst for their ability to open up. As can be seen from the examples we chose, feeling understood and being willing to share are intertwined. Each one seems to feed the other in the following manner: As the ability and wish to share grows, and an individual feels more and more understood, his/her feelings of loneliness decrease.

Jack, who after losing his friends during a mission left home to live abroad for many years, hoping to escape from the memories, said:

On the first day I came, I wasn't so comfortable. On the second day, (pauses) it was like coming home (smiles). It

was... I'll tell you. I was assigned to a group with three men I had never met before. And there was a list of topics to discuss, and we were asked: what topics do you identify with? I felt: well, nothing clicks for me. I said: Well, I said to myself, if M & N (other veterans) want to make the film about whatever, I don't mind, I'll join them, it doesn't really matter. We didn't have anything in common. But 5 min after we started talking, I felt that I had so much in common with them, like with no other person I've met in my life before.

Jack carried a heavy burden of guilt and helplessness over his trauma, which he was ashamed to share; additionally, over time, as the years went by, he had felt increasingly isolated with his secret. During the intervention, the revelation that other veterans had experienced similar feelings, despite the different circumstances, was transformative and healing for him:

Everything that I experience, all the hard emotions – it's what THEY feel too (smiles). I can't stop thinking about it. For the last couple days, I can't seem to stop talking about this feeling – I didn't want the day to end. Suddenly I can talk. I have never shared anything, I never talked. And then, not only is it possible to talk about it, it's ok to laugh at it. . .

Beth described why she felt it was important to work with other veterans:

It's almost like, two recovering people. In a program, like, of addiction. Only one addict can know another addict. Only one alcoholic can understand another alcoholic. That's how the program actually works. Cause if a regular person came and talked to them about their problem, they probably wouldn't even listen to him, cause they don't feel you relate. This is the same thing with PTSD. For me, this is my opinion. That if I'm talking to someone who understands how I'm feeling, it's. It's lighter. The load. It feels. . . it's, I'm recovering at that moment. That I'm talking to someone who understands.

Willingness to Share

As with Jack and Beth, many participants emphasized that being with others who were like them – people who went through similar challenges and could understand them and their experiences – created an atmosphere where they felt safe and accepted without judgment. This experience was, for many, unexpected and surprising, and it promoted *openness, and a willingness to share*. As Dan said: "Each one has his own story, but how you react, how you feel, the problems you all go through are very similar. . . you have that immediate connection."

Joan said:

Working with the PTSD group all week, hearing other people talking about their histories, learning about trauma. I had built trust with the people that were in the group. The day had something there. There was something with them, there was some kind of hope there.

Feelings of Belonging

The growing feeling of trust and viewing the other group members as capable of relating to their stories, made it easier for participants to share, and later to form groups to work on the films. Given that each group created only one film, the group members had to decide among themselves the subject of this film, and how it could best represent aspects of all of the group members' experiences. The joint project of the filmmaking enhanced the *feelings of belonging*, and of being part of a group. Several participants mentioned that it felt like "being in the unit again," a time when they had been part of something, all united toward achieving a specific purpose.

Cumulatively, these three themes together comprise what we term *regaining a sense of affiliation*. This sense was expressed both at the level of connections with the other participants *in* the intervention group, as well as with others, *outside* the group. This point is worth noting, because it is indicative of the film's potential to encourage communication about the trauma with the veterans' family members and friends. As an example of this idea, Tom said: "It is giving me the opportunity not only to help myself, but to help people understand me better." Others mentioned that their film might be of help to other veterans who are struggling with similar issues, and might show them that hope exists. John said:

When I had the chance to show my film to my wife, the first thing she said was, simply, "I finally get it." She could finally come to terms with, and understand, what I was going through that I couldn't put into words.

Diane said, after being asked if she wanted to share her film:

At first, it was just for me, personally. But after seeing the whole make of it, now, when it actually came out, the music, everything just fit together, I'm actually pretty impressed, how me and my partners had put it together, so yes- friends, family, whoever. Whoever wants to see it.

The last theme refers to the unique aspects of filmmaking in the context of trauma. We termed this theme *processing the trauma*, and it relates to what participants saw as the inherent advantages of the filmmaking process.

Processing the Trauma

Participants were asked to reflect on the process of the filmmaking itself, and to describe what they liked about it. Several themes which are unique to the IWT model emerged: *reconstructing the trauma narrative, distancing, and sense making*. In what follows, we describe these themes.

Reconstructing the Trauma Narrative

Filmmaking requires a plot, and the creation of a film requires the construction of a narrative. During the process of planning their films, participants were encouraged to use their imagination, think about their target, and construct their stories as they wished. Participants chose how to relate to their trauma, and whether to *mirror* a concrete aspect of their story, represent

it in a *symbolic* way, or *transform* the narrative, in order to convey their message. David, whose group film represented a transformation of the trauma narrative, from negative to positive, said:

I can change the narrative, you know, the word "crisis" in Greek means crossroads and yes, you can go down, but you can also go up. I can feel like the victim of the guy who threw a grenade at me, and disabled me, but here, I can also feel that I won. I'm alive, I help others.

Joan, whose group dealt with the trauma symbolically, described her group's film:

I knew exactly what I wanted to do, I wanted to let go of the rape, the shame, and so we came together, we started throwing out ideas, and the concept came up, of throwing the boxes (each representing a heavy negative emotion – *the authors*) and letting them go, being able to destroy all the bad emotions and stuff.

Another participant, Bill, described how making the film enabled him to go back to his trauma, and to process it differently. He spoke of the theme of *distancing* as a central component of the model. In his group, someone else was playing parts of his own story, and that "outsourcing" was experienced as a transformative experience for him: "It almost takes me to a place of being in the third person. Where I'm looking at myself from the outside. In this video. It has given me insights."

Distancing

Distancing, which is based on participants ability to create a space between themselves and their story, was made possible specifically because filmmaking, much like other types of arts therapies, uses visual media in artistic ways, as opposed to (or in addition to) oral narration of the trauma. However, filmmaking also differs from other arts therapies which emphasize the enactment of experiences (such as drama therapy) in that it produces a concrete and permanent end-product – the film – which gives participants the opportunity to look at it repeatedly, and to gain insights, even after the intervention ends. The existence of the film also provides participants with a way to communicate their experience to others. As Solomon described:

When you make the movie, and you see your story there, you can hold it. I realized that I can put my own mirror in front of me and have a kind of resonance between me and my story. Which is rather rare, because we usually can't tell our stories to ourselves.

Another factor which promoted distancing was the fact that each film was a joint product. Therefore, in most films, the plotline included aspects of *all* group members' experiences, and even when there was only one actor, he/she played out aspects of the others' stories. As such, it was easy for participants to identify with the film, and yet not feel that it was an identical representation of their own experiences; they were therefore able to avoid feeling overwhelmed by it. As Myra said:

I found that there's a different way to express yourself, that you can express yourself without maybe, you know, being there in person, and that maybe hopefully, the film that we made, someone else with a similar experience can relate to it. The 9/11 thing, I definitely have some PTSD from that, and it's hard, when the day comes up, to be present, and not be where you were 14 years ago.

Larry said:

I'm happy about the process; we all come from different places in the military, different branches, but now, we kind of came up with an idea and we are all gonna share a little bit about ourselves within each story. I like what we did because there's a part of me in it, but it still feels safe with what I've put in it.

When such distancing (which is referred to as "externalization" in narrative therapy) occurs, participants can start processing their experiences in a new way. For example, Mark said:

It allowed me to go through the things that I went through, and see things from a different perspective. It reminds me of a jigsaw puzzle, you know, everything is all over the place, and now, we're putting the whole thing, the pieces, together, in the editing. So, (pauses), it makes me feel part of... I haven't felt that way (low voice) as long as I can remember.

The third sub-theme which emerged from participants' accounts regarding the components of the model was *sense making*. This sub-theme captures the participants' feeling that the production process was therapeutic because it enabled them to gain a better understanding of their behavior, their emotions, and themselves, as well as to feel better. Jonathan explained how the process helped him to express something which had simply been too chaotic to share in its raw form:

You can't have someone with PTSD just sit down and talk openly about his problems, with insight and understanding. No. It's chaos. You need the art. You need the distance. You need the music, the puppets, so that you can project yourself onto the character, or the puppet.

And Bill added an interesting insight, not previously mentioned, regarding a unique feature of this particular medium:

I think this medium helps a lot because trauma freezes us in the situation. We were in a difficult situation, it froze us (the trauma); now we have the material, we have the evidence, we can show it, we can decide who is going to see it and when. It might be my children, it might be my friends from the battalion and I may keep it to myself without being able to show it to anybody, but I know it's MINE.

Being able to reflect on the experience, through distancing and enacting aspects of the trauma in an artistic and symbolic way, led many participants to be able to make more sense of or construct new meanings about themselves, the trauma, and/or their coping, as Tom illustrates below:

It was a way of unboxing what I was feeling and putting it on the table, dissecting it, and using different components of it in the film. Then I felt more objective about it... and I was able to put things into perspective.

Beth said:

I felt peaceful. I'm facing my fears right now, and it feels good. Not to live in that bondage. Living in bondage is more terrible than what happened with the terrorists. I'm doing this to myself. Now, I cut those ties. I just have to walk through it now, the rest of the way. Maybe I need more therapy, more classes on it, but I really think this was helpful to me.

We conclude the findings with Samantha's words:

This trauma has really been haunting me in my worst dreams. But it felt like already on the second day of the program I started to have a voice, a voice that I didn't have for so long. Everything in this movie is so symbolic of my life. And it really feels like I am empowered. I haven't been empowered in so long. I've been holding my head down. When I came, I was ready just to be a trooper through this whole thing. I wasn't trying to get anything out of it, just to check the box, but I feel like it's changed my life because I get to tell how I feel, and how it feels to not have a voice and just go along with everything. It feels good.

DISCUSSION

Despite the availability of effective therapies for veterans coping with trauma, many veterans refrain from reaching out for help, even when they need it. Among the reasons suggested for this gap are (a) that the verbal processing of the trauma is both difficult and insufficient, due to the visual and sensual aspects of the traumatic experience, and (b) that the tendency to avoid reminders of the trauma hinders the sharing of verbal accounts (Van der Kolk, 2015). Furthermore, the growing understanding among researchers and practitioners in the field that the impact of traumatic exposure goes far beyond symptoms, and involves identity issues and existential challenges, calls for the development of more therapeutic responses. Such responses would motivate and engage veterans in therapy, through a wide range of interventions beyond just the verbal, and would address a whole host of veterans' needs rather than just addressing their symptoms. The developing field of trauma-informed creative arts therapies, which use the sensory-based qualities of art to help individuals communicate and process traumatic memories, is testament to this growing recognition (Malchiodi, 2005, 2012; Talwar, 2007; Frydman and McLellan, 2014; Sajani and Johnson, 2014). However, despite the promise of these therapies, they are still lagging behind in terms of providing evidence for their efficacy (Baker et al., 2017). Moreover, there is insufficient theoretical knowledge regarding what mechanisms play a therapeutic role in these therapies. The current study, although it did not

directly address the question of efficacy of video-based therapy, aimed to shed light on the participants' views regarding the curative factors that characterize this type of intervention. Three themes, which captured the participants' experience of taking part in the program, emerged: Regaining a sense of agency, regaining a sense of belonging, and processing the trauma. Each one of these themes addresses emotions and cognitions with which many veterans cope, such as loneliness and alienation (Stein and Tuval-Mashiach, 2015a), helplessness and shattered world assumptions (Janoff-Bulman, 1992), profound changes in self-perception, and loss of personal meanings (Park, 2010). Cumulatively, these changes amount to what can be termed a "break in one's narrative" (Tuval-Mashiach et al., 2004).

Interestingly, our findings highlight factors which are either not addressed in most standard treatments for trauma or differ significantly. Specifically, our findings indicate that to alleviate suffering, it is crucial to address the veteran's need for a sense of belonging and being with others who are "in the same boat." Nevertheless, this crucial aspect does not seem to figure in any part of most of the existing protocols for PTSD treatment. Our findings also point to the important role played by the reconstruction of the trauma narrative, as has been previously suggested by several researchers (Schauer et al., 2005; Robjant and Fazel, 2010; Peri and Gofman, 2014).

Our model parts ways from other models, however, on at least two grounds. Whereas some exposure therapies suggest that "a full exposure" is necessary for alleviating symptoms (Rauch et al., 2012), our intervention stipulates no such requirement. On the contrary, we would suggest that exposure should be gradual, or partial, and that the level of exposure should be freely chosen by the veteran him/herself. In addition, our findings suggest that traumatized people prefer to be actively engaged in shaping their own personal therapeutic journeys, rather than being passively guided by therapists.

Although some of the abovementioned themes are common to all or most therapeutic interventions (e.g., promoting safety, feeling understood), and some have aspects in common with arts therapies (and specifically with drama therapy, e.g., distancing, group work), we would suggest that some of the themes captured in the current study are unique to the medium of filmmaking (e.g., film editing). In what follows, we will refer to what we view as the main mechanisms which are central to the filmmaking process. Several components of the IWT video-therapy model are considered to be curative factors shared by other creative arts therapies in general. These include: collaboration, artistic expression of emotions, and using one's imagination and creativity – all of which have been described elsewhere (e.g., Malchiodi, 2005; Orkibi, 2011). In this sense, although video-based therapy is not formally defined as one of the creative arts therapies, it shares several crucial aspects with both art therapy and drama therapy. However, we would suggest that several ideas relating to the video medium *per se*, and to the process of film production, are unique to video-therapy.

First, the *active role* of participants in the process – in defining their level of involvement, their role on the team, what and how much to share, and how to express their ideas through the film – is a central aspect of filmmaking. The instructors are in the background of the process and serve as facilitators rather than as active guides of the process. Second, the medium of filmmaking combines several *sensory-based qualities*, such as the visual, the auditory, and the verbal, as well as bodily sensations, thereby cumulatively enabling a more holistic processing of the traumatic memory. Third, filmmaking is a natural vehicle for processing the trauma narrative and integrating it into one's life story: The process of filmmaking, much like writing a story, involves selecting between options, choosing the focus of the film, editing, and deciding on the film's endpoint. Lastly, because the *film is a concrete product* (unlike for example a dramatic enactment in drama therapy), clients are able to go back and revisit the film, enabling them on subsequent occasions to reflect on the traumatic memory in a desensitized manner. Furthermore, the film may become a tool for fostering communication with others about difficult experiences. Given that veterans' avoidance symptoms and difficulties in communicating with significant others about their military service constitutes one of the major obstacles to seeking therapy, the incorporation of a video-based intervention might very well serve as an engagement tool and as a first step in the veterans' journey to healing. In sum, we believe that the use of video has great potential for veterans coping with military-related stress and trauma. In addition, although the program was developed for the purpose of working with military-related trauma, the generic model can easily be adapted to other populations coping with traumatic events, as well as to other therapeutic contexts, such as those in which people are coping with loss, illness or crisis.

The findings of this study must be considered considering several limitations. First, the veterans who did not complete the program were not included in this study; the findings therefore reflect only the experience of those participants who remained in and benefited from the program. Although there was only a 5% attrition rate, the feedback from those who did not remain could have been helpful; their input and experiences might have shed valuable light on the issue of who would be most likely to benefit from this intervention. In addition, more research should be conducted on the efficacy of the IWT filmmaking process as a therapeutic model, and on other video-based therapies in general. Future research should examine the mediating role of the curative factors found in this research. Despite these limitations, we believe that the use of filmmaking in therapy has great potential in alleviating the damage incurred by trauma and loss.

ETHICS STATEMENT

The study was exempt from the ethics committee requirement, because this paper resulted from program evaluation

and not research, *per se*. The quantitative study which assesses the intervention is approved by the Bedford VA hospital, and is carried out in accordance with the recommendations of Bedford VA IRB committee. Bedford VA IRB instructions exempt the qualitative program evaluation efforts related to this project from IRB review.

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AUTHOR CONTRIBUTIONS

All authors are involved with preparing the manuscript for publication and involved in data collection, RT-M was responsible for qualitative research design, BP and RT-M were responsible for data analysis. CD was involved in writing the paper.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Outcome-Focused Dance Movement Therapy Assessment Enhanced by iPad App MARA

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OPEN ACCESS

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 07 June 2018

Accepted: 08 October 2018

Published: 29 October 2018

Citation:

Dunphy KF and Hens T (2018)
Outcome-Focused Dance Movement
Therapy Assessment Enhanced by
iPad App MARA.
Front. Psychol. 9:2067.
doi: 10.3389/fpsyg.2018.02067

Healthcare and human services are increasingly required to demonstrate effectiveness and efficiency of their programs, with assessment and evaluation processes more regularly part of activity cycles. New approaches to service delivery, such as the National Disability Insurance Scheme (NDIS) scheme in Australia, require outcome-focused reporting that is responsive to the perspectives of clients. Eco-systematic approaches to service delivery and assessment consider the client as part of an interconnected web of stakeholders who all have responsibility for and contribute to their development and progress. These imperatives provide challenges for modalities for which there are not well-established assessment approaches. Dance movement therapists face particular difficulties in this respect, as they have few assessment tools that are practical for regular use. Existing dance movement therapy (DMT) assessment approaches largely do not yet prioritize input from clients. This article addresses these challenges in reporting a trial of iPad app *MARA* (Movement Assessment and Reporting App) developed for assessment in DMT. *MARA* is applied in a program for adults with intellectual disability (ID) over 16 weeks. Assessment data is gathered utilizing the app's features: two researcher-therapists undertake quantitative scoring that *MARA* aggregates into graphs, substantiated by qualitative note-taking, photos, and videos; and clients provide feedback about their progress stimulated by viewing photos and videos. A sample graph generated by *MARA* and supporting notes and a report drawn from data are provided. Responses to reports from program stakeholders (12 participants, 12 families, 11 center staff) gathered through interviews and focus groups are discussed, and researcher-therapists' reflections are detailed. The benefits of using *MARA* reported by researcher-therapists include strengthened capacity to focus on participant outcomes, assess efficiently, plan and make decisions for the program, and communicate participants' progress to stakeholders. Family members perceive reports drawn from data gathered in *MARA* to be useful in enabling better understanding of the DMT program and participant outcomes and potentially to support NDIS service planning. Managers perceive the potential value of data in these reports for quality control and resource decisions, while other staff confirm the therapists' perspective that reports offer the possibility of improved communication and collaboration between center staff.

Keywords: assessment, dance movement therapy, intellectual disability, National Disability Insurance Scheme, iPad app, eco-systematic assessment, person-centered

INTRODUCTION

This article reports the trial of an iPad app *MARA* (Movement Assessment and Reporting App; Dunphy, 2018a) to assess the progress of clients with intellectual disability (ID) in a dance movement therapy (DMT) program. The research task was to discover whether *MARA* can support dance movement (DM) therapists to undertake regular assessment that informs their practice, include the perspectives of participants, and provide meaningful information for participants, their families, and other stakeholders. *MARA* was utilized in DMT program led by author Hens at Bayley House (BH), a day center for clients with ID in Melbourne, Australia. The center is currently involved in significant changes to service provision in response to requirements of the new National Disability Insurance Scheme (NDIS) for outcome-focused practice that responds to clients' choices for their own lives.

MARA was developed as a practical tool to support assessment by DM therapists, underpinned by an *Outcomes Framework for Dance Movement Therapy* (Dunphy and Mullane, 2018). A previous research project explored the application of an earlier version of the app (Dunphy et al., 2016). Findings indicated its potential to support DMT assessment, along with some suggestions for additional technical elements, notably security features. Further research to explore client contributions to assessment was also recommended.

The current project trials the next version of the app, improved in response to those earlier findings. Assessment options enabled by *MARA* comprise quantitative scoring, qualitative note-taking, photos, and videos. Two researchers, authors Dunphy and Hens, both trained DM therapists, used all of these to assess participants' progress. This data generated was used to stimulate participants' reflections on their own experience in the DMT program. Then data generated through the app and participant feedback was integrated into progress reports and distributed to stakeholders (participants, families, and center staff). These stakeholders then offered responses to the reports in interviews and focus groups.

This article focuses on *how* the assessment was undertaken, particularly the practical and technological aspects of the assessment process, rather than *what* was assessed. A detailed examination of the content, measures and scales of the *Outcomes Framework* and the actual data generated in the assessment process is being prepared for publication in a separate article.

The article begins with literature review of contemporary imperatives in health and human services including evidence-based, outcome focused practice, person-centered approaches, and prioritization of client self-advocacy and voice, and their implications for DMT assessment. Issues for assessment of outcomes with people with ID in DMT are discussed. Then the research method is outlined, both the gathering of data about the app's use and stakeholders' responses. The process of creating reports from data generated by *MARA* is briefly outlined. Findings discussed include analysis of stakeholders' responses to reports and therapists' experience using *MARA* in the DMT sessions and reflections on the diverse data options utilized. The article concludes with considerations for future

development of *MARA* and recommendations for research to advance meaningful and practical outcomes-reporting in DMT.

BACKGROUND

Health and human services internationally are increasingly required to demonstrate effectiveness of their programs, and to operate within evidence-based paradigms (Laska et al., 2014; Melnyk et al., 2014). Evaluation processes are more regularly expected as part of activity cycles (Ashton, 2015; Elsayad et al., 2015) and more frequently underpinned by outcomes frameworks (see for example, Lamb et al., 2015; State of Victoria Department of Health Human Services, 2016). Person-centered approaches are becoming more central in these fields, in contrast to earlier problem- or diagnosis-focused models prevalent in medical disciplines (Raskin et al., 2008; Brooker and Latham, 2016).

These changes are occurring alongside significant re-orientation of service provision for people with a disability toward client-led choice making and self-advocacy. The United Nations Convention of the Rights of Persons with Disabilities (United Nations Division for Social Policy and Development, 2008) places those with disabilities and their families and carers at the center of decision-making related to life goals and service provision (Ottman and Crosbie, 2013).

In Australia, these changes are reflected in the establishment of the NDIS in 2013. The initiative is underpinned by a philosophy of individual empowerment and choice to enable people with disability to enjoy an "ordinary life" (National Disability Insurance Agency, 2017). This includes increased access to services that facilitate meaningful and inclusive social participation (National Disability Insurance Agency, 2017).

The NDIS has catalyzed a major restructure of services to Australians who experience disability, replacing block-funding to providers with individualized funding packages controlled by service users. Service providers are impelled to undertake outcome assessment and reporting with more rigor than previously, including a greater focus on participants' perspectives.

This transformation of the socio-political landscape and imperatives from person-centered approaches challenge the notion of people with disabilities as being passive recipients of care or treatment. Policy makers and service providers are obliged to foster greater self-determination in those experiencing disability, including valuing of their experiential expertise at least as highly as professional "experts" (Thill, 2015). This increases the need for robust methodologies for self-assessment by service users (Thill, 2015).

However, obtaining input of clients with ID about their own experience can be difficult, even with best intentions. Barriers to indicate choice and reflect on progress include challenges with communication, recall, generalization, and abstract thinking (Ottman and Crosbie, 2013). Many people with disability also experience low societal expectations around their ability to self-advocate, hindering confidence, and capacity to share opinions

(Thill, 2015). However, the skills people with ID need to self-advocate can be developed, through strategies including additional time, practice, and consideration of communication preferences (Thill, 2015). The importance of honoring non-verbal communication such as movement and vocalization in therapeutic exchange and disability service delivery is noted by Edwards (2017).

Methodological approaches that have been effective in capturing the experiences and views of people with ID include mixed-method discussions and interviews, especially if they are structured with focusing questions and interviewer prompts. Additional assistance can be provided by visual or augmentative communication supports, observation, and input from sensitive carers (Ottman and Crosbie, 2013).

An eco-systematic approach to assessment is recommended for clients with ID (Hoo, 2017). This approach views therapeutic interventions as being significantly influenced by interactions between individuals and their social networks. Because of the communication challenges and other barriers people with ID face, meaningful goal setting, and responsive assessment requires effective collaboration between therapists, participants, their families, carers, and other stakeholders. The eco-systematic approach also recognizes the importance of transferability of learning and skills from therapeutic interventions (Hoo, 2017).

DM therapists face particular difficulties in responding to all of these demands. They are challenged to provide evidence-based assessment of their programs (Karkou, 2010; Caldwell, 2013; Cruz, 2013; Dunphy et al., 2016 for reasons including lack of assessment frameworks that: are user-friendly and comprehensive (Powell, 2008; Cruz and Koch, 2012); adequately describe observable movement (Powell, 2008); and accessible for therapists without extensive specialized training (Koch et al., 2001; Cruz and Koch, 2012). Existing assessment models often do not consider participant perspective as part of systematized approaches, nor provide data that is meaningful for therapists as well as other stakeholders, including clients themselves (Dunphy et al., 2016).

DM therapists are required to assess effectively while actively moving throughout therapeutic processes, often working with groups of clients simultaneously. They are frequently employed as sole practitioners of their discipline, resulting in some degree of professional isolation, and under-supported professional practice. Assessment tools and outcomes relevant for their speciality may not be aligned with broader assessment frameworks used in workplaces (Dunphy et al., 2016). DM therapists' preferences for informal assessment systems and measures rather than more systematic approaches (Powell, 2008; American Dance Therapy Association, 2017) is also likely to be contributory in these challenges (Meekums, 2010).

However, our view of the most challenging issue for robust assessment in DMT, arrived at after extensive consultation with DM therapists across the world during the development of app MARA (Dunphy, 2018b) is the lack of impetus for robust reporting from agencies employing them. Without a demand from employers, not surprisingly, DM therapists are less compelled to invest in time-consuming assessment processes. This lack of impetus from others can be compounded by

ambivalence from some practitioners about the desirability of an outcome focus in their work (Meekums, 2014).

An earlier scan of the literature indicated modest documented developments of technological tools including apps being employed in organized care settings and in creative arts therapy practice (Dunphy et al., 2016). However, many of these tools are utilized for basic admin functions rather than to inform clinical decision-making. Other apps are used to facilitate therapeutic processes to be assessed (e.g., Choe, 2014; Mattson, 2015) rather than providing an assessment system and reporting possibilities.

A previous international survey of DM therapists found no use of technological tools to support assessment (Dunphy et al., 2016). These findings were supported by our discussions with DM therapists across several countries in the intervening years. A scan of the main international journals over their histories (*American Journal of Dance Therapy*, *Body Movement and Psychotherapy*, and *The Arts in Psychotherapy*) supported this finding, with no documentation of technology used for assessment in DMT yet published.

METHODS

Assessment Tool MARA

The iPad app MARA was developed to provide a practical option for quality assessment by DM therapists. MARA is underpinned by an *Outcomes Framework for Dance Movement Therapy* created specifically for this task, with outcomes structured across five domains: physical, intrapersonal/emotional, cultural, cognitive, and interpersonal (Dunphy and Mullane, 2018) (overview attached as **Appendix 1**). The provision of an outcomes framework that includes specific measures across a comprehensive set of domains is posited to catalyze the DM therapist to first clearly identify outcomes of the therapeutic process that s/he and the client have agreed to work toward, and then to focus intently on assessing the client's progress toward these, selecting a score for each instance of a movement behavior observed. Previous users report their observation practices being "sharpened" in using MARA, especially in its requirement that a numerical score for client's access to each objective be selected (Dunphy et al., 2016).

This *Framework* is informed by a person-centered (Brooker and Latham, 2016) and strength-based approach, intended to support therapists to make judgements that are considerate of individuals' strengths and lived experiences. Assessment scales are not norm-referenced but referenced against the therapist's judgement of the participant's current capacity on each objective. The therapist scores how close s/he believes the participant to be in achieving their current potential, with a high score indicating observed actualization of skills and capacity, and a low score indicating observed potential as yet under-developed or enacted. This offers the possibility for the scale to be adjusted over time in response to changes in participants' capacity (improved or otherwise) as a result of the therapeutic process or other factors.

The app's facility to record and export assessment data in multiple formats (numerical graphs, written notes, photos, and videos) and save it in a client's profile filed by session, time, and date is intended to enable evidence-based assessment,

with therapists' scores and written observations triangulated by these multi-media forms. Quick scoring with taps on *MARA* is designed to facilitate more regular and efficient assessment than is possible with paper-based processes that need additional post-session work to process into reports.

The facilitation of improved assessment processes is expected to enable more robust evidence of client progress (or lack of) over time, and therefore support more accurate reflection on what is working, or not, in DMT practice. *MARA*'s security features including two levels of password protection enable data to be secure as it is gathered and stored on the app.

In addition to these hypotheses about *MARA*'s potential for assessment for DMT programs broadly, *MARA* was considered to be appropriate for BH's DMT program because of its alignment with person-centered principles. Its potential usefulness to support an "eco-systematic" approach to assessment (Hoo, 2017) was noted, given its capacity to capture assessment data in various formats from therapists and clients and to meet differing needs of program stakeholders. In this project, we explored all of these claims of *MARA* app.

Research Participants

Research participants were:

- authors, researcher Dunphy, and researcher-DM therapist Hens, acted also as participants trialing and reflecting on experiences using *MARA*;
- program participants (12), who all had ID, defined as an IQ score of 70 or below, arrested brain development or brain injury resulting in lifelong impairment of cognitive, motor, language, and social skills (Australian Institute of Health and Welfare, 1997). Several participants use non-verbal communication solely or primarily;
- center staff (11), three BH managers with responsibilities for center-wide planning and reporting, and eight keyworkers with responsibilities for planning for individual clients;
- parents of program participants (12), who had a major caring role for each participant.

The Dance Movement Therapy Program

The DMT program in which *MARA* was trialed was a new initiative for BH and DM therapist Hens. This project had the additional function of supporting Hens to develop a workable assessment process. The program was underpinned by the recognition of the potential of DMT to increase wellbeing through emotional, physical, and cognitive integration (Levy, 2005). Objectives included increased physical mobility; development of emotional regulation/intelligence; fostering of creative expression and confidence; and expansion of social and communication skills. Clients self-selected and self-funded their participation.

Prior to participants' commencement in the program, the DM therapist undertook preparatory work to develop appropriate objectives. This included examination of clients' individual support plans (PCPs), consultation with participants, parents, and staff members regarding their goals for participation and support needs. Information for each participant including PCP

goals, family details, key worker at BH, medical, and other information was saved into the appropriate section in *MARA* app. Then time was spent observing clients in the DMT session to confirm decisions re objectives to work on.

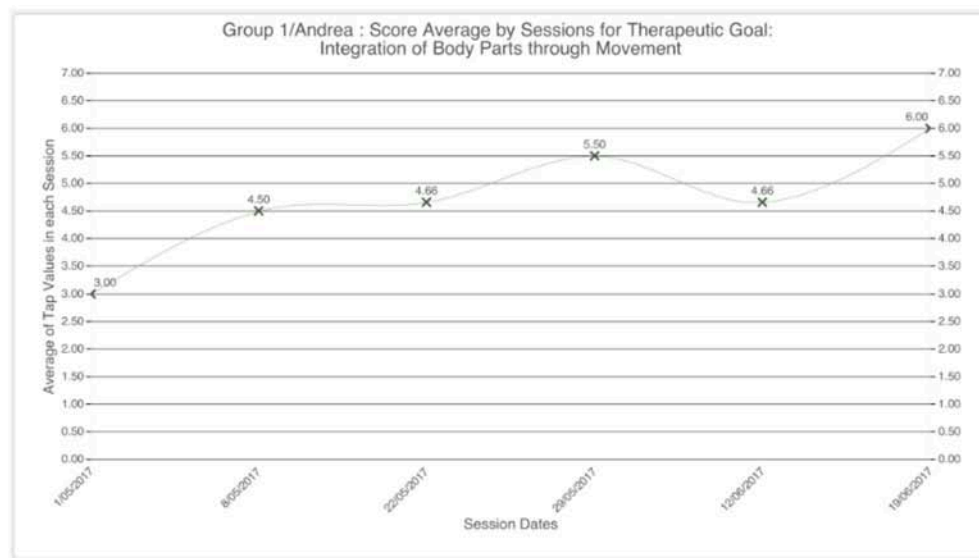
Research Design

The project had three phases: (1) Data gathering using *MARA*—researchers' quantitative scoring and qualitative note-taking, photos and videos; and clients' reflections on their own progress elicited in interviews, stimulated by photos and videos; (2) Reporting—creation of reports for clients and other stakeholders using data generated as above; and stakeholders' responses to these, gathered through phone interviews or written survey; (3) Researchers' reflection—reflective discussions between the researchers on the process of using *MARA*, the data generated, responses from stakeholders re reports, and the impact of all this on assessment and therapeutic practice.

Data Gathering

Over 16 weekly sessions, researcher-DM therapist Hens delivered the DMT program and assessed clients, supported by non-DMT trained support staff. Dunphy contributed as additional assessor. Both researchers used *MARA* to assess participants' progress toward two objectives: 1. *Physical domain: Body organization and connectivity—Integration of body parts*; and 2. *Interpersonal domain: Connection with others—Appropriate give and take in relationship*. Assessment was undertaken in the first two sessions as base-line; two sessions mid-way; and in the final two sessions. Quantitative ratings were made by the therapists tapping the app to record their score for each objective. Each participant was scored on each objective at least once per session. Dunphy scored during each session as many times as she saw a movement or action relevant to the objective, while Hens scored immediately after the session, making as many scores as she could remember for each moment relevant to the objective. *MARA* averaged scores for each participant on each objective per session and formatted these into graphs. This numerical data was substantiated by qualitative notes for each objective, and photos and video clips taken throughout sessions (see example in Figure 1).

Program participants were invited to reflect on their experiences in DMT sessions in interviews with one researcher. These occurred during the DMT session time toward the end of the 16-week period. Participants were interviewed individually, outside the DMT space to minimize distractions, ensure confidentiality, and to enable support for individual communication needs. The therapist first explained program objectives, then each participant viewed photos and short videos of themselves taken during sessions. Participants were then invited to comment on their experience in the program and of seeing themselves, and their sense of progress toward objectives. Verbal communication was augmented with symbols and visual aids that participants were experienced in using, where appropriate. Non-verbal responses including movement, vocalization, facial expression, and gesture were also recorded. This data was uploaded into each participant's file in *MARA*.



1.5.17
Angela's eyes are lowered often, checking watch during session transition times or moments of stillness. Movement generally contained to core and arms - bound and small. Seemed to enjoy and gain comfort from dancing with familiar friend.

8.5.17
Introduced spinal roll work to encourage bodily integration. Initially Angela just dipped her head forward but folded forward more deeply with gentle touch and mirroring support. During warm up Angela's gaze was directed to peers more frequently. She attempted more varied movement dynamics including bilateral arm work and larger hip sways in response to peers and DMT encouragement.

22.5.17
Utilised more mirrored and touch guidance during spinal rolls but also in other parts of the session to encourage Angela to extend limbs and experiment with new movement dynamics. Effective but needing more time to develop rapport and confidence.

29.5.17
During obstacle course Angela demonstrated more work through levels (low squatting), middle (walking at variable pace and direction), and high (increased extension in arms and several jumps). Pride and enjoyment demonstrated in small smiles and independent participation.

12.06.17
Angela's gaze lowered again, quieter and less engaged than in previous weeks. Movement more restricted today, light and bound. Use of space confined and indirect unless given one to one support. When checked in, she mentioned she was staying at respite (away from family) for the week.

19.6.17
Demonstrated strong dynamic bilateral punching, smiled softly when performing these. Spinal roll progressing, without one to one support, Angela performed a deeper fold and more integrated use of core, knees and head, more release in head and shoulders. Also observed increased extension in limbs today during warm up.



FIGURE 1 | Graph, written note, and photos provided by MARA for Angela's score on Objective 1: Integration of body parts. Photo published with informed consent of participants.

Reporting

Reports were developed for each participant utilizing data gathered and saved into MARA. These included scores and notes made by therapist Hens, participants' responses and supporting photos and videos, all summarized and interpreted into plain language. These reports were distributed to participants, their families, and center staff by email or hard copy.

Then, responses to these assessment reports were investigated. Participants' family members were interviewed in person or by phone, center managers were interviewed, and keyworkers were interviewed or contributed in a focus group (Sample questionnaires attached as **Appendices 2 and 3**). Responses to reports were invited, considering their readability and length, insight provided and usefulness of the data in the documents for

current or future planning or reporting needs. These responses were analyzed and presented in summary form.

Researchers' Reflections

The researchers undertook reflection discussion on the use of MARA for assessing and reporting, after each assessment session and at the end of the period. Topics addressed were: the technical aspects of assessing using MARA; decisions we made about when in the session, and in the series of sessions to assess and how often; and data generated about participants on each objective, in numerical scoring, notes, photo, and videos. Then we reflected on the overall experience, both the assessment and reporting processes and responses to all of it from stakeholders.

We followed informal discussion of comparison of our scores with estimates of interrater reliability based on Intra-class correlation coefficients (ICC). These were based on assessment of 12 participants on two different occasions by both researcher-therapists, on measures *Body organization and connectivity* and *Connection with others*. Type of agreement assessed was *absolute agreement*. ICC measure for single rater was used, to a 95% confidence interval.

Ethics Procedures

Ethics approval was gained through University of Melbourne Human Research Ethics Committee (ID: 1647380). All processes required by the Committee were undertaken, including obtaining informed consent from participants. BH's regular consent processes were followed, given participants' cognitive impairments, with participants' elected advocates (all family members) supporting participants to consider issues of consent and signing the consent form on their behalf. Specific informed consent about use of photos was also obtained from appropriate participants, with participant "Angela" whose report and photo appears, supported by her advocate to provide consent for use of her first name as well. Augmenting this were discussions with participants and monitoring of their responses before and during sessions to ensure that they were comfortable with the researchers' processes, including use of MARA.

Information about the researchers' privacy and confidentiality processes was shared with participants in Plain Language Statements. Data was stored safely in locked facilities at the Creative Arts Therapies Research Unit at the University of Melbourne, or on the researchers' password protected laptops and iPads. Center staff and participants were kept informed about the research process through occasional newsletter items.

The authors advise of their dual roles in this project. Researcher Dunphy is also the inventor of app MARA and Hens is a staff member of BH leading their DMT program. While both researchers intended to bracket out vested interests in MARA and the program, respectively, from our research, we nevertheless acknowledge these as potential influences.

RESULTS

Reflections on Assessment Process

This section reports researcher-therapists' experiences of using MARA for assessment elicited in reflective discussions, firstly

with respect to program and session planning. Hens commented on the impetus provided by MARA to clarify objectives for the DMT program, with the provision of outcomes, and associated measures helpful in supporting her to identify objectives to assess against. She found that outcomes and associated measures in MARA that were suitable for her DMT program could also be adequately aligned with participants' existing PCP goals and new outcome measures required by NDIS. For example, a DMT program objective measured by MARA as "give and take in social interaction" was aligned with a participant's PCP goal of "building confidence and the ability to speak out," and the NDIS' overarching outcome of "social inclusion."

She experienced the use of MARA beneficial in decisions about the appropriate number of outcomes to assess. An initial intention to assess each client on different outcomes because of their different needs and PCP goals proved too challenging, given the practical limits of a session involving 12 clients. She then made the decision to assess the same objectives for all participants, choosing two that were appropriate for all group members. She found that measuring only two objectives for each participant was manageable as an assessment task and provided sufficient data for monitoring and reporting of participants' progress.

Both researchers concurred that the decision to assess in six sessions across the 16-week period seemed satisfactory. Assessing clients for a first, baseline, measure on two objectives seemed better undertaken across two sessions rather than one, given that both clients and therapists were engaging with new material. As assessors, we sometimes found it difficult to "see" anything to assess in the first session, as clients familiarized themselves with new movement material. Assessing in the two middle sessions for the period was experienced as useful, providing a focal point for considering participants' progress across that period and providing a focal point to consider adjustment of the program if needed to better support clients' development. The decision to assess across the final two sessions also seemed appropriate, enabling the therapists to make a thorough assessment of progress across the program, and reducing any anomalies that might have impacted scores for a single session.

Figure 1 depicts a graph created by MARA from therapists' scores for client Angela on Objective 1, *Integration of body parts* substantiated by qualitative notes and illustrated by photos. The graph indicates a gradual positive change over the period, from average score of three to six by the final session.

Both researchers considered our decision to score each client on both objectives every session a prompt for rigorous thinking, especially as each session was followed with reflective discussion. The process of numerical scoring seemed useful for several reasons. It focused our discussions specifically around stated objectives and what we had "seen" of each client in relation to these each session and provided direction for future session planning. For example, the dip in the score for client Angela in the fifth assessed session after weeks of steady positive progress, as depicted above, stimulated a conversation about factors that might have been causal in that change, and strategies the DM therapist might use to address this in future sessions. An additional benefit was that this discussion acted

as a catalyst for supervision, with Hens' developing skills as a DM therapist supported or challenged by a perspective from longer-experienced colleague Dunphy.

We were interested to find that scores we had made independently of each other (Dunphy during the session and Hens when the session was over) were most often within one point of each other's. In instances where our scores were widely divergent, we discovered that this was often because we had observed different moments in the session. With twelve or more people moving in the room at one time it was not possible to observe everything. Our justification to each other about what we had seen to lead to our scoring decisions prompted interesting discussion and a sense of sharpening of our "minds' eyes."

This reflective discussion about the scoring process was followed by a structured inter-rater reliability estimate based on Intra-class correlation coefficients (ICC), reporting absolute agreement for average of raters. These results indicate good inter-rater reliability (Koo and Li, 2016) for Measure 1: Body connectivity and moderate for Measure 2: Social Connection.

Table 1 estimates of interrater reliability based on ICC.

Program Participants' Responses

This section reports program participants' reflections on their experiences and progress in the DMT program. All twelve participants agreed to contribute to this stage of the research as well. This data was gathered through short individual interviews, prompted by verbal information about the objectives of the program and videos and photos of their participation. Most participants were able to share reflections about the DMT program, using verbal or non-verbal communication. This included comments about enjoyment of a particular dance sequence or activity, or description of feelings linked to experiences. However, eliciting responses about progress toward objectives proved challenging. We reflected that this may have been because of the cognitive processing required, and communication challenges we had anticipated, possibly exacerbated by participants having to leave the session and go to a separate room for an interview, and therefore being removed from the context and experiences the assessment was focused on. Participants may not have had much previous experience reflecting on progress toward objectives.

There was also an unexpected response, with one participant having a negative experience in seeing a video clip of herself in movement. We had anticipated that participants would enjoy the opportunity of supported reflection on their movement experiences, but this participant's response indicated that we needed to be more sensitive in future to ensure that this process of self-assessment was a beneficial learning experience.

TABLE 1 | Estimates of interrater reliability based on Intra-class correlation coefficients (ICC).

Measure	ICC	Estimate	95% Confidence interval
1.Body connectivity	Single rater	0.80	0.59, 0.91
2.Social connection	Single rater	0.64	0.30, 0.84

Reporting

At the end of the 16 weeks, a report for each participant was developed utilizing data gathered through the app, comprising therapists' judgements, and participants' responses. This began with an outline of the DMT program's overall goals linked to: the NDIS goals being absorbed into the center's planning processes; goals from participants' Person-Centered-Planning; and DMT program objectives for that period. Participants' progress toward objectives were reported, accompanied by two to three short illustrative videos or photos.

In considering what data to include in the report, we made the choice not to send data in graph form to clients and their families. We considered that reports including graphs might be disconcerting, given the very significant difference of this type of information from current more informal reporting processes used at BH. As well, the lifelong nature of ID and the challenges it provides means that progress, when it occurs, can often be very modest. We were concerned of the possibility that depictions of incremental progress might be most supportive for families and participants, and contrary to the program's strengths-based intention. Hence, we provided only qualitative comments based on the data and photos and videos to represent participant engagement and honoring of progress at whatever rate it occurred. These reports took the DM therapist about 45 min to prepare for each participant once the basic format was established.

Families' Responses to Reports

After the reports were distributed, the family member who was nominated advocate for each client was invited to share their response to these. All family members invited agreed to participate. Issues investigated were readability and appropriateness in content and length, provision of new information or insight about the DMT program or the client's participation and usefulness, particularly with respect to supporting applications to NDIS for funding for DMT involvement. Responses were mostly positive, with eight of the twelve family members finding the report "really easy" to read, and four finding it "quite easy." Ten respondents agreed that the length and layout were appropriate, while two would have preferred less detail. Three parents perceived "significant" new insights, five reported "some" new insights, and four reported no new information about their family member. Those not encountering new information cited their family member's ability to communicate their experiences or their previous exposure to dance programs as reasons.

Eight family members described the information provided in the report as being "very useful," while four found it "somewhat" useful. Those who found reports most useful were supporting participants who have communication challenges that restrict their ability to share experiences. For example, one parent reported that the videos assisted her to discuss the DMT program more directly with her son.

Family members indicated that information from reports helped them understand objectives of the program and therefore its potential contribution. Nine respondents commented on outcomes of DMT or skills developed in the DMT program being transferred to contexts outside it. This included enhanced

mobility, improved emotional regulation including mood, relaxation, and communication skills, social skills, and confidence.

With respect to the potential usefulness of the report in applications to NDIS for funding of further DMT activity, six family members affirmed that they thought reports would be useful and six were unsure. A recurring explanation for this uncertainty was a lack of familiarity with the NDIS funding requirements.

Center Staff: Keyworkers

In one focus group and three individual interviews, keyworkers overall responded positively to the reports. One commented that this report was “one of the best assessment forms I have seen in this center.” Affirming comments included that the clear articulation of program objectives was useful, that reports were thorough, easy to understand and provided valuable information. The discussion about the reports seemed useful in itself, in its prompting of keyworkers’ focus on the progress (or otherwise) of their client in areas possibly impacted by the DMT program. For example, one keyworker reported that her client had improved fine motor skills and balance, resulting in less accidents, during the time she had been attending DMT, which the worker attributed to her participation in the program. Keyworkers also commented on the potential benefits for participants in receiving positive affirmation of their own movement styles, through the report’s strength-based emphasis.

These responses indicated the potential for such reports to be a conduit for collaborative work between DM therapists and other staff, because they helped the keyworkers see the relationship between activities in the DMT program and their broader roles supporting clients. However, there was also hesitation expressed, with keyworkers reflecting on the amount of work required to develop such detailed reports. They indicated the barriers for other staff, like themselves, if they were expected to create reports of this complexity, given their significant current responsibilities. This was particularly salient because reporting in this detail had not been part of their work requirements to date.

Center Staff: Managers

BH managers also had positive responses, with the most senior staff member interviewed commenting that a report she examined was “incredible.” The likely usefulness of such reports for agency management, given the impending requirement for outcomes-based reporting by NDIS, was confirmed, along with perceived value for information-sharing with families whose DMT participant had communication barriers. Potential benefits were also identified for clients, with one manager commenting that through the reports, clients could “see their own achievement and take pride in their work.” Another point made was the evidence provided by the report of DM therapist Hen’s commitment and deep engagement with clients’ needs. One manager commented that the report “shows that someone has been taking a keen interest in (each participant)... If everyone knew what was happening in this (DMT) program, they’d want to come.”

There were also hesitations about practicality of such a reporting process. Two of the three managers confirmed the

keyworkers’ concerns about the resource demands of preparing such reports. One manager wondered about the feasibility of a reporting process that expected would be time-consuming, in a workplace where this was not common practice and staff did not necessarily have the skills to do it. Other concerns raised were the accessibility of language and amount of detail that may be too much for keyworkers with significant caseloads of clients. More succinct information supported by more visual data was recommended.

DISCUSSION

Usefulness of MARA for Assessment

These results from a range of DMT program stakeholders confirm that the iPad app *MARA* offers potential for effective and practical DMT assessment. The process of assessing, along with data generated through *MARA* was experienced as valuable by we two researchers, in catalyzing focused planning and reflection. We found that 30 min of discussion and scoring was adequate to assess up to 12 clients, making the assessment process enabled by *MARA* accessible to DM therapists working in real world circumstances.

MARA’s functions of video, photo, and notes containing participant feedback being saved and filed according to sessions, dates, and times proved useful. This automatic and systematic storing made this data easily accessible to share with participants and export for reports. The inter-rater reliability of researchers’ scores was moderate to good, despite scoring being undertaken in less than ideal circumstances, with researchers undertaking the assessment process at different times (during and after the session) and not necessarily scoring the same moments.

Reports underpinned by this data were experienced as useful for program participants’ families, keyworkers, and center managers. These findings support the potential for *MARA* to facilitate person-centered eco-systematic approaches to program delivery and assessment. However, it was also evident that reduction of detail and length of reports may be beneficial in maximizing stakeholders’ engagement with them and increasing the possibility that the DM therapist could sustain such assessment practices within the real-world limitations of her sessional role.

In preparation for this trial, it became evident that it was not possible for DM therapist Hens to assess using the app at the same time as facilitating a DMT group, especially when supported only by non-DMT trained assistants. *MARA*’s features such as tap-touch scoring and quick saving of photos and videos made assessment more efficient, but they did not eradicate the problem that DM therapists working with groups without skilled support must wait until the end of the session to record assessment notes or scores, and thus rely much on their memory. All previous assessment systems have also had this same limitation, but worse, given the amount of time required for note-writing by hand and other form. Thus, *MARA* does not completely eliminate issues low-resourced practitioners have had in assessing, but it reduces some of the challenges.

However, as discussed above, scores were similar between researchers, even with Dunphy assessing during the session and Hens immediately afterwards. This supports the possibility that

adequate reporting can be enabled by *MARA* even if it does not happen right within the session. This makes it potentially suitable for the real world circumstances of most DM therapists, and an advancement from previous assessments tools because of its technological features.

Considerations for Future Research

This trial only involved observations made by two DM therapists, both of whom had dual investment as researchers and with *MARA* or the DMT program. Only participants from one program, one population group, one setting, and one country contributed. Further trials of *MARA* with researchers and DM therapists who are less closely connected to its development, working with different population groups in other settings and locations, are required to substantiate the findings of this trial.

The current trial also included a modest exploration of client perspectives in DMT assessment. This was enabled by *MARA*'s note storage and multi-media options that enable participants to see and reflect on salient moments in the therapeutic session once the session is over. However, it was evident that much improvement could be made in responsive and inclusive methods for eliciting participant self-assessment for people with ID. Future considerations may include ways to invite participants' reflection while they are within the DMT space, to reduce the challenge of abstraction in responding when moved out of the space, and as a more sustainable option given limited staffing resources. One participant's negative experience suggested the need for skills in offering scaffolded information that would enable participants to focus on their growth and development (current or potential), rather than reinforcing deficiencies they may perceive in themselves.

Two other topics not explored in this study were the actual outcomes, measures, and scales used for assessment in *MARA*: their suitability for the task, comprehensiveness, and validity. This work is necessary for *MARA* to provide a tool of appropriate professional standard. Nor was the data about outcomes of participation in the BH DMT program considered. Both of these topics are being developed in separate articles concurrently.

Inter-rater reliability estimates were moderate to good in the uncontrolled environment of this study, with raters assessing at different times (during and after the session) and not necessarily the same moment of participants' engagement. Further testing, with raters assessing the same moments in participants' engagement in the same way (during or after the session), would enable better assessment of IRR for *MARA* and its underpinning Outcomes Framework.

Recommendations for Development of *MARA*

This trial of *MARA* indicated that its current quantitative, qualitative, and media options can support effective DMT assessment practice. However, the need for another data collection function was evident. While the therapist can score any objective any number of times in a session, these are currently formatted by *MARA* only into graphed averages per session. We noted that participants were often scored differently against the same objective at different times in a session and this range was not evidenced in the current graph format. Therefore, a further

set of data we identified as potentially valuable to be enabled by *MARA* was variation of scores within a session. This would enable examination of moments when clients engage and advance toward their potential and other moments that are less successful.

We reflected on possible reasons for the different scores, identifying possibilities such as shifts in group dynamics, participants' familiarity, or interest in specific activities, and emotional or physical states that might fluctuate throughout the session. Data that underpinned this thoughtful reflection could enable the DM therapist to plan and facilitate sessions to maximize engagement and growth. This would also be a valuable topic for future exploration.

CONCLUSION

This trial of the suitability of iPad App *MARA* for effective assessment in DMT practice indicates its potential, at least for client groups of people with ID. Reflections from two researchers, and interviews and focus group responses from 12 clients, 12 family members, and 11 center staff indicate that reports compiled with data generated through *MARA* were valuable to all stakeholders. The possibilities that *MARA* enhances for client perspective in assessment were evidenced, indicating both usefulness of the current format of *MARA*, and the need for strategies to enhance client engagement in this process.

The likelihood of a tool such as *MARA* to be useful in meeting agencies' needs for outcome reporting, stimulated by the new demands of the NDIS in Australia, was also supported. An additional feature for *MARA* was recommended, of graphs that provide information about client responses within sessions, to complement the current feature of data graphed across a series of sessions. Considerations for more succinct reporting that was less time consuming for the DM therapist to produce and stakeholders to read were salient, to ensure that evidence-based assessment could be a regular and valued part of DM therapists' practice.

AUTHOR CONTRIBUTIONS

KD and TH contributed in all aspects of the study. KD led the writing and structuring of the article, while TH led the practical aspects of the study, including liaison with the research site and participants.

FUNDING

KD's work was supported by a Mackenzie Post-Doctoral Fellowship from the University of Melbourne, and some of the associated funds were used to employ TH for a short period on this project.

ACKNOWLEDGMENTS

The authors thank participants whose contributions enabled this study: Bayley House dance movement therapy program participants and their families, especially Angela and her parent, staff, and managers.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.02067/full#supplementary-material>

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Conflict of Interest Statement: KD is the developer and owner of iPad app MARA with colleague Sue Mullane. TH works as a contracted staff member leading the DMT program in Bayley House.

The reviewer NG and handling Editor declared their shared affiliation.

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Psychodrama's Role in Alleviating Acute Distress: A Case Study of an Open Therapy Group in a Psychiatric Inpatient Ward

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OPEN ACCESS

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 01 June 2018

Accepted: 09 October 2018

Published: 30 October 2018

Citation:

Ron Y (2018) Psychodrama's Role in
Alleviating Acute Distress: A Case
Study of an Open Therapy Group in a
Psychiatric Inpatient Ward.
Front. Psychol. 9:2075.
doi: 10.3389/fpsyg.2018.02075

Numerous studies point to the acute distress associated with experiencing severe mental illness and psychiatric hospitalization. Another strand of research describes how the unique features of psychodrama group therapy are useful in fostering spontaneity and creativity, and their benefits in treating particularly difficult populations where traditional psychotherapy is limited. This paper provides a framework for understanding the potential of psychodrama group therapy to alleviate the experience of loneliness and distress in psychiatric inpatients. A case study of an open inpatients psychodrama group in a psychiatric hospital in Israel demonstrates the role of therapeutic means such as the doubling technique and group sharing phase in creating and reinforcing empathy, relatedness, and support, which may offer at least partial relief of the distress and loneliness of psychiatric inpatients. The unique contribution of this study is the intimate encounter that it provides to researchers and practitioners with the processes that take place within the setting of inpatients therapy group.

Keywords: psychiatric hospitalization, group therapy, acute distress, inpatients, mental illness, case study, psychodrama

INTRODUCTION

The case study presented in this paper is intended to serve as a framework for understanding the potential of psychodrama group therapy to alleviate the experience of loneliness and distress in psychiatric inpatients. In contrast to many other studies on mental illness treatment, this study does not discuss the phenomenological aspects of psychopathology or etiological explanations based on psychoanalytical theories; rather, it focuses on the experience of participants coping with mental illness and psychiatric hospitalization. This approach follows a wider trend of psychodrama practitioners (Kellermann, 1998) and specialists in the field of psychiatric rehabilitation who prefer a more holistic, experience-based approach as an alternative to the psychopathologizing and labeling language (Roe and Lachman, 2005; Mankiewicz et al., 2013).

Coping With Mental Illness and Psychiatric Hospitalization

The experience of coping with mental illness has been described, among others, by Patricia Deegan, one of the forerunners of the *recovery movement*. Deegan describes how a diagnosis of mental

illness “paints” a person’s entire perception and subjective experience. She describes the social isolation, the feeling of failure, the detachment and alienation, which takes over a person following his or her diagnosis (Deegan, 2004). Other studies illustrate how awareness of the disease or medical diagnosis, in itself elicits symptoms of depression (Moore et al., 1999; Roe and Lachman, 2005) or even of post-traumatic stress in people coping with severe mental illness (SMI; Frame and Morrison, 2001; Mueser et al., 2002; Shaw et al., 2002). All this is intensified by the effects of stigmatization and social rejection, and in particular by self-stigmatization, further exacerbating the difficulty of coping with mental illness (Corrigan, 2004; Mueser et al., 2010; Corrigan and Rao, 2012). Self-stigma results in a loss of identity, it shapes one’s attitudes to recovery, provokes a sense of hopelessness and low self-esteem, and leads to social withdrawal and depletion of social connections (Yanos et al., 2011; Orkibi et al., 2014).

Moreover, the hospitalization and treatment experience is often in itself a traumatic experience. Recovering people undergo difficult treatments, involuntary hospitalization, sometimes they must be physically restrained or placed in isolation. They are medicated, sometimes involuntarily, suffering adverse effects which can result in a feeling of alienation from one’s own recognizable self, and may be also subject to verbal threats as well as physical, sexual, or emotional abuse by other inpatients or staff members (Morrison et al., 2003; Holloway, 2010).

It is in this challenging context that various therapy groups, such as psychodrama group therapy, are offered to people hospitalized in a psychiatric hospital.

Group Therapy in Psychiatric Wards

Many studies have revealed the immense benefit of group therapy in people coping with shared distress, especially people with SMI (Kanas, 1996; Whitaker, 2001; Shulman, 2006; Fagin, 2010). Coping with SMI is often accompanied by a loss of internal and interpersonal dialog, and a personal experience of one-dimensionality and emptiness. In such situations, individuals feel empty and hollow, see themselves as outside observers of their own lives. People suffering from these conditions can benefit from therapy that conjures diverse situations of rich dialog, offering partners to mirror one another, and providing visibility and a voice to convey the individual’s inner narrative (Lysaker and Lysaker, 2004).

Existing literature deals with the conditions and limitations which affect the nature of group therapy for psychiatric inpatients. These include the physical limitations of a psychiatric ward, the participants’ state of acute distress, incidence of violence and self-injury (Holloway, 2010), and a high turnover of group members. This constant turnover dictates the group’s *open nature*, with participants joining and leaving frequently throughout the course of the group (Turner, 2011), and its *open-ended nature* with regard to the duration of the group (Schopler and Galinsky, 1984/2006; Miller and Mason, 2012)¹, which Ebenstein and others categorize with *single-session groups*

(Ebenstein, 1998; Manor, 2010). Yalom (1983, 1995) details the circumstances surrounding group therapy in psychiatric wards. He describes power-struggles that arise between the various members of medical and para-medical professions, the rapidly changing group membership due to increasingly shorter hospitalizations, and the psychopathological heterogeneity in the various departments. Other factors include the multiplicity of groups and activities offered to inpatients in the ward, the time spent together when outside the group, and the norms for sharing information among staff-members.

Despite these limitations, Yalom describes the benefits that group therapy may offer to psychiatric inpatients. In addition to Yalom’s definition of 11 “therapeutic factors” of group therapy in general (such as instilling hope, universality, altruism, etc.), he highlights a few goals for group therapy specifically within an inpatient ward. These include encouraging people to be involved in their treatment and recovery process, encouraging a desire to maintain and continue with treatment even after discharge; demonstrating to people that talking about one’s problems and sharing can help; identifying problems with the help of the group, in order to work on them later in one-on-one therapy; alleviating loneliness and bridging barriers between fellow inpatients; providing a tool for inpatients to help and support one other, which empowers the participants, giving them a sense of capability and self-value; and lastly, easing the anxiety that is experienced in psychiatric hospitals by offering a safe and protected space within it (Yalom, 1983, 1995).

Psychodrama Therapy for People With Mental Illness

The psychodramatic stage allows individuals to approach their feelings and thoughts in situations where the verbal dialog of analytic psychotherapy is limited (Farmer, 1995). Psychodrama group therapy is especially beneficial for evoking spontaneity and uncovering creativity in emotional distress cases (Holmes and Karp, 1991; Roine, 1997; Blatner, 2000; Schacht, 2007; McVea et al., 2011) and in treating difficult populations, such as at-risk adolescents, alcoholics, drug addicts, sexual offenders, and those coping with anorexia (Karatas, 2011; Karp, 1994; Hollander and Craig, 2013; Orkibi et al., 2017). Another advantage of psychodrama is its effectiveness in treating a wide range of psychopathologies, including depression, anxiety disorders, obsessive compulsive disorder, post-traumatic stress disorder, and other related phenomena such as self-stigma in people coping with mental illness (Vieira and Risques, 2007; Belil, 2010; Gatta et al., 2010; Orkibi et al., 2014).

J. L. Moreno, the originator of Psychodrama, applied it with people who have SMI. He notes that Freud has consistently stated that psychoanalytic therapy is applicable only to individuals capable of evoking transference toward the analyst, and thus precludes the possibility of psychoanalytic treatment for people with psychosis and those with severe narcissistic disorders. Moreno, however, argues that such disorders do not preclude the possibility of treatment by using psychodramatic therapy (Fox, 2008). Moreno’s conception of working with people with SMI is detailed in an article dealing with the treatment of psychosis

¹ Although they are often used interchangeably, the term “open-ended” can more precisely refer to the timeframe of the group, while “open” refers to the membership of the group (Turner, 2011).

through psychodrama (Moreno, 1939 in Fox, 2008). The focus of the psychodramatic therapeutic process is not, according to Moreno, a transference of the patient to the therapist, but rather the encounter between people and the psychodramatic roles, which underlies the value of this method for people with SMI and psychotic states. Psychodrama makes use of the “tele,” the emotion that arises in interpersonal encounters and the interactions of different roles, in order to induce the recovery process even in people with severe illness unaddressed by Freudian psychoanalysis.

Through the reality on the stage, psychodramatic techniques allow a person with psychosis to express even delusions and hallucinations in an accepting way that legitimizes this experience by allowing for expression of the world as he or she experiences it. These techniques do not reinforce people's delusions or undermine reality, but rather allow them to self-restrain the psychosis (Moreno, 1939).

Moreno describes techniques for psychodrama specifically designed to be accessible even for people with SMI that may not be capable of participate in the regular therapeutic process (Moreno, 1939; Ron, 2018). For example, the *substituting role technique* provides participants to take on symbolic roles very distant from their own selves if they are unable to play the role of themselves or those close to them. Similarly, the *mirror technique* enables even those participants who have trouble acting out a role on the psychodrama stage, to “see themselves” on stage using another group member who acts as an “auxiliary ego” in their place. For those who cannot participate whatsoever in psychodrama, Moreno suggests another technique: the *auxiliary world technique*, wherein a person's entire daily environment becomes the psychodrama stage, and all the people in it are included by means of becoming “auxiliary egos” (actors in the main character's drama).

This auxiliary world technique is intended primarily for psychiatric inpatients in extreme and uncommon conditions (Moreno, 1939). In practice, psychodrama therapy is utilized routinely in many psychiatric wards in Israel. This study presents findings from psychodrama group therapy in an acute ward of a psychiatric hospital in Israel and examines how group psychodrama may, to some extent, alleviate the distress and loneliness experienced by psychiatric inpatients in acute states.

MATERIALS AND METHODS

Case Study Research

The origins of contemporary case study research can be found in qualitative approaches to research in the disciplines of anthropology, history, psychology, and sociology (Harrison et al., 2017). The term “case study” has been widely used across multiple disciplines and has no single definition (Kazdin, 2011). Yin (2009, p. 18) defines case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context.” Crowe and her colleagues similarly describe the case study approach as a research approach that is used to generate an in-depth multifaceted understanding of complex issues in their real-life context (Crowe et al., 2011). What is common

to these various definitions is the consistent description of case study research as a versatile form of qualitative inquiry most suitable for a holistic and in-depth investigation of complex phenomena (Harrison et al., 2017). Explanatory in nature, the case study research is expected to catch the uniqueness and complexity of a single case in a real life setting (Stake, 1995). Its naturalistic and uncontrolled characteristics have made the case study a unique source of information that contributes to theory, research and practice (Kazdin, 2011; Harrison et al., 2017).

The Study Setting and Participants

This study was conducted using the case study approach, following a group psychodrama therapy led by the author over a period of a year in the acute ward of a psychiatric hospital in Israel. People admitted to this ward are adults over age 20 suffering from some acute crisis leading them to be hospitalized voluntarily for a period lasting usually from 1 to 3 months. The circumstances leading to their hospitalization were varied, including depression, disorders such as schizophrenia and bipolar disorder, anxiety and other stress disorders, as well as various psychotic states.

The psychodrama group was an open group, allowing for high turnover and variability of the group's participants (Turner, 2011; Miller and Mason, 2012). The study followed this group in 2011–2012 for nearly a year, during which the group met 40 times, with 85 different participants overall. Of those, 51 were men and 34 were women. Ages ranged from 22 to over 70. The number of participants in each session ranged from 4 to 11.

The sessions were led by the author, and took place once a week in the morning, lasting about an hour. Each session began with introductions and a “group pulse-check” in which the participants shared with the group how they were. This was followed by an active warm-up, then enactment of a psychodramatic vignette, and group sharing as a closure.

Materials and Data Analysis

Data were collected through the therapist's (i.e., the author) direct participant observation. Materials include detailed verbatim transcripts of all the therapy sessions during the course of the study, as well as other documents including drawings and letters written by the participants during the group sessions and collected by the therapist. The verbatim transcripts were written immediately following each session by the group therapist and processed in weekly supervision sessions. All materials were used with the express consent of the group participants and with the approval of the psychiatric hospital. Materials were edited with pseudonyms and any identifying information was removed.

In line with the grounded theory approach, several stages of analysis were undertaken (Strauss and Corbin, 1998; Berg, 2004). The first phase included a thematic analysis of each transcript. The units of analysis were paragraphs or segments of text from the transcript. At the same time the entire text was also treated as a single segment. The intention was to enable the necessary dismantling of each session into specific units of content while retaining the ability to see them in their original context (Berg, 2004).

The initial analysis revealed numerous thematic categories emerging from each transcript. After rereading a given transcript, the number of categories was reduced by combining similar categories and focusing on those that emerged most relevant. Next, the transcripts were integrated based on the categories that they had in common. These categories were scrutinized again for centrality (repeated appearances across interviews) for the connections between them, and for their relevance to theory, to the study's question (Berg, 2004; Roth, 2005).

Importantly, to cross-validate the findings all sessions transcripts were reviewed by a peer psychodrama practitioner against the findings. The analysis process revealed major thematic categories which are presented in the following section.

FINDINGS

The findings of the study are presented in three main thematic categories: (a) encountering and coping with manifestations of distress in the group, (b) the doubling technique in the therapeutic process, and (c) the role of group sharing. The first section is an illustration of psychiatric inpatients' acute distress and the manner in which they expressed this distress, while the latter two sections focus on the role of specific therapeutic means in coping with this distress. The decision to focus on the doubling technique and group sharing is related to the significant role they played in creating and reinforcing empathy, relatedness, and support in the group. The quoted passages are excerpts from the verbatim transcripts written by the author immediately following the group sessions. Pseudonyms are used.

Encountering and Coping With Manifestations of Distress in the Group

Alongside the turnover of group members throughout the year, the consistent element was the manifestation of participant's distress – the depression, despair and fatigue, helplessness, guilt, fear, and isolation.

Almost weekly, especially during the “group pulse-check” segment at the beginning of every session, group members recounted and described a sense of depression: descriptions of sinking into despair, the apathy and dysfunction that led to their hospitalization, fears and anxiety that accompany the depression at night, sleep that is completely dependent on sleeping pills, and mornings where the depression dominates their body and mind. Mornings were described as a struggle to get up from bed, move the legs and begin the day. Young mothers related being unable to care for the children or even feel any joy from them, because of the enveloping depression. Those who were beginning to recover feared sinking once again into that depression.

It was apparent that the group activity was meaningful for the participants. This at times entailed discussion and sharing, and at times was accompanied by psychodramatic techniques such as *role-reversal* or *doubling*:

Daniel was hospitalized 2 days ago because of his depression. This has already happened to him multiple times before. Last night he didn't sleep at all, despite his sleeping pill.

Elena also talks about her depression. She says that mornings are the hardest for her. She cries all morning, and improves throughout the day.

We discuss depression a little; about how Daniel and others have been in this situation before, and recovered from it. Daniel says, “This doesn't mean anything about the future.”

I “double” for Daniel: “When I am depressed, I cannot see how things will get better. I can't see the light at the end of the tunnel. In my mind I know that [in the past] it has always been temporary and I [always] got better, but when I am inside the depression, it's hard to feel that things could be good again.”

Here, Daniel shared his story of coping with depression. This was followed by a similar story by Elena. It was an opportunity for both of them to see themselves in each other's story. I facilitated the brief group discussion and used the doubling technique in an attempt to expand Daniel's viewpoint, a sort of narrow “tunnel vision” that often characterizes people experiencing depression. The double was also used to find a balance between identification and confrontation: allowing Daniel to sense that his emotions and helplessness are perceived and understood, while at the same time offering an alternative point of view, by echoing memories of better times he had in the past.

The expressions of depression were often accompanied by despair, weariness, and hopelessness. These may arise either as a result of the psychiatric condition and repeated failed social interactions outside the hospital, or secondary to the hospitalization itself. A concrete example is found in one session in which participants were asked to write a letter to someone who was significant to them. One of the group members, Adam, chose to write a letter to himself:

“Letter to Adam: Adam has no more strength, I've lost all hope, these horrible feelings won't let me be, and every day in this ward is hell for me. I feel I might go insane, I want to go home. Every day my mother fights with me, that I'll agree to stay here longer. In the ward, everything feels sad and gloomy, and I just cross my fingers and hope that I'll have the patience to last until I can be discharged.”

This expression of distress, the ability to share it with the group while they do the same, is in itself beneficial. Adam's letter prompted an opportunity to let him experience a new perspective using role-playing, and then to simply echo Adam's words and feelings using a double:

I [the therapist] place a chair across from Adam, and ask him to sit on it. I ask him how he would respond to himself. He says, “You need to be patient.” As he returns to his own seat I ask him if he was convinced – he says he was not. I offer a double for him – “It's difficult, I don't have the patience.”

Alongside the depression, despair, and fatigue, some participants also expressed suicidal thoughts and a desire to die. These were not usually concrete ideas, but their presence was apparent in the group:

Anna: “I've been here for 2 months already, and it's not getting better. Every day I just want to die. But I promised myself that as long as I'm here I won't do anything.”

Later, Anna takes one of the hoops placed in the center of the circle, and tosses it outside the circle, “banishing” it.

Anna: “Those are thoughts of suicide. I want to get rid of them. I don’t want **to want** to die.”

I, as a double to Anna: “I want to live?”

Anna hesitates.

I try an alternative double: “I want **to want** to live?”

Anna: “Yes — I want to want to live” she confirms.

Other emotions that commonly arose in the group included guilt, loneliness, and a feeling of defectiveness surrounding the “illness.” The “illness” is in quotes – not because it is not real, but rather because often the world of people coping with SMI is completely colored by shades of the illness, and is accompanied by self-labeling, loneliness, and strong feelings of guilt. When asked to address a significant character from their lives through a letter, speak to an empty chair, or use role-playing, the group participants often expressed feelings of guilt. They felt consumed by feelings of guilt toward close friends, partners, and especially to parents, or parents toward their children.

At times, psychodramatic role-playing enabled participants to forgive themselves, at least temporarily:

Raphael begins reading a letter addressed to his son, in which he asks for forgiveness for his illness, and everything his son had to go through as a result over all those years. He says that he hurt his son, that he misses him. As he read, Raphael bursts into tears.

I ask Raphael to reverse roles, and he responds to himself in the place of his son: “I understand your situation, I miss and love you too, Dad.”

The participants saw the opportunity to express distress within the accepting and supportive space of the group as beneficial to them. This space was perceived as better than the outside world. Ella expressed this after telling about the loneliness she was experiencing:

Ella: “Here there’s this togetherness, but in the real world you’re alone. Each person on his own.”

I ask: “What’s ‘the real world?’”

Ella: “Outside.”

I: “What about in this room?”

Ella: “Here it’s better, here you’re not alone.”

I: “And what happens here, can it affect the outside, at least a little?”

Ella: “I hope so.”

The Doubling Technique in the Therapeutic Process

Alongside the many manifestations of participants’ distress, one could also see that psychodrama can make a group member feel visible, to inspire hope and serve as a space for self-expression, interpersonal encounter and sharing. One of the most powerful therapeutic means in this context was the *double*. The double in psychodrama is meant to act as an additional “I”, which allows a protagonist (the client whose psychodrama is enacted on stage) to express those things that are most difficult to express, to share thoughts and feelings that may be difficult to articulate into words, and introduce repressed conflicts while providing a sense of safety and support. The

double echoes the thoughts and feelings of the protagonist, while ensuring a sense of being seen and heard, expressing empathy, closeness, and understanding of the feelings and perspective of the protagonist.

In this group of inpatients, it was almost always the group therapist who acted as the double, as group members rarely doubled for one another. This may be a reflection of the open nature of the group; the constantly changing group membership did not allow for long-term experience with the doubling technique and the confidence to undertake the role of a double for other group members. At times, however, the participants did ask that others would double for them:

David explains to the others what a double is, and I suggest that he demonstrate to the others. He prefers not to, and asks me to double for him.

I speak as his double: “I know exactly what a double is, but I prefer that others double for me. I am little too embarrassed to double for someone else, and I’m afraid of taking that responsibility. What if he won’t agree or won’t like the double I’ve made for him? What if I embarrass him? I don’t want to embarrass anyone or stand out too much.” David smiles and thanks me.

Here, the double not only demonstrated the technique of doubling to the group, but also offered David an interpretation of his own behavior, to clarify and illuminate his thoughts and worries, and help David be better understood by his fellow group-members and himself. Even in this double demonstration, David was offered a message of empathy, an assurance that the therapist heard and understood him. It seemed that this gesture of empathy stayed with David even later in the session:

At the end of the session, the participants walk around the room and wish each other something nice for the day. There is a lot of warmth; David hugs everyone excitedly, then thanks me.

The doubles were used for many purposes throughout the year. At times, the goal was to increase a sense of visibility in participants who felt transparent, invisible:

We return to Clara who unexpectedly begins to describe to the group how sometimes she follows people around the ward, and is often told to stop following them. I double for her: “I feel lost here and no one sees me.”

At times, besides restoring a sense of visibility for the participants, I used the double to give voice to anyone who feels hurt and frustrated yet may not know how to express it in the group:

Mayer speaks angrily in a seemingly disproportionate and extreme manner about the cafeteria that closed today without prior notice, and that this isn’t the first time. He cannot calm down from this.

I double him: “I am angry. They can’t do this, close without warning, without giving me a chance to prepare! And this isn’t the first time. It’s like they just don’t care about us, they completely disregard me. It’s infuriating and frustrating”

Mayer thanks me warmly. It seems he is moved by the double, and his anger subsides.

There were times when the double was used to clarify chaotic situations in the group, relieve stressful or threatening situations,

or reduce anxiety for some of the participants. In one session, one of the participants, Eddie, was apparently in a psychotic state when he began to express his feelings toward a woman in the group, in a bizarre, inappropriate, uncontrollable and even threatening manner:

Eddie sits in the empty chair and begins to talk about Naomi (a new participant in the group). He is incoherent, tries to describe how much he loves her, and how he is happy about their connection. "I have patience," he adds. There is a sense of awkwardness and discomfort in the group; Igor suggests moving on to someone else.

I double for Eddie - "Naomi, I am very glad I've met you, it makes me happy that we've gotten to know each other, and I may also have some feelings for you." I ask Naomi if she would like to respond or to say something; she refuses, so I move on to other participants.

Eddie's remarks were seen as bizarre, uncontrollable, and threatening. The double was used to humanize his experience and to express his feelings in a more coherent and relatable way. This seems to have restored a sense of control and order in the group, alleviate pressure from Naomi who was the object of Eddie's address, while at the same time allowing Eddie to cool down, and moving on without ignoring or offending him.

Other times, the double seem to have brought group members together and allowed them to express closeness, offering means of expression of empathy between the participants whenever it seemed they were trying to express empathy. Such an opportunity arose in one session right after one participant, Laura, revealed that she had been raped:

Michael says he is usually against the death penalty, but he thinks it is an appropriate punishment for anyone who stabs and rapes someone.

I double for Michael, speaking for him: "I'm telling you this because that's what I think, but also because I'm trying to tell you, Laura, how much your story touched me. I feel your pain, and I'm here with you."

Michael responds, "Exactly!"

Michael's response to Laura's story took the form of an opinion about the punishment fitting for rapists. Michael's double enabled him to express himself in a different way – more personal and emotional, and express empathy toward Laura. His response, "Exactly!", demonstrated that he indeed felt empathy and compassion toward Laura that he was trying to express.

The Role of Group Sharing

In addition to the use of doubling, the psychodramatic sharing phase, as well as acts of interpersonal sharing throughout the sessions, enabled an experience of universality and mutual support in the group. The classic sharing phase in psychodrama is the phase in which group members share their personal life experiences as they relate to the work of the protagonist. In practice, the psychodrama activity in the group did not always focus on one protagonist, and there was not always a clear separation between the main activity and the sharing phase. Participants in the group could share their feelings, their troubles, and whatever else they were undergoing. This

space often evoked an experience of universality; a discovery that the individual is not alone in his experience and in his distress:

The group members share how they are doing this morning. Yehuda shares that he is confused about his place in the world. When he doesn't observe the commandments of Judaism he feels emptiness, yet when he tries to observe the rituals he becomes unbalanced and triggers manic episodes. Another participant, Abraham tells him that when a person brings oneself closer to religion, at first God gives a push forward, but afterward one is left [to struggle] with it alone. I ask Abraham if this is something he has personally experienced; he says yes, and adds: "We are souls attached together, souls that speak."

In another example, a group sharing, occurred after a psychodynamic vignette, provided an experience of universality when one of the participants shared her feelings of guilt with the group:

Alice describes the great difficulty she causes her mother because of her illness. [She tells about] the guilt she feels toward her mother. She becomes emotional and cries.

We discuss feelings of guilt surrounding illness, as Alice has expressed. How it is an experience that other participants share as well. Elena and Rachel say they also feel guilt toward their families.

...At the end of the session Alice hugs Elena. She thanks her and says she feels much better now.

When a particularly painful sentiment was offered during the group sharing, it was frequently possible to see how the participants tried to offer support, empower, and encourage one another, say a good word, and to offer solutions, perspectives, or suggest an alternative approach:

Jacob (another new participant) begins to tell about himself as well... He tells about his three daughters and several grandchildren, how none of them know that he is hospitalized here. That he especially doesn't want his sons-in-law to find out. One of them is a doctor in a university, another is an engineer.

Diane asks to tell Jacob that he should tell them all that he is hospitalized, that he shouldn't feel ashamed. That she was once in a closed psychiatric ward, and "the best attorney in the country" was there too. Jacob smiles and thanks Diane.

Anna tells the group about her suicidal thoughts: "I've been here for 2 months already and nothing is better, I want to die every day, but I promised that as long as I'm here I will not do anything... People always tell me I look better, but I don't feel better." Sharon says that she sees that Anna is suffering and is depressed, and she wishes for her to feel better. She says Anna is lovely and deserves to feel well.

Isaac also speaks of depression of despair over destroying himself and losing everything, of great fatigue. He says he just wants to hide from reality and sleep. David talks about faith and tries to encourage Isaac.

Here we can see how the group sharing has allowed to create a space of mutual support: Sharon tries supporting Anna and David encourages Isaac. Later Anna and Isaac receive additional gestures of encouragement and support from the group. It was not always clear whether the distress heard was the personal distress of Anna or Isaac, and to what extent these

empowering words belonged to David or Sharon. Sometimes it seemed that all of these voices were the voice of the group itself; that each participant exhibits distress and need, at times despair, alongside great strength, optimism and the desire to help. Sharing within the group enabled an important space for expression of these voices and for dialog between them.

Sometimes, when group members expressed distress and painful feelings, the group sharing acquired a certain ceremonial status that enabled a shared experience of dealing with the distress. This was demonstrated later in the same session described above in which Anna and Isaac shared their suffering with the group. The following sharing segment took on a different character than usual:

We place a circle of hoops in the room, and each hoop represents a feeling that arose during the encounter: sadness, confusion, optimism, depression, comradeship, joy, shame, fatigue... Each participant chooses a hoop and tells the group what he would like to do with it.

Boris chooses the hoop labeled “despair,” to tell Anna not to lose hope. Isaac chooses (David’s) optimism. Yehuda chooses faith and optimism. He addresses his words to Anna and Isaac, and talks about God, who, even if it is difficult to understand, always has our interests in mind.

Finally, I take the comradeship hoop, and say that I’ve felt a lot of that comradeship within the last hour.

Here, the hoops allowed the participants to give away or take from each other some of their strengths as well as their distress. This was a powerful manifestation of the concept of sharing – dividing the stresses and emotions among the group. The concept was best expressed by Laura at the end of a difficult session during which she shared the story of her rape with the group:

Sharing: I ask the participants to mention one thing they will take with them when they leave the room. Most of the participants wish for Laura to feel better, healthy and strong.

Laura herself says: “I take some of the pain of each one in the group.”

I ask, as Laura’s double, “Do I also take with me some of the group’s love?”

Laura: “I’ll try.”

I, as Laura’s double: “Do I see the group’s love?”

Laura: “Yes”

Laura’s statement that she takes “some of the pain of each one in the group,” together with the double that invites Laura to also take “some of the group’s love,” concisely expresses the concept of sharing – distribution of the heavy burden, as well as the resources and strengths of the participants in the group. This distribution is the essence of the receptacle created by our psychodrama group; a chamber of cooperation, reciprocity and human interaction that may, to some extent, alleviate the distress of psychiatric inpatients.

DISCUSSION

The findings of this study illustrate a picture of acute distress of psychiatric inpatients in Israel, but also of an experience of

relatedness, mutual support, and human encounter in group psychodrama that seem to have enabled participants to express and cope with this distress.

Manifestations of distress described in the paper include expressions of depression, despair, helplessness and weariness, loss of will to live, and self-labeling of the participants. These descriptions reinforce the findings from research of symptoms that arise in people following a medical diagnosis (Moore et al., 1999; Roe and Lachman, 2005), descriptions by Schur (1971) of people coping with SMI being “engulfed by their patient-role,” as well as the findings of self-stigma and learned helplessness, loss of self-belief, despair, and loss of will which characterize the experience of coping with mental illness (Deegan, 2004; Yanos et al., 2011; Orkibi et al., 2014).

Furthermore, people hospitalized in a psychiatric hospital must also cope with feelings of guilt toward friends and relatives, and suffer the loneliness, loss of independence, and the distress associated with psychiatric hospitalization (Morrison et al., 2003; Holloway, 2010). Manifestations of such feelings; of loneliness, isolation and feelings of guilt toward close friends, partners, and especially toward parents or children of the participants, were frequently manifested in the inpatients psychodrama group, as described in the findings section.

Besides the description of the participants’ acute distress manifested in the therapeutic process, this study examines how the psychodrama group enabled participants to cope with their distress by creating a space for self-expression and a human encounter, mutual support, and sharing. The study illustrates the role of the psychodramatic “double”: its capacity to echo thoughts and emotions of participants, offer commentary and interpretation, and help participants feel they are better understood. The double was employed as a way to give a voice to group members who struggled to express themselves, and to increase clarity in chaotic situations, reduce anxiety, and enable expressions of identification, empathy, and closeness among group members. This reflects the concepts of Moreno and his successors of the double as an “additional I,” which allows the protagonist a sense of visibility and facilitate expression of thoughts and feelings; the doubling technique is aimed at helping the participant to confront repressed conflicts, and seeks to provide a supportive environment and sense of safety in the psychodramatic space. This method relies on the empathy and sense of closeness and understanding between participants (Holmes and Karp, 1991; Blatner, 2000; Fox, 2008).

Next, the significant role of sharing in psychodrama was examined in this study; this refers not only to the sharing phase after the psychodramatic action, but also to other moments of sharing at the interpersonal level that occur during the group session. The study illustrates how group sharing may facilitate visibility, mutual support, and interpersonal encounter. In the inpatients psychodrama group, participants could share themselves with the group, their feelings and thoughts, and sense the attentiveness of the other participants, who occasionally offered their responses as well. Sharing seemed to enable Group

members a sense of universality (Yalom, 1983), or “mirror reaction” as termed by Foulkes (Fehr, 2003), in which participants discover that they are not alone in their distress; that their fellow group members cope with similar distress and they share it with the group. The sharing also enabled dialog between group members, about their experiences, values, thoughts, or emotions. For inpatients this may be one of the few places where they can encourage, compliment, or support one another, express their identification, offer alternative perspectives, or just listen empathetically. Here in this space, many of Yalom’s therapeutic factors manifested themselves – such as instillation of hope, universality, group cohesiveness and altruism (Yalom, 1983, 1995).

Moreno described the sharing phase as a phase where “strangers” in the group can reveal their emotions and cease to be strangers, can express their love for the protagonist, and allow for their own self-expression (Moreno, 1946, in Fox, 2008). This study demonstrates how group participants used sharing to distribute the burden among the group members along with the resources to cope with it. This is the essence of what Moreno described as the fabric of life and human encounter which comprises the psychodrama group (Moreno, 1939, 1946; Blatner, 2000, in Moreno, 1953; Fox, 2008), allowing its members to experience empathy, relatedness and support, which offers at least partial relief of the distress and loneliness of psychiatric inpatients.

LIMITATIONS OF THE STUDY AND FUTURE DIRECTIONS

The above findings may contribute to our understanding of the potential of psychodrama in treating psychiatric inpatients, but this study is not without limitations. First, the descriptive nature of this study is not intended to provide a precise measurement of the effects of psychodrama therapy or the level of distress in participants, nor does it purport to definitively demonstrate a direct causal relationship between these two factors. Instead, like other cases of clinical case reports, this study relies on anecdotal data in which clinical judgment and interpretation play a major role. Alternative explanations are available to account for the processes and changes described other than those provided here. In order to achieve a more complete picture there is clearly room for further research, including quantitative studies that can produce reproducible and generalizable results regarding the effects of therapeutic means such as the doubling technique and group sharing phase, on the level of distress of psychiatric inpatients.

An additional methodological issue concerns the danger of blurring boundaries between researcher and practitioner, and between research and clinical work. Nevertheless, case study research offers significant advantages – its relevance as applied research, as well as the deep familiarity of the researcher with the participants. In this case this familiarity enables an intimate and unique encounter with psychiatric inpatients’ acute distress and

with the therapeutic processes that arise in the psychodramatic space.

CONCLUSION

The current study contributes to our understanding of the potential of psychodrama group therapy in dealing with the distress and isolation of acute psychiatric inpatients. Current literature describes how the unique features of psychodrama therapy are useful in fostering spontaneity and creativity (Farmer, 1995; Roine, 1997; Blatner, 2000; Schacht, 2007), and in treating particularly difficult populations where traditional psychotherapy is limited (Karp, 1994; Vieira and Risques, 2007; Karatas, 2011; Orkibi et al., 2017). The unique contribution of this study is the intimate encounter that it provides to researchers and practitioners through holistic and naturalistic, in-depth investigation in a real-life setting, with manifestations of the distress accompanying psychiatric hospitalization, the processes that take place within an inpatients therapy group, and with therapeutic dimensions such as psychodramatic sharing, which are rarely dealt with by the existing literature.

DATA AVAILABILITY STATEMENT

The datasets for this manuscript are not publicly available due to reasons of confidentiality and participants’ privacy. Requests to access the datasets should be directed to YR, yiftach.ron@smkb.ac.il.

ETHICS STATEMENT

An ethics approval for this study was not required as per the authors’ institutions guidelines and national regulations. Written informed consent was obtained from all participants.

AUTHOR CONTRIBUTIONS

YR data collection and analysis, and writing of the manuscript.

FUNDING

This research was supported by the Kibbutzim College Research Authority, Tel Aviv, Israel.

ACKNOWLEDGMENTS

The author would like to thank Dr. Tsiky Cohen for reviewing the verbatim transcripts and offering an additional perspective on the research findings.

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- Conflict of Interest Statement:** The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
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The Principles of Art Therapy in Virtual Reality

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In recent years, the field of virtual reality (VR) has shown tremendous advancements and is utilized in entertainment, scientific research, social networks, artistic creation, as well as numerous approaches to employ VR for psychotherapy. While the use of VR in psychotherapy has been widely discussed, little attention has been given to the potential of this new medium for art therapy. Artistic expression in VR is a novel medium which offers unique possibilities, extending beyond classical expressive art mediums. Creation in VR includes options such as three-dimensional painting, an immersive creative experience, dynamic scaling, and embodied expression. In this perspective paper, we present the potentials and challenges of VR for art therapy and outline basic principles for its implementation. We focus on the novel qualities offered by this creative medium (the virtual environment, virtual materials, and unreal characteristics) and on the core aspects of VR (such as presence, immersivity, point of view, and perspective) for the practice of art therapy.

OPEN ACCESS

Edited by:

Girija Kaimal,
Drexel University, United States

Reviewed by:

Jill Virginia McNutt,
Saint Mary of the Woods College,
United States
Natalie Carlton,
Drexel University, United States

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 20 May 2018

Accepted: 09 October 2018

Published: 31 October 2018

Citation:

Hacmun I, Regev D and Salomon R
(2018) The Principles of Art Therapy in
Virtual Reality. *Front. Psychol.* 9:2082.
doi: 10.3389/fpsyg.2018.02082

Keywords: virtual reality, art therapy, presence in immersive virtual environments, digital art, perspective-taking

INTRODUCTION

Virtual reality (VR)¹, allows an interactive experience within a simulated, computer generated environment. Current VR systems, in which participants typically wear a head mounted display (HMD), allow audio-visual sensory simulation of realistic or fictional environments with increasing fidelity and realism. VR has recently become a promising tool for scientific investigation (Bohil et al., 2011) and is now used extensively to study behavioral (Banakou and Slater, 2014; Debarba et al., 2017) and neural processing (Ionta et al., 2014; Herbelin et al., 2015; Limanowski et al., 2017). The capacity to simulate different realities and experiences have also prompted the use of VR in psychotherapy where VR techniques have been implemented in the treatment of phobias, PTSD, and anxiety disorders (Rothbaum et al., 2002; Parsons and Rizzo, 2008; Beidel et al., 2017), depression (Falconer et al., 2016), schizophrenia, eating disorders (Gutiérrez-Maldonado et al., 2016), and pain management (Freeman et al., 2017). Recent technological advances have allowed the proliferation of VR technologies from specialist laboratories to widespread consumer applications, increasing the availability of such systems, and enhancing the possibilities of their use for therapy (Bohil et al., 2011) as well as entertainment and art (Bates, 1992; Carrozzino and Bergamasco, 2010; Gates et al., 2011).

Beyond scientific and clinical applications, VR has also created a novel medium for artistic expression (e.g., Google Tilt brush, Oculus quill, Oculus medium, Blocks) allowing unique and

¹ In this paper we use the general term VR to refer to immersive virtual reality in which a Head Mounted display is used to create an immersive experience.

unfamiliar forms of creativity and extending classical forms of expression such as painting and sculpturing. In this perspective paper, we explore how this novel artistic medium provided by VR can be employed for clinical purposes under the framework of art therapy.

VIRTUAL REALITY AS AN ARTISTIC CREATIVE MEDIUM

Art making is an innate human tendency. It has been argued that along with speech and tool making, this activity could be used to define our species (Dissanayake, 2001). Indeed, artistic mediums such as painting and sculpting have been a fundamental form of human expression since prehistoric times (Bégouen, 1929). Throughout history, technological developments have influenced and changed artistic expression (Benjamin, 2010). As such, the evolution of digital technology, boosted by the introduction of personal computers, has generated new forms of art such as digital painting, image and video editing, and multimedia art (Wands, 2007). Today, creation with digital art tools are not merely restricted to the use of professional artists, on the contrary, its high accessibility and friendly user interface, has made it a common form of expression. Here, we will focus on artistic creation in VR using currently available commercially art software for VR (e.g., Tilt Brush, Google, Palo Alto), to demonstrate the characteristics of this new medium and suggest their possible potential for the use in art therapy.

CHARACTERISTICS OF THE VIRTUAL CREATIVE MEDIUM

VR Creative Environment

Creation in VR combines elements from the world of painting (line, patch, shape, color, 2D), elements from the world of sculpting (3D), and novel elements enabled by the digital medium. This unique combination is on one hand similar to the classical mediums (painting, drawing, sculpturing) but on the other hand, fundamentally different. The VR creative environment includes a VR system (e.g., Oculus rift, HTC Vive) and an enclosed space of about 2 m² for motion. The creator wears an HMD and holds a wireless controller in each hand. The controllers are used for artistic creation, with one controller for painting, and one for the color palette and interface menu (resembling the classical medium of brush and color plate, **Figure 1A**). The creator can move around freely, in the immersive three-dimensional space, while highlighted grids in the visual display appear when approaching the boundaries of the physical room. The environment's visual background can be easily controlled and changed, and the creator can choose from a variety of backgrounds, ranging from a single color to a customized chosen photo or scenery (**Figure 1B**, **Video S1**).

The creation itself involves hand and/or full body movements stimulating an embodied experience. This encourages the artist to extend his expression from the typical finite canvas in front of her, to form boundless environments in 360° around her (**Video S2**). Furthermore, different perspectives, are possible for both the

creator and external observer watching the creative environment on a computer display. For example, the observer has the option to choose his perspective, whether he would like to see from the creator's first-person perspective (1PP) or set an exterior fixed perspective (third person perspective-3PP) (**Video S3**). Upcoming technological developments will enable integrating more than one person in the VR environment allowing shared creation.

Virtual Material

Contrary to classical mediums such as painting and sculpting the materials employed here are themselves, virtual. As such VR painting has no substance and no tactile feedback, neither from the material nor from the canvas, similarly, to painting with a computer mouse, spray-painting, or drip painting. Note however, that haptic feedback in VR is rapidly becoming feasible (Popescu et al., 2000). The creation with the virtual material is similar to painting, but unlike painting, the creator can paint in 3D. Thus, it offers the possibility to view the creation from more than one angle as when viewing a sculpture. Moreover, there is the unique possibility, due to the virtuality of the materials, to "step" inside or through elements in the creation (**Figures 1E,G**, **Video S4**). When the artist wishes to apply a change or correction to the artwork, the medium offers full flexibility with actions such as erasing, undo, and/or redo (**Video S5**). As for storage of the creative "product," it can be saved at any time as a digital format, moreover it can also be stored as a video format which will enable tracking of any point in time during the creative process (see **Table 1** for summary of differences).

Un-real Characteristics

A novel aspect of creation in VR is that it allows expression which is unrestricted by natural physical laws. For example, 3D objects can be suspended in midair seemingly defying gravity (**Figure 1C**, **Video S6**). Furthermore, it is possible to create elements whose properties (e.g., color, location) dynamically change over time (**Video S6**). The color palette includes besides the natural colors also a wide range of unrealistic and fantastic colors (**Video S6**). An innovative and unique attribute of VR art is the dynamic control of spatial dimensions. The canvas size is practically infinite, and the creator can re-scale and change the size of his creation along the creative process (**Figures 1D,E**, **Video S7**). Additionally, it is possible to create multisensory relations such as adding music which may modify aspects of the artistic creation (e.g., colors). Thus, artistic creation in VR builds on classical aspects of artistic creation (e.g., color palette, brushes), while augmenting these with novel features which are unique to VR (e.g., scalability, dynamic objects).

POTENTIALS OF VR FOR ART THERAPY

A key aspect of VR for psychotherapy is the ability to induce a feeling of "presence" in the computer-generated world experienced by the user (Riva et al., 2007, 2016). By mimicking the sensory (i.e., visual, auditory) and motor (e.g., immersive environment, motion tracking) signals and contingencies found in the real world, VR allows the creation a subjective experience

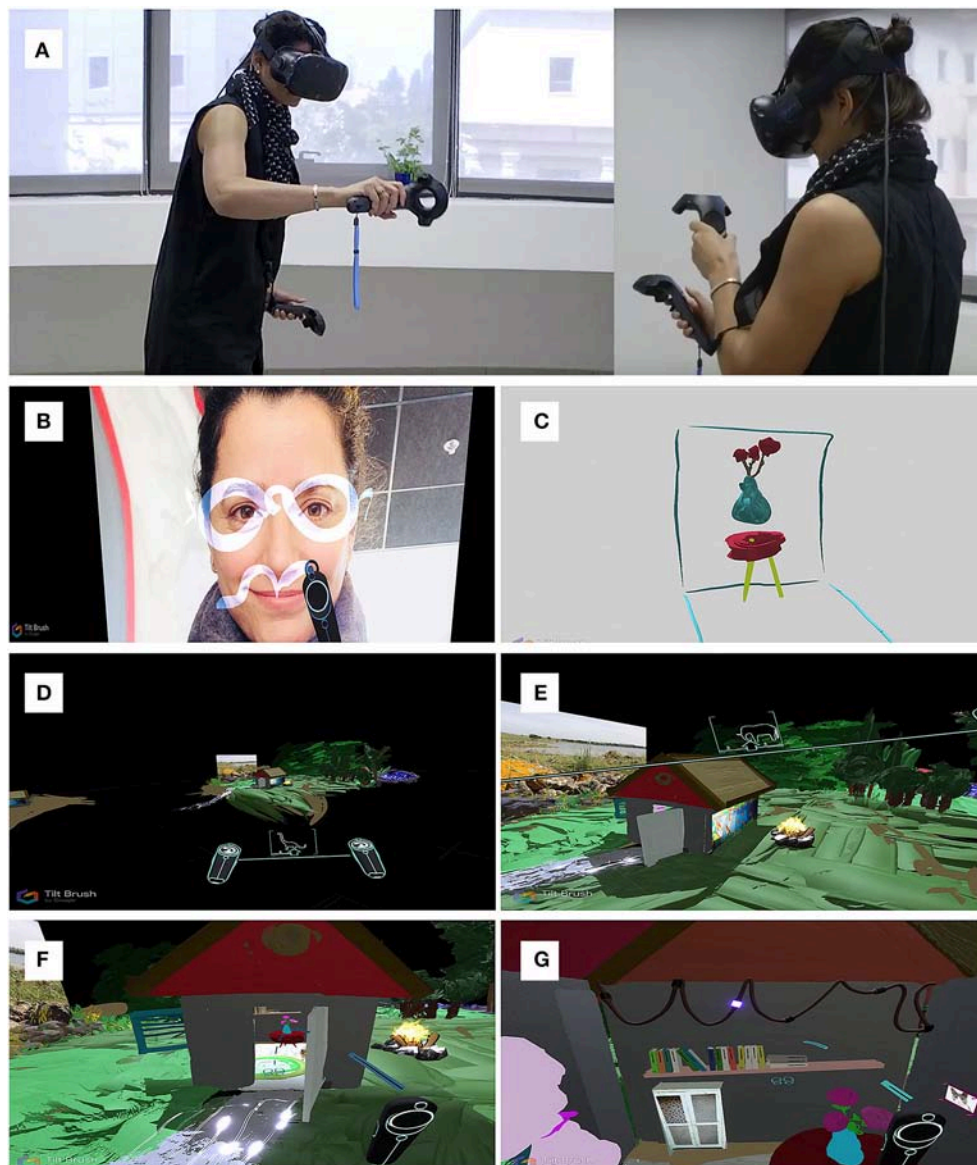


FIGURE 1 | Artistic creation in VR. **(A)** The virtual reality setup. The creator wears an HMD and creates via the hand-held controllers, see also **Supplementary Videos**. **(B)** Photographic stimuli from the real world can be introduced as backgrounds or objects in VR, allowing interactions between real and virtual worlds. **(C)** Creation in VR includes unreal characteristics such as absence of gravity in a 3D environment. **(D,E)** The VR environment allows dynamic rescaling of the virtual world. The creator can modify the size of the artistic creation (and by proxy their relative size) at will. **(F,G)** As the virtual creation is a scalable 3D environment, the creator can “step into” his creations, enhancing the immersivity, and scope of the artistic creation.

giving the individual illusion that the experience is real (Riva, 1998). This sense of presence can be a powerful therapeutic tool promoting personal change and self-reflectiveness, as it offers the individual the opportunity to “experience” (Riva et al., 2016). Moreover, VR is often referred to as an “advanced imaginal system:” an experiential form of imagery that is highly effective in inducing emotional responses (Vincelli, 1999; Vincelli et al., 2001; Riva et al., 2016). The specific implementation of VR in psychotherapy depends upon the psychological approach used and is customized to the specific disorder and

patient being treated. Multiple techniques employing simulative controlled exposure (e.g., anxiety, phobias, fear of flying), embodied technologies (e.g., eating disorder), cue exposure (e.g., addictions), or distraction (e.g., pain management) have been explored (for review see Riva, 2005). This, specialization however is costly as it requires to develop multiple environments adapted to the specific disorder and patient (e.g., EMMA, Alcañiz et al., 2007).

Art therapy is a form of psychotherapy which employs artistic creation for integrative personality processes (Guttmann and

TABLE 1 | Comparison of VR art therapy and classical Art therapy mediums.

	Classical mediums	Virtual reality
CLINICAL SETTING		
Therapist client physical interaction	Client and art therapist in direct contact	Client and art therapist in virtual contact
Eye contact	Yes	No
Perspective	Third person	First person/Third person
Facial expressions	Visible	Partially obscured
Technological requirements	Low	High
CREATIVE EXPERIENCE		
Material	Physical	Virtual
Artistic product	Physical	Digital
Dimensionality	2D/3D	2D/3D/4D
Immersivity	Low	High
Realism (laws of physics)	Bounded	Unbounded
Size of creation	Fixed as chosen	Unbounded
Haptic feedback	High	None
Possibility of tele-therapy	Low	High
Sense of privacy/isolation	Low	High

Regev, 2004). Art therapy typically consists of an interaction of an individual or group with a therapist who supports self-expression through various artistic mediums. It has been suggested that such artistic expression, in itself (Kramer and Wilson, 1979; Rubin, 2016) or accompanied by verbal reflection (Naumburg, 1953; Dalley and Case, 2014) is effective in raising psychological well-being and treatment of clinical syndromes.

Digital arts, as new mediums of creation have produced new forms of expression for art therapy (see various examples in Garner, 2016). The unique characteristics of VR experience, compounded by the novel possibilities of artistic expression in VR further expand these therapeutic possibilities (Brown and Garner, 2016; Lohrius and Malchiodi, 2018).

Moreover, when using art therapy in VR, clients create their own customized environment in the processes of therapy. Thus, circumventing a limitation of previous approaches to VR based psychotherapy. We suggest that VR based therapy, combining individualized creative processes in the unrestricted VR environment forms a therapeutic environment which can be well-tailored to the clinical needs of each individual.

Presence and Immersivity

VR allows to immerse the participant in a virtual environment, creating a sense of *Presence* defined as the illusion of “being there” (Minsky, 1980; Sanchez-Vives and Slater, 2005). The sense of presence is suggested to be grounded in the embodied and interactive control afforded by real time sensorimotor correlations similar to those underlying the sense of bodily self in the real world (Sanchez-Vives and Slater, 2005; Slater et al., 2008; Blanke, 2012; Salomon, 2017). Indeed, research in cognitive neuroscience has shown that such sensorimotor and multisensory contingencies are the foundation of the sense of

self in the world (Ehrsson, 2007; Slater et al., 2008; Blanke, 2012; Salomon et al., 2013; Hara et al., 2015) and thus their implementation in VR allows Presence in the virtual world. For example, the use of HMDs obscuring vision of the real world, allowing 360° fields of view and tracking the head movements of the participant promote the sense of Presence (Slater and Sanchez-Vives, 2016). The sense of presence coupled with modifiable environments in VR allow transformations of the sense of self (Slater et al., 2010; Rognini et al., 2013; Herbelin et al., 2015). For example, when sensorimotor correlations between the self and virtual body of a child are introduced, changes in perception and implicit attitudes were found, causing a shift toward experiencing the world as a child (Banakou et al., 2013). Critically, in VR art therapy this active sensorimotor engagement can enhance Presence within the artistic creation itself and may potentially lead to an augmented experience of artistic creation compared to non-immersive situations.

Point of View and Perspective

Another interesting potential for art therapy in VR relates to the possibility of taking different visual perspectives. In the VR medium, the therapist has the option to choose between observing the clients’ creation process in the VR setting from their natural perspective (3PP) or from the client’s 1PP (**Video S3**). This possibility of experiencing the clients’ artistic creation in 1PP during therapy is novel and may have an interesting clinical potential. Empirical and theoretical studies have shown that the cognitive and neural processing of perspective are tightly linked to empathy and mentalization, underpinning humans’ ability to assess mental representations as well as affective states of other individuals (Decety and Jackson, 2004; Lamm et al., 2007; Corradi-Dell’Acqua et al., 2008; Schnell et al., 2011). For example, imaging visual perspectives (e.g., 1PP or 3PP) may affect mentalization (Langdon and Coltheart, 2001; Frith and Frith, 2006) or empathy (Lamm et al., 2007). VR allows actual manipulations of subjective viewpoint (Slater et al., 2010; Debarba et al., 2017) which, often employed together with visuo-motor correspondences, can induce changes in stereotyped thinking (Yee and Bailenson, 2006), interpersonal attitudes (Peck et al., 2013), or cognitive and physiological processing (Banakou et al., 2013; Bergouignan et al., 2014). Thus, changes in perspective may cause substantial shifts in perceptual, social, and cognitive processing which may have valuable clinical implications (Libby et al., 2009).

In order to understand the possible impact of this feature on therapist and client, we must consider the role of perspective in theoretical conceptualizations of psychotherapy. Humanistic theories in psychology emphasize the importance of perceiving the client’s inner world through his own personal perspective (Schneider et al., 2014). Carl Rogers, the founder of the client-centered therapy, suggested that the best vantage point for understanding behavior is from the perspective of the individual (Rogers, 1951). The option of perspective shifts in VR is also available to the client, who can decide if to view his creation from a 1PP or external 3PP viewpoint. Similarly, to the putative

effects on the therapist's side, changing viewpoint may have considerable effects on the client as well, as such perspective shifts have been shown to affect motivation (Vasquez and Buehler, 2007), self-compassion (Neff, 2003), and have been employed in clinical settings (Gestalt empty chair technique) (Perls et al., 1951) and VR counseling (Osimo et al., 2015). Considering the potential of perspective shifts for modifying mentalization and empathy mentioned above, the possibilities of such shifts in VR art therapy may add novel and intriguing qualities in clinical practice.

The Potential Virtual Space

The virtual environment has been suggested to enable a synthesis of the actual and the imaginary (Vincelli, 1999). Through integration of unrealistic elements with an embodied, immersive sensory experience, it creates a dream like experience in a protected and controlled environment (Leclaire, 2003), (**Video S8**). This is reminiscent of Winnicott's suggestion of the "potential space" as an intermediate area of experiencing that lies between the inner world "inner psychic reality" (fantasy) and "actual or external reality" (Ogden, 2014). Winnicott states that: "It is a space where we can develop psychologically, to integrate love and hate and to create, destroy and re-create ourselves," thus promoting the development of the self and facilitating psychological growth (Winnicott, 1997, p. 41). Indeed, the VR creative medium for art therapy may offer the creator a unique space in between fantasy and reality (**Video S8**), while being creative and playful, setting the ground for a conducive environment for therapy. Furthermore, the severance of the client from the real world through the immersion afforded by the HMD generates a sense of privacy and disentanglement from the external world. This private, dreamlike space incorporated within an immersive and enactive environment shows great potential for enhancing the efficacy of art therapy.

SUMMARY

In this opinion paper we presented the potentials of Art therapy in VR, focusing on fundamental aspects of this novel creative medium for clinical practice (**Table 1**). Several important aspects were not covered here but deserve mention. First, there is good reason to believe that the VR medium would appeal to younger generations which are highly engaged in the digital world possibly enhancing efficacy and compliance of treatments within these age groups (Bryanton et al., 2006). Furthermore, as VR systems become commercially available tele-treatment in art therapy is becoming a viable and feasible prospect (Collie and Cubranić, 1999). Finally, VR is enjoying a technological renaissance with novel solutions constantly emerging. Thus, several current technological constraints such as haptic feedback, monitoring of facial gestures, and group interactions are likely to be solved in the near future.

Despite the considerable potentials described above one must also consider the limitations and challenges of art therapy in VR. For example, while wearing a HMD there is no possibility

for direct eye contact between therapist and client nor the ability to view facial expressions, fundamental aspects of human communication, interaction, and mentalization (Khalid et al., 2016; Ellis and Beattie, 2017). Furthermore, some people suffer from nausea and fatigue when using VR systems (cybersickness). The material art product is also different than classical art therapy mediums. While screenshots, videos, and even 3D images (e.g., Poly) or 3D printed objects of the artistic work can be generated these will not capture the full environment and scope of the artwork. However, this environment is digitally retained and can be revisited and continued along sessions.

Finally, the potency of VR is such that the creation in VR might have an overflow potential for some clients. The infiniteness of the virtual "canvas," the immersivity and dynamic environments can have a powerful effect on the client, and to prevent overflow, the therapist must consider the suitability and extent of the VR medium to the client's needs.

In summary, we propose that art therapy is particularly suited for VR therapy as the clients themselves create the therapeutic environment that suits their specific needs. Furthermore, for art therapy the integration and implementation of new creative digital mediums in practice is crucial for the evolution of the field, and to best treat younger generations for whom which digital technology is an integrative part of their everyday lives. As technologies have driven novel forms of artistic expression and therapeutic possibilities (McNiff, 1999; Lynn Kapitan, 2007), we believe that VR has the potential to augment and enhance classical art therapy approaches.

AUTHOR CONTRIBUTIONS

IH, DR, and RS envisioned the paper. IH and RS wrote the paper. IH, DR, and RS edited and finalized the paper.

FUNDING

This work was funded by a start-up grant to RS from Bar Ilan University.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.02082/full#supplementary-material>

Video S1 | Variations of virtual reality backgrounds.

Video S2 | Art creation engaging full body movements.

Video S3 | First person perspective (1pp) ↔ Third person perspective (3PP).

Video S4 | Step inside your creation.

Video S5 | Flexibility of the creative medium.

Video S6 | Un-real characteristics.

Video S7 | Dynamic spatial rescaling in VR.

Video S8 | Virtual potential space / Dream like state.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The reviewer NC and handling editor declared their shared affiliation at the time of the review.

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Arts-Based Research Approaches to Studying Mechanisms of Change in the Creative Arts Therapies

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OPEN ACCESS

Edited by:

Felicity Anne Baker,
The University of Melbourne, Australia

Reviewed by:

Deborah L. Elkis-Abuhoff,
Hofstra University, United States
Michele Forinash,
Lesley University, United States

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 22 May 2018

Accepted: 09 October 2018

Published: 01 November 2018

Citation:

Gerber N, Bryl K, Potvin N and
Blank CA (2018) Arts-Based
Research Approaches to Studying
Mechanisms of Change
in the Creative Arts Therapies.
Front. Psychol. 9:2076.
doi: 10.3389/fpsyg.2018.02076

The purpose of this preliminary qualitative research study is to explore the role and function of multiple dynamic interactive aesthetic and intersubjective phenomena in the creative arts therapies process relative to transformation in perception, behavior, relationship, and well-being. A group of doctoral students and faculty studied these phenomena in an analogous creative arts therapies laboratory context using a method called *Intrinsic Arts-Based Research*. *Intrinsic Arts-Based Research* is a systematic study of psychological, emotional, relational, and arts-based phenomena, parallel to those emergent in the creative arts therapies, using individual and collective intrinsic immersive and reflective experience in combination with qualitative and arts-based research methods. Our primary goal was to simulate the creative arts therapies experience in order to identify, document, and describe the complex transformative phenomena that occur at the nexus of arts-based expression, reflection, and relationships in the arts therapies. For the purposes of this paper transformation is defined as "... a significant reconfiguration of perception and thought resulting in the lessening of psychic restraint and pain, allowing for the emergence of new psychological perspectives that contribute to living a more creative life" (Gerber et al., 2012, p. 45). Through a deductive thematic analysis of written accounts of these simulated creative arts therapies experiences by participant/researchers in the laboratory we identified three primary dynamic and interactive broad constructs that together, with more specific modifying themes, might account for and describe change within the creative arts therapies. These broad dynamic interactive themes are: ruptures, resolutions, and transformation; relationship and intersubjectivity; and, arts-based expressive processes. The more specific modifying themes include: *dialectical rupture and resolution, relational attunements and ruptures, imaginational flow, transcendence and ruptures, sensory/kinesthetic/embodied ways of knowing, and intersubjective transcendence*. We propose that change in the creative arts therapies is driven more by a dynamic system of interactive phenomena the varying combinations of which create conditions for relational attunement, imagination, dialectical tensions and creative resolutions, and the ultimately creative transformation.

Keywords: mechanisms of change, transformation, psychotherapy, creative arts therapies, arts-based research

INTRODUCTION

“In the experience of art we see a genuine experience. . . induced by the work which does not leave him who has it unchanged. . . so we hope to better understand what kind of truth it is that encounters us there” (Gadamer, 1975/2003, p. 100).

The purpose of this preliminary qualitative research study is to explore the role and function of multiple dynamic aesthetic and intersubjective phenomena in the creative arts therapies that might be considered mechanisms of change. A group of doctoral students and faculty have been studying these phenomena in an analogous creative arts therapies laboratory context using a method called *Intrinsic Arts-Based Research*. *Intrinsic Arts-Based Research* is a systematic study of psychological, emotional, relational and arts-based phenomena using individual and collective intrinsic immersive and reflective experience in combination with qualitative and arts-based research methods. Our primary goal is to simulate the creative arts therapies experience in order to identify, document, and describe the complex transformative phenomena that occur at the nexus of arts-based expression, reflection, and relationships in the arts therapies. For the purposes of this paper transformation is defined as “. . . a significant reconfiguration of perception and thought resulting in the lessening of psychic restraint and pain, allowing for the emergence of new psychological perspectives that contribute to living a more creative life” (Gerber et al., 2012, p. 45).

Since the beginning of this project 8 years ago, we have continually engaged in an ongoing critical reflection and evaluation of our underlying philosophical assumptions about the nature of reality and knowledge for our creative arts therapies fields. Through the examination of our philosophical assumptions we created and adopted an aesthetic intersubjective paradigm (Chilton et al., 2015). This worldview is predicated upon the philosophical assumptions that our perceptions, relationships, and behavior are conceived and reside in dynamic co-constructed pluralistic intersubjective realities in which an aesthetic epistemic comprises the knowledge and communication. We define *aesthetics* as pre-verbal sensory-based, embodied perceptual and imaginal knowledge that emerges and acquires meaning in intersecting historical and current intersubjective narratives (Cooper, 1997; Harris-Williams, 2010; Brown, 2011; Chilton et al., 2015). Intersubjectivity is defined as a pre-verbal unconscious phenomenon wherein “jointly constructed narrative. . . ascribes meaning to experience for which no language previously existed” (Brown, 2011, p. 1) and “communication and meaning making between two intrapsychic worlds. . . results in changes within each member. . .” (Brown, 2011, p. 109). Intersubjectivity emphasizes the shared lived experience in which heightened empathy and attunement allows one to enter the emotional experience of another in order to co-construct a new, re-imagined, and often transformative life narrative (Stern, 2005).

These ontological and epistemic foundations of the creative arts therapies represent the archeology of the most profound

human emotional and relational constructs essential to understanding the nuances and complexities of the human experience. Implicit in the creative arts therapies worldview is that aesthetic intersubjective ways of being and knowing exist on the periphery of consciousness inaccessible through traditional investigative methods or verbal discourse. In creative arts therapies practice we use our arts forms to elicit the expression of these most profound experiences, construct personal narratives, and enhance self-awareness within a carefully constructed and emotionally held relationship; while in research, we use arts-based methods for purposes of systematic inquiry into creative arts therapies phenomena.

Based upon our adopted worldview and our objectives to study transformative processes in the creative arts therapies, we selected a comparable arts-based research philosophical and methodological approach to investigate these complex aesthetic intersubjective human phenomena. The arts-based research approach we adopted is one in which the arts are used as the primary method of systematic investigation and analysis throughout the research process (Hervey, 2000; McNiff, 2008; Kossak, 2012; Viega, 2016) “. . . as a primary way of understanding and examining experience. . .” (McNiff, 2008, p. 29) in the study of the multi-dimensional psychological and socio-cultural human condition (Gerber and Myers-Coffman, 2017). Furthermore, Barone and Eisner (2012) assert that “[arts] based research is an effort to extend beyond the limiting constraints of discursive communication in order to express meanings that otherwise would be ineffable” (1).

To implement our arts-based research study of the therapeutic and transformational phenomena in the creative arts therapies we developed a creative arts therapies laboratory in which a group of doctoral students and faculty simulated the creative arts therapies and studied the parallel individual and collective arts-based intersubjective processes. We created and used what we call an intrinsic arts-based research method (Hagman, 2005; Levine, 2005; Gerber et al., 2012; Chilton et al., 2015; Gerber and Scotti, 2017). Within the intrinsic arts-based research approach, we used ourselves as participant/researchers to study arts-based relational phenomena as they emerge organically within the intersubjective context paralleling the creative arts therapies process. As participant/researchers, we navigated between the immersive arts-based intersubjective process and reflective analytic procedures documenting our experiences through arts-based expressions, reflective journaling, group discussions, qualitative and arts-based data analysis. The results of our inquiries were analyzed, synthesized, and documented in culminating textual and arts-based projects at the conclusion of each academic term with a retrospective summative analysis at the end of the year.

This article represents a preliminary qualitative analysis of a sampling of these retrospective culminating projects written by doctoral student participant/researchers over the past 8 years who sought to answer the question: “What are the factors that contribute to therapeutic mechanisms, psychological understanding, meaning making, and transformation within the intersubjective arts therapies process?” in this creative arts

therapies laboratory course (Gerber et al., 2012; Gerber and Scotti, 2017).

In this preliminary phase of the project we have randomly selected eight retrospective de-identified study records representing student culminating projects from the creative arts therapies laboratory course and adopted a deductive or theoretical thematic analytic approach (Braun and Clarke, 2006) to study patterns of evidence relative to transformative experiences. We selected this approach for the explicit purposes of developing and evaluating a coding system based upon exogenous research and theory about transformative phenomena to compare to the heuristic data generated from our intrinsic arts-based and qualitative investigations. Our aim was to determine how our emergent intrinsic phenomena aligned with extrinsic empirical mechanisms of transformation to further understand what creative arts therapies processes contribute to change. To identify deductive thematic concepts for our study, we conducted a review of the literature focused on the definitions of mechanisms of change in general, and mechanisms of change in psychotherapy and the creative arts therapies.

In contemporary scientific research, particularly within the domains of medicine and the physical sciences, mechanisms of change are defined as causal and measurable variables that statistically account for the relationship between a particular therapeutic intervention and outcome (Kazdin, 2007). Kazdin and Nock (2003) stated that mechanisms of change not only represent the causal relationship but also “reflect the processes through which therapeutic change occurs” or “those processes or events that lead to and cause therapeutic change” (1117). According to Kazdin (2007) mechanisms are evaluated based upon principles of association, plausibility, consistency, experimental manipulation, timeline, and gradient (Kazdin, 2007). Petrik and Cronin (2014, p. 284) resonate with this definition but add that in psychotherapy mechanisms are the “theory driven reason that change occurs in therapy or the *how* or *why* of the therapeutic change.” They add, in addressing mechanisms of change in psychotherapy, that the mechanisms inhabit the dynamic interaction between technique, client-therapist processes, and outcomes.

Mechanisms are interconnected with moderators, which are pre-existing and co-existing conditions, and mediators, which are other intervening variables that influence the causal mechanistic effect (Kazdin and Nock, 2003; Johansson and Høglend, 2007; Kazdin, 2007). A moderator is considered to be a “pre-treatment variable” that relates to “for whom and under what conditions the effects will occur” (Johansson and Høglend, 2007, p. 2) such as gender, illness severity, genetic pre-dispositions, family, medical and psychological history, as well as social constructs such community and culture (Kazdin and Nock, 2003, p. 1118; Johansson and Høglend, 2007). A mediator is an “intervening variable” (Kazdin, 2007, p. 3) that represents processes occurring within the individual such as “abilities, functioning, or capacities” and statistically “accounts for the relation between treatment and outcome” (Johansson and Høglend, 2007, p. 2; Kazdin, 2007). Mediating variables occupy differing “temporal and causal positions” (p. 2) as well as the “mode of operation (direct or indirect)” (Kazdin and Nock, 2003, p. 1118) all of which require

consideration, measurement, and correlation with the outcomes. In contrast to the physical sciences, the numerous idiosyncratic variables and intangible dynamic processes in psychotherapy make it challenging and perhaps counterproductive to isolate singular cause and effect relationship between process and outcome (Hayes et al., 2007; Petrik and Cronin, 2014).

In reviewing what are considered to be mechanisms of change within the psychotherapy literature there is general agreement that aspects of the therapeutic relationship, elements of self-expression, increased levels of consciousness and memory, dialectical tensions, destabilization, ruptures and resolutions, reconfigured and re-storied self-narratives, and self-reflection act as interactive agents of change (Ogden, 1992; Knill, 2005; Hayes et al., 2007; Israelstam, 2007; Zittoun, 2011; Caddy et al., 2012; Forster et al., 2014; Van Lith, 2015; Haas-Cohen and Clyde Findlay, 2015; Lane et al., 2015; Czamanski-Cohen and Weihs, 2016). Additionally, there are numerous theories that identify multiple neurological, psychological, cultural, social, temporal, and intersubjective factors that moderate and mediate the transformation of thought, perception, emotion, and behavior in psychotherapy within and between these identified mechanisms (Bollas, 2002; Hayes et al., 2007; Israelstam, 2007; Harris-Williams, 2010; Brown, 2011; Zittoun, 2011; Forster et al., 2014; Haas-Cohen and Clyde Findlay, 2015; Czamanski-Cohen and Weihs, 2016).

The research in the creative arts therapies related to mechanisms of change is limited in scope and methodology although there are some formative related to mechanisms or phenomena of change. These preliminary theories, in many cases, intersect with those of psychotherapy, suggesting that change occurs within an emotionally attuned therapeutic relationship in which individuals can express themselves through the arts, access and revive memories through sensory and embodied knowledge, gain a sense of safety and relief from tension, reflect and learn about themselves through the therapist/client/arts triadic dialog, progress incrementally through developmental stages, transcend their mental suffering, and enhance their overall psychological and social well-being (Hayes et al., 2007; Israelstam, 2007; Zittoun, 2011; Caddy et al., 2012; Forster et al., 2014; Haas-Cohen and Clyde Findlay, 2015; Lane et al., 2015; Van Lith, 2015; Czamanski-Cohen and Weihs, 2016). Additionally, self-reflection, enhanced levels of consciousness, the necessity for tension, rupture and resolution within a “dialectically attuned” (Israelstam, 2007) therapeutic relationship and the resultant re-imagining and re-creation of personal narratives are all constructs that intersect with the emergent mechanisms of change in the creative arts therapies.

Although creative arts therapies processes associated with transformation may be congruent with those of psychotherapy, differences may be noted in the primacy and value assigned to certain transformational processes associated with the arts-based relational epistemic. For instance in the creative arts therapies the sensory/embodied experiences and relational attunement, the transcendent qualities of imagination and creativity, the reenactment of relational histories within the therapeutic relationship, and the communicative, dialogic, and metaphoric qualities of the arts may assume primacy (Patterson et al., 2011;

Gerber et al., 2012; Haas-Cohen and Clyde Findlay, 2015; Van Lith, 2015; Czamanski-Cohen and Weihs, 2016).

The literature reviewed herein reflects promising emergent trends in identifying mechanisms of change in psychotherapy and the creative arts therapies, however, additional exploration is required to advance our knowledge and establish an epistemically sound evidence base for assessing change as it exists and operates specifically within the creative arts therapies. In this paper we aim to add to the emerging bodies of knowledge about proposed and emergent mechanisms and phenomena of change in the creative arts therapies.

MATERIALS AND METHODS

The methods for this project included data generation and data analysis phases. These phases included the generation of the records reviewed for the study, the selection of the retrospective study records for coding and analysis, the human subjects ethical institutional board review and approval, the development of the deductive coding system, the organization, coding and categorization of the data, inter-coder alignment, analysis and interpretation, the identification of the primary and modifying themes, synthesis, and presentation of the findings.

In the first part of this section we describe the laboratory context and methods from which the textual data in the study records were generated and, in the second section we present the procedures for our deductive and interpretive coding and thematic analysis of the retrospective data.

Data Generation

The first phase of our investigation was designed to explore questions related to the nature of therapeutic processes and phenomena of change in the creative arts therapies. To address these questions, we developed a creative arts therapies laboratory course designed specifically to simulate and study arts-based, expressive, and intersubjective phenomena parallel to those in the creative arts therapies. The laboratory course ran for four academic quarters or 1 year over a period of 8 years during which we engaged doctoral students in the Ph.D. in Creative Arts Therapies program, from the disciplines of art therapy, dance/movement therapy, and music therapy, as participant/researchers. We used a method called *Intrinsic Arts-Based Research*. *Intrinsic Arts-based Research* originates from a psychoanalytic perspective in which the authentic intra- and inter-psycho experiences and data emerge organically through free associative processes within a relational context. In this method, we used and documented our individual and collective intrinsic aesthetic intersubjective experiences as participant/researchers in order to identify and describe the arts-based intersubjective processes that contribute to self/other awareness and narratives, metaphoric expression, insight, and transformation in the creative arts therapies.

The structure of the laboratory experience included a 30-min check-in about afterthoughts and remote reflections from the previous class and discussion of the assigned readings.

The second part of the class was 1 h of undirected arts-based exploration in which the students became the participants immersed in all aspects of the intrinsic intersubjective arts-based experience. The goal was to study the authentic experience of the participants as they transitioned in and out of the intersubjective arts-space, experienced the challenges of creating arts-based responses within the intersubjective space. Following this 1 h of authentic intersubjective arts-based exploration, students were asked to step out of their participant role and step into a researcher role devoting 30 min to reflecting upon and documenting their arts-based intersubjective experiences in their journal. Finally, the last portion of the laboratory is a discussion sharing the individual and collective arts-based and intersubjective experiences with the group. Our investigation was designed to answer the following question:

“What are the factors that contribute to therapeutic mechanisms, psychological understanding, meaning making, and transformation within the intersubjective arts therapies process?”

From this simulated creative arts therapies experience students generated multiple types of data which included the arts-based immersive responses, reflective journal entries, group discussions, iterative arts-based reflective responses, and relevant literature. At critical points in the laboratory courses the students would organize, analyze and synthesize these multiple data types through a hybrid of thematic qualitative and arts-based approaches. The results of these analyses were written, arts-based, and performative culminating projects representing the formative findings from each course and summative findings from cumulative courses. These culminating projects became the retrospective records for this research project used to study the mechanisms of transformation.

Participants

In this research project the “participants” were eight de-identified study records from four students who participated in the laboratory course. The study records were the culminating written and arts based projects representing an analysis and synthesis of the intrinsic arts-based, observational, and reflective data collected by the student participant/researchers at the conclusion of each academic quarter in the laboratory course. Although the course has been in existence for 8 years, the records studied were selected for this study from the year 2012–2016 and represented three different student cohorts. The years from 2012 to 2016 were selected in order to include papers written only by students who had completed the course to avoid potential conflicts related to study participation and course evaluation. The laboratory course was conducted over a period of four academic quarters or 10 months per year, thus, in order to explore the progression of thematic trends over time, we selected one paper from the introductory course and one from the advanced course from each student in each cohort. These records were selected randomly, de-identified, given a participant identification number to replace the name, and paired by course and student. This initial sampling de-identification and pairing was conducted solely by the course instructor/primary author to

protect the confidentiality of the students during analysis and publication. The study records and their content were used as primarily aggregate data for thematic analysis with the exception of exemplary de-identified excerpts used to amplify the meaning of the thematic results.

We complied with all human subjects ethical guidelines and had the study approved by the Drexel University Institutional Review Board which is the official human subjects research ethics body in the university. In compliance with the human subjects' ethical guidelines and with respect for the students and graduates of the program who might have records in the project we notified them about the intention of the investigators to use de-identified aggregate and excerpted data from the records in the study and gave them the opportunity to withdraw their records or review their own records for identifiers. One complication with the de-identification, is that the arts-based investigative responses, central to the intrinsic arts-based research process and the culminating projects, had to be excluded, but descriptions of these processes are still very present in the textual data.

Data Organization and Coding

The coding system is a deductive or theoretical qualitative research approach designed to arrive at the identification of patterns of evidence and predominant themes relevant to our topic and research questions. The “‘theoretical’ thematic analysis would tend to be driven by the researcher’s theoretical or analytic interest in the area, and is thus more explicitly analyst driven” (Braun and Clarke, 2006, p. 84).

We intentionally selected this deductive method for our data analysis to juxtapose and align the extrinsic empirical and theoretical data alongside the inductive data generated in the intrinsic arts based research phase (Braun and Clarke, 2006). Selecting and aligning these two data types and sources was a strategic decision designed to systematically compare, contrast, and integrate the intrinsic and extrinsic perspectives related to transformation for purposes of credibility and authenticity.

To develop the deductive coding system, we conducted a search of the current psychotherapy and creative arts therapies literature from which we identified and extracted the references to mechanisms or phenomena of change and transformation most frequently and consensually reported. We also included emergent evidence based constructs from the course objectives and processes. From these phenomena, we constructed our *a priori* parent coding categories. The *a priori* parent coding categories were then further modified and defined by child codes that contributed to identifying and modifying specific aspects or operations of the parent codes. Our *a priori* coding categories were organized into the following parent categories for the initial deductive thematic analysis: arts making processes and arts-based research, expression and communication, reflection and awareness, relationships, ruptures, intersubjectivity, and transformation. The child codes and their relationship to their parent codes are presented in Table 1. A coding book including categories and definitions for parent and child codes was developed provided for the coders to enhance inter-coder alignment.

Defining Coding Categories

The family of parent and child codes were defined not only to identify current trends in the literature, but also to increase inter-coder alignment across the three coders. Each parent code category housed modifying child categories that contributed to the defining properties of the parent category. The child categories were explicitly used in the actual coding process with implicit connections to the parent categories as illustrated in Table 1. Throughout the initial coding process it became apparent, as is the case with most qualitative research coding and analysis, that certain *a priori* codes were assigned more frequently to excerpts in the textual data while others were not used frequently or at all. The most frequently used and meaningful codes emerged as our preliminary thematic results and are highlighted in Table 1 in bold italics.

Parent Categories

The parent code definitions are included below but space restrictions prohibit the definitions of the child codes here.

TABLE 1 | *A priori* parent and child coding categories.

Parent category code	Child categories
Expression/communication	(1) Free association (2) Resistances (3) Resistances to arts process (4) Metaphors and symbolism (5) Writing (6) Artistic expression (7) Discussion (8) Artistic reflective response (9) Artistic immersive response (10) Emotional expression
Art making processes and arts based research	(1) Transitions (2) Self-consciousness (3) Time (4) Rituals or transporters (5) Creation/free association (6) Medium, mode and methods (7) Imagination: flow/transcendence (8) Intersubjective transcendence (9) Sensory/kinesthetic/embodied (10) Emotional/affective (11) Cognitive/symbolic (12) Tensions/frustrations (13) Representation
Reflection and awareness	(1) Non-arts-based immersive reflection (2) Memory (3) Remote reflection (4) Artistic reflective response (5) Artistic immersive reflective response (6) Insight/new learning
Relationship	(1) Attunement/alignment (2) Relational misalignment (3) Tension/dialectics (4) Emotional holding (5) Transference
Ruptures	(1) Dialectical ruptures (2) Imagination ruptures (3) Time and familiarity ruptures (4) Relational ruptures (5) Dynamic disruption (6) Artistic disruption
Intersubjectivity	(1) Familiarity (2) Unfamiliarity (3) Relationship building (4) Narrative (5) Intersubjective transcendence (cross referenced in art-making processes)
Transformation	(1) Dialectical rupture and resolution (2) Intersubjective witnessing and observation (3) Memory reactivation and emotional reintegration (4) Self-expression, self-discovery and enhanced connection to self (5) Re-imagining, metaphor, and re-storying

Bold entries represent preliminary thematic results emergent from a priori codes.

Expression/Communication

Methods and modes by which thoughts are made visible or audible within an intersubjective context. Examples might be a sensations, embodiment, and emotions expressed through arts, talking, writing, enacting and discussion that releases tension enhances functionality (Zittoun, 2011; Van Lith, 2015; Czamanski-Cohen and Weihs, 2016).

Art Making Processes

The process of letting meaning emerge through a dynamic relationship between participants and the art media representing historical and current relational phenomena. Creative activity of making thoughts visible through arts process stimulates complex mind/body interactions contributing to the growth of new neural networks (Zittoun, 2011; Caddy et al., 2012; Haas-Cohen and Clyde Findlay, 2015; Czamanski-Cohen and Weihs, 2016).

Reflection and Awareness

Making thoughts visible and learning how to think about and re-think about them through mentalization (Forster et al., 2014) and/or visualization within the presence of another (Zittoun, 2011; Forster et al., 2014). Surrendering to the unconscious, emergent thoughts, sensations, emotions engaging in implicit to explicit processing (Czamanski-Cohen and Weihs, 2016). Creative reflection in the potential space leading to new knowledge and transformation through engagement with and resolution of existential dialectical tensions (Bollas, 2002; Israelstam, 2007).

Relationship

An attentive and attuned relational alliance, merging past and present intersubjective narratives, constructed within an emotionally safe space for purposes of facilitating self-expression, self-exploration, reflection, and change. The therapeutic alliance makes room for free talking pre-verbal cognitions, attunement and the emotional space to hold dialectical tensions in the potential space. The potential space allows the individual to: (1) “hear from “his/her “own unconscious”; (2) engage in creative dialectical discourse between me and not-me: and, (3) make the “invisible psychic apparatus of the mind become visible and new narratives to emerge” (Symington, 1996; Bollas, 2002, p. 10; Knill, 2005; Israelstam, 2007; Kazdin, 2007; Brown, 2011; Zittoun, 2011; Forster et al., 2014).

Intersubjectivity

Joining with others in the unconscious or conscious co-creation of personal and collective narratives. The co-creation of the group narrative based on the sensory, kinesthetic, emotional, embodied and symbolic forms of knowledge. Awareness and relevance of the presence of others, both peers and leaders, and how this awareness informs and appears in the arts process and product (Knill, 2005; Stern, 2005; Brown, 2011; Zittoun, 2011; Schwartz, 2012; Czamanski-Cohen and Weihs, 2016).

Ruptures

Ruptures include mind/body interactions and ways of thinking that interrupt or rupture repetition compulsion, ritual, beliefs, or routine changing meaning and creating new neural pathways

(Hayes et al., 2007; Israelstam, 2007; Zittoun, 2011; Forster et al., 2014; Czamanski-Cohen and Weihs, 2016).

Transformation

“A significant reconfiguration of perception and thought resulting in the lessening of psychic restraint and pain allowing for the emergence of new psychological perspectives that contribute to living a more creative life” (Gerber et al., 2012, p. 45). Arousal of memories, re-activation of emotions, levels of consciousness resulting in new learning and insight (Hayes et al., 2007; Israelstam, 2007; Zittoun, 2011; Lane et al., 2015; Van Lith, 2015; Czamanski-Cohen and Weihs, 2016).

Coders and Inter-Coder Alignment

The coders included one alumnus and one current PhD Candidate in addition to the laboratory course instructor. All students and alumni who had participated in and completed the laboratory course were invited to participate in the project. Each student coder had taken the course at a different time and with a different cohort while the instructor had been present for all of the courses. As a result each coder brought a different perspective based upon his/her experiences and roles as participant/researcher in the course factoring into and enriching the assignation and interpretation of the codes. We coded in pairs for each record in attempts to contribute to the credibility of the results by including multiple perspectives and member checks.

Based upon these multiple perspectives we recognized the need to evaluate the inter-coder alignment. Evaluation of the inter-coder alignment occurred in two ways. First, the coders met periodically throughout the coding process to discuss the inter-coder convergences and divergences of the code assignations. Second, we used the analytic functions of the Dedoose cross-platform application which allowed us to view the distribution, frequency, and co-occurrence of codes across coders.

Coding Procedures and Data Analysis

Our procedure for coding and analyzing the data from the eight study records included: (a) importing the *a priori* codes, definitions, and written texts into a cross-platform application called Dedoose; (b) employing the services of three coders; (c) immersion in the textual data and code assignation process; (d) inter-coder alignment checks; (e) analysis for thematic predominance and “keyness”; (f) interpretation and synthesis (Braun and Clarke, 2006). Initially, we used a semantic method to code excerpts for literal content based upon the definitions for the *a priori* parent and child categories. “With a semantic approach, the themes are identified within the explicit or surface meanings of the data, and the analyst is not looking for anything beyond what a participant has said or what has been written” (Braun and Clarke, 2006, p. 84).

During the semantic analysis we identified the emergence of predominant categorical patterns of evidence from the *a priori* parent and child categories. We used Dedoose to explore the patterns of evidence and most frequently coded categories. The most frequently coded categories (Table 2) were then organized and aggregated with their *a priori* definitions. We then reviewed and organized the textual excerpts, explored the

TABLE 2 | Preliminary data sets with *a priori* definitions.

Parent code	Child code
Arts-based expression	Art making processes medium, mode and methods: The method or methods of artistic expression as change agents (Knill, 2005; Van Lith, 2015)
Art making processes and arts based research	Art making processes imagination flow/transcendence: Engagement in artistic levels of consciousness that facilitate imagination, transcendence of time and thought rigidity patterns (Caddy et al., 2012); transcendence beyond physical and mental strife or illness (Van Lith, 2015); restoration of play to expand perception of possibilities (Knill, 2005); “desired level of consciousness attained once fully engaged in the arts process... beyond confines of physical world while allowing peripheral awareness of it...” promotes meditation, introspection, reflection, and empathy (Gerber et al., 2012, p. 44) Art making processes intersubjective transcendence: State of consciousness using imagination to surpass the physical boundaries of bodily separateness allowing for the imagining and understanding of and empathy for the other (Bollas, 2002; Gerber et al., 2012). The arts are facilitators and mediators of these dynamic changes due to the inherent intersubjective nature of the arts in which the engagement with self/other or self/object is an ongoing and enlightening dialectic process of discovery (Hagman, 2005). Art making processes sensory/kinesthetic/embodied: Expression of sensory preverbal embodied forms of knowledge, artifacts and memory stimulating emotional systems in the brain – without the assignation of language (Bollas, 2002; Chilton et al., 2015; Czamanski-Cohen and Weihs, 2016)
Relationship	Relationship tension and dialectics: Tension, frustration, at critical points of ambiguity in the process that have the potential to result in creative transformation or collapse. The dialectic between the “me and the not me” creates corollary existential and psychological life/death experiences resulting in the tension necessary for reflection, new insight, and creative transformation (Israelstam, 2007; Zittoun, 2011) Relationship attunement and alignment: Emotional attunement to and alliance with the other’s emotional life and invisible psychic apparatus (Bollas, 2002) “. . . to facilitate the opening of a creative reflective space in which positive transformation can occur” (Israelstam, 2007, p. 592); therapist’s surrendering to his/her own unconscious can allow one to “catch the drift” of the patient –“unconscious communication” (Bollas, 2002, p. 12)
Ruptures	Ruptures imaginal ruptures: Ruptures caused by imagination –sensory, embodied, emotional psychic processes that evoke memory and fantasy require relinquishment of control, embrace the anxiety and trust in the imaginative process. Transcends and interrupts rigid modes of thought through accessing right-brain functions (Bollas, 2002; Knill, 2005; Czamanski-Cohen and Weihs, 2016) Ruptures relational ruptures: Ruptures in the relationship due to anxiety, fantasies, tension or breakdown in the relationship resulting in potential change (Knill, 2005; Israelstam, 2007; Gerber et al., 2012; Forster et al., 2014); ruptures and resolution moving through “acknowledgment through understanding and assimilating warded off feelings to closure” (Bennet et al. as cited in Forster et al., 2014, p. 8)
Transformation	Transformation dialectical rupture and resolution: New learning and insight from resolution of dialectical ruptures meaning on the creative edge between the drive for newness and clinging to the old and familiar; systems of thought and experience are destabilized and re-stabilized through the reconstruction of new perceptions (Lynch et al., 2006; Hayes et al., 2007; Israelstam, 2007; Zittoun, 2011; Forster et al., 2014). Dialectical Ruptures: Tensions from self-narrative contradictions, internal/external dialogs at critical points in the process resulting in ruptures and re-constructed linguistic structures, resolutions, and meanings (Israelstam, 2007; Zittoun, 2011; Forster et al., 2014)

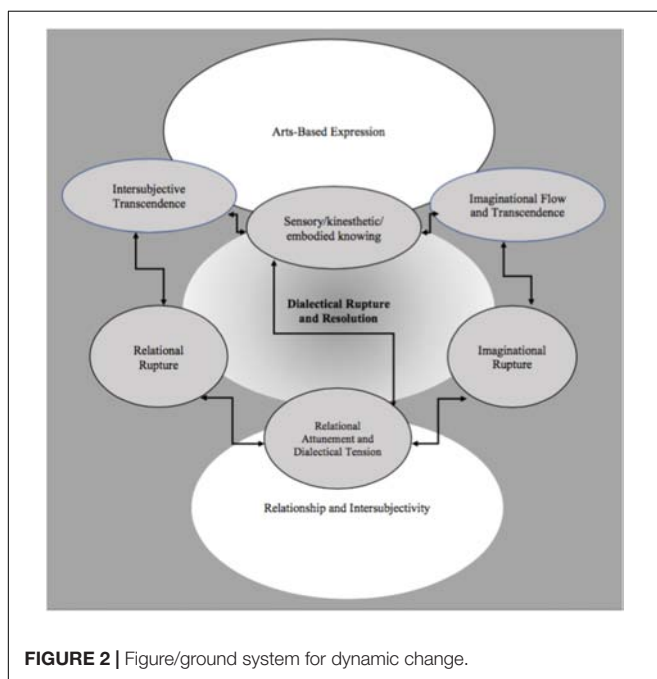
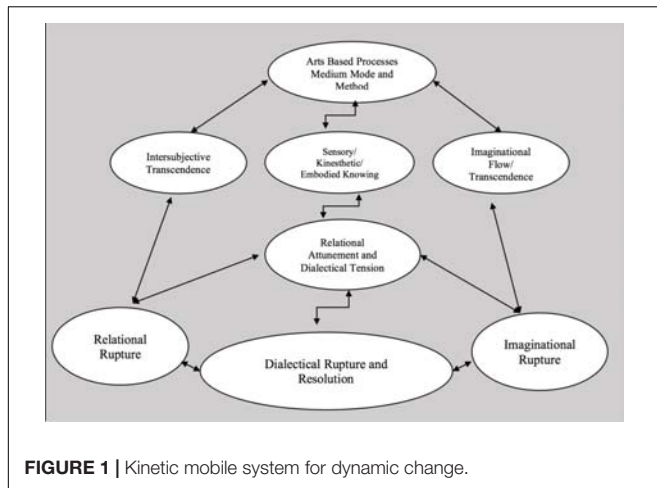
thematic content of the excerpts, examined co-occurrences of codes and inter-coder alignment, and then re-organized, revised, and collapsed the categories into new but related categories which became or data sets. These data sets were created according to the frequency and contextual predominance, co-occurrences, and textual meaning, resulting re-interpreted and integrated categories representing a merger of the extrinsic and intrinsic data.

From this point, it was natural to move from a semantic analysis into more interpretive work by exploring the latent content (Braun and Clarke, 2006). Within this final interpretive phase we first re-named these new integrated data sets and their meanings which became the three primary themes and the related modifying and defining themes. Then we focused on exploring the relationship between the primary and modifying themes relative to the phenomenon of transformation. We used some arts-based methods (Figure 4) and diagrams (Figures 1–3) for the purposes of conceptualization, visualization, interpretation,

and thematic synthesis. In exploring the relationships within and between the thematic constructs, we created dynamic interactive systems of change comprised of these transformative thematic phenomena (Figures 1–3).

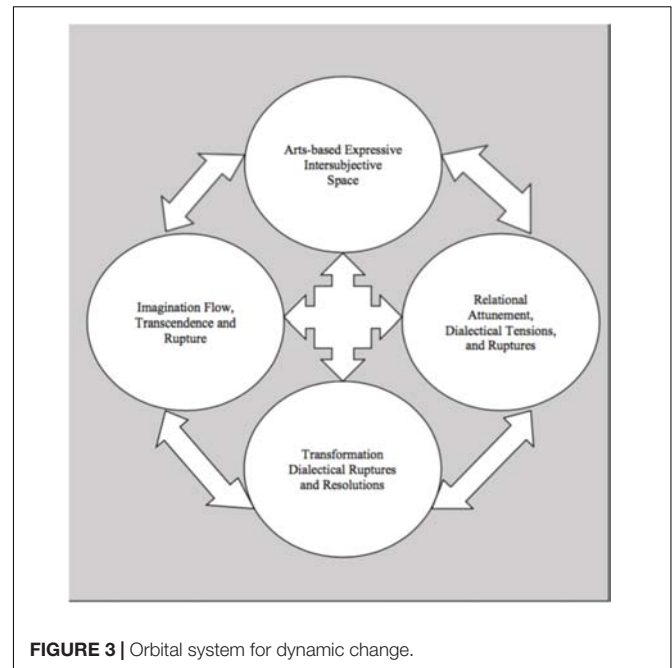
RESULTS

The results of our preliminary analysis yielded the identification of three primary themes modified and defined by interactive sub-themes related to transformational phenomena in the creative arts therapies. In this section we present the themes, define and describe each theme, present exemplars to amplify the meaning, and provide a summary synthesis of the thematic results as related to our research questions. As we present these results we re-emphasize the limitations of this analysis. The limitations became more apparent as we embarked on this project and realized that the scope, depth and breadth of our data might



extend beyond the time and space constraints for this article. Our assessment of the data at this point in our analysis is that they are extremely rich and meaningful holding multiple implications for further research, theory building, and practice therefore requiring additional analysis.

Within those limitations, we identified several preliminary thematic patterns of evidence that were distributed throughout and across five of the original *a priori* parent categories of *arts-making processes and arts-based research, relationship, ruptures, intersubjectivity, and transformation*. Within those predominant parent categories, the child categories or sub-themes that emerged included *medium, mode and method, imagination flow and transcendence, intersubjective transcendence, sensory, kinesthetic embodied knowing, attunement/alignment, tension and dialectics, imaginal ruptures, relational ruptures, and dialectical rupture and resolution*. These categories achieved primacy



through both the frequency of occurrence and the relevant meaning or “keyness” to the inquiry. The “...keyness” of a theme is not necessarily dependent on quantifiable measures, but rather on whether it captures something important in relation to the overall research question” (Braun and Clarke, 2006, p. 82).

The key categories were aligned with the original definitions (Table 2) and then these categories and their excerpts, selected across participants based upon their “keyness” to the inquiry, were analyzed for intersecting meanings, re-arranged and collapsed into data sets to form new integrated categories. These new integrated categories and their meanings were re-organized, collapsed, and rearranged to become the three primary themes and the related modifying and defining themes.

Primary Themes and Modifying Sub-Themes

Through our analysis we identified the following primary thematic phenomena along with their modifying and defining thematic constructs.

- (1) Rupture, Resolution, and Transformation: Dialectical Rupture and Resolution, Relational Ruptures and Imaginational Ruptures;
- (2) Relationship and Intersubjectivity: Relational Attunement, Dialectical tensions, Intersubjective transcendence
- (3) Arts-based expression: Imaginational Flow/transcendence, sensory/kinesthetic/embodied levels of knowing, and intersubjective transcendence, medium mode and method.

Ruptures, Resolutions, and Transformation

Transformation is a major category and central focus for this study. The definition for transformation was the arousal of memories, re-activation of emotions, and levels of consciousness

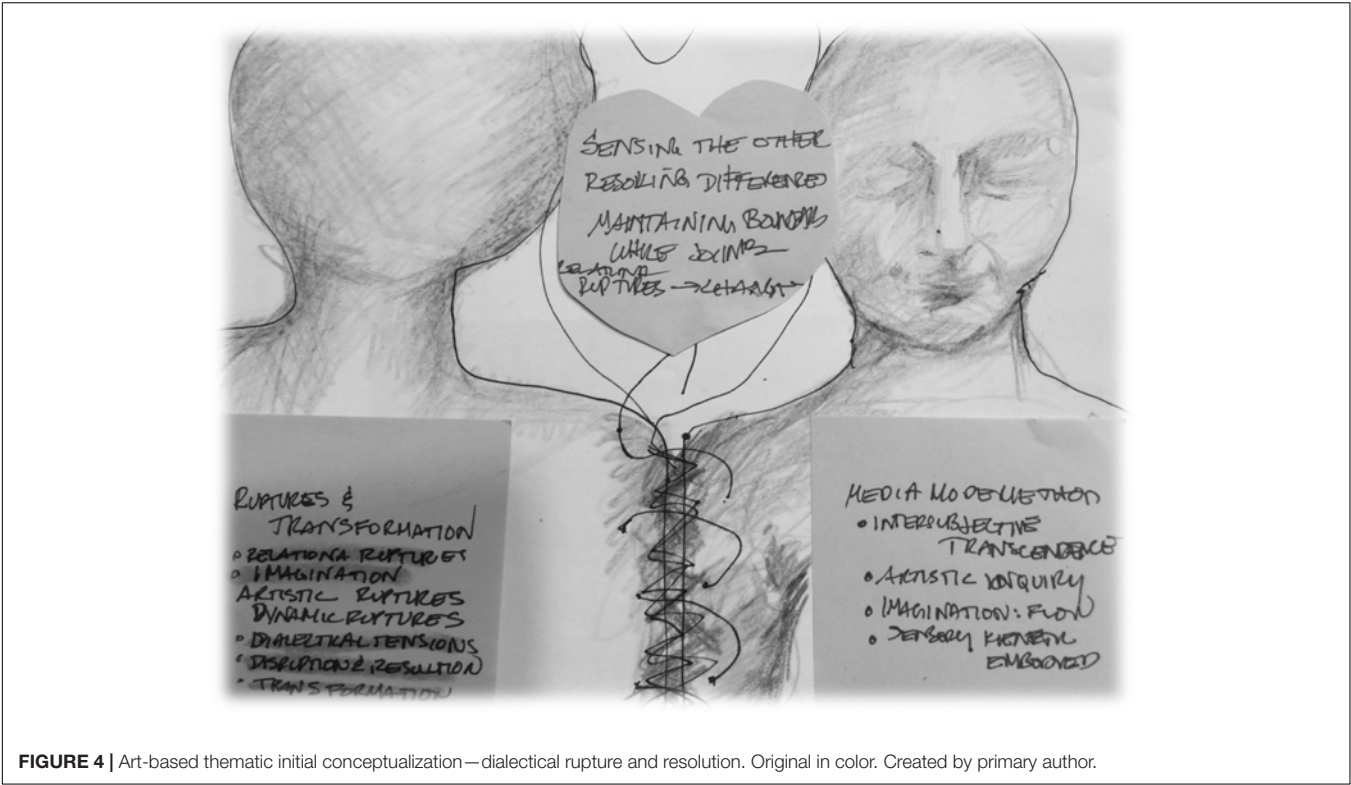


FIGURE 4 | Art-based thematic initial conceptualization—dialectical rupture and resolution. Original in color. Created by primary author.

that mediate the new learning and insight through dialectical rupture and resolution (Hayes et al., 2007; Israelstam, 2007; Zittoun, 2011; Lane et al., 2015; Van Lith, 2015; Czamanski-Cohen and Weihs, 2016). Furthermore transformation includes a “... significant reconfiguration of perception and thought resulting in the lessening of psychic restraint and pain allowing for the emergence of new psychological perspectives that contribute to living a more creative life” (Gerber et al., 2012, p. 45). This theme includes the most frequently cited category of dialectical rupture and resolution along with inter-related defining constructs of relational and imaginal ruptures.

Dialectical rupture and resolution was the most frequently coded defining theme describing key transformative actions and moments. This theme increased in the frequency of coding over time during the laboratory course (Table 3).

Dialectical rupture and resolution is inter-connected to multiple dynamic processes including relational attunement, imaginal flow and transcendence, and intersubjective transcendence and their dialectical counterparts of imaginal and relational ruptures. The dialectic between these relational and imaginal attunements, flow, and ruptures represents contradictions and tensions between the drive for progressive innovation and discovery and the longing for familiar recalcitrance—the known and the unknown. These tensions create the conditions for a system of dynamic change through destabilization and de-construction, reflection, re-construction, and re-stabilization resulting in insight, illumination, psychic growth, and new personal and

intersubjective narratives (Israelstam, 2007; Zittoun, 2011; Forster et al., 2014).

Excerpts dialectical rupture and resolution

“Ebbing and Flowing” addresses the natural fluctuations of life. Nothing stays the same – there is a constant flux. In our studio class we became aware of such dichotomies as death and life, distance and closeness, divorce and intimacy, facing a threat and running away from it. In an attempt to understand my inherent tensions between consonance and dissonance, my ritual of staying in my learned comfort zone and the spontaneity of newness, and my holding onto of the familiar while

TABLE 3 | Progressive thematic coding frequency over time.

Data sets/thematic phenomena	716	719
Imagination: flow	10	20
Intersubjective transcendence	9	20
Medium, mode and methods	23	24
Sensory/kinesthetic/embodied level	21	14
Attunement/alliance	11	20
Tension/dialectics	4	14
Imagination ruptures	4	10
Relational ruptures	7	16
Dialectical rupture and resolution	7	62

716 = Introductory Course; 719 = Advanced Course.

letting go and growing, I wrote the following musical lyric:

Built up rattled nerves
Lay them flat on the ground, breath the sound in of
dissonance
Buzzing flies around your ears
Play beginnings of life, stir the pot, pull the freedom
near

It was through this lyrical writing where I helped myself reflect on my tension, embrace the different emotions I was feeling, and come to terms with this tension. I found that through the course, even though this dialectic existed and challenged me, I was more accepting of it as time passed. I understood that this dialectic would become present and the task would simply be adapting around or within it.

However, when we arrive at communal art making, we can face terrors, loss, and trauma and not be broken. We can experience sadness and anger and not fall down. Creating art together allows us to cope with the darkness, make meaning of our experiences, transform our existence, and find hope and peace. Through art we find resilience.

Relational ruptures are inextricably connected to the dynamic between relational attunement and dialectical tensions. The frequency of coding in this category increased over time during the laboratory course (**Table 3**).

Ruptures in the relationship are due to anxiety, fantasies about self/other, internal/external dialogs, and/or the breakdown in the relationship from disappointment and realization (Knill, 2005; Israelstam, 2007; Gerber et al., 2012; Forster et al., 2014). The successful resolution of these ruptures necessarily occurs within an emotionally held or “dialectically attuned” (Israelstam, 2007, p. 592) relationship in which creativity is used to re-imagine, explore and resolve the dialectical relational tensions. This process is iterative, hopefully progressive and transformative, but exists along a precarious dialectical edge the navigation of which can lead to either creativity and illumination or destruction and devastation (Israelstam, 2007, p. 592).

Excerpts relational rupture

About half way into the class, we were both on the floor, one of my classmates began to tear up and appear visibly upset. At that time I was tending to myself and my own needs, calmly breathing, humming a little melody, and overall in a peaceful state. Her condition aroused an immediate response from me, first one of surprise and helplessness, followed by one to breathe and attune to her. I recognized her stooped position and the passive weight in her body. Suddenly, seemingly out of nowhere, a lightness overcame me and my hand approached hers with a playful, non-threatening movement. She responded and we were engaged in a time of short play. . .

The sunken and hollow body position in my peer (Day 2) confounded me and, while I slowed down my movements and attuned to her, it wasn't until after everyone had worked their way through sadness that it finally hit me. It was inevitable that it would affect me but the way it did, superficially at first (possibly defending myself by setting boundaries?) with an intense delayed sensation of it, was unexpected.

The spiral of intersubjective relationships among the participants, and the participants' use of space, represents dynamic changes. We are always positioning ourselves in relation to each other and always sensing where we are and how we are. For example “when we feel open and receptive, we tend to move toward others and reduce or dissolve our physical boundaries” or in comparison “when we feel threatened or in conflict, or there is no trust yet built, we retreat from others and shore up our physical boundaries against them” (Dosamantes, 1992, p. 9).

The triangle formation appeared while writing a song and moving in response to the lyrics, as a song and dance gave the participants a creative vehicle for representing the conflict that had appeared between the student-participants and their instructors.

An understanding and empathy for what others in the class were feeling existed, even if their feelings were in opposition of my own. This made it clear that our feelings were on a dialectic continuum within an intersubjective context.

Imaginational ruptures are dialectically related to imaginational flow and transcendence. These themes progressively increased in coding frequency over time during the laboratory course (**Table 3**).

Ruptures in imagination include sensory, embodied, emotional psychic processes that evoke memory and fantasy, cause disruption in states of consciousness, and flow, and collisions between fantasy and reality. Imaginational ruptures are transitions in levels of consciousness requiring relinquishment of control, suspension of familiarity, renouncement of mundanity, and interruptions of rigid modes of thought (Bollas, 2002; Knill, 2005; Czamanski-Cohen and Weihs, 2016). Transitioning into the world of imagination is a dialectical and dynamic process creating tension between the real and imagined, the present and absent, and the known and unknown resulting in a conflict and resistance to the process (Knill, 2005; Israelstam, 2007) and negotiation of a creative resolution. Imaginational ruptures and resolutions are considered to be central to achieving states of flow, transcendence, progressive and creative transformation necessary for insight and growth.

Excerpts imaginational ruptures

The artwork that I created in the initial classes represented the unknown, the muck. The ideas that formed were abstract and unclear. The images from these

first classes were of the free flowing ink, and the muck, and the discussion that followed the classes reflected that other group members had a similar experience. It was an important stage because by allowing to freely explore the artistic media, clear symbols started to emerge. It was from the muck, if you wish, that the symbols of the tree and the bird grew.

As the heaviness lifted in the room, a Blues rhythm picked up and we all...engaged in a time of rhythmic movement and music making. I thoroughly enjoyed this and thought I could go on enjoying it when, unexpectedly, I no longer did.

An image of an incoming storm mirrored that experience for [Participant 1]. She wrote in her journal: "I can feel something coming up, taking form. The air is thick with anticipation of a storm. I feel like something is going to happen, resolve, open up, come together. What it is? I don't know. How? I don't know. But I can sense a certain tension and an anticipation of something."

...Observed that while both music and movement evoked a response, they seemed to latch on to different facets of our emotions. This was most noticeable during my moving to Schubert's "die liebe Farbe," when movement allowed me to gain an auxiliary dimension of hurt, adding components of confusion and fragmentation.

Relationship and Intersubjectivity

Relationship and intersubjectivity includes the modifying and defining themes of relational attunement and dialectical tensions and intersubjective transcendence (cross referenced in the arts based expressive process theme). These themes progressively increased in coding frequency over time during the laboratory course (Table 3).

This theme refers to the attunement to others at the most fundamental emotional and unconscious level and joining in the co-creating, re-imagining, and transforming our personal and intersubjective narratives. The construction of these narratives includes the dialectic between various levels of trust/mistrust, distance and closeness, intimacy and alienation necessary for attunement to the most authentic, emotional, and fundamental of human experience and connection (Knill, 2005; Stern, 2005; Brown, 2011; Zittoun, 2011; Schwartz, 2012).

Relational attunement and dialectical tensions emerge and co-exist in the intersubjective arts-based expressive experience and in combination are akin to relational ruptures. Relational attunement and dialectical tensions both increased in coding frequency over time during the laboratory course (Table 3).

Relational attunement includes alignment to the other's emotional life and invisible psychic apparatus (Bollas, 2002) using imagination to facilitate "... the opening of a creative reflective space in which positive transformation can occur" (Israelstam, 2007, p. 592). Relational dialectical tensions refer to the dialog between alignment and misalignment, the "me and the not me" creating corollary existential

and psychological life/death experiences resulting in the tension necessary for rupture, reflection, new narratives and insight, and creative transformation. The combination of attunement and dialectical tension occurring within the potential space appears to be essential to the construction of authentic relational knowing and attachment.

Excerpts relational attunement

When we create art, all differences melt and become irrelevant. We come together and connect through art. Sometimes coming together may take a while, other times it seems effortless broadly define consonance not just in relation to musical terms, but with relevance to structure, aesthetic appeal, and a person's inherent, natural tendency.

I tried to anticipate X and Y's rhythms and movements, trying to stay connected through cognitive awareness... I became part of the movement, the rhythm. I followed, I lead, I existed, interconnected to sounds and feels and raw emotion. It was exhilarating and so calmly beautiful in the same space.

... seeing an expressive movement, mirroring its essence and feeling a sensation; experiencing an emotion, then moving the body in congruence with it; hearing a musical piece, adjusting the movement to the nature of the music and having an emotional response. In short, the interrelatedness of movement and emotion was present throughout, no matter what initiated what.

Excerpt relationship dialectical tensions

In the same artistic experience, one of us could feel comfort and another could feel discomfort, and we somehow transitioned within and around this space as individuals as well as a group within the experience.

Alternately, dissonance is defined in opposition to these terms, being disorganized, different, and disconnected. Within the consonance and dissonance themes were subthemes of ritual and spontaneity (a dialectical term discussed in Israelstam's, 2007 article), holding and growing, sameness and difference, and connected and disconnected."

"The mutual awareness of agreement or disagreement and even the realization of such understanding or misunderstanding" (Gillespie and Cornish, 2010, p. 19). What happened with me when I was moving, that I was reminded of two different types of responses to other people, also informed me of proxemics. It is now clear to me that distances between people differ according to relation (close-distant, personal-professional, or first time-know).

Arts Based Expression

The theme of arts-based expression represents the process of letting meaning emerge through a dynamic triadic relationship between participant/researcher, media/mode/method and the art making. This theme remained constant in coding frequency across time during the laboratory course (Table 3). The secondary themes in this category are the sensory/kinesthetic and embodied

ways of knowing, imaginal flow and transcendence, and intersubjective transcendence.

The arts-based expression requires the immersion in creative process that makes thoughts visible using the media, modes, and methods of artistic expression (Levine, 2005; Zittoun, 2011; Caddy et al., 2012; Haas-Cohen and Clyde Findlay, 2015; Czamanski-Cohen and Weihs, 2016). Immersion in the expressive arts process requires engagement in the dialectic between resistance, rupture, and resolution, surrendering to the imagination, and ultimately entering a transcendent state of consciousness and imaginative flow, acute relational attunement, and empathic intersubjective transcendence.

Sensory/kinesthetic/embodied ways of knowing, are primal unconscious forms of cognition that hold the artifacts of our earliest memories and stimulate emotional systems in the brain without the assignation of language. The arts experience uses sensory/kinesthetic/embodied and imaginal knowledge to transcend time retrieving the primal experience and replicating the original emotional response (Bollas, 2002; Chilton et al., 2015; Czamanski-Cohen and Weihs, 2016). Just as in infancy, due to its primal nature, sensory/kinesthetic/embodied and imaginal knowledge creates acute relational attunement at the most fundamental emotional level. This theme remained constant over time with a slight decrease in the frequency coding over time in the laboratory course (Table 3).

Excerpts sensory/kinesthetic/embodied knowing

Initially the ocean drum and the swaying around me took me to a peaceful place, but over time the feeling shifted in the room. The movements slowed down, all DMTs were on the floor. Harmonies sung in a minor key, combined with the restricted movement and contracted body language around me evoked a state of deep, penetrating sadness. I found myself rocking, crying, remembering. This emotional state was hard to shake, even when I made physical changes (standing up, increasing energy). Finding Resilience through Art" via movement. With my eyes closed there was little coping, however, as I opened them and began to create with my hands, first in a miniscule manner, but over time more and more elaborately, I was able to gain a new perspective and move outside of myself.

When I was dancing I noticed that my body takes different positions and shapes in space. I noticed that my movements varied. Once I was moving slowly, and other times quickly with more expression. Once I was using just parts of my body, in separation, and other times my whole body was moving. There were times that I was in a low position, and there were times that my body took shapes when I was standing or jumping. After a while, I still wasn't sure what all of this meant to me, or if it had any meaning at all. I decided to move naturally for a while, warming up my body, as in preparation for deeper exploration.

Imaginational flow/transcendence relates the "desired level of consciousness attained once fully engaged in the arts process. . . [transcendent] beyond confines of physical world while allowing peripheral awareness of it. . ." promoting meditation, introspection, reflection, and empathy (Gerber et al., 2012, p. 44). Artistic levels of consciousness also refer to a state of imaginal flow bypassing thought rigidity and resulting in the "growth of new neuron networks" (Caddy et al., 2012, p. 328). Surrendering to the imaginal flow through free association and attunement to sensory embodied ways of knowing results in restoration of play, loss of time consciousness, transcendence beyond physical and mental strife, and expansion of the perception of possibility (Knill, 2005; Van Lith, 2015).

This theme increased in coding frequency over time during the laboratory course (Table 3).

Excerpts imaginal flow/transcendence

I lay down on a floor stretching my mind to the limit of its extension to find answers. Themes, themes, themes. . . like I heard this world all over the place, all the time. . . I felt like I couldn't find it. I felt stuck. How I am supposed to find it? I closed my eyes and my mind went somewhere far, far away. In my mind I was levitating over the mountains, rivers, seas, oceans and dessert. I felt relaxed and calm. My breath was stable and my heart beat pretty calm. I stayed there for a while, however, I lost control of time. I think I might have fallen asleep as at one point I felt cold, so cold that I curled up in the embryonic positions shaking and tensing my muscles. I still didn't want to leave the floor it felt so supporting, however, the emerging cold made me move in a very uncomfortable way. I slowly began to twist, bend, writhe with a extremely bound muscle tension and without any direction. Just shaping my body through space and to adapt to the cold. Suddenly I hear this loud and annoying sound BZZZZZ and I stand up on straight legs. It was so unexpected as a quick unexpected frog coming out of a dark sleepy pool. Dark sleepy pool? Unexpected frog? I stopped myself for a while and wondered if I feel ok. Frog, pool, splash, unexpected. . . Yes! I have an idea.

Intersubjective transcendence describes the levels of consciousness attained using imagination and immersion in arts-based processes to transcend the physical boundaries of interpersonal separateness and enter the sensory, emotional, and imaginal world of "the other" enhancing attunement, understanding, and empathy (Symington, 1996; Bollas, 2002; Gerber et al., 2012). This theme increased in coding frequency over time during the laboratory course (Table 3).

Excerpt intersubjective transcendence

Through my movement inquiry I noticed that true togetherness, a connecting of the hands, wiped away all the differences. Togetherness and connection in DMT is promoted through the therapist's mirroring or

reflecting of patients' movement qualities. This results in an increased degree of somatic and emotional understanding as well as empathy.

At the beginning there was a sense of slowness, careful attention and intimate contact among the participants, and deeper exploration of individual problems, however, expressive movement was limited. Later during the session, expressive movement emerged and There was a sense of meditative and trance dance, in relation to expressive and meditative music.

Progressive Thematic Coding

In addition to analysis of the data thematically, we also wanted to explore how these thematic results emerged, sustained, developed, or diminished over time in the laboratory course. The progression of the themes over time was tracked by the frequency with which these thematic categories were coded in the study records from the introductory course (716) to the advanced course (719). Interestingly, all of these coded categories except for two, increased in the coded frequency over the progression of the course. Of particular note is the dramatic increase in the frequency that dialectical rupture and resolution was coded along with imaginational flow, relational attunement, relational and imaginational ruptures and tension and dialectics generally doubled in frequency. Medium mode and method in the arts-based expression category and sensory, kinesthetic and embodied knowledge remained the same over time with the latter dipping by just a few instances. Although there are numerous interpretations of this result, the distinct trends bear noting and further investigation (**Table 3**).

In summary, the primary thematic categories of ruptures, resolution, and transformation, relationship and intersubjectivity, and arts-based expression together with their modifying and defining themes, represent what may be transformative phenomena equivalents to mechanisms of change in the creative arts therapies. Due to the pluralistic intersubjective nature of reality and aesthetic knowledge in the creative arts therapies, these transformative phenomena are conceptualized as interactive dynamic systems of change in contrast to singular, linear, causal mechanisms of change. We have proposed several dynamic systems to illustrate how we envision these thematic phenomena interacting with one another to describe transformation (**Figures 1–3**) which are discussed in more detail in the Section "Discussion."

DISCUSSION

In this preliminary phase of our research study, we have explored formative phenomena that, taken together, may be descriptive of the ways in which change occurs in the creative arts therapies. In this section we explore the dynamic interactive relationships between the primary and modifying themes and propose how these interactive phenomena might form a system of change. We also address the limitations of the study and how those limitations both elucidate the results and illuminate directions for future research. Finally, we recommend methods of evaluating

these formative dynamic constructs of change in research, clinical practice, and the development of an evidence base for the creative arts therapies.

In interpreting the findings for this study, it is essential to re-emphasize that these findings represent a small but in depth sampling of data generated by student participant/researchers from a laboratory course simulating the creative arts therapies experience. Therefore, considering the interpretation and transferability of these constructs to theory building and clinical practice resides within and is limited by that context. With that said, we also may have to re-consider the hegemonic criteria, implicit in that statement, by which we typically evaluate research results. For instance, in this study a method for evaluating the results of this study have to more mindfully include a paradigm shift. In this paradigm shift it may be more useful and relevant to select arts-based or qualitative research evaluative criteria that are more aligned with the aesthetic intersubjective mental model (Greene, 2007) or worldview of the creative arts therapies in contrast to a quantitative research reductive mindset more aligned with physical sciences. Within an aesthetic intersubjective mental model, the themes we identified represent phenomena that are dynamically and spatially inter-related presuming change as related to interaction as opposed to singularly static linear and causal constructs. Consequently, we are exploring the construction of meaning and change through kinetics, dynamics, inter-relatedness, and dialectics reflective of the ontological and epistemic nature of our fields and these thematic phenomena. Contextualized within these paradigmatic and methodological shifts we explore the dynamic systems of change created from these thematic phenomena, their implications for clinical and research theory and practice.

Dynamic Thematic Synthesis

The primary, modifying and defining themes identified in this study represent dynamic phenomena that dialectically adjoin and collide in the arts-based relational context descriptive of qualities of perceptual, emotional, relational, and behavioral experience contributing to change in the creative arts therapies. The primary interactive thematic constructs from our analysis are: (1) ruptures, resolutions, and transformation; (2) relationship and intersubjectivity; and, (3) arts-based expression. These primary thematic constructs are mediated by a dynamic and iterative interaction with the modifying and defining thematic phenomena of *dialectical rupture and resolution, sensory/kinesthetic/embodied knowledge, imaginational flow/transcendence and rupture, relational attunement and dialectical tension, relational rupture and intersubjective transcendence*. The dynamic interaction between these phenomena occurs in an arts-based expressive and intersubjective holding environment that can tolerate, emotionally regulate, and accommodate the creative and relational dialectical processes of contradiction, tension, and resolution necessary to promote change. We explore these dynamic constructs in more depth, examine different interactive configurations, and consider their relevance as a system of arts-based relational mechanisms of change.

Central to our discussion of mechanisms of change is the operational definition we used for transformation which was the

arousal of memories, re-activation of emotions, and levels of consciousness that mediate new learning and insight through dialectical rupture and resolution (Hayes et al., 2007; Israelstam, 2007; Zittoun, 2011; Lane et al., 2015; Van Lith, 2015; Czamanski-Cohen and Weihs, 2016). Furthermore, transformation is a "... significant reconfiguration of perception and thought resulting in the lessening of psychic restraint and pain allowing for the emergence of new psychological perspectives that contribute to living a more creative life" (Gerber et al., 2012, p. 45).

Within the literature and our data dialectical rupture and resolution was identified as one of our most predominant and overarching themes instrumental to transformation. Dialectical ruptures and resolutions are the pervasive ongoing and driving forces central to change, fueling creative, relational, and psychological growth from the friction between seeming contradictions in thought, belief, and experience. Typical dialectical tensions emerge from the existential anxieties and conflicts between the drive for progressive innovation and the gravitational longing for familiar recalcitrance-seeking the known from the unknown, creating something from nothing. In our study, the dialectical rupture and resolution process was mediated primarily by the dynamic interaction between relational attunement, imaginational flow, and intersubjective transcendence and their correlates of relational and imaginational ruptures. These tensions create the conditions for a system of dynamic change through iterative phases of destabilization and de-construction of pre-existing beliefs and narratives, re-construction of new narratives, and relationship re-stabilization resulting in new insight and illumination (Israelstam, 2007; Zittoun, 2011; Forster et al., 2014).

Essential to the resolution and reparation of these dialectic tensions and ruptures are the interrelated thematic constructs of relationship and intersubjectivity and arts-based expression. In our study and, in the creative arts therapies and psychotherapy literature, the construction of a relationally attuned, emotionally held and responsive intersubjective culture is deemed essential for facilitation of surrender to and engagement in the arts-based expressive processes. Surrendering to the imagination, necessarily includes engagement in dialectic between resistance, rupture, and resolution ultimately allowing for the attainment of the transcendent state of imaginative flow, acute relational attunement, and intersubjective transcendence. Consequently, the intersubjective arts based expressive process juxtaposes imaginational flow and relational attunements and their correlate dialectic ruptures creating an ongoing transformative dialog necessary for resolution and change –jarring fixed and rigid beliefs that impede progressive expression, conceiving, re-imagining and birthing new systems of thought and perception, contributing to reparation, synthesis and transformation within a strong relational attuned emotionally holding environment.

Implicit in and central to these relational, arts-based, and intersubjective processes, is the invisible and influential role of sensory/kinesthetic/embodied knowledge and relational attunement. Sensory/kinesthetic/embodied modes of knowing and communication, originating from the beginning of life, create relational attunement at the most fundamental, poignant, and penetrating levels inaccessible through more traditional means of

communication. Sensory/kinesthetic/embodied knowing within the relational or potential space contributes to the fluctuating levels of consciousness essential for imaginational flow and intersubjective transcendence (Ogden, 1992; Hagman, 2005; Israelstam, 2007). This state of flow facilitates levels of consciousness that transcend the limitations of physical, temporal, and spatial boundaries enhancing interpersonal awareness and empathy and the basis for the construction of authentic emotional relationships that could both withstand and facilitate ongoing ruptures and resolutions.

We propose, therefore, that the dynamic interaction between these thematic phenomena in varying combinations and at varying strategic times, within the therapy and the therapeutic relationship, generates transformative responses. This is a preliminary study with formative qualitative evidence about these transformative phenomena. That evidence combined with the progressive frequency by which our categories were coded across time in the study posits some intriguing ideas and questions. In that finding all but two of the primary and modifying themes increased in the frequency by which they were coded over time (Table 3). Of particular interest is dramatic increase in the frequency of coding for the theme of dialectical rupture and resolution, within the overall theme of ruptures, resolutions and transformation, along with modifying themes of relational and imaginational ruptures. This increase along with the concomitant increases in relational attunement, intersubjective transcendence, and imaginational flow suggests that there is perhaps a dynamic interaction between these experiences that create the progressive conditions necessary for facile engagement in the dialectical rupture and resolution process essential for change. In other words, the interactive mechanisms or phenomena from the study progressively contribute to the creation of a relationally attuned intersubjective culture in which imagination, dialectical tensions, and arts-based expressive process develop over time and indeed might be contribute to change and transformation.

In considering the nature, meaning, relationship, and progression of these preliminary and formative interactive dynamic phenomena we revisit the concept of mechanisms of change. With regard to mechanisms of change and how change occurs in the creative arts therapies, we think that our findings necessitate a paradigm shift from a singular causal action to a dynamic interactive system between multiple human phenomena. In this paradigmatic shift and proposed model, in contrast to more traditional definitions and evaluation of mechanisms of change, the relationship of the mechanism and the outcome is not linear and measureable but rather dynamic, multi-dimensional, and descriptive.

Mechanisms of Change: Paradigmatic Considerations

A review of the nature and relationship of our thematic findings relative to the extant concepts of mechanisms of change suggests paradigmatic and methodological reconsiderations. Mechanistic research resides predominantly within a post-positivist paradigm in which a statistical and singular causal relationship is created between the mechanism, intervention, and the outcome as

the explanation of how change occurs (Kazdin and Nock, 2003; Kazdin, 2007). There are particular bodies of knowledge and domains of scientific research in which this approach is warranted resulting in valuable answers to specific questions. However, due to the nature of reality and forms of knowledge in the creative arts therapies, mechanisms of change may require reconsideration, redefinition, and reconfiguration. As described previously, in the creative arts therapies we deem reality to be pluralistic and intersubjectively co-constructed while the related forms of aesthetic knowledge are necessarily idiosyncratic, circuitous, dialectic, dynamic, and emergent. These basic philosophical differences contraindicate the use of linear models of change evaluation to accurately assess and understand the nature and process of change in the creative arts therapies (Aigen, 1991; Hayes et al., 2007; Chilton et al., 2015; Archibald and Gerber, 2018).

Our contention is reflected in Collins and Sayer's (as cited in Hayes et al., 2007, p. 716) assertion that change in psychotherapy is a dynamic system which cannot rely upon more traditional linear methods of research to account for "intra-individual variability which traditionally has been viewed as 'noise' or error." This paradigm shift allows for the inclusion of "dynamic and dialectic interactive process between these multiple intra/inter psychic and intersubjective realities" (Gerber, 2016, p. 656) representing the idiosyncratic vigor of pluralistic human phenomena and reliant upon "... the coexistence and dialectical tensions between levels of consciousness, temporality, and spatiality" (Archibald and Gerber, 2018, p. 3). This view allows for the creation of more interdependent, multi-dimensional mechanisms that are textural and descriptive rather than reductive and measurable. Such a paradigm "contributes to the development of a creative philosophical frame foundational for both an art[s] therapy theory as well as a research mentality and methodology the purpose of which is the generation of new knowledge (Johnson and Gray, 2010; Johnson, 2015; Gerber, 2016, p. 656)."

Dynamic Systems of Change

Based on our research findings and this suggested paradigm shift we might conceptualize mechanisms of change, within the creative arts therapies, as dynamic systems of relational, imaginative, and dialectical phenomena the interaction of which transforms perception, emotion, relationships, and behaviors. In conceptualizing and visualizing how our primary thematic phenomena jointly form systems of change, we arrived at a few preliminary proposals. We propose three dynamic systems of transformation in which the primary and modifying thematic phenomena are aligned in different configurations and dynamic relationships (Figures 1–3). The three systems might be named the kinetic mobile system, the figure/ground system, and the orbital system. Although similar these models do vary with regard to the juxtaposition and inter-relationship of each phenomena, the degree and type of movement and dynamic interaction between and amongst the phenomena, and consideration of the requisite balance between essential chaos and organization related to implications for dynamic change within the creative arts therapies.

Kinetic Mobile System

In the kinetic mobile system of dynamic transformation, the themes are conceptualized as shapes that are connected by bi-directional arrows or invisible hanging wires. Each shape is carefully positioned relative to its the other familial themes and each is considered to be of relative equal weight and size. In this system, all of the parts are in constant motion in relation to one another creating infinite combinations, within and beyond their familial themes, of interactive dynamic encounters, collisions, confrontations, ruptures and ultimately resolutions. The dialectical rupture and resolution shape and the arts-based expression shape are positioned at the top and bottom of the mobile since, although not conceived as linearly related, are often considered to be pivotal as both initiators and holders of change. Relational attunement is positioned as central to moderating between the arts based expressive process and the dialectical rupture and resolution. The kinetic mobile model is multi-dimensional allowing for both this strategic positioning but also the possibilities of infinite other unpredictable juxtapositions in a cycle of change so that each relational and imaginal rupture sets off a new relational, imaginal creative resolutions. In this system the dynamics are emergent, unpredictable and cyclical –at any point in this system the chain reaction will be initiated and move through various phases. This system perhaps most accurately reflects delicate balance between chaos and organization and the potential for destruction or creativity, that is central to the resolution of the inherent dialectical relational arts-based processes contributing to a systems of change in the creative arts therapies.

Figure/Ground System

The figure/ground system of dynamic transformation from our study re-configures the primary and modifying familial themes in terms of contextual or conditional phenomena as the necessary background or holding environment for the more dynamic interactive or moving parts in the foreground. In this model, the two primary themes of arts-based expression and relationship and intersubjectivity are viewed as more contextual conditions essential for the emergence of dialectical rupture and resolution which is, in the intermediary ground, conceived as pivotal to change relative to interaction with the other phenomena. The other phenomena, although grouped in their thematic families, are also conceptualized as active and interactive in and around each other and the contextual conditions. In this model, instead of all of the parts randomly moving there are some phenomena that are conceptualized as stabilizers or holders so that the other parts can freely move around. These factors are the arts-based, relationship and intersubjectivity phenomena which are generally considered to be the essential and constant environmental factors central to change in the creative arts therapies. However, it should be noted that these contextual phenomena include multiple kinetic phenomena that might, under differing conditions, influence the degree of stability or rupture thus effecting the dynamics of the whole system. Relative to our musings about the degree and interaction between chaos and organization, this model attempts to provide a more intentional equanimity and delicate balance between the variability and stability of the

phenomena with the understanding that this balance can be disrupted at any moment and under any conditions.

Orbital System

In the orbital system all major thematic phenomena are compressed into larger inclusive categories and visualized as equal in size and proximity from each other orbiting around and mediated by a bi-directional center. In this system, as in the others, there are multiple pathways for these phenomena to interact and influence each other for the purpose of informing change but perhaps in this system the possible combinations are more limited. This system appears simpler and less chaotic with less moving parts and limited pathways of interaction. The question arises as to how the simplification, organization, and restriction of possibilities influences the dynamism of these systems of change. In this case we have to critically evaluate if order and simplification sacrifices the essential ontological and epistemic nature of the phenomena and the value of human experience necessary for change in the creative arts therapies. This is an important consideration as we move toward exploring the most authentic systems of change in creative arts therapies. This lead us into considering methods and approaches to evaluating these findings and emergent systems of change.

Of course, these are very preliminary ideas and conceptualizations ripe for further creative discourse and investigation. The additional creative development might benefit from both construction of three dimensional actual and arts-based models to further study the systems of interaction combined with elicitation and documentation of the experiences of actual humans to contribute to the more totalistic understand these transformative phenomena.

Evaluation

In proposing these dynamic systems of change, which are based both in our data and in psychotherapy and creative arts therapies theory and research, the questions arise as to how we would evaluate these dynamic systems as mechanisms of change; and, if they will contribute to our understanding of what change is and how it occurs in the creative arts therapies. Even though outside of the scope of this phase of the study, these questions warrant a momentary consideration relative to the implications for rigor, credibility, and epistemic authenticity in both research and clinical practice. Implicit in the paradigm shift from a post-positivist to a dialectical aesthetic intersubjective perspective (Chilton et al., 2015; Johnson, 2015; Gerber, 2016) is the construction of methods to evaluate the nature, qualities, and dynamics of these phenomena individually and interactively using epistemically comparable modes of assessment.

In qualitative research and arts-based research there are approaches to evaluating credibility and authenticity of similarly regarded phenomena (Barone and Eisner, 2012; Leavy, 2015). For instance, Barone and Eisner (2012) offer evaluative concepts for arts-based research such as incisiveness, concision, and evocation and illumination all of which relate to the aesthetic, emotional, intuitive, communicative, and relational qualities of arts-based expression while being mindful of rigor and authenticity. Perhaps there are parallel evaluative approaches using such concepts as

applied to the evaluation of these phenomenological experiences in both research and clinical practices. Our evaluation processes would most likely consist of critical reflection and discourse, rich textural and textual description, and arts-based responses created and shared amongst participant/researchers and perhaps with an audience. Although these are just very preliminary and nascent ideas which require more thought and development it is necessary to begin thinking about them as we construct this dynamic system of transformative elements and consider ways in which we might understand their implications for research and clinical practice.

Limitations and Implications for Future Research

The results of this study are preliminary and naturally include multiple limitations that both relate to the findings but also illuminate new directions for future research. The limitations and implications for future research cohabit the same dialectical spaces and relate to the nature of the analog study, the diversity, distribution and number of records reviewed, the importance and impact of the multiple perspectives of the coders, the nature and clarity of the coding system, and the noticeable absence of references to the transferential relationships.

The first limitation relates to the analog data which was collected from a laboratory setting simulating conditions parallel to the creative arts therapies experience. Although this is a limitation, since it is not data from actual creative arts therapies treatment, it could also conceivably be a benefit. In this analogous laboratory setting, the participant/researchers still experienced and expressed a range of perceptual, emotional, imaginal, relational, and behavioral phenomena similar to those of an actual therapy session. Additionally, since the key informants were both creative arts therapists and doctoral student participant/researchers, they were accustomed to the psychological repercussions inherent in creative arts therapies encounter. Therefore, they were able to experience, tolerate, and observe the anxieties, uncertainties, frustrations, joys, insights, and resolutions of this parallel situation. In addition, they were also able to document, analyze, articulately describe, and represent their experiences using arts-based and textual methods. The limitation resides in the transferability of these findings to actual creative arts therapies sessions representing multiple disciplines, settings, and populations. Perhaps upon further investigation and refinement of the results these systems of transformation might be studied in varying treatment contexts.

The next limitation relates to the diversity, distribution, and number of records relative to understanding the nature and progression of transformative phenomena over time as well as across and within disciplines. We initially selected 16 study records but ultimately only used eight for this preliminary study. The use of fewer records was based on our decision to conduct this preliminary pilot phase of the study in which we could test and evaluate the coding system, the inter-coder alignment, and adjust both as necessary for the next study phase. The limitation of using the fewer records is that we did not get the distribution we would have liked across the different

yearly cohorts, the course progression, and creative arts therapies disciplines. A more even distribution data across cohort and discipline would provide breadth and diversity in all patterns of evidence as well as an analysis of discipline specific patterns of data and progressive responses over time. We did retrieve some promising preliminary data relative to the increasing frequency and appearance of particular phenomena in the progressive courses over time which may be relevant to our study of transformation, however, these data require further exploration. One interesting finding from these progressive frequencies was, that in contrast to the increase in all thematic phenomena, the sensory/kinesthetic/embodied knowledge theme decreased ever so slightly. One interpretation of this change could be that the increase of relationship, intersubjectivity, consciousness and open communication in the group diminished the need for and prevalence of more unconscious modes of knowing and communication—imagination or fantasy about others is transformed into knowledge, creative and open expression. Of course, there are multiple other confounding factors that could explain this finding and require examination before we can affirm this postulation; but, it provides interesting musings for future research.

In reviewing, analyzing and reflecting upon the data for this study, we became acutely aware of an additional limitation as well as a potential source of rich data related to the diverse perspectives of students and instructors. In particular, we were interested in the hierarchical relational phenomena that are parallel and central to transformation within the therapeutic relationship in the creative arts therapies process. Of note is the fact that these data were retrieved from a course in which students have concerns about being evaluated by the instructors, therefore, openly addressing their experience of this relationship in their culminating assignments posed a significant risk. Within this context, it is not surprising that there was minimal explicit reference to the real or imagined relationship between the student participant/researchers and the faculty participant/researchers in the records we reviewed. The stunning absence of reference to this hierarchical relationship is relative to the challenges of articulating these transference phenomena with their associated real, perceived, and imagined scenarios and implications in both the classroom and psychotherapy setting. Further exploration of the specific ways in which these hierarchical relational mechanisms interact with our dynamic systems of change is warranted.

There were two major limitations relative to the coding system. First the definitions were in some cases awkwardly worded and consequently challenging to interpret which may have influenced the inter-coder alignment. Although we had a relatively high occurrence of inter-coder alignment, fine tuning these definitions might strengthen that alignment and contribute to concision and accuracy. Second, there was significant overlap between some of the coding categories. Therefore, even though some codes were not used frequently or at all, elements of those codes were implicitly represented in other codes (e.g., the parent category of reflection not coded but reflection was central to the

resolution of dialectical ruptures). To address this issue, using the results of the first phase of the study we can rework the definitions for purposes of clarity, elimination, or amplification of overlap. We also might want to conduct another review and coding using more of an inductive process to identify additional thematic trends emergent from the text for comparison to and integration with the deductive categories for a more comprehensive and authentic reflection of the data.

Finally, in continuing our investigation into these dynamic interactive systems of transformation we hope to develop methods to evaluate if and how people change relative to these powerful human relational, imaginative, and dialectical experiences within the creative arts therapies. Now that we have defined what we believe are formative transformative phenomena and dynamic interactive systems of change we can begin to involve more stakeholders in interviews, focus groups, and or analog laboratory experiences to explore the credibility and authenticity of these preliminary results.

CONCLUSION

The purpose of this study was to examine the dynamic and interactive factors that might be considered mechanisms of change in the creative arts therapies. We identified three primary thematic transformative phenomena of change with their interactive modifiers that acting in concert with each other form dynamic systems of change in the arts therapies. We suggest that dynamic systems of change are more relevant to the underlying epistemological and ontological foundations of the arts therapies than linear, causal and measureable mechanistic approaches. As we proceed into our next phase of the study we need to re-evaluate our coding categories and procedures, continue to develop inter-coder alignment protocols, critically evaluate the influence of the differing student/faculty perspectives, and expand on methods of evaluating the authenticity and credibility of these dynamic transformative systems.

AUTHOR CONTRIBUTIONS

NG conceived, proposed, researched, and wrote the article. KB and NP did the coding for the study. KB and CB worked on the literature review.

ACKNOWLEDGMENTS

We would like to acknowledge and honor all of the creative courageous students who participated in generating data for this research study. They are all dedicated scholars and creative arts therapists committed to using innovative research methods to study and advance knowledge in their respective creative arts therapies field. These emerging scholars are the future of creative arts therapies so we applaud them and thank them.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Different Strokes for Different Folks: The BodyMind Approach as a Learning Tool for Patients With Medically Unexplained Symptoms to Self-Manage

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OPEN ACCESS

Edited by:

Tal Shafir,
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The University of Hong Kong,
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Volker Max Perltz,
Simplana GmbH, Germany

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 24 April 2018

Accepted: 26 October 2018

Published: 13 November 2018

Citation:

Payne H and Brooks S (2018)
Different Strokes for Different Folks:
The BodyMind Approach as
a Learning Tool for Patients With
Medically Unexplained Symptoms
to Self-Manage.
Front. Psychol. 9:2222.
doi: 10.3389/fpsyg.2018.02222

Medically unexplained symptoms (MUS) are common in both primary and secondary health care. It is gradually being acknowledged that there needs to be a variety of interventions for patients with MUS to meet the needs of different groups of patients with such chronic long-term symptoms. The proposed intervention described herewith is called The BodyMind Approach (TBMA) and promotes learning for self-management through establishing a dynamic and continuous process of emotional self-regulation. The problem is the mismatch between the patient's mind-set and profile and current interventions. This theoretical article, based on practice-based evidence, takes forward the idea that different approaches (other than cognitive behavioral therapy) are required for people with MUS. The mind-set and characteristics of patients with MUS are reflected upon to shape the rationale and design of this novel approach. Improving services for this population in primary care is crucial to prevent the iterative spiraling downward of frequent general practitioner (GP) visits, hospital appointments, and accident and emergency attendance (A&E), all of which are common for these patients. The approach derives from embodied psychotherapy (authentic movement in dance movement psychotherapy) and adult models of learning for self-management. It has been developed from research and practice-based evidence. In this article the problem of MUS in primary care is introduced and the importance of the reluctance of patients to accept a psychological/mental health referral in the first instance is drawn out. A description of the theoretical underpinnings and philosophy of the proposed alternative to current interventions is then presented related to the design, delivery, facilitation, and educational content of the program. The unique intervention is also described to give the reader a flavor.

Keywords: medically unexplained symptoms, primary care, embodied approaches, adult learning, self-management, metaphor, symbol, group

INTRODUCTION

Medically unexplained symptoms (MUS) are a thorny issue in primary care. Despite the differing nomenclature, the recent DSM-5 terms it as somatic symptom disorder (SSD) but is yet to achieve general usage. Many general practitioners (GPs) appear to reliably recognize MUS without the need for standardized assessments (Rasmussen et al., 2008). This population present with many, various

and nebulous physical and psychological ailments (Rosendal et al., 2005) and constitute more than 25% of all new hospital and GP appointments (Fink et al., 1999; Reid et al., 2001). In England MUS has been estimated to cost £3 billion in 2008–2009 rising to £18 billion if loss of productivity, benefits and quality of life are accounted for Bermingham et al. (2010).

The increasing aging population, longer life span and higher number of people living with long term conditions is becoming a burden on an already over-stretched health service dealing with acute care as a priority. There is a move away from the passive patient to a more active role and involvement in line with the reality of a chronic condition where day-to-day responsibility for disease management shifts from health care professionals to the individual patient. The United Kingdom (UK) Expert Patient initiative and the National Health Service (NHS) Direct adopts this view. So self-management becomes imperative.

Supporting patients with chronic conditions such as MUS to self-manage involves patients learning self-assurance, knowledge, and skills (Kroenke and Swindle, 2000; Wagner et al., 2001), “Medical care then must assure that persons with chronic illness have the confidence and skills to manage their condition” (ibid, 2).

Mental health interventions such as cognitive behaviour therapy (CBT) expect the patient with MUS to adapt to the intervention as opposed to the intervention being designed around the patient profile and their mind-set. It is vital to understand the profile of such complex patients to engage them in an intervention, some current interventions do not address this issue sufficiently. Consequently, patients with MUS may only engage in CBT for a short time, or not at all. The fact they do not attend is not reported, however, and this is true for both research studies and service delivery: “Most patients were studied after accepting referral for mental health treatment and these are only a fraction of all MUS patients” (Kroenke and Swindle, 2000, p. 211) The intervention described herewith caters for the larger number of MUS patients who do not attend or engage with CBT and has been designed with the patient profile in mind, in particular their mind-set. Patients have a belief in a physical cause and see a referral to CBT as a mental health concern with its associated stigma and a rejection of the legitimacy of their physical symptoms (Edwards et al., 2010).

Edwards et al. (2010, p. 209) state MUS are a “clinical and social predicament, which includes a broad spectrum of presentations, difficulty accounting for symptoms based on known pathology.” They go on to say this definition avoids the challenge of having to choose either an organic or a psychological explanation enabling a biopsychosocial treatment to address both hypotheses at the same time.

There are difficulties for the GP in diagnosing the symptom/s based on known pathology resulting in many appointments to specialists in hospitals. Furthermore, GPs are sometimes frustrated by the lack of a diagnostic category to provide them with the guidance required to deliver the most appropriate treatment. They can feel their hearts sinking when they see the patient again for the same symptom/s after so many visits and referrals. As a result, patients become known as “heart

sink” patients (O’Dowd, 1988). This is an interesting label as it is the GP’s heart that sinks, but the patient that acquires the label. It may be that the GP inadvertently communicates their feelings of inadequacy and frustration to the patient which in turn exacerbates the patient’s symptoms and lack of agency. Clearly GPs also need support in working with this patient group.

Mainstream health services generally lack an integrated treatment pathway that can support comorbid psychological and physical needs of people who experience MUS (Joint Commissioning Panel for Mental Health, 2016). GPs may be reluctant to communicate to the patient that nothing can be found or that there is no treatment, apart from, if pain is experienced, pain relief and/or pain clinics. After all GPs are trained to diagnose and offer treatment for bodily symptoms, as the first port of call. Possibly due to their training in mainly physical health, the short consultation duration and/or the frequency of appointments, GPs might feel unable to support patients emotionally. Consequently, they may refer the patient to the psychological services (CBT), as the only other option.

Salmon et al. (1999) observe that traditional mental health services have not engaged with people with MUS sufficiently since patients do not see their condition related to anxiety and/or depression, their symptoms being rejected with such a focus. Additionally, a recent practice guideline published by the UK Department of Health (Department of Health, 2014), as a part of the Improving Access to Psychological Therapies initiative, concluded that community mental health teams and primary care mental health services have been unsuccessful in engaging with MUS patients. This they claim is due to patients perceiving their condition as unrelated to mental health problems, so trying to engage them in traditional mental health approaches is usually ineffective.

Despite the mismatch psychological services in the United Kingdom have begun to encompass all patients with MUS although the patient’s priority, the symptom distress, appears to be barely addressed. Instead the focus is on reducing the co-occurring anxiety and depression normally through CBT, the main emphasis of the psychological/mental health service. Despite the service being requested to offer treatment for generic MUS there is only evidence for the effectiveness of graded exercise and CBT for chronic fatigue accompanied with anxiety/depression (Castell et al., 2011).

MIND-SET OF PATIENTS WITH MUS

In the UK NHS and in western society, the predominant mind-set is that the mind is separate from body (for example, a physical health and mental health service with different structures and budgets). Reflecting this dichotomy patients also see the mind as separate from the body.

Despite the lack of a medical explanation for their symptom (i.e., it does not fit any known pathology) the symptom is nevertheless being physically experienced by the patient. Therefore, logically a physical treatment is expected by the patient

which prompts patient and GP to conduct repeated searches for an organic etiology. That having failed the GP has only one choice - to refer to the CBT for any accompanying depression and/or anxiety which does not address the symptom. It is likely that the patient rationalizes their anxiety/depression as being due to the symptom distress rather than the cause of it. Because of the stigma it can feel frightening to the patient to be referred for psychological treatment. It may feel to them as though the medics are saying it is “all in your head” and this is simply not their experience. As we know from research in embodied social cognition (Klin et al., 2003; Gallagher, 2005; Gallese, 2007; Niedenthal, 2007) nothing is solely in the head, the head (brain) is part of the body. In contrast to dualistic thinking the emphasis is the way cognition is shaped by the body and its sensorimotor interaction with the surrounding social and material world. The fields of cognitive psychology (Lakoff and Johnson, 2003; Varela et al., 2017), sociology (Ignatow, 2007), anthropology (Csordas, 1993), and neuroscience (Damasio, 2000; Porges, 2011) recognize embodied experience as a necessity for learning, emotional healing and interpersonal connection. Lakoff and Johnson (2003) work illustrates the mind is inherently embodied, thought is mostly unconscious, abstract concepts are largely metaphorical and cognition is grounded in bodily experience (Lakoff and Núñez, 2000). This new paradigm acknowledges that sensory inputs and motor outputs are integral to cognitive processes.

Therefore, it seems sensible to adopt an embodied approach to learning how to self-manage symptoms for people with MUS, rather than offering any treatment or cure. And starting from where the patient is, i.e., with the experience of the symptom distress in their bodymind and with a patient-acceptable intervention focussing on learning. This is a different approach for engaging people with the mind-set described above as a pre-therapy, which also works for patients who do make connections between body and mind.

PATIENT PROFILE

Steinbrecher et al. (2011) found that MUS made up two-thirds of all reported symptoms with women, younger persons, and non-native speakers, having the highest rates in primary care. Research offers several factors contributing to the development of MUS, and/or associated with MUS, for example:

- Enduring fears and concerns about bodily functions, e.g., hypervigilance toward physical symptoms and perceptions about physical vulnerability;
- Psychosocial factors, e.g., attachment difficulties (Meredith et al., 2008), sexual abuse (Sharpe and Faye, 2006), modeling of functional symptoms (Taylor and Asmundson, 2004), lowered levels of social support (Nakao et al., 2005);
- Psychiatric conditions including depression (Lieb et al., 2007), personality disorders such as borderline and histrionic types (Demopulos et al., 1996). With reference to depression, 70% suffer according to Malhi et al. (2013). This study concludes that collectively somatic symptoms are the most important predictors for determining the severity of

depression in primary care and educational initiatives need to focus on depressive subtypes derived from emotional, somatic, and associated symptoms;

- More benefits, hospitalization, GP visits, and unnecessary procedures than people with physical health issues (Fink, 1992; Burton et al., 2012; David and Nicholson, 2012);
- Often have fewer years in formal education (Creed and Barsky, 2004);
- May have had parental neglect or illness in childhood (for women) (Craig et al., 2002);
- Health anxiety/anxiety/panic attacks (Lowe et al., 2008);
- Generally, have more sick leave (Kisely et al., 1997; Aamland et al., 2012);
- Are more likely to be unemployed (Hiller et al., 2003);
- Comparable to medically explained conditions in their impairment of physical function but have a considerably poorer quality of life than medically explained conditions (Smith et al., 1986);
- An association has been identified between somatization and alexithymia in a large, national representative sample in Holland (Mattila et al., 2008);
- Sometimes there is past or current family dysfunction and/or a history of trauma or abuse, (Sharp and Harvey, 2001; Fiddler et al., 2004), particularly for women for some symptoms, for example gastrointestinal (Van Tilburg et al., 2010);
- Some insecure attachment styles have been correlated with MUS, for example avoidant/dismissive (Adshead and Guthrie, 2015).

Patients with MUS are distressed because they have long term and over-whelming bodily symptoms (frequently more than one) without a medical explanation. Additionally, they may feel desperate because no one appears to be able to support them to manage their experience. Not surprisingly they are both anxious and depressed and these feelings exacerbate the experience of the symptoms, thus they can go into a downward spiral and feel out of control – an unhelpful feedback iteration. Patients may feel isolated often because they believe they are the only one for whom their GP cannot find an explanation and abandoned because family and friends cannot bear to listen anymore. Consequently, they may feel out of control and that no one can help them.

Approaches which target the internal world of feelings, perceptions and link these to behavior may be beneficial to change processes in MUS. One study concluded that directly observing the physical effects of emotional experiencing in MUS provides sensory evidence which enables patients to make mind-body connections (Town et al., 2017).

There can be a lack of support for patients to self-manage due to, for example GPs being unable to support a patient where the cause of their symptoms is unknown and/or GP's lack the time to devote to such issues.

The novel intervention described below, The BodyMind Approach (TBMA), is not a panacea and it does not replace GP's judgment about the necessity for further investigations hence it is not an “either or” but an “and/both” intervention if required

in the meantime. As one GP commented “it can do no harm” and when successful reduces costs for the UK NHS Clinical Commissioning Group.

THE BODYMIND APPROACH

Theoretical Underpinnings

The BodyMind Approach is a newly developed intervention to overcome the obstacles of the patient mind-set and lack of treatment option. It is a specialist, community-based program for primary care patients with MUS based on research (Payne and Stott, 2010) and practice-based evidence (Payne, 2015, 2017a; Payne and Brooks, 2016, 2017) conducted at the University of Hertfordshire, United Kingdom. During the research a cost effectiveness study was conducted by a health economist to demonstrate the expected savings to primary care of implementing TBMA (Payne and Fordham, 2008). The subsequent delivery in the NHS was through a spin-out body from the University transferring knowledge for impact (Payne, 2017c).

Many MUS patients who have different mind-sets require different interventions to those currently on offer. TBMA, as a different intervention, engages patients by working directly with their symptoms rather than from the mental faculty. TBMA addresses this resistance to engagement because it is framed as a learning approach not a treatment or psychological therapy. However, once engaged in a process this can promote feelings of control and self-management.

The BodyMind Approach is a research-informed, practice-based evidenced model designed specifically for assisting people with MUS to gain the learning required to monitor and effect their perceptions, emotions, thinking, and behavior to self-manage their symptom/s to maintain a satisfactory quality of life despite the symptoms. Consequently, it differs from other approaches which are standardized for mental health treatment and healing in general, such as CBT.

The BodyMind Approach has been developed from enactive, embodied psychotherapy (dance movement psychotherapy) adapted specifically as a learning tool for the MUS population. TBMA engages educationally with participants. Experiential learning is key to the process of feeling in control which can be empowering and encourages resilience to sustain self-management. This process then becomes a virtuous circle and changes habits building new habits. Significant features of the symptom, the effect on feelings and functioning and the relationship of related behavior and thinking are explored through creative arts expression leading to learning and then realistic goal setting by the participant. The learning experience begins by engendering an attitude that change is needed, raising this awareness is central to the process whereby participants also need to be helped to engage as an equal in the desire for change. They learn to take responsibility for the management of their symptom/s. Participants acquire new skills, understanding, and knowledge on how to change the way they behave toward, feel, perceive, and experience their symptoms. This learning is consolidated to reinforce the change through an individualized,

participant-centered, tailor-made action plan followed by the participant for 6 months post-group.

Underpinned by phenomenology and recent neuroscientific research, the embodiment paradigm focuses on the implicit functioning of the body in perception and performance (Merleau-Ponty, 1962; Salmon et al., 1999; Fuchs and Schlimme, 2009; Koch and Fuchs, 2011; Fuchs, 2012; Fuchs and Koch, 2014). The “lived body” is understood as a background to our experience of the world. Organizing our pre-reflective sense of self and agency allows us to attune to the environment and to others through a shared intercorporeality (Fuchs and Schlimme, 2009; Payne, 2017b), an aspect of intersubjectivity. In TBMA body, mind, action, and perception is understood as a unity, and acknowledges the need to target body experiences to change emotions and behavior. It does not require the use of language but may stimulate participants to explore their symptom/s and feelings in a variety of ways which may or may not include language. Following Bateson’s concept of the “embodied mind” (Bateson, 1972, p. 317) and Varela et al. (2017) proposed an alternative to the dominant cognitivist tradition – an embodied and enactive approach. This suggests that cognitive processes cannot be confined in the brain but are formed and influenced by the whole-body system interacting with the environment. Brains and minds are embodied, and our bodies are embedded in the world. This new conceptualisation has spread into psychology and cognitive science which has implications for education, learning, social cognition, approaches to clinical practice, therapy, and change processes. According to the enactive stance (the mind cannot be understood a separated from the body) actions and movements perform an essential part in meaning-making. Through our movement we enact a world of meaning and self-generate our identity in the process (Galbusera and Fuchs, 2013).

The BodyMind Approach explores the experience of the symptom by working from the body to the mind (Lakoff and Johnson, 2003; Varela et al., 2017), in this way it honors both conscious and unconscious processes. Sensation, perception, emotion, and cognition are integrated. This is achieved in a facilitated group by using creative, embodied practices. Relationships within the group are emphasized learning with, and from, each other. Practices which “bear the symptom in mind” such as body awareness through mindful expressive movement, dialoguing with the symptom through drawing and speaking, mindfulness, progressive relaxation, and breathing are suggested. Through such practices people gain improved emotional self-regulation via an understanding of their symptom and making meaning of its nature, characteristics, purpose and the role it plays in their lives. Consequently, they may be more able to make conscious decisions about how they change their lives to manage their symptoms.

Cognition is a dynamic sensorimotor interaction expressed through bodily activities. Thelen and Smith (1994) apply dynamic systems theory to developmental psychology. They suggest behavior results from the interaction between the body action and changing environmental contexts. They see development as an emergent and self-organizing product of many decentralized and local interactions taking place in real time. From this view

the sensory experience of the symptom is a product of the interaction between the internal and external environment and is thus self-organizing and emergent (Siegal, 2017). If this is so, then changing the internal and/or the external environment can lead to change in the experience of the bodily symptom and vice versa. There is some evidence showing TBMA is helpful because it creates a new environment from which participants can change their perceptions and then choose to change their behavior. TBMA stresses change in both the internal and external environment. The internal is addressed through creative body-based practices whereby the symptom could be the metaphor for the self-narrative (Gallagher and Hutto, forthcoming). The external setting is engaged with by the participant through others acting as witnesses and from the facilitator's holding presence. This approach is based on the integration of dance movement psychotherapy (Chaiklin, 1975; Siegel, 1984; Stanton-Jones, 1992; Meekums, 2002; Payne, 2003, 2006a, 2017b), authentic movement (Chodorow, 1991; Whitehouse, 1999; Adler, 2002; Payne, 2006b), bodymindfulness, and the arts. The theory is that the body pre-occupation is the foreground and the mind the background, which enables the symptom to act as a gateway to the mind, i.e., "playing with the symptom so it does not play on you" as one participant said.

The BodyMind Approach is based on the functional unity of mind and body and recognition that our psychological experiences are formed, experienced, expressed, and reshaped through the body. It is a bio-psychosocial approach because it is holistic and integrates body (bio) and mind (psyche) in a group (social) setting. Furthermore, it encompasses the participant's personal social situation when they are exploring their symptoms in TBMA.

It employs a behavior change model whereby a different perception of the body (and the symptoms) is gained. It becomes possible for the participant to reframe symptoms as an ally (a protective factor to buffer any effects of stress) rather than the enemy. Hence, a conscious understanding of the symptom can inform the person when they are out of balance, so helping them to take steps to re-balance (mindfully listening to and valuing the body and its signals). Thus, there is no need to attempt to banish the symptom but to welcome it as an early warning system for self-care action, i.e., to be able to cope. This is an empowering experience enabling the participant to take back control. The focus is on living well with symptoms rather than a cure.

As TBMA includes the body it is termed a "bottom up" approach rather than the conventional top-down cognition orientation which privileges language for a set of beliefs and emotions. Neuroscience shows us that cognitions and emotions are embodied (Shapiro, 2011). According to Shapiro (2011) concepts partially originate in a subjective emotional experience anchored in the body. They are then simulated by the activation of related aspects of those experiences, for example, current trauma resonating with a previous trauma.

The unconscious and/or conscious body pre-occupation found in people with MUS, is used to prompt curiosity about symptoms. The sensory perception and physical impulses expressed as movement, in whole or parts of the body, helps gain

access to the roots of the previous experience in the lived body. That is, to the automatic impulses and the pre-lingual processes.

Philosophy

The BodyMind Approach promotes wellbeing and facilitates the recovery model in mental health (Ramon et al., 2007). This involves developing hope, a secure base and sense of self, supportive relationships, empowerment, social inclusion, coping skills, and meaning-making. It espouses the idea that positive change is possible. This promotes hope which is a powerful message for people feeling so dejected from their experience. Integral to the program is the acceptance of the participant's symptoms and the belief that they are real, not all in the head, honoring the participant's lived body experience. Symptoms can be understood and worked with to learn to live well with them.

The program emphasis the non-medical aspect and normalizes rather than pathologises MUS which can help to alleviate anxiety. CBT and psychotherapy fail to normalize. For example, in TBMA sessions are termed "workshops" (not treatment or mental health) are full of other "participants," (not patients) experiencing MUS and held in a "community venue" (rather than GP practice or mental health/wellbeing center) leading to a de-medicalization of the body.

The focus is on the explanatory model emphasizing the inter-relationship between body and mind as a part of normal human experience. It is the lived body which is the focus. The working model employs acceptance of the symptom by the participant which may help control symptom distress. Many participants report that this results in reduced symptom distress. The aim of TBMA is to promote self-management so participants can live well with their symptoms day-to-day so, as one participant explained, "the bad days are not so bad any more." MUS participants come with a lack of confidence, downtrodden, and feeling inept. They feel disempowered as a result of the time spent in the health system searching for an explanation which cannot be found.

Additionally, belonging to a group with other people with MUS also helps to normalize their experience and reduces the tendency to catastrophize. It is important for participants to be nurtured toward taking responsibility for their body and it's functioning rather than expecting others to provide a fix. Up to this point the participant's experience of their body has often been that it has been treated as an object to be fixed by the medics. The participant has internalized this message and expects the medics to solve their symptom distress. TBMA encourages an internal locus of control, whereby participants begin to feel empowered to manage their symptoms without medical intervention. TBMA helps participants to value their internal subjective bodily experience and to use this to promote emotional self-regulation, self-reliance, and resilience, rather than seeing their body as an object. They are a "bodymind," participants say they experience improved connections between their body and mind, rather than "having a body." This is a change in both perception and action. Bodily symptoms such as those in MUS and the co-occurring depression and/or anxiety can be understood as resulting from an inability to emotionally

self-regulate. The default position when stress occurs becomes located in the dysfunctional bodily symptom. Therefore, this becomes an iterative aggravation of the symptom itself leading to a downward spiral. Hence, the measurement tools employed in TBMA need to assess levels of symptom distress, wellbeing (MYMOP2); functioning (GAF); depression (Phq9) and anxiety (GAD7). They either are, or act as, proxy measures of emotional self-regulation.

The BodyMind Approach employs a variety of ways of knowing. One way of knowing is through cognition, thinking about things as in CBT. Another way is hearing myself speak about things. Yet another way of knowing is physically feeling myself act/move in response to conscious or unconscious thoughts, feelings or sensation. A different way of knowing is seeing another person move/act and noticing any sensations, images, stories/thoughts/interpretation, feelings which are elicited in me by witnessing them move with their symptom in mind. TBMA therefore becomes a tool for exploring mind and body identity in a relational and an integrated way. These practices help people to listen to the meaning they gives to their bodymind experiences, connecting to their personhood in a less stigmatizing way driven by dualistic assumptions.

A recent personal construct psychology study with MUS participants ($N = 20$) found symptom constructs were well integrated within mind-body construct systems of participants, possibly supporting the notion of “enmeshment” of self with symptoms (Pincus and Morley, 2001). The way in which the self in general is perceived relative to times when symptoms are worst appeared to be particularly important for participants. Perceiving a dissimilarity between self in general and self when symptoms are at their worst reduced anxiety. This discrepancy did not correlate with symptom-severity scores suggesting it is the perceived difference, rather than the absolute difference made by symptoms, which effects anxiety again supporting an enmeshment-based formulation of MUS. If a number of undesirable characteristics are enmeshed with symptoms, construing these negative differences as residing more in the self when symptoms are worst, then the self in general may serve to protect from construing the self as having globally changed in undesirable ways (Hellstroem, 2001).

Terminology

Terminology is extremely important and needs to be informed by the audience, for example, participant and GP perspectives, mind-sets, and language. Originally, in the pilot study, participants were invited to comment on the group's title, i.e., initially termed dance movement psychotherapy, it morphed into “learning group” then a “symptoms group,” and now the name “living well” group is under consideration to ensure acceptability of the title for participants. With participants the intervention is referred to as a “course.” The terms have changed as the learning developed.

In the original study GPs were invited to focus groups to elicit their views on terminology and the content (Payne et al., 2009, Unpublished). Terms found to be acceptable to GPs were “The Symptoms Clinic” or “The MUS Clinic.”

Structure of the Program

Medically unexplained symptoms may develop in childhood as a strategic response to adversity and attachment difficulties with caregivers (Crittenden, 2006; Waldinger et al., 2006; Kozłowska, 2007; Roelofs and Spinhoven, 2007; Anderson et al., 2013). Aspects of self and identity which could be threatened in MUS may be those which are embodied and not easily verbalized. Insecure attachment style is often displayed by such a patient population (Taylor et al., 2012; Adshead and Guthrie, 2015).

A significant association was found between insecure attachment style and frequent attendance, even after adjustment for sociodemographic characteristics, presence of chronic physical illness and baseline physical function. The association was particularly strong in those patients who believed that there was a physical cause for their initial MUS Taylor et al. (2012, p. 855).

The structure of the program is designed to take account of this insecure attachment style in the following ways.

- There are 12 × 2-h group workshops emphasizing the group process and giving time for change.
- Front loaded for the first four sessions which are two per week to accelerate the feeling of safety with the facilitator and other group members. This intensive phase reduces drop-out rates and ensures group cohesion occurs.
- Individual meetings with a clinical psychologist and group facilitator before the group to promote safety and give familiarity with the assessment process and the group facilitator.
- Thereafter there are eight further group sessions to develop and extend the group experience and promote further change this is the equivalent in the performing phase as in forming, storming, norming, and performing (Tuckman, 1965). After the 12 group workshops there is another individual meeting with the group facilitator and the clinical psychologist for saying goodbye and developing the action plan and to undertake a further assessment.
- The second phase is 6 months of non-face to face contact during which time participants enact their individual action plan and are contacted to let them know they are not forgotten and keep them on track with their action plan through text, email, and letters.
- The total program duration lasts for 9 months from referral, due to the time required for participants with such chronic symptoms to learn to self-manage. The constant connectivity with the participant helps relieve anxiety commonly found in insecure attachment style.

The complexity and long-standing nature of the symptoms means that it is very difficult to address symptoms without sufficient time. Total face to face contact time in TBMA is 27 h with the group facilitator, 1.5 h with the clinical psychologist and with non-face to face facilitator contact every 6 weeks. This far outweighs the time allowed for currently available CBT which is an average of only six sessions.

The structure of working in a group also helps to address the feelings of isolation and abandonment that many MUS patients

have experienced, and the facilitator may perform the role of an attachment figure during the early stages until the participants self-confidence has increased.

Learning to Self-Manage

Self-management involves the principles of adult learning, whether combined or not with biological, psychological, and social interventions, treatments or techniques. The overall aim is to maximize the emotional self-regulatory function of the individual patient. Empowering people to be confident in their ability and capacity to care for themselves reduces the impact of the condition on day-to-day functioning and prevents the impact increasing.

A Cochrane Collaboration Review examined the more rigorously tested interventions to improve primary care for diabetes, another long term chronic condition, and included the conclusion that patient-oriented interventions of an educational or supportive nature were amongst successful approaches (Renders et al., 2001). This confirms earlier literature that chronic disease interventions positively affecting patient well-being necessarily include systematic efforts to increase patients' knowledge, skills, and confidence to manage their condition (Von Korff et al., 1997). Traditional patient education emphasized knowledge acquisition and didactic classroom teaching. While such interventions increased knowledge, they were unsuccessful in changing behavior or improving disease control and other outcomes (Clement et al., 2000). Research has shifted the focus toward not only improving patient's knowledge of their condition, but also confidence and skills in managing it (Norris et al., 2001). This research reinforces the patient's crucial role in managing the condition, helping them to develop reasonable goals for improving their self-management, to identify any barriers to this achievement and designing a plan to carry out actions to reach those goals. Supportive reminder systems to reinforce the plan are also recommended (Woolf et al., 1999). There is evidence that individual and group interventions emphasizing peer contribution, patient empowerment and the acquisition of self-management skills are effective in diabetes, asthma, and other chronic conditions (Gibson et al., 2001). Furthermore, patients need to learn to manage the complex psychosocial issues arising from their condition. Thus, self-management may be one of the main ways of closing the gap between patient needs and health service capacity (Barlow et al., 2002). Emotional self-regulation (Barlow, 2001) is crucial to resilience, life will continue to generate stresses for patients who may experience their symptoms even more as a result if they cannot manage stress effectively. Learning about the possible stress responses as they occur in the bodymind can be helpful to understand their bodily reactions.

Educational interventions have been commonly used as strategies to improve health outcomes of patients with low health literacy (Schaefer, 2008). Studies have found health education may improve patients' knowledge and treatment of a disease leading to better treatment adherence and patients taking a more positive role in the management of their health (Shaw and Bosworth, 2012). Additionally, changes to lifestyle and increased adherence to antihypertensive medications to improve

effective blood pressure control in hypertensive patients have been found (Meyer et al., 1985). Recent research concluded interactive education workshops may be the most effective strategy in community-based health promotion education programs for hypertensive patients in improving patients' knowledge on hypertension and alleviating clinical risk factors for preventing hypertension-related complications (Lu et al., 2015). Consequently, it can be argued that an interactive, workshop learning model may be helpful in supporting patients with MUS to self-manage their condition.

The BodyMind Approach offers just such a model, informed by pedagogical roots in adult learning and teaching, transformational and life-long learning, self-directed learning and knowledge sharing at its heart. In TBMA the learner is actively involved in identifying their goals and problem-solving to reach them via an individualized action plan for self-management. Self-responsibility is encouraged, and self-directedness is inherent in the patient setting relevant goals and learning how to manage symptoms as a result of their learning from the various practices offered during the group workshops. Learners are actively facilitated to learn to manage/control their symptoms. TBMA includes the learner's lived experience of their bodily symptoms, from which needs arise leading to goals being identified. The facilitated group environment provides a safe place for two vital elements for learning and new skill acquisition to take place. Firstly, there is ability to experiment with new ways of being in the body. Secondly, there is the important element of practicing and gaining confidence to employ the bodily changes. Together these may lead to the dynamic of thinking differently about the body and the drive to practice even more, ultimately leading to a virtuous cycle of improvement.

Evaluation takes place at the end of the group workshops and as the learner reflects in the group, with the facilitator and in her reflective learning journal the capacity for self-direction is stimulated supporting transformational learning (Mezirow, 1997). The pathway for each learner is individual. Life experiences, beliefs and lifestyle in relation to perceptions of symptoms are evaluated together from which transformational learning can occur. There is a focus on problem-solving in the context of the real, body-felt world of the patient. The objectives of the group depend on the themes and issues arising in the group at any one time as perceived by the facilitator, although a manual has been designed to support the facilitator in activities.

Participants learn to take responsibility and develop confidence in their capacity to take appropriate action to resolve stressful situations in a changing environment. They learn to be openly communicative, creative, and flexible as well as to incorporate more positive values. Participants are given home practice, so they learn the strategies can work for them, and are reproducible in different situations. This supports them once the group has ended and the 6 months phase two helps them to stay on track with their action plan.

Content of Program

The BodyMind Approach uses the creative arts, for example, expressive movement, drawing, clay-making, expressive

writing, are used to explore the symptom, to make meaning from it which in turn helps with the sense of control. This facilitates emotional regulation, bringing the bodymind back into balance and wellbeing leading to self-management. The creative arts may be used as the catalyst for developing relationships in the group and as symbolic and metaphoric representations of their inner worlds. Risk-taking and experimentation affordable through the arts in a facilitated, supportive group can enhance emotional self-regulation. Attunement with another develops presence (being in the here-and-now) as in authentic movement dyads whereby initially words are secondary to the non-verbal communication. Feelings, images, sensations, and thoughts communicated through movement are then processed verbally together with a witness can further support emotional self-regulation. Self-attunement as in bodymindfulness practices, such as walking mindfully can also support emotional self-regulation. Furthermore, the kinesthetic-sensory qualities of art, clay, and expressive movement/dance, including tactile, synchrony, entrainment, and rhythm, can mediate lower brain functions such as heart rate and respiration. The arts have unique sensory qualities which can meet with the sensory experiences in the body (e.g., symptoms). It is not solely the use of creative arts that is important but the fact they are employed in a group setting whereby participants make sense of symptoms with each other.

A participant saw an image of a lion emerging from sensing her symptom which she interpreted as anger. This helped her to consider how to moderate her anger which tended to trigger her symptom. The participant dialogs with their symptoms to explore and better understand, re-frame or gain an explanation of meaning, origins, triggers, and maintenance of them day-to-day. Progressive relaxation, raising awareness of body signals linked to the symptom, self-care, breathing, body awareness practices, and inter-relational exercises are delivered by working in twos, threes and as a group. Body awareness is increased by movement and other sensory practices to detect signals coming from the body to alert the individual when they are feeling a stress-response. On becoming aware of these responses, the individual can take appropriate action (for example, slowing down breathing) to mediate them. One participant learned how to breathe correctly, i.e., from and into the abdomen, and discovered this method when practiced regularly relieved her symptoms almost entirely, releasing energy so she could “dance around the kitchen.”

The BodyMind Approach is a profoundly innovative approach aiming to connect bodily states with emotional and cognitive elements through enactment and expressive movement. TBMA does not explicitly refer to any underlying psychological conflict or to identify and attempt to modify dysfunctional thinking patterns.

Referral Criteria

Referrals are from GP and self-referral and criteria are based on those in the previous research study (Payne and Stott, 2010).

Inclusion and exclusion criteria are vital to the referral system which is via GPs and self-referral. Inclusion criteria:

- 18+ years;
- MUS diagnosis for at least 6 months;
- Frequent attender (more than four visits per annum);
- Presentation for more than 6 months;
- Co-morbid depression/anxiety;
- Fluent English speaker.

Exclusion criteria:

- Current relevant physical health problems;
- Fewer than 4 GP consultations in previous year;
- Trauma in previous 6 months;
- Current relevant physical disability;
- Complex bereavement previous 6 months;
- Learning disability;
- Primary diagnosis of psychiatric condition in previous 6 months;
- Current substance misuse;
- A diagnosed eating disorder.

Assessment Tools and Procedure

We define self-management as the ability to live well with symptoms, especially at times of stress, achieved through emotional self-regulation. Tools for measuring emotional self-regulation do not appear to focus on the link between the brain-body and emotion. Emotions are based in, and expressed through, the body and movement. Accessing the body is a way in to accessing emotions (Michalak et al., 2009). Emotional regulation is fundamental to physical and psychological health, that is wellbeing (Aldao and Nolen-Hoeksema, 2012). In TBMA, practices which support emotional regulation include controlled breathing (Philippot et al., 2002); bodymindfulness and progressive relaxation (reduces anxiety) (Manzoni et al., 2008) together with movement. Consequently, emotional regulation is not merely a mental process but the result of an interplay between the body and mind. “Sensory-motor processes are not just side effects, but rather are vital in instantiating and regulating a desired emotional state, and thus to the effectiveness and efficiency of emotion regulation” (Veenstra et al., 2017, p. 1374).

To evaluate the outcomes of the intervention with reference to self-management, we selected proxy measures of emotional self-regulation using standardized tools. The measurement tools employed to assess changes in emotional self-regulation were PhQ9 for depression; GAD-7 for generalized anxiety; GAF for general functioning; MYMOP2 for symptom distress and wellbeing; and data from these are collected and analyzed at three time points, pre-course, post-course and at 6 months follow up, according to reliable change criteria. Furthermore, a questionnaire collects data on demographics belief systems, employment status, social and leisure pursuits, and GP/hospital visits. The combination of the above measurement tools is unique. MYMOP focusses on wellbeing, the symptom distress and activity. Participants select an activity which their

symptom prevents them from performing. The level to which they are able to perform this activity acts as a baseline measure for future data comparison. MYMOP, however, is a measure on which it is relatively easy to show improvement. Nonetheless since participants are preoccupied with their symptom distress it is the most relevant aspect to measure. The co-occurring depression and anxiety are measured as these are features in MUS but not necessarily the over-riding concern of the participant, and often result from the symptom distress. Assessment is conducted in the week prior to the course commencing via a telephone interview with a clinical psychologist. The post-course assessment is conducted in the week the course ends and the follow up is 6 months later.

Facilitation

All facilitators have a Masters in an embodied psychotherapy, e.g., dance movement psychotherapy, creative arts therapies, body psychotherapy and with at least 5 years of group work with adults. They undergo a training over 4 days in TBMA in group work for participants with MUS and are assessed and certified as facilitators thereafter. The facilitator is the catalyst for change constantly responding to the needs of the group in the moment using reflection-in-action as a result of their professional judgment, experience, and training. Participants feel seen and understood and supported in a kind and caring manner.

According to participant feedback the facilitator is a crucial part of the treatment process. Many facilitators also have (or have had) an MUS which give them greater understanding and empathy of the participant experience. A manual has been designed as a tool to support the delivery of TBMA with examples of practices, sessions, and theoretical background. It is not a recipe book, nor a minute by minute prescription for sessions, rather it allows for professional judgment and the needs of each group to be taken into account when delivering sessions. Thus, the group sessions are not standardized and could be criticized to some extent regarding program integrity yet would score highly on responsiveness. Nevertheless, there is a range of themes which are expected to be covered during the course of treatment which have been previously identified from facilitator and participant feedback. Groups have been delivered by several different trained facilitators all of which have shown similar positive outcomes. This indicates that it is the intervention rather than the facilitator which is having the effect. This does not mean the facilitator is unimportant, indeed participants report that the facilitator is crucial. However, the results do not rely on a single person or a rigid formula.

The Power of the Group

The program follows a group work model to support a sense of belongingness to reduce isolation often felt by this population. It enables people to meet others with MUS, often for the first time. They share similar experiences of the NHS and family and friends. They frequently have similar thoughts and feelings in relation to the unknown threat, such as wondering if they

have the big “C” or some incurable disease. The facilitated group setting provides for motivation for change, peer support, reduction in isolation and making new and long-lasting friends.

The group support is usually noted in participant feedback as highly valued. The richness offered by a facilitated group brings in new and interesting ideas, solutions, and coping strategies.

The group is heterogeneous, comprised of people with a variety of symptoms. TBMA assumes that there is a single generic underlying reason for this range of symptoms, such as fibromyalgia, irritable bowel syndrome, headache, chronic fatigue, chronic pain, etc., whatever that reason may be, and this leads to the inclusion of all symptoms in one treatment group. We do not know the cause of the symptoms, and neither do most participants, but the approach appears to work with a variety of origins, for example, trauma, family ill health, insecure attachment styles, complex bereavement, sexual abuse, neglect, etc. The cause being unknown does not appear to matter because TBMA is not proposed as a psychotherapy *per se* to uncover causes, rather working with the presentation/effects in the lived body.

Action Planning

During the groups participants are provided with a personal journal in which they are encouraged to write/ draw each session. Based on their new learning from the experience of the group sessions in the final session they are invited to design an action plan for change. This becomes the template for action in the subsequent 6 months after the sessions end. The plan needs to be realistic and to support small changes in the way they manage their life/symptoms. They meet with the facilitator individually to review the plan. Six weeks later they receive a self-written letter in the post-delineating their action plan and how they will adhere to it. Twelve weeks later the facilitator writes to them to remind them of the steps which they were expected they would make to enact the plan. This system encourages the new habit to become embedded and embodied for sustainable change to take place. At 18 weeks post-course a text and email are sent asking how they are doing. At 6 months another assessment (follow up) is conducted.

CONCLUSION

We would agree with Henningsen et al. (2007) active participation of patients in treatment approaches involving for example, exercise and psychotherapy, seem to be more effective than those that involve passive physical measures. TBMA reflects the finding from that review. By integrating health psychology with health education and training through TBMA psychologically aware and psychologically resistant people with MUS in primary care can be engaged over approximately 9 months to self-manage. Over and above this engagement participants have reported they enjoy the groups and have benefited from them. There is a need to offer a range of interventions for this complex population in primary care of which TBMA is one.

AUTHOR CONTRIBUTIONS

HP conceived the idea and developed the model from dance movement psychotherapy. SB supported the development of this article with input from adult learning theory and personal experience with medically unexplained symptoms.

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FUNDING

The University of Hertfordshire funded the original research 2004–2009 and subsequently funded by East of England Development Agency, later the University funded the transfer of knowledge into the National Health Service for delivery of the intervention.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Corrigendum: Different Strokes for Different Folks: The BodyMind Approach as a Learning Tool for Patients With Medically Unexplained Symptoms to Self-Manage

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Keywords: medically unexplained symptoms, primary care, embodied approaches, adult learning, self-management, metaphor, symbol, group

A Corrigendum on

Different Strokes for Different Folks: The BodyMind Approach as a Learning Tool for Patients With Medically Unexplained Symptoms to Self-Manage

by Payne, H., and Brooks, S. (2018). *Front. Psychol.* 9:2222. doi: 10.3389/fpsyg.2018.02222

In the original article, there was an error regarding the cost of medically unexplained symptoms (MUS).

A correction has been made to the Abstract:

“Medically unexplained symptoms (MUS) are common in both primary and secondary health care. It is gradually being acknowledged that there needs to be a variety of interventions for patients with MUS to meet the needs of different groups of patients with such chronic long-term symptoms. The proposed intervention described herewith is called The BodyMind Approach (TBMA) and promotes learning for self-management through establishing a dynamic and continuous process of emotional self-regulation. The problem is the mismatch between the patient’s mind-set and profile and current interventions. This theoretical article, based on practice-based evidence, takes forward the idea that different approaches (other than cognitive behavioral therapy) are required for people with MUS. The mind-set and characteristics of patients with MUS are reflected upon to shape the rationale and design of this novel approach. Improving services for this population in primary care is crucial to prevent the iterative spiraling downward of frequent general practitioner (GP) visits, hospital appointments, and accident and emergency attendance (A&E), all of which are common for these patients. The approach derives from embodied psychotherapy (authentic movement in dance movement psychotherapy) and adult models of learning for self-management. It has been developed from research and practice-based evidence. In this article the problem of MUS in primary care is introduced and the importance of the reluctance of patients to accept a psychological/mental health referral in the first instance is drawn out. A description of the theoretical underpinnings and philosophy of the proposed alternative to current interventions is then presented related to the design, delivery, facilitation, and educational content of the program. The unique intervention is also described to give the reader a flavor.”

Additionally, a correction has been made to the Introduction, paragraph one:

“Medically unexplained symptoms (MUS) are a thorny issue in primary care. Despite the differing nomenclature, the recent DSM-5 terms it as somatic symptom disorder (SSD) but is yet to achieve general usage. Many general practitioners (GPs) appear to reliably

OPEN ACCESS

Approved by:

Frontiers Editorial Office,
Frontiers Media SA, Switzerland

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Helen Payne
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Specialty section:

This article was submitted to
Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 24 July 2019

Accepted: 24 July 2019

Published: 07 August 2019

Citation:

Payne H and Brooks S (2019)
Corrigendum: Different Strokes for
Different Folks: The BodyMind
Approach as a Learning Tool for
Patients With Medically Unexplained
Symptoms to Self-Manage.
Front. Psychol. 10:1837.
doi: 10.3389/fpsyg.2019.01837

recognize MUS without the need for standardized assessments (Rasmussen et al., 2008). This population present with many, various and nebulous physical and psychological ailments (Rosendal et al., 2005) and constitute more than 25% of all new hospital and GP appointments (Fink et al., 1999; Reid et al., 2001). In England MUS has

been estimated to cost £3 billion in 2008–2009 rising to £18 billion if loss of productivity, benefits and quality of life are accounted for Bermingham et al. (2010)."

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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Creating Art Together as a Transformative Process in Parent-Child Relations: The Therapeutic Aspects of the Joint Painting Procedure

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OPEN ACCESS

Edited by:

David Gussak,
Florida State University, United States

Reviewed by:

Lisa Hinz,
Notre Dame de Namur University,
United States
Patricia Fenner,
La Trobe University, Australia

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 24 May 2018

Accepted: 19 October 2018

Published: 13 November 2018

Citation:

Gavron T and Mayseless O (2018)
Creating Art Together as
a Transformative Process
in Parent-Child Relations:
The Therapeutic Aspects of the Joint
Painting Procedure.
Front. Psychol. 9:2154.
doi: 10.3389/fpsyg.2018.02154

The relationships between parents and children contain implicit aspects, which are non-conscious and non-verbal, in addition to explicit ones. Both explicit and implicit aspects are central to understanding the dyadic dynamics and are implicated in psychotherapy processes and outcomes. Visual symbolization has a unique value as a channel of expression that can capture the implicit characteristics of relationships. Creating art together goes even further because it allows the presence of implicit representations of the relations *in vivo*. These representations can then be transformed through the joint process of creation, which has a unique potential to unleash reflective capacities when it is experienced in a playful and safe context. This paper presents a qualitative study that is part of larger mixed-methods research with 87 mother-child dyads (with children 9 to 12 years old). Dyads were administered the Joint Painting Procedure (JPP), which includes dyadic painting by the parent and child on the same paper and is used for evaluation and treatment in the field of parent-child therapy and art therapy. The study's objectives were to uncover and better understand the unique therapeutic aspects that such method allows and its potential to impact parent-child relationships. The findings of the qualitative study indicated that the JPP enabled several dynamic processes such as pleasure and fun, bi-directionality, mutual regulation, mentalization, and mutual recognition, which together created a salient positive transformation in the relationship. Through the JPP, a new transformative aspect of relations emerges and enables new and different modes of communication and interactions in about half of the dyads and a lesser and partial positive transformation in about a third of them.

Keywords: dyadic art psychotherapy, parent-child psychotherapy, joint painting, transformation in parent-child relations, parent-child relationship

INTRODUCTION

Parent-child relationships are among the most important factors that contribute to children's adjustment and well-being (Gilmore and Meersand, 2014; Koehn and Kerns, 2016; Wang and Fletcher, 2016). These relationships contain implicit aspects, which are non-conscious and non-verbal, in addition to explicit ones (Lyons-Ruth et al., 1998; Fonagy, 2001; Granot and Mayseless, 2001; Gavron and Mayseless, 2015). Both explicit and implicit aspects are central to understanding the dyadic dynamics and are implicated in psychotherapy processes and

outcomes (Fonagy, 2001, 2015; Stern, 2004). Visual symbolization has unique value as a channel of expression that can capture and express the implicit characteristics of relationships (Madigan et al., 2003; Goldner and Scharf, 2011). Creating art together goes even further because it allows the presence of implicit representations of the relations *in vivo*. In addition, joint art activities enrich the individual and enhance a unique shared expression of every dyad, thus helping to create a distinctive dyadic narrative (Proulx, 2003; Gavron, 2011).

This paper explores and describes the therapeutic aspects of using art in parent-child psychotherapy, focusing on a unique and highly promising method of relationship assessment and intervention through painting – the Joint Painting Procedure (JPP). In the JPP, parents and children create art together following a planned and structured process. Although this method and others (e.g., Proulx, 2003; Landgarten, 2013) have been used clinically for quite some time and have demonstrated promising outcomes (e.g., Gavron and Mayseless, 2015), we currently have only a preliminary understanding of the process by which joint painting such as that done with the JPP affects the relationship during a therapeutic session. This paper presents the qualitative part of larger mixed-methods research that examined the impact of joint art creation on children's adjustment. The goal of the qualitative study was to uncover and better understand the unique therapeutic aspects that such method allows and its potential to impact parent-child relationships. The focus of the larger study was mother-child relationships, though father-child relationships are equally important (Carlson et al., 2004). Many researchers point out that positive and secure relationships with mothers support child adjustment and well-being in various aspects (Gilmore and Meersand, 2014; Wang and Fletcher, 2016).

We first discuss the centrality of implicit aspects of relationships and the distinct nature of parent-child art psychotherapy model, and then we present the JPP as a central method within such therapeutic model and its clinical potential leading to the main focus of the present study.

Implicit and Explicit Aspects of Relationships and Art Creation

Since the 1990s, researchers have begun to emphasize two aspects of human communication that occur simultaneously – the implicit and explicit aspects of a relationship. These two aspects evolve simultaneously in human communication over the years (Lyons-Ruth et al., 1998; Stern, 2004; Pally, 2005; Fosshage, 2011). Explicit communication develops from the second year of a child's life, when children begin to use language for communication. The explicit aspects of the relationship are conscious, declared, and belong to the spoken language (Stern, 2004; Pally, 2005). The implicit aspects of relationships are connected to procedural and unconscious processes and can be expressed through a non-verbal manifestation such as art (Madigan et al., 2003; Goldner and Scharf, 2011). Implicit expression represents a central and essential aspect of relations in general and of parent-child relationships in particular (Stern, 2004; Pally, 2005; Schore, 2012). Art-based therapy provides a significant and established way to assess and attend to the implicit

aspects of relationships, especially in parent-child relationships when children are not yet adept in articulating what they feel and think.

Focusing on art psychotherapy, Bucci (2011) emphasized that verbal language cannot contain all aspects of communication between people and underscored that we need to attend to three levels of communication: verbal, symbolic non-verbal, and subsymbolic (Bucci, 2011, 2014). The verbal level is related to language as communication and is expressed through a shared conversation during the therapeutic meeting. The non-verbal symbolic level of communication is expressed through metaphorical and visual images. The subsymbolic level of communication is related to expression through non-symbolized content, such as physical and sensory procedures, and through colors, lines, and shapes.

The processes of making art in parent-child art psychotherapy can simultaneously contain all three of these communication pathways (Markman Zinemanas, 2013; Gavron, 2015). But most importantly, the joint art-based expression during parent-child interaction in psychotherapy often uncovers a clear portrayal of the implicit dyadic interaction in motion. Through the dyad's behavior and creative expression, one can observe and get access to a new understanding of the implicit aspects of the relationship (Mitchell, 2000; Stern, 2004). Mitchell (2000) and Stern (2004), both central figures in relational psychotherapy, even defined the implicit intersubjective and real-time encounter of the parent and the child as a central port of entry into the implicit representations of relationships and hence into the capacity to change them (Mitchell, 2000; Fonagy, 2001; Stern, 2004).

In fact, often only through attending to the implicit aspects of the relationship is deep and crucial understanding of the parent-child relationship revealed (Pally, 2005; Schore, 2012, 2014). Moreover, often these implicit aspects are the target of change, and with their transformation and their becoming more explicit, the quality of the relationship also transforms (Lyons-Ruth et al., 1998; Stern, 2004). Such therapeutic processes are the focus of parent-child art psychotherapy (Gavron, 2013, 2015).

Parent-Child Art Psychotherapy

Parent-child art psychotherapy is a pioneering and innovative approach as part of the development of art therapy with children (Regev and Snir, 2014; Taylor Buck et al., 2014; Snir and Regev, 2018). It is a psychodynamic-developmental model that uses visual symbolization to express, communicate, and create change in the dyadic relationship. The creative art-based interventions of this model enable the evaluation and treatment of the dyad, focusing on the implicit aspects of the relationship (Gavron, 2011, 2015). The parent-child art psychotherapy model that is discussed in this study grew out of the principles of Haifa dyadic therapy, which is a clinical model for treating relationship disturbances during childhood (Harel et al., 2006; Kaplan et al., 2011). The Haifa model, which has a psychoanalytic-relational orientation, emphasizes the relationship between the parent and the child that is expressed and developed during the therapeutic encounter. It also emphasizes the developmental stage of the child, as a part of the child's context and ecological system (Harel et al., 2006). Furthermore, the Haifa model focuses on the development of

mentalization, which is an emotional-cognitive ability that helps to understand the self and the other in terms of mental states such as emotions, intentions, and wishes (Slade, 2005; Kaplan et al., 2011; Tessier et al., 2016).

These core characteristics of the Haifa dyadic model are also central in parent-child art psychotherapy. Yet parent-child art psychotherapy also intentionally prompts creative processes, using art materials within the art therapy room (Gavron, 2015). Creating art in parent-child art psychotherapy takes place in a number of ways: sometimes the child creates and the parent observes, sometimes the partners create alongside each other, and often the parent and child make an artwork together (Gavron, 2011; Snir and Regev, 2018). The visual symbolization in the parent-child encounter that comprises the artistic product and process enables a unique meeting space for communication and self-expression. While often parents communicate verbally and children express themselves through play, the artistic symbolization facilitates a unique way of being together. In particular, making art together as in the JPP, which is the focus of this study, invites a unique setting with great therapeutic potential. Using playfulness and imagination during joint art creation often leads to the formation of a unique narrative of the dyadic relationship and enables communication that is not often conveyed verbally (Proulx, 2003; Rubin, 2005; Gavron, 2015).

Despite the existence of clinical insights arising from joint art creation during parent-child art psychotherapy (Proulx, 2003; Wadeson, 2010), we currently do not understand what the exact dynamics of these processes are and how they evolve. Hence we lack a more explicit model of the interpersonal processes experienced during the therapeutic process and how they unfold and develop. This is the focus of the present study, which used the JPP to shed light on such processes.

The JPP – Assessing Parent-Child Relationships

The JPP is an art-based assessment and clinical intervention that focuses on implicit aspects of the parent-child relationship. It comprises a structured five-step process in which both partners paint on the same paper, first working separately side by side and then painting together on a shared area of a single piece of paper. In the first step, the parent and child are asked to use a pencil to mark a personal space on a shared sheet of paper. Next, each partner paints inside his or her personal space using gouache or tempera paints. This is followed by an instruction to paint a frame around the painted space and then to paint a path from that frame to the frame painted by their partner. In the fifth and final step, the parent and child are asked to paint the rest of the paper together. After painting, the parent and child look at the painting with the therapist, discuss the shared experience, give the painting a title, and create a shared story about the painting. Following the administration of the JPP, the researcher or the clinician completes a structured protocol sheet that describes in detail every step of the dyadic procedure.

The JPP evolved from parent-child art psychotherapy, as well as from a long history of art-based assessments (Gantt and

Tabone, 1998; Betts, 2006; Harel et al., 2006; Gavron, 2013; Schoch et al., 2017). The basic assumption of the analysis of the joint painting is that diagnostic information is embodied in the way in which the work is done, in addition to the symbolic content in the artwork. The emphasis is on how people paint and not just on what they paint (Gantt and Tabone, 1998). Indeed, the JPP analysis refers to the formal elements that exist in the joint painting, assuming that these elements give information about various implicit aspects of the relationship. At the same time, reference is made to symbolic content such as images and metaphors (Gavron, 2013; Gavron and Mayseless, 2015).

Many of the current art-based assessments are focused on individual painting and the internal representations of the painters (Betts, 2006). Even when drawing as a tool was used to assess relationships, such as in the use of family paintings, only the separate perspectives of the two partners were assessed (Madigan et al., 2003; Goldner and Scharf, 2011; Kim and Suh, 2013). Over the last two decades, extensive clinical literature has also discussed joint painting, as employed to understand family relationships (Kwiatkowska, 1978; Rubin, 2005; Wadeson, 2010; Landgarten, 2013). These joint painting tools contribute to the evaluation of the implicit dimensions of relationships *in vivo*, as they actually occur during an interactive, often therapeutic, session. Hence they provide a very important and significant way of understanding relationship dynamics. However, these tools are not yet often empirically tested (Betts, 2006).

The creation of the JPP reflects a formal and research-based consolidation of such clinical insights and hence provides access to an evidence-based, art-based tool for assessment and treatment (Gavron, 2013; Gavron and Mayseless, 2015). The JPP is accompanied by a validated manual that includes seven scales: individuation and autonomy, intrusion, mutual recognition, role confusion, motivation for relationships, emotional expression, and expression of implicit anger and aggression toward the other (Gavron, 2013, 2018). The manual describes the scales and includes descriptions of phenomena that characterize each level of every scale. The scales relate to the painting process and the final product, as well as to behavioral phenomena observed at each stage of the process (Gavron, 2013, 2018; Gavron and Mayseless, 2015). In order to transform a clinical art-based assessment (the JPP) into an evidence-based assessment tool and validate the manual, three steps were taken: (1) assessing inter-rater reliability between three judges who rated twenty dyads according to the JPP Manual, (2) examining the correlation between explicit aspects of relationships (from validated relationship questionnaires) and implicit aspects (from the JPP), and (3) predicting children's adjustment based on the implicit aspects of relationships (as assessed by the JPP), beyond the prediction of explicit aspects of the relationships (as assessed by questionnaires and reported by mothers and children) and beyond the effects of the child's temperament (Gavron, 2018).

In its original version, the JPP has mainly been used for evaluation of the therapeutic process at various points with the following clinical goals: (1) understanding the

child's internal world and relational representations within the context of interaction with the parent, (2) learning about the potential for growth and change in the dyad, as reflected in the continuous process of the joint painting, and (3) identifying and focusing treatment goals relevant to the dyadic relationships. As clinical observations have demonstrated the benevolent therapeutic value of the JPP, it has also started to be used as a clinical intervention tool (Gavron, 2015). Yet, we currently have only rich clinical experiences that attest to the unique and often benevolent dyadic process that occurs through the JPP and we lack a deeper understanding of the distinct aspects of this process and how it unfolds.

In what follows we present findings of the qualitative part of larger mixed-methods research. The objectives of the qualitative study were: (1) to understand and to shed light on the distinct dynamical process regarding parents and children during the JPP and (2) to apprehend how the JPP impacts and transforms the parent-child relationship and how such change evolves during the therapeutic session.

MATERIALS AND METHODS

Participants and Their Recruitment

The participants included 87 mother-child dyads (43 boys and 44 girls ages nine to twelve) that underwent the JPP. In the larger mixed-methods study, mothers, children, and the children's homeroom teachers also filled out questionnaires. The qualitative study presented here focused only on the JPP. Families were recruited from four public schools in the northern part of Israel and through social media. The researchers contacted the schools' educational counselors, who distributed invitation letters describing the study. If the mothers were eligible (e.g., they had a child between the ages of nine to twelve) and willing, they were included in the research after signing a consent form. Written informed consent was obtained from the mothers both for their own participation in the research as well as for their children's participation. The first author administered 58% of the JPP sessions. All the other sessions were administered by research assistants who learned the procedure from the first author. The JPP administrators wrote detailed description of the implicit and explicit aspects of the interaction (verbal, behavior and affective components) in each of the phases of the JPP administration with specific focus on exchanges, which are interactive such as, when A is doing something, B responds and A reacts to this response. Each phase of the procedure as well as the final product was photographed. The research was approved by the University of Haifa's ethics committee.

To help the participants to feel more comfortable during the art-based process the administrators described the procedure and the use of materials, and suggested a short experience with the art materials before the actual procedure began. These measures along with the gradual progress of the JPP (i.e., moving from using a pencil to using paint and from individual painting into a joint one), created a sense of security and comfort among

mothers and children. And indeed, none of the dyads expressed discomfort to engage in the art-making.

Data Analysis

The analysis was based on the concept that meaning is created and understood within the context of social processes and that in order to understand different patterns in human relations, we need to look deeply at their behavior and expression during the JPP (Jeon, 2004; Starks and Brown Trinidad, 2007). The analysis of the qualitative data relied on narrative and phenomenological research perspectives (Betensky, 1995; Zilber et al., 2008; Kapitan, 2010; Spector-Mersel, 2010; Huss et al., 2012) to throw light on how the narrative of the relationship between the mother and the child developed throughout the JPP session. The research focused on the relationship narrative as it fluctuated and evolved (or not) *in vivo*. This method allowed analyzing the co-construction of a dyadic narrative of the relationship (Riessman and Speedy, 2007). Additionally, a phenomenological perspective was used in order to observe the art-based phenomena, which occurred through the process and in the product (Betensky, 1995; Bat Or, 2012; Huss et al., 2012). Such phenomenological perspective is based on composing formal elements and symbols that exist in the painting in order to understand the mother and the child experiences (Huss et al., 2012; Gavron, 2013).

The qualitative analysis of the relationship narrative included observation throughout the different phases of the JPP session of the following aspects: (1) verbal interaction and reflections, (2) implicit interaction through art-based phenomena (formal elements) which involved the way of creating, such as body gestures, pace, use of colors, shape, motion and textures, as well as themes and metaphors (Gavron, 2013), and (3) implicit and explicit behavior and implicit and explicit emotional affect of each partner and the dyad together which occurred throughout the process. These aspects were observed at the beginning of the JPP session, as well as throughout every structured phase of the procedure, analyzing the way these aspects evolved and changed in the interaction along the time, while focusing in particular on situations in which each partner responded to the other.

The qualitative analysis in this study was carried out in three stages: Stage 1 – narrative analysis of the relationship and how if at all, they evolve during each phase of the JPP based on all the sources (verbal-explicit, implicit-art-based and implicit/explicit behavioral and affective expression). Thus the first stage included an in-depth look and analysis of the dyadic process focusing on the five stages of painting and the individual and shared phenomena that occurred at each stage of painting. In addition, the analysis focused on the behavior of the mother and the child during the various stages, the dynamics of the relationships, and the verbal interaction during and after the painting (i.e., conversation about the experience, naming and telling a story about the painting).

Stage 2 – creating a combined narrative of relationship throughout the whole JPP process for each dyad. The second stage thus involved analyzing all the data together in order to

formulate insights for each dyad, in an attempt to integrate and understand the relationship dynamics, which included the process, the product, and the behavior.

Stage 3 – forming more general insights based on cross-case analyses (Seawright and Gerring, 2008). During this stage categories were formed and seven relational dynamic processes were identified. Our first two insights related to the observation that most of the dyads expressed pleasure and fun during the process and that most of the dyads went through a process of transformation. To better understand the process of transformation using cross-case analyses the authors delved into the data to uncover the other dynamic processes described in the findings section.

Although conceived as a linear process, it actually involves a cyclic one, within each stage as well as across the stages. For example, when a certain insight was reached at the third phase, a thorough check of specific dyadic cases was undertaken to verify the trustworthiness of such claim. During the qualitative analysis, a number of methods were implemented to strengthen the reliability, trustworthiness, and credibility of the analyses (Tracy, 2010). In the analyzing process a triangulation across sources of data was used in order to increase reliability (Shkedi, 2005). This included the observation of the verbal interaction between the dyads and with the JPP administrator, the implicit behavior, which involved the art-based expression and the dyadic product (the painting) and actual behavior during the process. To heighten the probability that the researcher would accurately perceive what happened in the dyadic processes, the researcher relied on self-reflection and bracketing, using a research diary in order to examine the analyses and perceptions as accurately as possible, trying to focus on what came out of the painting process itself rather than relying on preconceptions. Additionally, the researcher (first author) consulted with several research colleagues and clinicians who were not involved in the study's administration and with the research supervisor (second author) at many junctures during the analysis. This occurred both during the formation of general narratives for each dyad and during the third stage of data analysis when cross-cases generalizations were formed. In such situations the persons with who the first author consulted read thoroughly each written narrative and observed every joint painting in order to form their own impression. Such processes led to in depth discussions of specific cases as well as the general insights from the whole cohort of dyads and allowed re-checking and sometimes reformulating the preliminary analysis and insights of the first author. Finally, throughout the process, written thick descriptions of the process and the product were used. These provide rich, elaborate and detailed description of the phenomena, which is examined in the research (Wertz et al., 2011). Such details are essential in order for other researchers to evaluate and examine the phenomena in each dyad and grasp the generalizations.

FINDINGS

The findings demonstrated that the JPP process enabled a unique expression of the complex implicit relationship between

mother and child. The dynamics that occurred during the JPP pointed to a multifaceted and evolving interpersonal dyadic experience. In most cases, a transformation occurred in the relationship throughout the process, indicated by the participants and through analyzing the artistic product. About half of the dyads showed a full positive transformation process, and about a third showed a partial positive transformation process. Few dyads did not show any change in the quality of the relationship throughout the process. The findings further uncovered several dynamic processes that appeared to be connected to each other and evolved throughout the joint painting. Together these processes bring about transformation in the relationships. In addition most of these processes evolved at the implicit level of communication, though sometimes a verbal interaction joined in. To illustrate the major findings regarding the unique processes that emerged we first present three case studies that allow thick description of these processes.

Case Study #1

Gili (pseudonyms are used here), a ten-year-old girl, entered the art therapy room with her mother, very quietly with hesitant steps (**Figure 1**). She barely talked and avoided eye contact with the researcher. She started to paint the heart on the left side of the shared paper. She created various soft pastel colors by adding white to each color. She then added a yellow frame (with some added white color). Her mother painted a circle on the right side of the paper, starting with bright colors. At that point, the mother looked at Gili and pointed out that she was creating very special and soft colors. The mother asked Gili if she could borrow Gili's soft pink color. Gili suddenly raised her head, smiled, looked at the researcher for the first time, and handed the pink to her mother. The mother used the pink in the center of her circle.

Later on, when Gili was asked to paint the path toward her mother's space, she chose a bright orange color and painted an angular path on the upper part of the painting. Her mother painted the pink path between both shapes. When Gili observed her mother's path, she said that her mom's path was very beautiful and very rich and that her path was too long. Her mother pointed out that Gili's path, although long, had the same very bright orange color she had used in her space, which she liked.



FIGURE 1 | Joint painting by Gili and her mother (written informed consent was obtained from the creators for the publication of this image).

It seemed that Gili responded to her mother's mentalized-based observation, as well as to the strong, pictorial existence of the mother's path, and again something changed. In the next stage of the process, when Gili and her mother started to paint the shared part of the picture, Gili's body energy and her mood changed dramatically. She painted with joy and laughter. Her mother responded to Gili's change, and they both became involved in mutual play and creative dialog, where one would paint something and the other would respond through art. First, Gili used her pastel colors and her mother painted with the bright ones. They said that they played in turns, but each one in her favorite colors. Gili even mentioned that she mixed her unique colors. After a while, Gili began to use more bright colors and painted on large parts of the paper. At a certain point, Gili and her mother found themselves meeting with their two paintbrushes, both loaded with red paint, on the right side of the paper. They both burst into laughter and created the "red box." Later on, while talking about the painting, they said that this was their special box, which no one could open except them. They decided to call the painting "Our Red Box."

At the end of the session, Gili was talking freely and looked at the researcher and said that she really loved painting, especially creating new colors. Her mother said that she was very surprised and excited to see Gili so happy and free and mentioned that this was not common for her.

Case Study #2

Tal, a nine-year-old girl, and her mother entered the room with the mother coming in with a smile and Tal following her, looking displeased. When they began painting, the mother quickly marked her private space as the shape of a tree on the left (Figure 2). Tal watched for a few minutes and only then marked a shape on the right, which she called "a star." The mother painted the tree with pleasure and freedom, using different colors. At the same time, Tal painted slowly and silently. She made sure to paint the lines with concentration, saying that the star was

"half outside." When asked to paint the path, the mother quickly painted a red flowery path. Tal watched and said angrily that she wanted to paint a long path between the two paintings and now she didn't have enough space to do so. The mother said that they were each in a very different mood today. Tal then asked her mother if she could paint on her path. When her mother agreed, Tal painted a colorful path as she gently painted on part of her mother's path. When both were invited to paint the joint part, Tal said she preferred to paint alone. She began to paint the black surface on the right upper side, while her mother painted two birds to the left of her tree.

Following that, the mother began to gently paint grass, flowers, and butterflies toward Tal's star. Tal, who watched the mother, stopped painting the black shape and began to paint grass with flowers toward her mother. This appeared to be in response to the mother's implicit expression. At this point, the atmosphere changed, and Tal painted freely while describing her painting. When they had finished painting the grass and the butterflies, Tal asked her mother if she could help her continue her painting on the upper part of the paper. The mother began to paint in light blue next to the tree, and Tal continued to paint in dark blue toward her mother. Both shades of blue met in the center of the paper. At the discussion following the painting process, Tal said that at first she did not want to paint with her mother. She went on to say that she discovered that it was fun and she felt happy to paint together. The mother said she was debating whether to make Tal come to the meeting, but she thought she might enjoy it. When both were asked to name the painting, Tal suggested "A Shared Country" and said: "It is a fun country; it's a different country, like in the movies, where everyone can do whatever we want."

Case Study #3

Avi, an eleven-year-old boy, and his mother told the researcher that they had painted together many times before. They began painting and Avi very slowly painted blue waves on the left side of the paper. His mother painted in large brushstrokes on the other side. When asked to paint the frame, Avi painted an orange line around his personal space. His mother continued to paint her personal space, ignoring the request for a frame. They both painted two central paths. Following that, they painted the joint part without talking. The mother again painted with large brushstrokes in many colors, all over the paper. Avi moved to the other side and painted a few small gray dots, which took up very little space. Toward the end of the meeting, the mother painted a white frame around part of her personal painting. Only then, Avi painted few more dots in the center of the painting. During the shared observation, the mother said she enjoyed the process and wanted to name the painting "Fun of Two." Avi did not want to give the painting a title. He said: "Well... I did not have so much fun... It was ok. I like the part with the dots; it's much quieter there. The rest of the painting is too entangled with all those colors."

It could be observed that there were major differences between the boy and his mother in various aspects: their pace and energy, their movements, and the space they each took on the paper, as well as the explicit description of their experience. When the



FIGURE 2 | Joint painting by Tal and her mother (written informed consent was obtained from the creators for the publication this image).

mother took the space for expression, Avi moved to the side and was constrained in his implicit expression. Only when his mother framed part of her personal space and created a tangible separation did Avi feel safer to paint in the center. There was no evidence of them relating to each other's actions or artistic expressions, and nothing actually was created together.

Dynamic Processes

As exhibited in two of the case studies (#1 and #2), several major dynamic processes emerged during the JPP, and when all six of them were present, this led to transformation in the relationship. The third case portrayed a dynamic that did not lead to transformation. The dynamic processes are: (1) pleasure and fun, (2) mutual bidirectional effect, (3) development and evolvment of the relationship, (4) mutual regulation, (5) mentalization, (6) mutual recognition, and (7) transformation of the relationship.

Pleasure and Fun

Many of the mothers and children who participated in the study expressed a sense of pleasure and sometimes excitement from the process. Most of the mothers reported having a special experience with their children and a sense of closeness created during the experience that was not always available during daily life, while many children reported feeling good after the process. The expression of the "fun" feelings of the children and mothers related to the use of art materials and symbolic metaphors, which led to a creative process that enabled a new non-verbal authentic and playful expression. This could be seen, for example, in Gili's saying that she most enjoyed mixing new colors. Playfulness and enjoyment also could be seen in the following example: Amit, a nine-year-old boy, painted a large and colorful flower in his personal space, while his mother painted her own flower with pastel colors. When asked to paint the paths, Amit stood up and painted a huge, thick brown path from the inside of his flower toward the upper part of his mother's flower. "This is so much fun," he shouted happily. When his mother added her pink path from underneath her flower to Amit's flower, she said, "This is so beautiful." Amit was laughing: "They [the paths] are hugging our flowers." The joint procedure created a safe shared space for each partner where a different unique expression of each partner could evolve in a playful manner. As Tal said: "a fun country... where everyone can do whatever we want."

Mutual Bidirectional Effect

There was a mutual bidirectional effect on each partner throughout the process, when one partner's behavior affected the other and evoked change in their behavior, which in turn affected the first person. The non-verbal dynamics through painting created joint transactions of reciprocity and reactivity. For example, during the final stage of the process when painting together, Gili and her mother became involved in mutual play and creative dialog, where one would paint something and the other would respond. Another example is when Tal responded to the flowered grass painted toward her individual painting by painting her own grass toward her mother. In another example, ten-year-old Orr and her mother decided to paint blue sky in the

joint area around their personal spaces. When the mother painted a white cloud, Orr responded with another cloud. Orr painted a bird and the mother painted a different kind of bird. They ended the process by painting a huge rainbow, when each took turns painting in a different color. In the case of Avi and his mother, the mutual bidirectional did not occur. They each seemed to be in their own space, not responding to or being affected by the other's actions. It appeared that they ended the process without any change in their relationship.

Development of the Relationship – An Evolving Process

It seems that the processes of the joint painting allowed for the development of the relationship over time and in most cases led to a positive change in atmosphere and a sense of closeness. This was reflected, for example, in the change in Gili's painting process from a hesitant experience to a playful and enjoyable game with her mother. Similarly, Tal was able to reconnect to her mother after she could explicitly express her ambivalent and angry feelings toward her. However, in a small percentage of the dyads this development did not evolve or evolved only partially. In Avi and his mother's case, the boy said that he did not enjoy the process. More than that, although both partners were expressive, they did not engage in a process of receptivity and mutuality, and they seemed to work in a disconnected way. They did not experience the evolving process of the JPP, during which, as part of the bidirectional process and the development of the relationship, three major interrelated phenomena appear – mutual regulation, mentalization, and mutual recognition – enabling a transformation in the relationship.

Mutual Regulation

A process of mutual regulation occurred through the artistic action, when the parent regulated the child's feelings and behaviors, and sometimes vice versa. Parents often closely observed the child's sensory-emotional manifestations and identified, responded, and regulated those feelings – implicitly but sometimes also explicitly. For example, in Gili's case, the vivid colors that the mother used seemed to affect and regulate Gili's choice of colors, which later in the process became stronger and more expressive. Tal painting her black background, which turned into blue, seemed to be a response to the blue colors that her mother painted toward her. Another example was when ten-year-old Mike, who used his hands to cover most of their painting with messy mixed-brown colors, was asked by his mother to paint an actual image. When he chose to paint a house, he asked his mother to color inside after he made the outline of it. The mother painted the roof with her fingers, and Mike, excited that his mother was painting like him, painted the rest of the house with a paintbrush and created an image that he was proud of. It seems that the mother's implicit response (using her fingers, but not her whole hand) created an empathic and organized regulatory experience that allowed Mike to express himself in a different manner than only being destructive. His mother, on the other hand, seemed to be influenced by Mike and painted more freely and playfully with her fingers. In Avi and his mother's case, mutual regulation did

not evolve and each partner retained his or her own pace, color, and rhythm.

Mentalization

Within the framework of the joint painting, verbal, emotional, and cognitive attributions relating to the behaviors, artmaking, or artistic product of the other took place. These attributions reflect a mentalization process, as they include understanding the other's behavior as an expression of emotional and mental states and perceiving the self and the other as owning unique thoughts, feelings, and emotions (Slade, 2005; Verheugt-Pleiter et al., 2008; Bat Or, 2010). For example, in Gili and her mother's painting process, the mentalization occurred when both of them could acknowledge and address the differences in their preferences and behaviors. At first they just exhibited the differences: Gili used gentle colors and her mother used brighter ones; Gili painted a long path, and her mother painted a short one. But later these enacted implicit processes were acknowledged and they could verbally reflect on them, leading to an experience of each of them knowing and accepting herself and the other and being known and accepted.

In the beginning of the process for Tal and her mother, both partners were different in their explicit and implicit expression. The mother's painting was rich and composed of two images, which may have symbolized both of them. Tal, on the other hand, seemed to begin the painting process with ambivalence about being with her mother (defining the shape as "half outside" and creating the long path toward her mother). The shape of the star was almost outside and did not take up much space on the shared paper. In addition, it appeared that Tal expressed feelings of anger toward her mother through the sharp shapes and her verbal statements. When the mother verbally acknowledged the differences between them, she used mentalization and helped Tal to understand herself and feel understood. In fact, despite the length of the path, the last part that connected to the mother's tree was made of colors and textures that resembled those of the mother on her personal space, which may indicate a desire to connect. It might be that the mentalization of the mother helped Tal to reconnect to her.

Mutual Recognition

The mutual regulation and the mentalization that occurred in most processes appeared to facilitate a process of mutual recognition, which comprises the ability to recognize the other as a subject with a separate inner world, while being in a mutual relationship (Benjamin, 1988, 2005; Gini et al., 2007). The mutual recognition took place in the joint painting and included simultaneous recognition of the self and the other as having a unique way of being and expressing but at the same time having the ability to create together out of a close and mutual relationship. Mutual recognition is different from mentalizing because it includes mutuality and the capacity to be both separate and connected. Furthermore it is more than mutual regulation in that there is a mutual recognition and acceptance of self, other, and the relationship. As can be seen in the case of Gili and her mother, the joint creative encounter led to the process of mutual recognition. The joint painting allowed for a unique

personal expression in light of the other and at the same time a common representation evolved. Gili emphasized her unique way of expression through the colors, while acknowledging her mother's separate and different manifestation. At the same time, both could share their colors, create an integrative game that showed on the paper, and paint a shared image that held a meaningful metaphor for their relationship.

During the process of Tal and her mother, the mother allowed Tal to express herself in an authentic way (to be on the side, to cover her path) and still expressed her desire to connect with her (through the tree image and the short and present path). It seemed that the transformation in Tal's behavior and experience was made possible by two implicit factors, the first reflecting the mother's recognition and the second reflecting the daughter's. First, when Tal asked to go up on her mother's path, her mother accepted it without criticism, thus allowing Tal to express ambivalence and perhaps anger. Second, when the mother painted the grass and the flowers toward Tal as a symbolic wish to connect, Tal responded by painting grass with flowers toward her mother and thus moved from a distant and angry state toward a desire to create together with closeness and pleasure. Tal's lawn was similar to that of the mother; however, it had its own uniqueness. It seems that Tal responded to the mother's non-verbal gestures and at the same time felt that she had a place to express herself authentically. Later on, Tal invited her mother to paint the upper part together. Similarly, the mother painted in the same style as Tal but in different colors. This shared painting enabled a unique expression of each person and at the same time led to a shared creative space. It also appears that Tal's story, about the different country where everyone can do whatever they want, symbolically expressed her experience. It seems that the "shared country" represented the possibility of a unique shared space with her mother that would allow each of them an exclusive emotional experience, inner freedom, and yet a sense of closeness.

In another example, Harel, a ten-year-old, and his mother showed a partial profile of transformation when they failed to engage in mutual recognition. Harel and his mother seemed to enjoy the shared painting, using similar colors in their individual spaces. They responded to each other's individual painting and shared some comment about similarities and differences. When they were asked to paint the paths, they painted similar paths that indicated two symbolic roads toward each other. However, when asked to paint the joint area together, Harel asked to cut his personal painting out of the paper and said that he wanted to end the session because he didn't like painting together on the same paper. At his mother's request, he agreed to paint a shared pool. Nevertheless, when the mother painted the pool, he covered it with a different color. When she painted a fish, he covered it and painted a shell, and that went on until the pool was all painted with Harel's elements. The mother allowed the behavior and did not acknowledge it verbally. In this case, the dynamic process evolved up to a certain point with certain levels of mutual bidirectional effect, some mutual regulation, and little mentalization. However, these partners were not able to make room for individual, unique expression in the framework of a

shared physical and emotional space, and mutual recognition did not develop.

The joint observation of the artwork at the end of the process also invites other processes of mutual recognition. In front of the joint artwork, each partner can find a sensory or visual-symbolic expression of his or her inner world, the inner world of the other, and the shared narrative of the dyad (Isserow, 2008). Gili and her mother made a story about a red box, which was private and belonged only to them. Inside the box one could find each individual's unique expression, along with their shared dyadic being. The conversation that emerged from their joint observation expanded the possibility of mutual recognition. In this way, the joint observation of the child, the parent, and the therapist of the dyadic artistic product may serve as a container to the dyadic process. Furthermore, each partner can find that the other partner had her own unique thoughts and feelings about the process and the product, and such realization can support the capacity to relate to the other person's point of view, along with the experience of closeness and mutuality. For example, Gili's mother was surprised to hear that Gili's most important experience was her ability to create new colors, which indicated her autonomous expression in the relationship.

Transformation of the Relationship

These processes often lead to transformation of the relationship, which enables the dyad to experience new ways to be with each other. This change is possible through the JPP creative process, which includes the sensory-symbolic encounter through art materials (e.g., mixing colors, shared motions) and symbolic images (e.g., the red box) in a state of creativity and play. During the JPP, implicit representations of relationships were enacted, met, and changed toward a transformative experience. The transformation of the representations could be seen through Tal's images, which represented a transformative emotional process – from feeling resistant into being engaged and feeling free to express herself with positive and negative feelings. Her mother, at the same time, was also able to go through a transformative process – from being rejected into being supportive and helpful. The transformative process could also be seen when Gili and her mother experienced themselves as part of a new relational space – when a change could be seen in Gili's behavior from being introverted to being a lively presence. Gili no longer experienced herself as remote and less good than her mother, but as being capable of unique creative expression that could be taken up by her mother and inspire her (e.g., when her mother used the soft pink color). The mother experienced herself as having the ability to communicate with Gili in a receptive manner, while helping her express herself in a safer manner.

Another example can be seen in the case of ten-year-old Ben and his mother. While Ben was painting over his mother's images in red and orange colors in a destructive style, he said that he was painting a big fire. The mother reflected on the “fiery” way in which he painted and suggested that they together paint some wood for the fire. Ben was excited, and they added thick brown lines to the fire. As a result of the mother's intervention, which contained regulation and mentalization at the same time, Ben was willing to create a controlled image of a fire and added an

image of a boy sitting next to it. The mother said she loved the child and the fire and added an image of another child. It seems that throughout the joint painting, a transformation experience was created when the two partners experienced themselves in a new way. It seems that Ben was no longer experiencing himself only as tempestuous but as creative and as being appreciated by his mother. The mother may have been experiencing herself as having the ability to communicate with Ben in an accepting way, while helping him to be regulated.

The Role of Verbalization in the JPP Process

Often during the JPP, it could be seen that explicit communication had an important role within the dyadic interaction. Of course, verbal communication is present among most parents and children in middle childhood as a means of cognitive and emotional expression (Gilmore and Meersand, 2014). But most important was the role of the verbal communication during the JPP as accompanying and highlighting the implicit evolving process of the dyad. The words supported the mutual regulation, e.g., the mother suggested to Ben that he paint an image out of the chaos. The words framed the mentalization process, e.g., the mother said to Ben that he is “fiery” today, and the words contained and gave structure to the transformation process. In another example, nine-year-old Judy concluded her session by saying to her mother, “Yesterday and today I was really angry with you, but I put it all on the paper, and I feel better. Now I can tell you why I was so angry.”

DISCUSSION

The findings of the current study uncover and facilitate better understanding of the unique therapeutic aspects that the JPP allows and its potential to impact parent-child relationships. The findings depict the dynamics of the implicit aspects of the parent-child relationships during the joint painting, which the study particularly focused on understanding. It appeared that the JPP served as a powerful intervention demonstrating the extraordinary potential for development and transformation in the parent-child relationship.

One of the main innovative discoveries of this research is the transformation process that actually occurs during the JPP. It is known that the JPP allows access to various characteristics in the parent-child relationship and supports implicit and explicit communication, as well as self- and shared expression (Gavron, 2013; Gavron and Mayseless, 2015). In this study, we realized that through the JPP, a new transformative aspect of relations emerges and enables new and different modes of communication and interactions. The joint creation during the JPP seems to invite an encounter different from the usual one in the everyday dyadic relationship. This special meeting expands the usual repertoire of communication and creates the transformative processes. This implicit and explicit dialog in motion leads to meaningful learning about new ways of being together (Tronick, 2003; Stern, 2004; Fonagy, 2015). The JPP creates positive reconstruction of various elements of the relationship. It is important to note that

these changes occur even without the therapist's intervention – through the continuous process of the joint creation and the implicit aspects of relations and the subsymbolic communication that this joint creation allows.

The ongoing mutually that evolves while creating together, construct implicit moments of meeting (Lyons-Ruth et al., 1998; Stern, 2004) that could lead to a change in the relationship. As seen in our findings, such a meeting can occur through different modes of communication (Bucci, 2014): through a common rhythm or movement while painting, through the meeting of shapes and colors, or through a shared image. Such a moment seemed to evolve when Gili and her mother accidentally met with their paintbrushes loaded with a reddish paint. This was an implicit sensory meeting through color and touch, which apparently led to the painting of the container. It appeared that this container was a representation for their unique shared closeness in a synchronized way.

Another major finding of the study refers to processes or conditions needed in order for this transformation to evolve. Several such processes emerged as part of the JPP: (1) pleasure and fun, (2) mutual bidirectional effect, (3) development and involvement of the relationship, (4) mutual regulation, (5) mentalization, and (6) mutual recognition. The context of pleasure and fun in the JPP appears to be significant. Play and creativity, which are voluntary actions for their own sake, enable pleasure, reward, and satisfaction (Schorer and Marks-Tarlow, 2017). The playful art-based process allows for the presence of two points of view in a creative way at one point in time (Benau, 2009). Pleasure and fun are connected to Regev and Snir (2014)'s findings about the main facets in parent-child art therapy that facilitate positive feelings in the relationship. These pleasurable feelings create a common ground for the mental processes that follow.

Mutual bi-directionality occurs when both parent and child affect and are being affected by the other's behavior (Harach and Kuczynski, 2005). The act of painting together provides a space for positive reciprocal exchanges and for implicit negotiations of matches and mismatches between them (Paschall and Mastergeorge, 2016). Harach and Kuczynski (2005) indicate that often such positive reciprocal exchanges occur in the context of play, which is similar to the fun and often joyful and autonomous process of the JPP. The reciprocal process entails some intimacy and companionship that often include shared laughter, shared pleasure and common understanding (Harach and Kuczynski, 2005). This co-creation therefore provides an opportunity to step out of the traditional hierarchical relations and engage in intimate implicit interactions that foster closeness and companionship. Together these experiences often lead to development and involvement of the quality of the relationship during the JPP.

These processes often facilitate mutual regulation, which evolves through the sensory and tactile component of the shared art-based experience and has a mutual effect on both partners (Hinz, 2015). Tronick (2003) argues that mutual states of regulation teach the dyad how to be together in different contexts and support a synchronized state of co-creativity. Schorer and Marks-Tarlow (2017) state that non-verbal symbolic

representation, such as play and the arts, facilitates emotional regulation function because it arouses a variety of feelings that enact regulatory boundaries. The mentalization process occurs within the JPP in a non-verbal and sensory way, and at the same time the partners can verbally address the process (Bat Or, 2010; Bucci, 2011). The state of mutual recognition emerges as a continuation of the relational processes and enables expression of each of the individual in the dyad as well as shared expression, while being in a close and mutual relationship (Benjamin, 2005; Gini et al., 2007). The capacity to recognize the other as distinct from oneself and to respect the individuality and uniqueness of the other while retaining closeness and togetherness is a complex and highly rewarding dynamic in a relationship (Benjamin, 2005). Its creation and sustenance becomes a token of positive and benevolent relationship.

Most of the processes described here have already been discussed in the clinical and research-based literature as important facets of the parent-child relationship (Slade, 1999, 2005; Schorer, 2014; Fonagy, 2015; Tessier et al., 2016; Schorer and Marks-Tarlow, 2017). However, the current study uncovered that these processes are connected to each other and revealed how they evolve throughout the joint painting in order to create transformation in the relationship. It appears that most of the dynamic processes described in this study need to occur in order to create the transformation. One process may lead to another, and if one or more aspects are missing, such as the pleasure part or the bidirectionality effect, the transformation would probably not fully evolve.

Another important finding of this study indicates that the JPP contains both explicit and implicit aspects of communication at the same time and allows for various ways of being together, such as having an implicit experience and also having a shared discussion between the partners (Isserow, 2008; Taylor Buck and Havsteen-Franklin, 2013). As appearing in the interaction of the dyads, the implicit art-based processes often led to verbal discussions, which are important in parent-child communication in middle childhood (Gilmore and Meersand, 2014). The tangible and visual expression of the relationship in the product itself and in the process of producing it allowed parents and children to look at the representations that were created and to verbally discuss them (Bat Or, 2010). In this way, the explicit communication appears to integrate and articulate the implicit evolving processes (Bucci, 2014).

This study sheds light on how the creative encounter enabled by the JPP uncovers profound and often hidden dyadic processes between parents and children. Such knowledge of the intricate and often overlooked implicit aspects in the interaction can help clinicians, parents and researchers in their efforts to understand parent-child relationship in the therapeutic interactions. The findings of the study underscore the significance of the use of joint artmaking as an important tool in parent-child art psychotherapy and in parent-child psychotherapy.

Limitation and Direction for Future Research

This study is based on a one-session meeting. Observation of the relationship dynamic as it is affected through creative art

processes could benefit from a long-term art-based intervention study. Further, this study examined the relationship between mothers and children. It is important that future research will also address father-child implicit dynamics during co-creation. The JPP should also be examined with children in different developmental stages, such as young children and adolescents. Another limitation of this study was that the first author conducted the majority of the JPP sessions (58%) as well as the qualitative data analysis, which introduced a certain bias into the research. This limitation was partially overcome by depicting phenomena across the whole cohort of dyads including a large number of JPP sessions that were administered by others. Additionally, other fellow researchers, clinicians and in particular the second author also examined the data of the JPP sessions and evaluated the insights gained by them.

In sum, the study underscored the centrality of implicit aspects in parent-child relations and the great potential of joint art creation to elicit positive transformation in the relations. The study uncovered a variety of dynamic processes that occur during the joint art creation. These interconnected dynamic processes

together create an interwoven choreography that can positively transform the quality of relationship.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the ethic comity in the Faculty of Social Welfare and Health Sciences at the University of Haifa. The protocol was approved by the faculty ethic comity. All subjects gave written informed consent in accordance with the Declaration of Helsinki.

AUTHOR CONTRIBUTIONS

All authors contributed to conception and design to the study and wrote the second draft of this manuscript. This study was made as a doctoral dissertation of TG. OM was the doctoral facilitator and organized with TG the database and the qualitative writing. TG preformed the analysis and wrote the first draft.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Trust the Process: A New Scientific Outlook on Psychodramatic Spontaneity Training

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OPEN ACCESS

Edited by:

David Gussak,
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Reviewed by:

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Alpen-Adria-Universität Klagenfurt,
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 29 November 2017

Accepted: 09 October 2018

Published: 14 November 2018

Citation:

Yaniv D (2018) Trust the Process:
A New Scientific Outlook on
Psychodramatic Spontaneity Training.
Front. Psychol. 9:2083.
doi: 10.3389/fpsyg.2018.02083

Human mind is hypothesis-driven and our observations of the world are strongly shaped by preconceptions. This “top-down” principle is biologically driven and contraindicative to spontaneity, which is non-linear, condensed, and initially incomprehensible. My first argument is that spontaneity entails “bottom up” information processing, as articulated in the hierarchical neurocognitive model of perception. My second argument is that changing the balance between these two processes is important and feasible. Insights from psychodynamic transference and savant syndrome are presented to support these ideas. Uniting these contemporary notions with some essentials of J. L. Moreno’s philosophy is my third goal. By violating predictions and expectations, psychodrama interferes with top-down “conserved” processing and cultivates here and now, stimulus-dependent spontaneous acts. Further evidence is presented in support of the claim that adult spontaneity leads to enhanced cognition and creativity through imitating the child’s brain, as Moreno envisioned. Because spontaneity is formed before having the evidence for its truth or adequacy, it entails, in adults, overcoming apprehensions about acting without a theory in mind. This is what *trusting-the-process* means and it requires training, which psychodrama fosters on its stage laboratory.

Keywords: spontaneity, psychodrama, bottom-up, top-down, creativity, transference, savant syndrome, role playing

INTRODUCTION

“Man will fear spontaneity until he learns how to train it” (Moreno, 1953, p. 47).

“Spontaneity is a function of organization” (Wellman J. Warner, May 1951, as cited in Moreno, 1953, p. 545).

As a method of clinical intervention and group therapy, psychodrama uses a dramatic-theatrical format to allow clients enact emotions, experiences and meaningful events in life, thus turning the abstract into concrete. Through dramatic action, the client explores an internal world, reaching insights about self and others, experiences what could never happen, and develop better living skills. Based on action and enhancement of spontaneity and creativity, psychodrama assists clients in facing life challenges, examine alternative solutions, and sometimes adapt to their situation with peaceful acceptance. The protagonist in psychodrama is invited to *actually become* the “thing” that s/he is referring to, be it a person or an abstract concept, like passion. “The embodiment must correspond to the idea of the thing” (Moreno, 1946/1985, p. 26). This is enabled through spontaneous improvisation – a process

that underpins psychodrama – and brings the patient closer to his/her emotions, thoughts, and imagination (Moreno, 1953).

Indeed, the origin of “spontaneous” is in Old Latin: [*sua*] *sponte*, “of one’s own accord, willingly” (dictionary.com, retrieved November 27th, 2017, from <http://www.dictionary.com/browse/spontaneous?s=t>). This definition emphasizes being in agreement and harmony with oneself, without external influence or constraint. Freedom is a central issue. Adjectives such as “automatic,” “impulsive,” or “instinctive” that sometimes accompany the term seem to underline a routine, mechanized and fixed patterned response, which, as elaborated below, seem to miss the point.

I argue that this unique psychodramatic experience corresponds to “bottom-up” processing (*vide infra*) and, accordingly, is particularly conducive to creativity training and therapeutic change. However, because we are inclined to think in a “top-down” fashion, spontaneity requires training, and the capacity to be trained and consequently change the balance exists in the general population. To begin substantiating this argument, I first refer to top-down vs. bottom-up processes as articulated in the cognitive neurosciences.

THE HIERARCHICAL MODEL OF PERCEPTION: “BOTTOM-UP” VS. “TOP-DOWN”

Classical theories considered the brain as passive and stimulus-driven, rather than as a device that actively creates meaning by itself. It was presumed to react to sensory inputs and copy pre-specified information. These approaches emphasized serial “bottom-up” processing in hierarchically organized neural structures (Marr, 1982; Biederman, 1987). Newer data designate the brain as much more active and adaptive (Edelman, 1989; Churchland et al., 1994; Engel et al., 2001). According to this view, cognition and behavior are not stimulus-driven, but are to a large degree based on expectations derived from previous experience and on generalized information already stored in the architecture of neural networks (Engel et al., 2001; Gilbert and Li, 2013; Muckli and Petro, 2013). This holds true in the infant brain as in adults (Emberson et al., 2015) and also when multisensory systems are involved (Lee Masson et al., 2016).

“Top-down” processing denotes cognitive influences and higher-order representations (e.g., expectations, attention, or knowledge) that impinge on earlier steps in information processing. “Bottom-up” refers to attention as driven mainly by the characteristics of the stimulus and its sensory context (e.g., contrast, symmetry, and order). The anatomical variant of this idea is that top-down influences are associated with the activity of descending pathways from the neocortex that are relayed through the thalamus, while bottom-up processes denote feedforward connections, ascending along a hierarchy of areas, which represent progressively more complex aspects of the sensory (visual) scene (Mumford, 1992; Ullman, 1995). Importantly, “top-down” and “bottom-up” processes represent general organizational principles rather than dichotomous concepts, and in most situations, they interact in the process

of perception (Macaluso and Doricchi, 2013). However, the *proportion* or *dominance* of each of the processes within the interaction is dynamic and has important implications for cognition and behavior. Weighing of new (current) evidence and prior expectations must be dynamically adjusted when negotiating changeable real-world environments as well as clinical encounters.

Francisco Varela, a pioneer in embodied philosophy, suggested in 1987, that subjective visual perception is 80% dependent on ongoing “bussing activity” within the brain’s visual system, while only the remaining 20% is external and stimulus-dependent (Varela, 1987). Mahoney (1991) elaborated on this idea and suggested that the greatest proportion of that [internal] endless activity is self-referential (recursive):

Numerically speaking, there are 10 motor (efferent) neurons for every sensory (afferent) receptor; and for every motor neuron, there are 10,000 interneurons (neurons that connect only with other neurons). If we accept the traditional notion that one’s sensory receptors constitute one’s contact with the outside world, we are forced to conclude that one is much more extensively connected with oneself than with the external environment (pp. 101–102).

While controversy may still exist regarding the nature of perception (Firestone and Scholl, 2016), this principle (i.e., that most of our visual perception is internally driven) is biologically adaptive, as it promotes safety and avoidance of familiar painful experiences. Yet, it also induces a psychological/cultural burden, namely the difficulty to change. The fact that our mind is premise-driven and that our observations of the world are strongly shaped by pre-conceptions makes it difficult to embrace a new perspective (Gregory, 1980; Snyder et al., 2004). Chi and Snyder (2011) eloquently elaborate:

Information consistent with our expectations or mental templates is often accepted at face value, whereas inconsistent evidence is discounted or hidden from conscious awareness. While this hypothesis driven mechanism helps us in efficiently dealing with the familiar, it can prevent us from seeing better solutions in a different and/or unfamiliar context (p. 1).

I might add that it prevents us from finding better solutions in a *familiar* situation as well. For example, in a study on the Einstellung effect in chess, Bilalić et al. (2010) showed that even experts can fail to find an optimal solution when a common solution comes first to their mind. This demonstrates the powerful influence of our long-term memory and the strength that our preconceptions have on our mind (Gobet et al., 2014).

Furthermore:

Long-term memory is an important source of top-down processing, [it] includes not only declarative memories, but also the procedural knowledge stored in the functional architecture of sensorimotor networks. Network architecture could constitute an “implicit” source of top-down influences as, for instance, the topology of lateral connections within cortical areas is known to embody

stored predictions that have been acquired both during evolution and through experience-dependent learning, and have proven to be of adaptive value (Engel et al., 2001, p. 714).

It appears, then, that the human mental apparatus has evolved to promote biological advantage by relying on existing knowledge more than on novel, unhabitual or unforeseen encounters (Varela et al., 1991/2016; Grossberg, 1999, 2000). To paraphrase Varela et al. (1991/2016), this quality is not optimal, it is, rather, simply viable. To be viable means that:

The perceptually guided action of the system must simply facilitate the continuing integrity of the system (ontogeny) and/or its lineage (phylogeny). . . any action undertaken by the system is permitted as long as it does not violate the constraint of having to maintain the integrity of the system and/or its lineage (Varela et al., 1991/2016, p. 205).

Therefore, the influence of ongoing top-down activity on the processing of incoming sensory signals is not confined to a feedback, but rather plays a decisive role in the (re)action production. Subjective information related to previous experience is superior in interpreting current perceptual stimuli, relative to the actual (bottom-up) input. Incoming signals may therefore convey different meanings about the same scene, in accord with a preexistent mental/behavioral context.

I suggest that intentionally changing the proportion of top-down/bottom-up dynamic processes, so that bottom-up input is more dominant at the expense of top-down influences, would enhance spontaneity as well as therapeutic change (*vide infra*). I also claim that this is exactly what psychodrama does, by cultivating spontaneity through role play and other creative acts. Before turning to the latter claim, I will substantiate the former using two clinical examples: psychological transference and autistic conditions. These examples demonstrate top-down and bottom-up dynamics in low-level sensory systems as well as in higher-order mental computations.

PSYCHOLOGICAL TRANSFERENCE

Originally, within classical psychodynamic theory, transference was viewed as representing a displacement from the past, with the patient distorting the present in order to make room for the expression of some encapsulated earlier fantasy or experience. An alternative formulation sees transference as reflecting “a universal psychological striving to organize experience and construct meaning” that operates in an ongoing way, and which is “an expression of the continuing influence of organizing principles and imagery that crystallized out of the patient’s early formative experiences” (Stolorow and Lachmann, 1984/1985, pp. 26, 25, as cited in Mitchell and Black, 1995, p. 166). Thus, transference distortions can and do exist in any interpersonal context,

not only in therapist-client relationships¹, and they are predominantly a top-down phenomenon in a context of attachment (Brockman, 1998, 2010). Transference triggers memory that “may enter consciousness and influence perception... where it takes control of attention, perception and thinking” (Brockman, 2010, p. 704). By focusing attention, transference “would be limiting perception—whether that focus be on perception from the senses or on perception from the medial temporal lobes (memory)” (*ibid.* p. 704).

Brockman (2010) further suggests that bottom-up interventions, in the context of psychodynamic treatment, consist of unexpected and unanticipated interventions and act as a “circuit breaker,” which leads to change. Violating expectations and predictions (as in “oddball paradigm”) would require a completely different course of action by the patient. Neurobiologically, this would be mediated through a ventral frontoparietal network that interrupts with a dorsal frontoparietal network that mediates top-down processing.

To illustrate, Brockman introduces a 48-year-old patient, who had been in numerous therapies since the age of 17. He accepted the referral from a colleague, who described the patient as “...chronically depressed, hopeless, suicidal” (p. 695). Among other reflections regarding this background, Brockman underlines: “I was partly aware that when I accepted this patient, it would be imperative that I find a treatment and a plan different from those she had undergone. I would need to find something new” (p. 695). After having reached a relatively solid therapeutic alliance, Brockman refers to a specific oddball intervention, in a moment when the patient complained about having a recursive failure in producing her work:

...

Therapist: Then maybe you should work here.

Patient: What?

Therapist: Here in my office. I’m not here many afternoons.

Patient: You’d let me work here?

(Therapist’s reflection): ... I think we were both a little unsettled by the “oddball” quality of what I had just offered. After a beat, she asked, what makes you think there’s something so special about this office?

It’s not about the office. It’s about me, and your connection to me (p. 708).

Instead of providing a “conventionally” therapeutic intervention, Brockman spontaneously said what could be considered the wrong sort of thing for a therapist to say. “What is spontaneity? It is the character of not resulting by law from something antecedent... I don’t know what you can make out of the meaning of spontaneity, but newness, freshness and diversity” (Peirce, 1935, p. 9, as cited by Moreno, 1946/1985). Within this particular therapeutic setting, Brockman seems to have reacted spontaneously while being genuinely empathic.

¹However, the therapist-client relationship incorporates a regressive component, which tends to increase the stress of the relationship and consequently increases the potential for transference distortions.

Though somewhat unorthodox, similar examples appear in classical literature (Oremland, 1991) as well as self-psychology (Kohut, 1984).

Brockman clarifies that when transference work and interpretation are overpowered by the affective experience involved (through emotional memory), engaging in an unexpected and salient intervention shifts the balance, allowing “the prior focus to be released and a new focus initiated through the ventral system [to be] taken up as the new focus by the dorsal system” (Brockman, 2010, p. 706). Thus, within the transferential relationship, an unexpected and surprising suggestion created “a new object”² and, as such, had to be perceived and processed through the bottom-up network.

INSIGHTS FROM AUTISTIC SAVANTS

People with autism appear significantly less concept-driven than normal individuals (Snyder and Thomas, 1997; Snyder, 1998). While this lack of use of concepts leads to serious intellectual and social impairments, people with autism show exceptional performance on visual search tasks (Shah and Frith, 1983; Plaisted et al., 1998b; Joseph et al., 2009), have higher prevalence of absolute pitch (Miller, 1999), and superior visual discrimination (Plaisted et al., 1998a; Bertone et al., 2005), consistent with the development of positive neurology (Kapur et al., 2013; Schwarting and Busse, 2017). Particularly interesting, they are less susceptible to visual illusions than the normal population (Happé, 1996; Bogdashina, 2003).

Research suggests that people with autism see the world more accurately – as it really is – because they are less biased by previous experiences (Pellicano and Burr, 2012) or because of having a “privileged access to lower level, less processed information” (Snyder, 2009, p. 1399; see also: Frith and Happé, 1994). Recently, a third hypothesis was suggested, in which an increased propensity to represent and respond to environmental volatility (impaired top-down processing) compromises learning about probabilistic relationships in the environment, resulting in an increased receptiveness to sensory inputs (Lawson et al., 2017). In all of these potential explanations, people with autism are less susceptible to past-generated distortions/knowledge and are more open to alternative and, at times, more efficient and creative interpretations. This is especially evident in *savant syndrome* (from French *savoir* = to know), a specific and rare condition in which persons with autistic disorder or other mental disabilities have extraordinary skills, in stark contrast to their handicap (Treffert, 2009).

The condition can be present from birth or surface in early childhood (congenital) or can surface unexpectedly following head injury, stroke, dementia, or other central nervous system (CNS) disorders (acquired). The special skills occur most commonly in the areas of music, art, calendar calculating, lightning calculating, or

mechanical/spatial abilities (Treffert and Rebedew, 2015, p. 158).

Snyder (2009) argues that savant skills are latent in all of us, an argument in accord with the fact that they can emerge “suddenly and spontaneously in individuals who had no prior history for them, either in interest, ability or talent” (p. 1400). Gobet et al. (2014) further elaborate and suggest that in the general population, “creativity can be boosted by decreasing conceptual processing and increasing the role of low-level perceptual processing” (p. 2). While in both autistic and healthy brains, creativity might be a separate process from talent or skill (Zaidel, 2014), Gobet et al. (2014) prediction was indeed tested and confirmed. Consistent with the view that autistic savants have some atypical anterior left brain dysfunction or inhibition together with right brain compensation (Miller et al., 1998; Treffert, 2005; Sacks, 2007), artificially inducing savant-like skills in normal healthy individuals using low-frequency repetitive transcranial magnetic stimulation (Snyder et al., 2006; Boggio et al., 2009; Snyder, 2009) or transcranial direct current stimulation (Chi and Snyder, 2012), brought a cortical disinhibition or atypical hemispheric imbalance; this in turn induced and improved savant-like abilities like drawing skills, proofreading skills, numerosity, and reduced false memories (for review see: Snyder and Mitchell, 1999; Snyder, 2009).

While the implications for the study of human cognition and the psychology of expertise are profound (Gobet et al., 2014; Wilson, 2016), it is enchanting to read a poetic description, so consistent with the above hypothesis, written as early as in 1953 by Moreno, father of psychodrama:

Spontaneity can enter the creatively endowed individual and evoke a response. There were many more Michelangelo's born than the one who painted the great paintings, and many more Beethoven's born than the one who wrote the great symphonies, and many more Christ's born than the one who became Jesus of Nazareth. What they have in common are creativity and the creative ideas. What separates them is the spontaneity which, in the successful cases, enables the carrier to take full command of his resources, whereas the failures are at loss with all their treasures (p. 39).

Indeed, spontaneity (in contrast to impulsivity) is *the* cornerstone of psychodrama and is imperative in other creative arts therapies³ as well (Malchiodi, 2003). In some of the latter, however, *art* is essential to the therapeutic paradigm and is used mainly to project and thus to distance (zoom out) the person from his/her symbolic creation: visual arts through image, music through sound and rhythm, and poetry/writing through words (Knill et al., 1995). In psychodrama, the protagonist simply enacts his or her own life episodes, rather than, for example, some pre-given theatrical role, thus *zooming-in* without being significantly dependent on acting skills. While psychodramatic techniques for *zooming-out* are also used (e.g., “mirroring”), the basic method

²This, of course, may contribute therapeutically by leading toward a transformation of the therapist from being an “object” to being a subject.

³Conventionally including art, music, drama, dance/movement, poetry/creative writing, bibliotherapy, play, and sandplay.

works through *nearing* to the psychic materials rather than distancing, and is the reason that psychodrama is considered a more direct method. Before further associating this to my argument, I will shortly introduce Moreno and psychodrama⁴.

SOME BASIC ELEMENTS IN PSYCHODRAMA

Moreno (1889–1974), a psychiatrist, who with his wife, Zerka Toeman Moreno, founded Psychodrama, which focuses on group processes and the primacy of action. Also a formidable pioneer of group psychotherapy and sociometry (the study and measurement of society and relationships), Moreno considered the three fields to be interrelated and indispensable to one another (Moreno, 1970). He had a strong existential and spiritual belief system, central to which was the treasuring of spontaneity, creativity, and the “urgency of immediate experience” (Moreno, 1989, p. 45, as cited in Wilson, 2011, p. 11).

In his Canon of Creativity, Moreno (1953) outlined a mutual association between spontaneity and creativity, so that the first arouses the second and the second is receptive to the first. “In order to become effective, creativity (*the sleeping beauty*) needs a catalyzer – spontaneity” (p. 45). It is generally accepted that Moreno’s intention was that spontaneity is a *state* that induce the creative sequence (*process*), leading to a final “product.” “Creativity is related to the “act” itself; spontaneity is related to the “readiness” of the act” (Moreno, 1955, p. 109). Without a doubt this twin concept was central in Moreno’s thought:

I formulated this twin concept as the primary principles of existence in my earliest effort to comprehend the living universe in its entirety. It seemed to me that they offer a safe bridge between ontology and science and that they are better able to explain all phenomena of the inanimate and animate universe than any other set of concepts I had known (ibid, p. 105).

The bridge, however, between ontology and science was not so safe, as Moreno’s definitions of spontaneity and creativity have been criticized for inconsistency (see: Aulicino, 1954; Kipper, 2000; Kipper et al., 2010). Is spontaneity an existential phenomenon, impossible to quantify or measure, as Bergson (1911) – frequently quoted by Moreno – suggested? Or is it a biologically based social phenomenon ready for empirical test? Kellermann (1992) reviewed this debate and suggested that despite Moreno’s natural science ideal, “in reality, Moreno’s humanistic bias shows through in most of his writing. . .[and] emphasize the hidden spiritual dimensions of reality and the intuitive, mystical sources of truth that cannot be investigated by the [objective] experimental approach” (p. 39).

In line with this suggestion, Moreno’s intention was to convince that spontaneity and creativity evoke levels of organized

behavior which are not fully traceable to preceding determinants: “Whereas a living act is an element in the *causal-nexus* of the life process of the real person, the spontaneous-creative act makes it appear as if for one moment the *causal-nexus* has been broken or eliminated” (Moreno, 1946/1985, pp. 35–36). Relating this to a more clinical setting, Moreno conceived spontaneity important to treatment of mental disorders because it “enables the patient to . . . activate bodily and mentally his crucial conflicts so that he feels more clearly all the possibilities of a solution and eventually will turn his will towards a new path” (Moreno, 1939, p. 28).

Because spontaneity is not conservable like the kind of energies noted by physicists, and is vulnerable to mood, context, and mental dynamics, one has to *warm up* to it from the start. Indeed, “warming up” is formally the first phase in any psychodramatic meeting and stands for the activity of becoming gradually more spontaneous. It is indispensable in Moreno’s theory to get ready for action.

There are many ways to warm up to spontaneity, e.g., through physical action, promoting authentic encounters, or making abstract situations more concrete. Necessary to all is a safe and nurturing setting. Moreno was well aware of the fragility of this emotional process and of the spontaneous state itself. Yet he saw no other way but to rehearse, to train and to practice spontaneity through active, concrete, “experimental” actions, including role-playing. In *role play* one is deliberately creating an approximation of some aspects of a *real* experience, and it is through the study of roles *in action* that new knowledge about roles is developed and behavioral alternatives rehearsed (Moreno, 1953; Yardley-Matwiejczuk, 1997).

Indeed, among psychodrama’s most cherished techniques is *role reversal*: acting out one’s life roles and experimenting with new and unfamiliar (“other”) roles, with the help of an “auxiliary ego,” here and now, as if in their *statu nascendi* and *locus nascendi*. In a group context, selected auxiliaries usually enter some presented roles alternately, allowing an actual interaction to occur. Properly guided, such process is aimed at producing “a shift in *perception* so that one can see the other *and* oneself in a new and fresh way” (Moreno et al., 2000, p. 15; Kellermann, 1994). Hence,

Whereas conduct in a life situation is irrevocable, here every phase of the performance is open to correction through criticism made by the other participants, the instructor and the subject himself. Thus, a technique for learning to differentiate, in action, behavior patterns which may have been inadequate at the start is made available to the individual and to the group (Moreno, 1953, p. 534).

The *action* component, aptly led-to by a warm up, bypasses the rational, linguistic defensive mode of describing or explaining, allowing spontaneity and improvisation to arise (Moreno, 1953; Zwerling, 1979; Blatner, 2000). Using the instruction, “show me how” rather than “tell me why/what,” necessarily evokes unique neurological and psychological processes, critical to the success of therapy, that are missing when using discourse alone. A key concept in the construction of this notion is different types of conscious “selves,” with different inputs and

⁴The philosophical and theoretical basis of classical psychodrama is voluminous, and only few selected elements are tapped here. The interested reader is advised to refer to: Moreno (1946/1985, 1953), Moreno and Moreno (1956, 1975), Moreno et al. (2000), Horvatin and Schreiber (2006), von Ameln and Wieser (2014).

qualities of consciousness (Markus and Wurf, 1987; Kahneman and Riis, 2005; Wilson, 2009; Conner and Barrett, 2012). Enactments naturally induce personal involvement by engaging an *experiencing self*, critically different from other selves' states:

It is the experiencing self whose blood pressure rises in response to stressful situations (Kamarck et al., 2005), whose cortisol responds to a stressor (Smyth et al., 1998), and whose immune system reacts to elevated feelings of hostility during spousal fights (Kiecolt-Glaser et al., 2005). Although humans can evoke the stress response through memories and anticipated thinking (Sapolsky, 2004), acute autonomic, hormonal, and immune responses are most commonly activated as people act and react to life's momentary stressors through the eyes of the experiencing self (Conner and Barrett, 2012, p. 6).

Cognitive processes induced during experiential action are predicted to differ considerably from those produced during rhetoric, static or non-experiential conditions (Yaniv, 2014a). Thus, acting from within or *acting out*, in psychodramatic practice, helps in gaining new insights and facilitates changing maladaptive behavioral patterns, which Moreno coined – “action insight” (Moreno, 1946/1985, p. x). “Acting out” in psychodrama means enacting rather than the psychoanalytic and more widely known usage that involves unconsciously expressing some disowned drive. As Moreno said,

I suggested that we differentiate two types of acting out, *irrational, incalculable acting out* in life itself, harmful to the patient or others, and therapeutic, controlled acting out, taking place within the treatment setting...under the guide of therapists who are able to utilize the experience (Moreno, 1946/1985, p. x).

In the latter, by “mixing” imagination with concreteness, truly creative acts become possible, invoke surprise and awe of the unexpected and add a new memory trace. On one hand, this enables the protagonist to process pain and mourn the past; on the other hand, it may allow experiencing compensation and correction. In total, this is an empowering experience that may change the protagonist's point-of-view of himself and lead him further, to exercise creative behavioral plans, even in reality.

In the psychodramatic situation...the whole world into which the actor enters – the plots, the persons, the objects in it, in all its dimensions, and its time and space – are *novel* to him. Every step he makes forward in this world on the stage has to be defined anew. Every word he speaks is defined by the word which is spoken to him. Every movement he makes is defined, aroused and shaped by the persons and objects he encounters. Every step he makes is determined by the steps of others towards him. But their steps, too, are, at least in part, determined by his own steps (1946, p. 53).

Pushing it further, conceptually, Moreno envisioned psychodrama as having the potential to become a birth-like situation, with the protagonist becoming a new-born being:

The moment of birth is the maximum degree of warming up to the spontaneous act of being born into a new setting, to which he must make a rapid adjustment...the infant is the actor. He has to act in roles without having an ego or personality to act with. Like the impromptu actor, every step he makes in the world is new. He has to act quickly on the spur of the moment... (Moreno, 1946/1985, p. 54).

In contrast to this unique experience, Moreno's concept of *cultural conserve* (Moreno, 1946/1985, pp. 107–109) is theoretically the opposite of spontaneity, insofar as it is a familiar, uncreative, and fixed form of engagement, but which is often required to set the stage for improvisation. Cultural conserves (e.g., the alphabet, the numbers, the language, and musical notations), underlie and determine all forms of creative activities. Moreno's intention, when coining the term, was to refer to the category of things that already has been created, such as customs or social rules, in order to differentiate the *product* of creativity from the *process*, and to remind us to attend to the latter. He marked our “tendency to irrationally cling to what has been created, to rely on traditional or established rules as if they had unquestioned authority, to lapse into fixed or rigid habits of belief and thought” (Blatner, 2000, p. 75), instead of being spontaneous. Why does this tendency endure? “The answer is: man fears spontaneity, just like his ancestor in the jungle feared fire; he feared fire until he learned how to make it. Man will fear spontaneity until he learns how to train it” (Moreno, 1953, p. 47).

To summarize Moreno's legacy regarding these issues, he saw the insufficient development of spontaneity as the source of human psycho- and socio-pathology. Therefore, he considered spontaneity training as “the most auspicious skill to be taught to therapists...and it is his task to teach his clients how to be more spontaneous without becoming excessive” (Moreno, 1953, p. 42).

In conclusion, the spontaneous-creative act and the cultural conserve are highly congruent with bottom-up and top-down processing, respectively: psychodrama encourages decreasing the “causal-nexus” inherent to top-down habitual behavior, and increasing “bottom-up” receptiveness by warming up to spontaneity, then creatively acting upon it. The latter is intensified in psychodrama, thanks to the association of personal content with dimensions of space, action, and imagination that are added to the more conventional verbal discussion in therapy. These dimensions “allow for improvisation, thinking in terms of alternative scenarios, shifting roles and points of view, opportunities for replay and other elements which offer new avenues to insight and self-reflection” (Blatner, 2000, p. xvi). Reaching these desirable goals requires considerable mental effort, to which I now turn.

A NEUROPHENOMENOLOGICAL PERSPECTIVE

Whereas ordinary communicative processes (e.g., language) are perceived as known and linear, spontaneity (e.g., improvisational play) is non-linear, associational, condensed, and at times incomprehensible. In my view, *trusting the process* – a popular

aphorism common in discussions of creativity in fields like arts, sports, and management – means remaining in the co-created improvisational (symbolic) play, despite its incomprehensibility. It requires overcoming the apprehension and nervousness aroused when working without a clear “theory” in mind. One has to willingly suspend control and become open, somewhat passive, “receptive” to stimuli and associations arising both within and without. This state reduces critique and judgmental (top-down) responses and “goes along” with whatever arises in the moment, even before understood. “The therapist can know whether his or her response is beneficial only by what happens next. The criteria chosen for this judgment are determined by the maturational purposes of the therapeutic endeavor” (Meares, 2001, p. 760).

From a neurophenomenological point of view, spontaneity is a disinhibition that allows a special kind of attention to the “thing in itself,” naked from expectations or preferences, reminiscent of the autistic savant experience. It has a relatively well-characterized brain profile, consistent with reduced frontal activation (Martindale, 1999; Yaniv, 2011, 2012, 2014a,b), which is also common in the “savant brain,” as discussed above. Does this imply that there are brain mechanisms common to psychodrama and savantism? As mentioned above, brain stimulation protocols that reversibly simulate savant lesions have been successfully used to induce creativity and enhanced cognition in normal subjects (Snyder et al., 2003; Young et al., 2004; Snyder et al., 2006; Boggio et al., 2009; Gallate et al., 2009; Karim et al., 2009; Chi and Snyder, 2012; Chrysikou et al., 2013). Gobet et al. (2014) suggest that these results give us a clue for “a ‘better’ brain— a brain that is hypothesis driven, but is resilient to cognitive illusions, a brain that can in addition see the world with direct perception and thus [be] open to alternative interpretations” (p. 1). Does the savant *kind* of knowledge, associated with bottom-up mechanisms, arise naturally in psychodrama?

Support of the suggested resemblance is based on the fact that the brain stimulation protocols mentioned above actually simulate the infant brain in which the frontal lobe matures gradually over the first years of life, in contrast to a much earlier maturation of other cortical areas. Thompson-Schill et al. (2009) review the late prefrontal development and suggest that despite some negative consequences for childhood behavior, it “has a clear advantage over an adult when it comes to certain types of learning (like language acquisition) or certain activities like flexible object use during problem solving” (p. 261). In fact, the authors review a few examples in which children – as well as patients with prefrontal cortex damage – do better than healthy adults in tasks that assess creative thinking. They further suggest that “This apparent flexibility of behavior can be interpreted as a stimulus-driven response: A mind that is at the mercy of its environment is not shaped by expectations or beliefs” (p. 262). The relation to psychodrama emerges through the move from the imagining of doing to actual doing, from hypothetical, imaginary forms of experimenting to real, witnessed and performed spontaneous acts.

Interestingly, the cradle of psychodrama was at children’s impromptu play at the gardens of Vienna around 1908–1911 (Moreno, 1946/1985, p. 3) and Moreno considered infants as

“the geniuses of the race” (ibid. p. 48) from the perspective of embodiment and achievement. Much later, a few years after Moreno had moved to America, *The New York Times* published an interview with him entitled, “Impromptu plan used in education”:

Children, said Dr. Moreno in an interview, are endowed with the gift of spontaneous expression up to the age of 5, while they are still in an unconscious creative state, unhampered by the laws and customs laid down by preceding generations. After that they fall heir to accepted methods of expression; they become imitative, turn into automatons, and in a large measure are deprived of natural outlets of volitional creation (The New York Times, February 3, 1929; page number unavailable).

The remarkable association between Moreno’s early premises and recent scientific evidence, reasonably support the hypothesis that spontaneity, as regarded in psychodrama, is associated with hypofrontality and related compensatory-like mechanisms.

SO, WHAT COMES OF IT: BOTTOM-UP, TOP DOWN, OR BOTH?

The dramatic incarnation of a stream of bottom-up experiences aroused in a protagonist is a professional asset of psychodramatists. It induces, in turn, non-habitual, creative, sometimes brave, impromptu actions in the psychodramatic scene. “It is not given like words or colors. It is not conserved or registered. The impromptu artist must warm-up, he must make it climbing up the hill” (Moreno, 1946/1985, p. 36).

Yet one has also to concentrate and self-organize in order to communicate – dramatically or otherwise – whatever arises, which may be blurred, even distorted. The two phases continuously interact during the spontaneous-creative act, reminiscent of the double-phased “regression in service of the ego” (Kris, 1936/1952) which enables the maintaining of contact with primary physical and mental positions and with varied thinking modes (Knafo, 2002). This complexity was eloquently described by Moreno:

In the spontaneous-creative enactment, emotions, thoughts, processes, sentences, pauses, gestures, movements etc., seem first to break formlessly and in anarchistic fashion into an ordered environment and settled consciousness. But in the course of their development it becomes clear that they belong together like the tones of a melody; that they are in relation similar to the cells of a new organism. The disorder is only an outer appearance; inwardly there is a consistent driving force, a plastic ability, the urge to assume a definite form (Moreno, 1946/1985, p. 36).

While the move from the “anarchistic fashion” to “an ordered and settled consciousness” *could* be understood as a move in dominance of mental processes – from bottom-up to top-down, I do not think that this is the case. This move is a process

that creates a new insight, and thus it cannot be identified as a top-down (culturally conserved) phenomenon, but rather a rearrangement of current mental representations and therefore continuous in nature with the preceding spontaneous-creative state of mind. This distinction is important in understanding spontaneity the way Moreno conceived it:

One of the contributions of spontaneity research was to recognize the various phases and degrees of spontaneity as one continuous process, the reduction and loss of spontaneity, impulsive abreaction and the pathological excesses as well as adequate and disciplined spontaneity, productive and creative spontaneity. Another contribution was to recognize that spontaneity does not operate in a vacuum but in relation to already structured phenomena, cultural and social conserves. Spontaneity is a function of organization (1953, p. 545).

Eventually, this process may be consolidated into long-term memory, becoming the new top-down, conserved baseline. This may be best represented in Moreno (1946/1953) original concept – “catharsis of integration.” He considered catharsis as:

A process which accompanies every type of learning, not only a finding of resolution from conflict, but also a realization of self, not only release and relief but also equilibrium and peace. It is not a catharsis of abreaction but a *catharsis of integration* (1953, p. 546).

Moreno believed that as a *consequence* of role reversal, the actor-patient has an opportunity to find and re-organize him/herself, “to put the elements together which may have been kept apart by insidious forces, to integrate them and to attain a sense of power and of relief, a catharsis of integration (in difference from a catharsis of abreaction)” (1953, p. 85). It can well be said that through a long chain of role takings and interactions, dialogical sequences and pauses, moments of meditation and decision, psychodrama aims at an integration of the protagonist with his co-actors and the spectators of the drama, into a freer and more spontaneous community, in the group microcosmos and beyond. As a result, psychodrama must be considered as first and foremost a bottom-up method and process. By violating predictions and expectations, psychodrama interferes with top-down processing and cultivates in-the-moment, stimulus-dependent experiences, from beginning to end.

LIMITATIONS AND CONCLUSION

While the present arguments clearly point to a past-dependent constriction of cognition, it is only fair to note that a contrasting view had been previously presented, whereby top-down processing allows the agent *freedom from immediacy* (Shadlen and Gold, 2004) by not being “limited to that which emerges as a direct response to stimulus input” (Smallwood et al., 2013, p. 120). Designating attention to the immediate environment as *freedom or captivity* seems beyond experimental considerations and may consist of personal preferences which are

beyond the scope of the present paper. Suffice it to mention the central role attention to immediacy is given in the Zen/Buddhist meditation practice and in its modern counterpart, mindfulness meditation. The relationship of the latter to drama-related therapies is innovative and has been recently discussed elsewhere (see: Gluck, 2013; Schuchner, 2016; Yaniv and Kedem, 2017).

A more objective challenge emerges regarding the lack of empirical consensus about the neuroscience of creativity (Arden et al., 2010; Dietrich and Kanso, 2010; Sawyer, 2011), raising questions such as what is the relative importance of top-down vs. bottom-up processing in creativity (Thompson-Schill et al., 2009; Benedek et al., 2011), or whether creativity can be isolated to discrete regions in the brain (Abraham, 2013; Jung et al., 2013). A likely explanation for these inconsistencies is that results from individual studies are framed in general terms, while neither creativity nor spontaneity should be treated as a single entity. For example, when looking at individual components of general creative ability (e.g., divergent thinking), an emerging literature has yielded a relatively consistent pattern of results, pointing to the importance of functional connectivity between different brain areas (Beaty et al., 2014, 2016).

Introducing the bottom-up/top-down conceptualization to psychodramatists is new and important because it may provide them with a different perspective on their actual interventions, thus opening new possibilities for developing psychodramatic theory and practice, and it could recast psychodrama in a more scientific light. On the other hand, introducing spontaneity – from the psychodramatic perspective – to neurocognitive science could prove beneficial, as it could show how the fast, spontaneous, unknown side of our mind can bring about appropriate, competent, and skillful responses “in dealing with a situation, however, small or great the challenge of its novelty” (Moreno, 1955, p. 109). It might also open up a rich array of in-action experimental procedures that are currently lacking in the field (Yaniv, 2014a). For example, in a study about divergent thinking, *openness to experience* was conceptualized as a “tendency to engage in imaginative, creative and abstract cognitive processes” (Beaty et al., 2016, p. 773) and was evaluated using scale questionnaires. From a spontaneous point of view, openness to experience would be authentically appraised by an actual engagement in some improvisational, creative *acts*. Using *this* kind of research tool would make the stemming results more valuable for real life situations and clinical applications (Cole, 2001; Nadar and McDowd, 2008; Beidas et al., 2014; Yaniv, 2014a). Psychodrama has been successfully implementing this vision for over a century. Other clinical traditions, like contemporary psychoanalytic psychotherapy, began incorporating some of these unique characteristics more recently (Rothenberg, 1988; Modell, 1997, 2009; Stern, 2007; Wachtel, 2009). The challenge to the cognitive sciences remains.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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Conflict of Interest Statement: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Creative Arts Interventions to Address Depression in Older Adults: A Systematic Review of Outcomes, Processes, and Mechanisms

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 20 June 2018

Accepted: 10 December 2018

Published: 08 January 2019

Citation:

Dunphy K, Baker FA, Dumaresq E, Carroll-Haskins K, Eickholt J, Ercole M, Kaimal G, Meyer K, Sajnani N, Shamir OY and Wosch T (2019) Creative Arts Interventions to Address Depression in Older Adults: A Systematic Review of Outcomes, Processes, and Mechanisms. *Front. Psychol.* 9:2655. doi: 10.3389/fpsyg.2018.02655

Depression experienced by older adults is proving an increasing global health burden, with rates generally 7% and as high as 27% in the USA. This is likely to significantly increase in coming years as the number and proportion of older adults in the population rises all around the world. Therefore, it is imperative that the effectiveness of approaches to the prevention and treatment of depression are understood. Creative arts interventions, including art, dance movement, drama, and music modalities, are utilized internationally to target depression and depressive symptoms in older adults. This includes interventions led by trained arts therapists as well as other health and arts professionals. However, to date there has not been a systematic review that reports effects and examines the processes (why) and mechanisms (how) of creative arts interventions are used to address depression in this older age group. This systematic review of studies on creative arts interventions for older adults experiencing depression examined: outcomes of four creative arts modalities (art, dance movement, drama, and music); with particular attention paid to processes documented as contributing to change in each modality; and mechanisms considered to result from these processes. Our analysis of 75 articles (17 art, 13 dance, 4 drama, and 41 music) indicates mostly significant quantitative or positive qualitative findings, particularly for interventions led by creative arts therapists. Mechanisms of change gleaned from the studies that were common across modalities include physical (e.g., increased muscle strength; neurochemical effects, such as endorphin release), intra-personal (e.g., enhanced self-concept, strengthened agency and mastery; processing and communication of emotions), cultural (e.g., creative expression, aesthetic pleasure), cognitive (e.g., stimulation of memory), and social (e.g., increased social skills and connection), that were all considered to contribute to reduced depression and symptoms. Recommendations for future research includes stronger focus on testing of processes and mechanisms.

Keywords: creative arts therapy, dance movement therapy, drama therapy, arts therapy, depression, older adults, processes, outcomes

INTRODUCTION

The number and proportion of older adults in the population has increased in virtually every country in the world over past decades, because of increased life expectancy and decreased fertility (United Nations Department of Economic Social Affairs Population Division, 2015). Current trends indicate an even greater global population of older people in coming years, with an estimated increase from about 12–22% (900 million to 2 billion) between 2015 and 2050 (Naghavi et al., 2015; World Health Organization, 2017b). Therefore, health issues impacting older adults are likely to make a significant contribution to the global health burden in coming decades (United Nations Department of Economic Social Affairs Population Division, 2017).

Depression affects approximately 7% of the world's older adults (World Health Organization, 2017a), with the highest rates in countries including Australia (10–15%) (National Ageing Research Institute, 2009) and USA (up to 27% with major depression and 31% with depressive symptoms) (Mental Health America, 2018). The most significant challenges are faced by older adults living in residential aged care, with rates as high as 35% (National Ageing Research Institute, 2009). Depression is three to four times more common in older people who have dementia (Bennett and Thomas, 2014). While prevalence is the same for both genders, functional disability caused by depression is greater for men (Forlani et al., 2014).

Depression is identified as the fourth leading cause of disability worldwide, and likely to be the second leading cause by 2020 (Murray and Lopez, 1996a,b). Depression leads to impaired functioning in daily life and can cause great suffering (Fiske et al., 2010). Depression also increases the perception of poor health, and the utilization of health care services and costs. Older adults with depressive symptoms have poorer functioning compared to those with other chronic medical conditions and higher rates of suicide. Mental health issues such as depression also impact physical health and vice versa (Bruce et al., 1994; Mental Health Foundation, 2018). Causes of depression are considered to include reduced involvement in daily life activities. This may be accompanied by self-critical thinking, which can exacerbate a depressed state. Protective factors relevant for depression in later life include age-related increases in psychological resilience, higher education and socio-economic status, engagement in valued activities, and religious or spiritual involvement (Fiske et al., 2010).

Documented depression treatments include pharmacological and non-pharmacological approaches. Pharmacological treatments indicate effectiveness in addressing symptoms of depression but are also associated with unwanted side effects (Beyond Blue, 2018; Department of Health, 2018). Psychology-informed approaches (behavioral therapy, cognitive behavioral therapy, cognitive bibliotherapy, problem-solving therapy, brief psychodynamic therapy and life review/reminiscence) are indicated as effective (see for example, Thompson et al.,

1987; Arean et al., 1993; Hsieh and Wang, 2003; Qualls and Knight, 2006). Preventive interventions including education, behavioral activation, cognitive restructuring, problem-solving skills training, group support, and life review have also received support (Fiske et al., 2010).

Creative arts (CA) modalities, including dance movement, drama, music, and visual arts, are also utilized internationally to target depression and associated symptoms. These include interventions by creative arts therapists (CAT) and by other therapists and health and arts professionals. While no systematic reviews have yet been published that examine research on depression and older adults across the CATs, previous reviews have been published for these modalities separately and for different age groups.

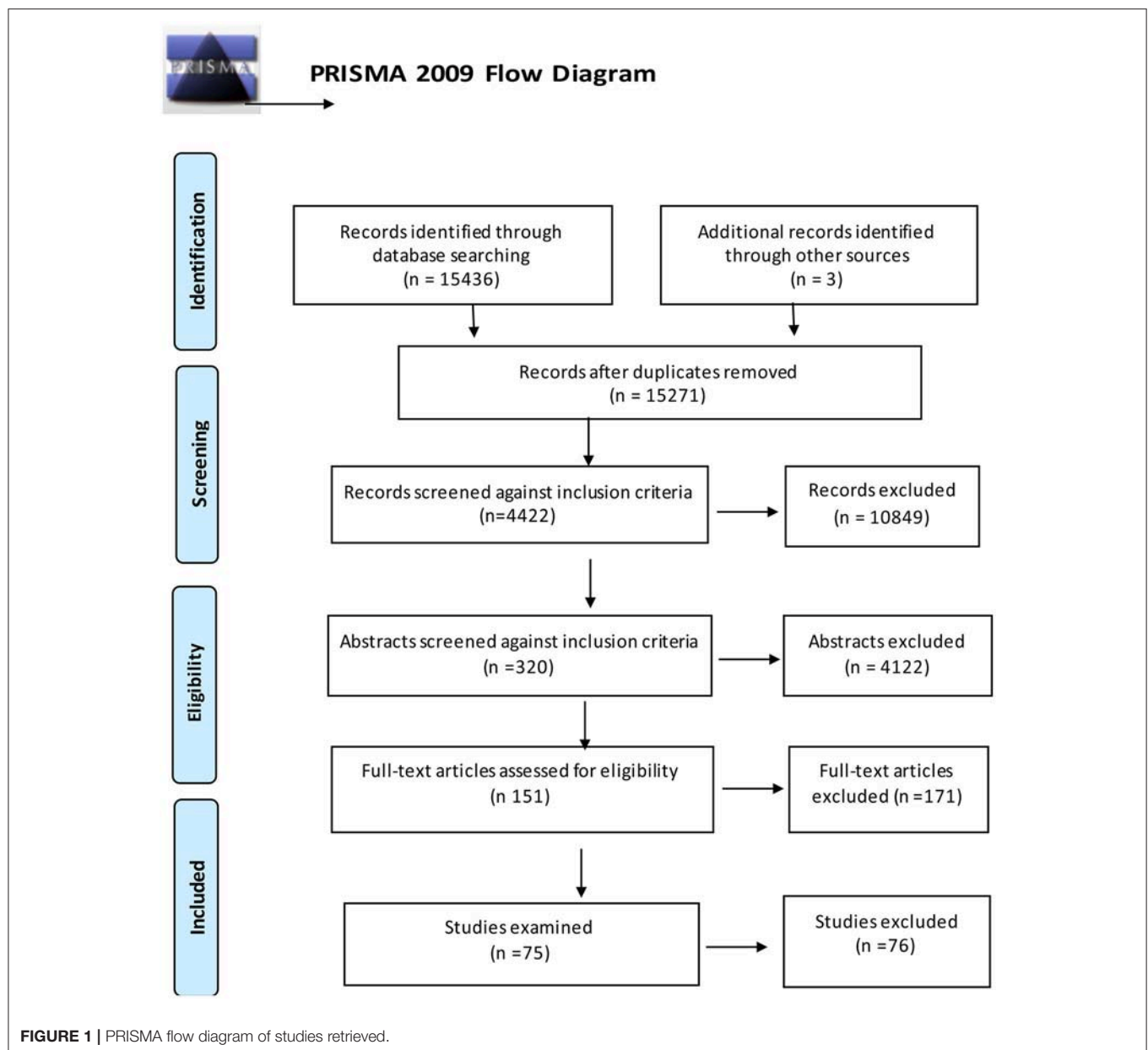
Two systematic reviews on art therapy (AT) and depression indicate that, for an all ages sample, art therapy has been utilized successfully (Blomdahl et al., 2013) and presents a cost-effective treatment model for mental health symptoms (Stevenson et al., 2015). In dance movement therapy (DMT), one systematic review of an all ages sample found that DMT may be beneficial for people experiencing depression, but without certainty because of small number of studies and low quality of evidence (Meekums et al., 2015). A meta-analysis of DMT studies including a sub-analysis for depression concluded that DMT may be effective in decreasing clinical symptoms (Koch et al., 2014). No systematic reviews on drama therapy (DT) for depression were found.

In music and music therapy (MT), a significant number of reviews indicate this modality's potential to support: reduced risk (Daykin et al., 2018); prevention (Sun et al., 2013); and decreased depression (Seinfeld et al., 2013; Chang et al., 2015; Innes et al., 2016; Travers et al., 2016; Zhao et al., 2016; Istvandy, 2017; Quach, 2017; van der Steen et al., 2017). Yet other music reviews reported no changes in depression (Ziv et al., 2008; Johnson et al., 2013; Vasilyte and Madison, 2013; Petrovsky et al., 2015; Xu et al., 2017).

A set of metaprocesses known as 'common factors' are understood to support growth and change through therapy (Ahessy, 2013). These common factors are largely informed by humanistic approaches to therapy which emphasize client-centered care (Rogers, 1951). They include therapeutic alliance, safety, empathy, inclusion, and unconditional positive regard (Wampold, 2001; Carr, 2008; Imel and Wampold, 2008).

While common factors are applicable to the creative arts therapies, there are additional processes employed in these approaches. Other therapies often target only cognitive processes, whereas the CATs seek to engage clients holistically across somatic, cognitive, emotional/intrapersonal, cultural (creative/aesthetic), and social/interpersonal aspects of the self. The integration of body and mind, or psyche, is a fundamental process of both DMT (Meekums, 2002; Sherwood, 2008) and AT, in which a "bodymind model" is proposed as a key contributor to change on a more meta level (Czamanski-Cohen and Weihs, 2016). In DT, core processes that reflect a holistic approach have been identified (Jones, 2007) along with metaprocesses (Cassidy et al., 2014) such as establishing safety, working in the here and now, being actively involved within or outside of the aesthetic

Abbreviations: AT, art therapy; DMT, dance movement therapy; DT, drama therapy; MT, music therapy; LLD, late life depression; MDD, major depressive disorder.



frame, and working alongside the client while offering choice and control.

Adaptability is another technique employed in common by CA therapists, with methods, techniques, choices of medium and intervention styles adapted by therapists to best support the needs of each client or group, demonstrating responsivity to context and “attunement” (Kossak, 2009, 2015; Vermes, 2011; Holck and Geretsegger, 2016; Devereaux, 2017).

Finally, Koch (2017) has proposed key aesthetic processes that further distinguish the arts therapies from other approaches, such as intrinsic pleasure, authentic coherence, symbolism, transitional practices, and generativity. The application of processes that lead to and emerge from aesthetic expression are fundamental and most distinguishing of CAs from other types of therapy.

However, despite all this research, as yet there has not been a systematic review of the literature on the impact of CA interventions, both those that are led by CA therapists and other professionals, on depression and depressive symptoms in older adults and how these interventions are considered to work.

OBJECTIVES AND RESEARCH QUESTION

This article offers a systematic literature review on the use of creative arts interventions to target depression and depressive symptoms in older adults. The article reports: outcomes of interventions across four creative arts modalities (arts, dance movement, drama, and music), for older adults experiencing depression or depressive symptoms; interventions implemented;

TABLE 1 | Results of analysis of arts intervention studies.

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
*Ali et al., 2014	"Group interactive art therapy" "drawing and painting using paper, pencils and crayons, making clay figures, drawing on an iPad, and taking photographs using a camera." Group discussion about issues/emotional expression. <i>n</i> = 6 Session duration unknown; 2x week; 6 weeks	Non-directive approach with free use of art materials. Enjoyment of arts processes; experience of safe space where fears and concerns regarding experiences of illness could be expressed.	HADS Median score of 8 (borderline abnormal anxiety and depression) to median score of 6 (normal range) post-intervention.	COREQ 15/32 PEDro 3/11 MM, pilot study
+ Canuto et al., 2008	Group "encourages patients to express and understand emotions through artistic expression and creative processes." Provides insight to emotions, thoughts, and feelings. <i>n</i> = 122 6 h; 2–3x week; duration unknown-ongoing during individual course of treatment.	Enhanced self-awareness and empowerment, self-esteem, reduced stress. Outcomes: improvement in mental quality of life, better adhesion to therapeutic community treatment and progress in patients' self-rating of group therapy	GDS (<i>p</i> < 0.001)	PEDro 7/11 LA
*Ceramidas, 2012	Group faith-based CBT intervention with art (abstract mixed-media paintings, clay to create animal forms/symbols of "life emerging," individual collages depicting joys of life, religious symbols, and "free artwork," found object collages created in pairs, and mask-making). "Encourage active, purposeful socialization and connectedness among residents." <i>n</i> = 6 50 min; 1x week; 6 weeks	Observed outcomes: acceptance of the cognitive/physical limitations of others, seeking to understand others through requesting facilitator assistance, caring for others/including others during sessions, altruism, a sense of belonging, trust, humor, and spirituality.	GDS Not significant; Effect size not reported	PEDro4/11 PS, single group, pre and post-design
*Choi and Jeon, 2013	Group art therapy with collage medium and reminiscence therapy Facilitate recall of memories through engagement in collage making. Process to aid in facilitation of interpersonal engagement and memory recall to improve cognition. Facilitation of open dialogue among group participants. <i>n</i> = 66. 1 h; 2 x week; 5 weeks	Themes of support and empathy. Recall and sharing of memories- reflecting in group discussion on "the challenges posed by remembering," "internal integration" p. 329	GDS (<i>p</i> < 0.001)	PEDro7/11 QE
*Ciasca et al., 2018	Art therapy group with individual focus. Relaxation/guided imagery before art making. Verbal group processing post art making. Techniques involved themes leading to reflection on adaptation to difficult life circumstances, such as losses, death, finitude, resentment, solitude, and feelings of impotence. <i>n</i> = 56 90 min; 1x week; 20 weeks; <i>n</i> = 11	Reduction of anxiety, increased self-esteem. Shifting from passively waiting for guidance and assistance to increased independent engagement in art process. Relaxation, shifting from worried and "negative" thought patterns, feelings and emotions concretized through art.	GDS (<i>p</i> < 0.007) BDI (<i>p</i> < 0.025)	PEDro8/11 RCT

(Continued)

TABLE 1 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
#de Guzman et al., 2011	Individual interviews and traditional Filipino art-making (TFA) "puni-making" to "overcome pangos of depression" through the "provision of figurative psychological crutches" to foster a positive view of life and self. $n = 3$ Length of intervention not specified.	Experience of support from researchers, feelings of accomplishment re ability to do something new and hopes to continue improving and learning new skills related to the art-making; engagement in new activities added to feelings of positive self-worth; engagement in traditional art-making offered opportunity to nurture self-esteem through exploring new skills and possibilities.	Emergent themes of depression and self-esteem: "Me, Myself, and Melancholy" and "Will Not Let My Worth Wither"	COREQ 13/32 QS phenomenological
*Doric-Henry, 1997	Individual pottery class/sessions based on Eastern Method throwing technique. Supporting and teaching participants ceramic process from start to finish, $n = 40$ (experimental group 20, control 20) 1 h; 1x week; 8 weeks	Increased self-esteem through mastery of materials.; shifting from passively waiting for guidance and assistance to increasingly independence in art process	BDI ($p < 0.05$)	COREQ 16/32 PEDro 5/11 QE
+ Drăghici, 2012	Group therapy; drawing tasks including draw a tree, house, silence, a rose bush, the ideal season, colors of life, draw feelings. Followed by verbal processing. Facilitating reminiscence, exploration of feelings, increasing self-insight/different aspects of self. Symbolization of strengths, weaknesses, and blockages. $n = 30$ (closed group 13, open group 17) unspecified session length; 8 sessions over one month.	Increased awareness of needs to resolve old conflicts, restoration of confidence, communication abilities, and feelings of belonging to a group	HDRS Effect size not reported	PEDro 3/11 PS, single group, pre and post- test design
+ Goldblatt et al., 2010	Group guided manipulation of modeling clay following protocol. No time limit for manipulating clay, but 12–40 min. followed by verbal processing, $n = 22$ One session (length unspecified)	Self-expression, autonomy, playfulness, and self-soothing. Reduction of ruminating and recurring thoughts" through guided clay manipulation and verbal processing.	BSI ($p < 0.001$)	PEDro 5/11 PS, single group, pre and post- test design
*Hoffmann, 2013	Individual intervention. Art therapy session directives: clock drawing test (CDT), Person Picking an Apple from a Tree (PPAT), a collage of likes and interests, non-directive modeling clay, family drawing, self-portrait, a wooden model airplane, and watercolor painting. $n = 1$ Session duration unknown; 1–2 x week; 6 weeks; 8 sessions total	Focus on creativity activity to switch focus from Parkinson's Disease (PD) to the task at hand, lessening stress levels/preoccupation with PD. Visual communication of thoughts/feelings	"Slight decrease in depressive symptoms" Parkinson's Disease Questionnaire (PDDQ-8) scores No effect size reported	PEDro1/11 SSR, single-subject research design with multiple baselines
#Hsu et al., 2017	Group drawing and painting tasks to $n = 141$ 50 min; 1x week; 6 months	enable self-expression through different themes, Art therapy to reduce stress and incorporate fine motor skills/cognitive training	CSDD ($P = 0.047$)	PEDro5/11 RCS

(Continued)

TABLE 1 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
*Im and Lee, 2014	Group session: mandala drawing, drawing taking turns, mud crafts, expression of body parts, collage, drawings of happy times in life. $n = 94$ (65 in art therapy, 29 in music therapy) 1 h; 1x week; 12 weeks	Promotion of autonomy and validation of experiences of disease/ depression/ negative experiences. "reduces the resistance of revealing and it also helps to the formulation of positive self-ego by respecting patients' imagination and unique personality." Expressions of anger and hostility through visual arts, self-contemplation, expression of emotion in "socially acceptable ways," use of imagination	KGDS ($p = 0.000$; $r = 0.32$)	PEDro5/11 PPT, one group
+Kang et al., 2010	Group session. Landscape composition technique (drawing a house, tree, and people), a squiggle drawing game, mixed-media collage (newspaper, cloth remnants, wallpaper, found items, etc.), mandala drawings, finger painting, molding clay, and drawings reflecting on themes of the past, present, and future. $n = 38$ (20 in experimental group, 18 in control) 3 h (30 min art therapy); 2x week; 9 weeks	Interventions developed to assess the mental state of the individuals who had difficulty expressing emotions, as a tool of expression, facilitated the individual's probing their own thoughts and feelings	Improved cognitive function, enhanced mental health, reduced depression KGDS ($p < 0.001$)	PEDro6/11 QE
*Kim H.-K. et al., 2016	Group and individual. 3 phases: traditional Korean art (1-10) Artmaking- structured art directives including pre-made clay figures that could be designed by participants, decorating bride and groom headpieces (11-25), creation of family photo frames, mandala drawings, and collaborative paintings (27-36) $n = 28$ (experimental group 14, control 14) 45 mins per session; frequency unknown; 36 sessions total	Development of rapport among group members, facilitate life review/remembrance, self-integration, conflict resolution. Reduction in levels of depression and improved ability for self-expression	S-GDS ($p = .036$)	COREQ 4/32 PEDro 4/11 MM
*Kongkasuwan et al., 2016	Group session. 5 stages: meditation with music, warm-up activity, main activity (art-making) and group singing activity, ending with group-healing circle. $n = 113$ (59 in control, 54 in intervention) 1.5-2 h; 2x week; 4 weeks	"stimulate and benefit cognition, physical state, emotion, communication, social relations, and spiritual dimensions" improved concentration, emotion, self-confidence, and motivation;	HADS ($p = 0.361$)	PEDro8/11 RCT
*Lam, 2015	Group art therapy with movement, play, and music. Warm up prior to art making. Structured art directives followed by group processing $n = 11$ 2 h; 1x week; 12 weeks	Facilitation of meaningful group engagement, successful experiences in art processes, aiding in relaxation, increasing confidence and empowerment in ability to manage emotions. Increased socialization, increased aesthetic skills, increased self-reflection, decreased depression, and anxiety, increased life satisfaction	GDS ($p < 0.005$)	COREQ 15/ 32 PEDro6/11 MM

(Continued)

TABLE 1 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
*Rawtaer et al., 2015	Group session. Participants guided “through creative and narrative segments.” Specific interventions not stated. Multimodal approach of all included interventions emphasized. $n = 101$ 30 min; 1x week; 10 weeks 30 min; biweekly; 42 weeks; 1-year total	Mental stimulation and social/group engagement.	Reduce negative emotions and anxiety and improve self-esteem. SDS ($p < 0.05$)	PEDro6/11 OS

Key: Depression outcomes: We use the term “outcomes” here for all studies, even though only some studies offer calculations of effects that adjust for outcomes compared to control group.

BDI, Beck Depression Inventory; BSI, Brief Symptom Inventory; CSDD, Cornell Scale for Depression in Dementia; GADI, Goldberg Anxiety and Depression Inventory; GDS, Geriatric Depression Scale; HADS, Hospital Anxiety and Depression Scale; HDRS, Hamilton Depression Rating Scale; KGDS, Short Form of the Korean Geriatric Depression Scale; S-GDS, Short Geriatric Depression Scale; SDS, Zung Self-Rating Depression Scale.

Intervention coding: * intervention delivered by trained or registered art therapist; # intervention delivered by other professional; and + unclear.

Design codes: COD, crossover design; CS, case study; CDA, collaborative discourse analysis; LA, longitudinal study; MM, mixed methods; OS, observational study; PE, pre-experimental (i.e. a single group studied without comparison to control group); PPQD, prospective, parallel-group design; PPT, pre and post-test; PS, pilot study; PT, pragmatic trial; QE, quasi experimental; QS, qualitative study; RCT, randomized control trial; RCS, retrospective cohort study; SSR, single subject research.

and processes and mechanisms understood to contribute to therapeutic change.

RESEARCH QUESTION

Our overarching research questions are: What are the effects of creative arts interventions on depression or depressive symptoms in older adults? How are these interventions understood to work?

METHODS

Study Design

Participants, Interventions, Comparators

This review examined studies about CA interventions, including CA therapy, intended to address depression or depressive symptoms, in older adults, across four modalities: art; dance; drama; and music; and combinations of these.

We examined studies utilizing all types of research methods and designs and did not specify particular comparators. We entered our review on the Prospero (International prospective register of systematic reviews) register (Centre for Reviews Dissemination, 2018) with registration number CRD42018091901.

Systematic Review Protocol

Inclusion/Exclusion Criteria

This review included only articles that were:

- Published between 1.1.1997 and 1.2.18, in English language only;
- Of research, defined as investigation of a research question informed by quantitative or qualitative data, or both, including case studies and doctoral theses;
- Included only participants who were older adults (over 60 years, as per WHO definition) who had depression, as defined by DSM-V or ICD, and/or co-morbidity, or depressive symptoms with or without other disorders;
- Utilized a CA modality as an intervention to address such symptoms. This included CATs, which we define as interventions led by a CA therapist who were identified in the article as being trained or registered as a CAT in their specific modality, and other CA interventions led by other professionals;
- Locatable by the researchers.

Search Strategy

We used the advanced search function on OVID, including databases: OVID Medliner (1946-present); CINAHL; EMBASE (Excerpta Medica database); Medline; PsychINFO; Cochrane Central control trial register and Cochrane systematic reviews.

Search Terms

The following search terms were used:

- “depression” or “depress*” or “MDD” (major depressive disorder); “LLD” (late life depression)
- AND “older adults” or “old*” or “gerontology” “geriatric*” or “late-life” or “aged care” or “aged” or “aging” or “elderly”

- Art therapy: “art therap*” or “arts therap*” or “art psychotherap*” or “visual art therap*”
- Dance movement: “dance therap*” or “dance movement therap*” or “dance movement psychotherap*” or “dance/movement therap*” or “movement therap*” or “movement psychotherap*” or “dance” or “dance effectiveness” or “therapeutic movement”
- Drama: “drama*therap*” or “psychodrama” or “psychodramatic drama*therap*” or “process* of change” or “applied drama” or “therapeutic theat*” or “improvi*ation” or “reminiscence theat*”
- Music: “song” or “guided imagery music” or improvi*ation” or song*writing” or “rap therap*” or “drum*” or “sing” or “choir” or “music” or “listen*” or “receptive music therap*.”

Selection Process

The first search process, and round of decision-making concerning inclusion-exclusion was undertaken by a junior researcher with expertise in each field [authors KC-H (AT), ED (DMT), ME (DT), and JE (MT)]. The second process of assessment against the data extraction points listed below was undertaken by the same researcher, then cross-checked by a senior researcher from each field, authors: GK (AT); KD (DMT); NS (DT); KM (DT), TW (MT), and FB (MT). Where decisions between the two researchers were not concordant, discussion between them was undertaken to reach final agreement.

Data Analysis and Quality Assessment

Data analysis was undertaken in a staged process. First, all abstracts found through our search were considered against inclusion criteria listed above. This process is depicted in a PRISMA flow chart, provided in **Figure 1**.

Those fitting the criteria sufficiently were then analyzed and data extracted in the categories of: Participants—number and gender; Facilitator—training; Intervention—duration (number, length, and frequency of sessions), control/comparison, activities (what participants actually did); Outcomes—what and how assessed; Therapeutic techniques (defined as how the therapist operates in the intervention); Processes (defined as processes seen to elicit change in the client); and Mechanisms (what occurs within the client that results in change); and Study design. Articles were then assessed for quality using COREQ (qualitative studies) or PEDro tools (quantitative studies), or both tools (mixed-method studies). The COREQ is a formal checklist for evaluating the rigor and transparency of reporting in qualitative research, particularly for interviews and focus groups (Tong et al., 2007). The PEDro tool comprises elements agreed as suitable for quality assessment of RCT studies (Verhagen et al., 1998). One point was scored for each element of the study that met the criteria and these were tallied to arrive at a quality score for each study.

RESULTS

Art Results

Summary of Studies and Quality Assessment

Seventeen art studies from an initial sample of 34 met all inclusion criteria as detailed in **Table 1**. Methodological

approaches of these comprised: five qualitative studies, mostly individual case studies (de Guzman et al., 2011; Hoffmann, 2013) and interview methods; three mixed-methods; and nine quantitative studies, including comparisons of art therapy with other health interventions such as walking, music therapy, exercise, nature-based therapies, and community craft activities. Depression was addressed as a primary symptom (5/17); and as a co-morbid condition with Parkinson's disease (1/17), stroke (2/17), and dementia (2/17). Three studies focused on women because of the reported higher prevalence of depression with this population (3/17).

Qualitative studies scored between 1 (2/5) and 8 (1/5) out of 11 on PEDro. The limitations of these studies included inadequate reporting details in data collection and lack of rigor in measures to ensure credibility in data analysis. Quantitative and mixed method studies scored between 4 (1/12) and 16 (2/12) out of 32 on COREQ. The main shortcomings of these studies were that samples were not randomized, blinded, or adequately powered. They tended to be small in scope and lacking rigorous efforts to ensure validity in the findings. The majority did not include adequate details on method to enable replication. No art studies reported any results from follow up.

Eleven/Seventeen studies were led by an art therapist, 2/17 by another professional; and 4/17 had a leader of unknown training. Twelve studies had significant findings: 8/12 led by an art therapist, 1/12 by another professional and 3/12 by a leader of unknown training.

Interventions

Art programs were typically sessions of an hour, held once or twice a week over periods from 12 to 52 weeks. Interventions were typically offered as group format, with specific attention provided by therapists to individual group members. Two interventions were one on one programs (de Guzman et al., 2011; Hoffmann, 2013).

Art media options and activities included traditional crafts and arts (de Guzman et al., 2011; Ciasca et al., 2018) and clay and painting. For example, in one task, participants manipulated clay into a ball, divided it into parts and re-assembled it into another object, then shared their experiences in verbal discussion (Goldblatt et al., 2010). Choices of media were frequently discussed as important, particularly because of challenges identified with patients' physical mobility and fine motor control.

Therapeutic Techniques

The therapeutic techniques reported in the art studies included the therapist being encouraging of participants' expression and learning through art making, sensitive to individual needs, encouraging of interaction and pro-social experiences between group members.

Proposed Mechanisms of Change

Based on the processes identified in the literature, we propose that the mechanisms of a change for depressive symptoms through art interventions are:

TABLE 2 | Results of analysis of dance movement intervention studies.

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
# Adam et al., 2016b Status	Dance and relaxation: warm up; poco-poco dance, relaxation incorporating progressive muscle relaxation; group sessions. $n = 44$ 60 min; 2 x week; 6 weeks	No mechanism discussed specifically, but implied relationships between physical and cognitive improvement through dance leading to reduced depression. Suggested: Better scores for women perhaps because dance-like activities more attractive to females	HADS ($p < 0.000$)	PEDro 2/11 QE
# Adam et al., 2016a Effectiveness	Dance and relaxation exercises: warm-up and stretching activities followed by poco- poco dance session in group session; $n = 84$ (44 intervention, 40 control). 60 min; 2x week; 6 weeks	No mechanism discussed specifically, but relationships between other outcomes noted including: improved QOL, increased cognitive and physical function and enhanced wellbeing; enhanced coping and increased sense of independence. Stimulation of the parietal lobe through dance provides somatosensory input that may increase the neurotrophic factor that improves cognitive and visuospatial function. Non-competitive type of dance may make it more favored by participants. Therapeutic benefits are motivating for adherence.	HADS ($P < 0.001$)	PEDro 6/11 QE
+ Alpert et al., 2009	Modified age appropriate jazz dance class; in group sessions. $n = 13$ Session duration unknown; 1x week; 15 weeks	Relationship between physical activity improving balance and other physical skills in social setting and mood postulated. Its inherent “fun” factor may contribute to adherence and success.	GDS, not significant	PEDro 4/11 PS single condition, three time periods
# Britten et al., 2017	Modified contemporary dance program: warm up; basic low impact aerobic movements; series of moves; improvisation; cool down (breathing and stretching exercises); group session. $n = 22$ 90 mins; 2 x week; 8 weeks	Participants perception of benefit of physical activity, motivation provided by the group context; psychological benefits such as use of brain, improved mental health. Cognitive health stimulation posited as important; creative and didactic elements Valued; seen as suitable mostly for women	GDS ($p < 0.05$)	PEDro 4/11 PPT uncontrolled 'pre-post' intervention; focus groups
# Cross et al., 2012	live dance performance and receptive music listening; $n = 100$ (50 in dance intervention); group intervention (participants- audience members) 30 min x 1	Possible factors but no hard evidence of viewing dance eliciting positive memories, enjoyable aesthetic experience, communicating something of meaning	BDI ($t49 = 11.95, p < .001, d = 0.88$).	PEDro 7/11 RCT
# Eyigor et al., 2009.	Dance-based exercise program: a warm-up, folklore dance stepping, stretching, cool-down. participants in circle; group sessions; $n = 37$ (dance intervention 19 females). 1 hour; 3 x week; 8-weeks	Age appropriate dance moves; strong focus on following choreography and improving physical capability and functional mobility; dance is pleasurable and may motivate other activity; group increased motivation; folkloric dance rhythms appropriate for age group and cultural background	GDS, no significant improvement, but verbal expression that they felt happier after the dancing exercise	PEDro 7/11 RCT; interviews

(Continued)

TABLE 2 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
+ Gardia Gouvêa et al., 2017	Dance classes: low impact choreography; warm ups; sitting waltz/standing waltz, gentle movement, stretching; group sessions: $n=20$. 45 min; 3x week; 3 months (total 40 classes)	Rhythmic moves to improve functional, emotional and behavioral skills; integration of physiological, psychological, sociological aspects of wellbeing; facilitate self-expression and communication; reduced fear and isolation, and better self-esteem; memorization of movement sequences and attention supported by intentional changes of movements make high cognitive demand that can help reduce depression	BDI, no significant improvement	PEDro 3/11 PE pre-experimental, pre and post-test, convenience sample
# Haboush et al., 2006.	Ballroom dance lesson weekly: foxtrot, waltz, rumba, swing, cha-cha, and tango; one on one session; $n=20$. concern, empathy 45-min; 1x week; 8-weeks Music-movement therapy (MMT); preparatory activities (movement exercises with quiet meditational music): main activities, finishing activities; group sessions: $n=40$ (dance intervention 20). 60 min; 3x week; 8 weeks	not psychotherapy, but some common factors of therapy present including concern, empathy, a treatment setting, a therapeutic procedure; pleasure in learning; exercise and enjoyment of music. No explanation.	HDRS ($d=.51$) and GDS ($d=.40$) medium range; interview	PEDro 8/11 RCT
# Jun et al., 2013	Listening to music; imagery activation; body movement; sharing experience with others; group theme; group sessions; $n=20$ (92% female) 50–60 min, each group; 10 weeks; unclear number of times per week.	Hypothesized effect: creative arts participation enhances positive social engagement, which enhances mood; enjoyment, opportunities for behaviors such as remembering, recognizing, and expressing what they were feeling, and understanding, appreciating, and being sensitive to others increased physical function; social interaction; altered mood, increased learning	CES-D, no significant difference	PEDro 6/11 RCT, QE, with pre- and post-tests
# Matto et al., 2015.	Dance class; 5-min warm-up, 30 min of simple low intensity dance steps, 10-min cooldown; group session; $n=20$ Dance steps adjusted to cater for physical capacity; onsite intervention; non-judgemental attitude; provision of chair 45 min; 2x week; 12 weeks		GDS-SF, not significant	PEDro 8/11 RCT, interviews
# Murrock and Graor, 2014.	Multi-modal approach “mind–body meditative approach” (MBMA) Tai Chi exercise, dancing, (Chinese cultural and Latin dancing), playing musical instruments, choral singing, and operas, formal meditative practice. (awareness of breathing, awareness of emotions, control of emotions and concentration); group sessions; $n=750$ 2.5h. weekly, 15 months.	Tai chi appealing to older people. Dancing, in combination with Tai chi and singing, may protect from metabolic syndrome and brain function decline, and promote a positive QoL including psychological health; social engagement and ability to cope well with depression; enjoyment; dance seen as attractive to women. Based in community and natural environment, did not focus on the disease and was friendly and socially comfortable, thus enjoyable and sustainable.	CES-D, $t=6.11$, $p<0.001$, $\eta^2=0.65$,	PEDro 5/11 PPT One-group, pretest and posttest
# Sun et al., 2013			GHQ30 significant, dancing groups had the lowest depression rate among the four interventions	PEDro 6/11 RCT, case controlled design

(Continued)

TABLE 2 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
# Vankova et al., 2014	Exercise dance: warm-up: slow-paced leg and arm movements seated; main period of ballroom dance, including foxtrot, waltz, cha-cha, cancan; cooldown used relaxation techniques; deep breathing, stretching; group sessions; n = 162, mostly women. Adaptation of exercises; goal to make class enjoyable 60 min; 1x week; 3 months.	The characteristics of the traditional dance and reminiscence; of the proven relationship between depressive symptoms and functional movement status; group intervention provides participants with the opportunity to do something together and share the experience; interaction with peers could lead to increased self-confidence and feeling of competency	GDS, P 0.005	PEDro 9/11 RCT

Key: BDI, Beck Depression Inventory; CES-D, The Center for Epidemiologic Studies Depression Scale; CSDD, Cornell Scale for Depression in Dementia; GAD-7, Goldberg Anxiety and Depression Inventory; GDS, Geriatric Depression Scale; GDS-SF, Geriatric Depression Scale short form; GHQ30, General Health Questionnaire; HADS, Hospital Anxiety and Depression Scale; HDRS, Hamilton Depression Rating Scale.

Intervention coding: * Intervention delivered by trained or certified dance movement therapist; # Intervention delivered by other professional; and + unclear.

Design codes: COD, crossover design; CS, case study; CDA, collaborative discourse analysis; LA, longitudinal study; OS, observational study; PE, pre-experimental; PPGD, prospective, parallel-group design; PPT, pre and post-test; PS, pilot study; PT, pragmatic trial; QE, quasi-experimental; RCT, randomized control trial; RCS, retrospective cohort study; SSR, single subject research.

- Physical: engagement in a creative activity that had physical aspects was seen to catalyze relaxation and reduction of stress (Canuto et al., 2008; Goldblatt et al., 2010; Lam, 2015; Hsu et al., 2017)
- Cultural: the making of art was seen to facilitate creative expression and play (de Guzman et al., 2011; Kim H.-K. et al., 2016); the use of context-responsive creative expression was seen as significant; creative expression was enabled by use of accessible media of clay and painting (Goldblatt et al., 2010); evocation of familiarity and positive memories was catalyzed by use of culturally appropriate traditional crafts and arts (de Guzman et al., 2011; Ciasca et al., 2018)
- Emotional/intrapersonal: creation of art products was seen to provide valuable distance, and enable externalization and visual communication of inner subjective experiences (Goldblatt et al., 2010; Kang et al., 2010; Drăghici, 2012; Choi and Jeon, 2013; Ali et al., 2014; Im and Lee, 2014; Hsu et al., 2017; Ciasca et al., 2018); expression of positive and negative emotions (Kang et al., 2010; Ali et al., 2014; Im and Lee, 2014; Kim H.-K. et al., 2016; Kongkasuwan et al., 2016); promotion of autonomy (Doric-Henry, 1997; Canuto et al., 2008; Goldblatt et al., 2010; Ceramidas, 2012; Kongkasuwan et al., 2016); and positive views of self (Canuto et al., 2008; de Guzman et al., 2011; Drăghici, 2012; Rawtaer et al., 2015; Kongkasuwan et al., 2016; Ciasca et al., 2018); agency and mastery was seen to be strengthened by the act of completing an art piece (Doric-Henry, 1997; de Guzman et al., 2011; Hoffmann, 2013; Lam, 2015; Ciasca et al., 2018)
- Cognitive: art-making was seen to enable: reinforcement and recall of positive memories (Canuto et al., 2008; Choi and Jeon, 2013; Hoffmann, 2013; Kim H.-K. et al., 2016); addressing of concerns around death, loss and end of life (de Guzman et al., 2011; Ali et al., 2014); and distraction from ruminative thoughts (Goldblatt et al., 2010; Ciasca et al., 2018)
- Interpersonal: group work (with or without therapist's involvement) was seen to encourage socialization and sharing (Canuto et al., 2008; de Guzman et al., 2011; Ceramidas, 2012; Drăghici, 2012; Choi and Jeon, 2013; Ali et al., 2014; Im and Lee, 2014; Lam, 2015; Rawtaer et al., 2015; Kim H.-K. et al., 2016; Kongkasuwan et al., 2016).

Dance Movement Results

Summary of Studies and Quality Assessment

Thirteen studies met all inclusion criteria from an initial sample of 29 as detailed in Table 2. Studies were predominantly RCTs (6/13); with quasi-experimental (3/13); and single condition over two or three time periods (4/13). Only one of the 13 studies was focused on depression as a primary diagnosis, with the other 12 addressing depressive symptoms.

Quality scores using PEDRO were evenly spread between 2 and 9 out of 11. Eleven of these studies were led by another professional; two by a leader of unknown training; and none by a dance movement therapist. This was despite several studies stating that the intervention was dance movement therapy, while providing no indication that a certified DM therapist was involved. One study (Cross et al., 2012) claimed to be DMT and included information about DMT in the literature review, but

then described an intervention of clients watching professional dancers that seemed to have no relationship at all with DMT principles. In fact, no studies involving dance movement therapy were included in our final sample. Ten studies had significant findings: nine led by professional who was not a dance movement therapist, and one by a leader of unknown training.

Limitations of the dance studies included small sample sizes, with almost half having an *n* of 20 or less. Low PEDro scores was mostly caused by lack of concealment of allocation, lack of blinding of participants, therapists and assessors, and lack of random allocation. Another limitation was that few studies (4/13) included a mention of follow-up component. One study (Vankova et al., 2014) mentioned an improvement in GDS scores in one follow up (5.0–4.5), however, this data was not included in the results. Another study (Matto et al., 2015) reported follow up results indicating a decrease in GDS scores (2.44–2.19), supported by interviews with participants about their enjoyment in being part of the group where self-expression and understanding, appreciating and being sensitive to others was a commonly valued experience (p. 280). Two other studies mention a follow up but do not report results (Haboush et al., 2006; Jun et al., 2013).

Interventions

Programs offered were typically sessions of between 30 and 90 min, with 60 min being most common; held between one and three times weekly, most often twice; for periods from one week to 15 months, most often 8 weeks. Interventions were typically offered as group sessions, with specific attention provided by trained therapists to individual group members. One study described a one on one program. Interventions were primarily focused on the acquisition and repetition of dance steps, including western dance styles such as jazz, contemporary and ballroom, as well as traditional and folk dances. Session structure most frequently was a brief warm up, then teaching of dance steps, followed by a final cool down which sometimes included relaxation.

Therapeutic Processes

The dance studies did not include much discussion about therapeutic processes, perhaps because none of the studies examined was led by a dance movement therapist. This was in contrast to other modalities where the majority of studies involved CA therapists. There was a strong emphasis on physical outcomes, particularly in the area of functional mobility. This was presumably because the studies were mostly facilitated by dance instructors and physical therapists who emphasized functional performance as a primary concern, which they addressed through programs that involved the acquisition of dance skills. In several studies, changes in clients' physical state through dance, such as improved balance and strengthened muscles, was seen to be related to reduced symptoms of depression, even though this had not been the central focus of the intervention. For example, Britten et al. (2017) reported reduced falls-risk as a result of dance participation, which was seen in turn to have positive impact on mood states such as depression. However, causal pathways were generally not articulated clearly or trialed in these studies.

Several studies included comment on the greater acceptance of dance-based interventions by women than men, thus explaining more successful engagement, stronger adherence, and better outcomes of female participants in many interventions.

Proposed Mechanisms of Change

Based on the processes identified in the literature, we propose that the mechanisms of a change for depressive symptoms through dance interventions are:

- Physical: improved physical performance and function including balance, muscle strength, joint sense and proprioception;
- Cultural: enjoyable aesthetic experiences;
- Cognitive: cognitive decline slowed through exercise and stimulation of brain circuits used to learn dance steps; activation of motor neurological brain regions through improvised or expressive movement that may contribute to changes in brain structure;
- Social: positive social engagement, stimulation and enhancement of communicative and relational capacities through shared experiences in dance.

Drama Results

Summary of Studies and Quality Assessment

Four studies met all inclusion criteria from an initial sample of 25 as detailed in **Table 3**. Methodological approaches included one quasi-experimental study (Keisari and Palgi, 2017), one mixed method (Wilkinson et al., 1998), two qualitative studies employing a combination of ethnographic observation, qualitative interviews, and practice reflections (Kontos et al., 2017) and one collaborative discourse analysis (Sajani et al., 2018). One study addressed depression as the primary diagnosis (Keisari and Palgi, 2017), while the other three addressed depressive symptoms.

The two studies employing quantitative methods scored between 8 and 9 out of 11 on PEDro. The limitations of these studies were that samples were small and not randomized or blinded. The two qualitative studies met between 19 and 21 elements of 32 in COREQ. The limitations of these studies included inadequate reporting of details in data collection, and a lack of reported efforts to increase the trustworthiness of findings. The main shortcoming overall was the lack of detail on the method and activities used that would enable replication.

Two interventions were led by a drama therapist, one by a drama therapist with another professional, and one by other professionals (elder clowns). Of the studies involving drama therapists, one reported significant quantitative findings and two reported no statistically significant findings but positive qualitative outcomes. The study led by elder-clowns reported positive qualitative outcomes. No follow up data was provided for any of these studies.

Interventions

Programs offered by drama therapists were typically group sessions of between 45 and 105 min for an average of 80 min, held once weekly, for 12 weeks. One study facilitated by elder clowns involved two clowns per individual resident for 10 min twice

TABLE 3 | Results of analysis of drama intervention studies.

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures, and scale	Quality assess and design
Kelsari and Palgi, 2017	Life review of major life crossroads integrated with drama therapy techniques led by drama therapist and social worker used dramatic roles, embodiment, enactment, witnessing; $n = 55$ (27 intervention, 28 control). Group intervention 90 min; 1 x week; 12 weeks	Increased self-acceptance, meaning making, relationships with group members, capacity for self-reflection and the integrity and coherence of one's life story. Social processes such as social recognition, learning from others, and being able to help others that are central to life review were amplified through use of processes of dramatic projection, embodiment, enactment, witnessing, and the life-drama connection.	GDS: $F(1, 53)$ $D 12.9, p < 0.001$, Significant improvement reported in depressive symptoms	PEDro 9/11 QE
Kontos et al., 2017	Improvisational play, humor, empathy, song, dance, and music facilitated by trained elder clowns; $n = 23$. Individual intervention 10 min; 2x week; 12 weeks	Reciprocal play, affective relationality, joy, co-constructed imagination, and acceptance of sadness as non-pathological all regarded as contributing to positive affect in participants.	Qual interviews, ethnographic observations of video recorded clown- resident interactions, and practice reflections	COREQ 21/32 QS
Sajhani et al., 2018	Use of projective devices, psycho-dramatic, techniques drawn from Therapeutic Spiral Method (TSM), and sociodrama. Group and individual intervention $n = 4$	Reinforcing participants' strengths, dramatic projection prompts social interaction and facilitates perspective through externalization of inner conflicts.	Collaborative discourse analysis	COREQ 19/32 CDA
Wilkinson et al., 1998	Average 45 min; 1 X week Sesame method of DT led by drama therapist included use of metaphor, movement, enactment. $n = 16$ (9 intervention, 7 control). Group intervention 105 min; 1x week; 12 weeks	Stimulation of memory, encourages role flexibility, and reinforces past coping strategies. Metaphor encourages organization of self-expression. Enactment of scenes increases orientation to past and present, self-understanding, and acceptance, meaningful personal relationships.	CSDD Qualitative data involving observation and informal interviews. No significant differences reported between intervention and control group with exception of indication of deterioration in area of depression due to rise of depressive symptom in one participant	PEDro 8/11 QE/ QS

Key: CSDD, Cornell Scale for Depression in Dementia; GDS, Geriatric Depression Scale.

Intervention coding: * intervention delivered by a trained, registered and/ or certified drama therapist; # intervention delivered by other professional; and + unclear.

Design codes: CDA, collaborative discourse analysis; COD, crossover design; CS, case study; LA, longitudinal study; OS, observational study; PE, pre-experimental; PPGD, prospective, parallel-group design; PPT, pre and post-test; PS, pilot study; PT, pragmatic trial; QE, quasi experimental; QS, qualitative study; RCT, randomized control trial; RCS, retrospective cohort study; SSR, single subject research.

TABLE 4 | Results of analysis of music intervention studies.

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
* Ashida, 2000	Familiar songs in small groups, $n = 40$ 38–45 min, 5x/week, 3 weeks	Improvement of mood and interaction skills	CSDD ($p < 0.05$)	PEDro 6/11 COD
# Berger et al., 2004	Active and receptive music therapy (singing, listening preferred music, playing, reminiscence, movement to music), $n = 72$ 60 min, 1x/week, 24 months		no significant difference in depression (BDI $p = 0.27$ – 0.73 , GDS $p = 0.31$ – 1.00), trend higher depression in control group month 12, and higher depression in month 24	PEDro 11/11 RCT/PT, two-arm
# Brandes et al., 2010	Online individually calibrated music listening: MT1-program (composed polyphonic modern music), MT2-program (classical music individually calibrated), $n = 204$ 30 min, daily, 4*5weeks	Neurophysiologic and neurochemical effects of receptive music therapy	MT1-program HAM-D ($p = 0.013$), BDI ($p = 0.361$), HADS-D ($p = 0.014$), COMP ($p = 0.030$), MT2-program HAM-D ($p = 0.031$), BDI ($p = 0.030$), HADS-D ($p = 0.024$), COMP ($p = 0.059$)	PEDro 11/11 RCT/PT, two-arm
* Castellino et al., 2013	Group music therapy, improvisation, pre-recorded music for coping anxiety and depression, $n = 40$ 60 min, 1x/week, 10 weeks		HDRS ($p = 0.02$)	PEDro 5/11 COD
# Chan et al., 2009	Instructed four types of music-listening, each day home-training in evening of participant him-/herself, $n = 58$ 30 min, 1x/week, 4 weeks	processing music stimuli in rhythm and pitch and limbic system (neuropsychological effects)	GDS ($p < 0.001$)	PEDro 10/11 RCT/PT, two-arm
# Cheung et al., 2018	MM (welcome + closing song + MM: battling balloons, waving ribbons, foot tapping, playing musical instruments, mimicking movements demonstrated by interventionist.) vs. music listening vs. social activity, $n = 165$ 30 min; 2x week; 6 weeks	Expressive and relational abilities that promote new learning strategies and improve well-being	GDS ($p = 0.02$), reduced depressive symptoms [$F_{(4,324)} D = 2.51$, $p = 0.042$, partial $\eta^2 D = 0.03$]	PEDro 10/11 RCT, multi-center
+ Chiung-Yu et al., 2016	Stimulative + sedative music videos, $n = 30$ 30 min, 1x/week, 2 weeks		GDS ($p = 0.001$ – 0.03)	PEDro 10/11 COD / CS
* Chu et al., 2014	Gross/fine motor movements in music, rhythm playing, listening to popular music, rhythm playing with instrumental accompaniment, singing with instrumental accompaniment; music-prompted reminiscence, $n = 104$ 30 min, 2x/week, 6 weeks		CSDD ($p = 0.001$)	PEDro 11/11 weak PPGD, permuted-block randomization
# Coulton et al., 2015	Singing group guided by "Sing for your Life"-trained facilitators, $n = 258$ 90 min, 1x/week, 14 weeks	Enjoyment of the experience (self-report)	HADS ($p < 0.01$)	PEDro 10/11 RCT/PT, two-arm
# Cross et al., 2012	Listening to pre-recorded music, $n = 100$ 30 min, one time	Connection with music and movement improves decrease of depression	BDI: 3 days: $t_{(49)} = 6.34$, $p < 0.001$, $d = 0.61$, 10 days: $t_{(49)} = 4.60$, $p \leq 0.001$, $d = 0.44$	PEDro 8/11 PPT, two-arm
* de la Rubia Ort et al., 2018	Welcome + theme songs, $n = 25$ 60 min, one time	Welcome song: activate cognitive area, improving recent memory, remembering the names; + theme song: related to flowers, attention focusing on musical task, lyrics, visual agnosia: recognition of faces / band members + of the day of the week.	HADS ($p = 0.001$)	PEDro 5/11 QE, analytical, prospective study

(Continued)

TABLE 4 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
*Eléant et al., 2012	Group music therapy with breathing, vocal and singing exercises, $n = 10$ 60 min, 1x/week, 20 weeks	Singing may facilitate a relaxation response which directly increases vocal fold flexibility, enabling the speaker to express more emotional dynamics in his voice	MAIRS no significant change	PEDro 11/11 PT, two-arm
# Fancourt et al., 2016	Drumming sessions, $n = 45$ 90 min, 1x/week, 10 weeks	Social element of group drumming, activating	HADS-D ($p < 0.001$)	PEDro 11/11 PT, two-arm
# Giaquinto et al., 2006	Group singing accompanied by guitar (of music teacher and nurse), $n = 12$ 45 min, 6x/week, 2 weeks	Military marches, 4/4 time	HADS ($p 0.014$)	PEDro 8/11 PS, cross over design
* Giovagnoli et al., 2017	Active music therapy, $n = 33$ 45 min, 1x/week, 12 weeks	Triggered emotion and interpersonal relationships	BDI ($p = 0.017$)	PEDro10/11 RCT, single-blind
* Gök Ugur et al., 2017	Listening to folk/instrumental songs, picked before session, $n = 64$ 40 min, 3x/week, 8 weeks	Music increases the independence feeling, self-confidence; leads to cope with feelings, such as helplessness and depression; induce alpha waves; trigger the endorphin release	GDS ($p 0.006$)	PEDro10/11 RCT, single-blind trial
+ Gopi and Preetha, 2016	Music listening, $n = 30$ 30 min, daily, 15 days	Music affects mood, feelings, physiological functions; accesses deep emotions	GDS ($p 0.01$)	PEDro 5/11 QE
# Guétin et al., 2009	Special individual receptive music therapy (questionnaire individual preferences and experience, computer modifying program of music for special 20 min dynamic), $n = 38$ 20 mins, 1x/week, 16 weeks	Receptive stimuli of this method stimulates cognitive functioning "to recall autobiographical memory and images"	GDS ($p < 0.05$ w4, $p < 0.01$ w8-16, $p < 0.05$ w24; persistence depression $p < 0.003$)	PEDro 10/11 RCT/PT, two-arm
# Han et al., 2011	Music therapy and activities program, also physical exercise and cognitive stimulation, $n = 45$ 6 h, 1x/week, 8 weeks	Cognitive and physical activities, social participation, capabilities	Revised Memory and Behavioral Problems Checklist RMBPC ($p 0.02$ within, $p 0.006$ between groups)	PEDro 5/11 RCT/PT, two-arm
+ Hars et al., 2014	Walking following piano, quick exercises/walking out of rhythmic patterns, $n = 134$ 60 min, 1x/week, 25 weeks	Autonomy and responsibility	HADS ($p 0.924$) non-significant decrease of depression	PEDro 10/11 RCT
# Im and Lee, 2014	Music therapy, art therapy, $n = 34$ 60 min, 1x/week, 12 weeks		GDS ($p 0.000$)	PEDro 10/11 RCT /PT, two-arm
# Jun et al., 2013	Music movement therapy, $n = 40$ 60 min, 3x/week, 8 weeks	Integration function of physiological functioning	CES-D no sign. Change ($p 0.280$), but sign. Improvement mood POMS ($p 0.040$)	PEDro 11/11 PT, two-arm
# Kang et al., 2010	Warm-up hand exercises, MT art therapy, horticulture activity; MT: learn + listen songs, express emotion through motion and dance, later with instruments, $n=38$ 180 min, 6x/week, 3 weeks	Music free-flowing without direction to evoke past enjoyable memories	GDS ($p 0.001$)	PEDro 5/11 QE/PPT, non-equivalent control group

(Continued)

TABLE 4 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
# Kim H. et al., 2016	Reminiscence, occupational, art, horticultural, music therapy: playing melodies/accompaniment, $n = 53$ 5x/week, 6 months	Encouragement to develop musical expression/imitate musical rhythms	GDS ($p < 0.09$), not significant improvement	PEDro 10/11 RCT, compared pre-post trial
# Liu et al., 2014	Active and receptive (Chinese five-element music) music therapy, $n = 50$ 60–120 min, 1x/week, 4 months	Integration of physiological functioning	HDRS post treatment ($p < 0.05$) and follow-up ($p < 0.05$)	PEDro 11/11 PT, two-arm
# Low et al., 2015	Training for home care providers, care workers, $n = 189$ champions 5h, case manager 3h care workers 4*2–3h duration: 12 months		CSDD ($p < 0.0109$) non-significant decrease of depression	PEDro 10/11 quasi-experimental design
* Magee et al., 2006	Singing (rituals welcome and goodbye, breathing exercise, vocal exercise, singing exercise, song singing), $n = 1$ 60 min, one time	Wellbeing-processing, voice-training, songs	HADS, decreased depression, score changed from 9 to 3	COREQ29/32 CS, single
* Myskja and Nord, 2008	Music therapy (group, singing preferred songs, systematic pre-search of songs), $n = 72$ 45 min, 2x/week, 11 weeks	Dementia symptoms, calming or activating, combined medical treatment, unclear	MADRS ($p < 0.05$)	PEDro 4/11 PS/PPT
# Onieva-Zafra et al., 2018	Music + reminiscence therapy together; musical experiences—listening/singing, $n = 19$ 45 min, 2x/week, 8 weeks		GADI ($p < 0.01$)	PEDro 5/11 PS/QE, nonrandomized
# Pongan et al., 2017	Choral singing, $n = 59$ 12 weeks	Structure of singing, social context	GDS no sig. changes ($p < 0.68$)	PEDro 10/11 RCT, multi-center
* Raglio et al., 2015	Active music therapy in one group, individual music listening in the other, $n = 120$ –30 min, 2x/week, 10 weeks	MT followed the PWDs rhythm / music production to create nonverbal communication; built relationship by singing, using melodic + rhythmic instruments (impro), facilitated expression / modulation of PWD's emotion, promoted affect attuned moments	Non-significant decrease to SC (all with significant CSDD decrease)	PEDro 10/11 RCT, multi-center
* Ray and Mittelman, 2017.	Music and movement, singing, tonal activities, $n = 132$ 15–60 min, 3x/week, 2 weeks	Work on arising themes	CSDD ($p < 0.001$)	PEDro 5/11 QS
+ Reyehler et al., 2015	Listening to ambient music, 120 beats/min, $n = 41$ 75 min, 3x/week, min. 4 weeks		The Borg Scale of Perceived Exertion, no difference ($p < 0.02$)	PEDro 10/11 RCT, crossover
+ Sánchez et al., 2016	Individualized music sessions, according to musical preferences, $n = 22$ 30 min, 2x/week, 16 weeks		CSDD ($p = 0.006$)	PEDro 10/11 RCT
# Särkämö et al., 2016	Singing or music listening by coached caregiver, $n = 84$ 90 min, 1x/week, 10 weeks		CBS: decrease of depression more in mild dementia by music listening and singing, depend on groups $p < 0.001$ –0.79	PEDro 10/11 RCT
# Thomas et al., 2017	Music and Memory-program: play lists tailored to personal history and preferences, $n = 196$ 180 days, daily		PHQ-9 ($p < 0.53$), no reduced depression	PEDro 5/11 PPT, controlled trial

(Continued)

TABLE 4 | Continued

Studies	Interventions	Processes and mechanisms	Depression outcomes, measures and scales	Quality assess and design
+ Travers and Bartlett, 2011 +Verruso et al., 2014	radio program "Silver Memories" 1920–1950, $n = 113$ 60min, daily, 3 months Music listening (Jazz, Classical, Modern = 3 sub-groups) + physical exercise training, $n = 24$ 60 min, 2x/week, 24 weeks		GDS ($p 0.003$) GDS ($p 0.01$)	PEDro 4/11 MM, scales and interview PEDro 10/11 PS/RCT
# Wang et al., 2017	Kagayashiki music care: activities designed within rehabilitation + music, musical activities and/or physical activities are carried explicitly, $n = 149$ 30min, 2x/week, 24 weeks	One's perceived self-efficacy can result in increasing self-confidence + success in executing a given task	CSDD no significant decrease ($p 0.190$)	PEDro 6/11 QE/LS
* Werner et al., 2017	Group singing, receptive music therapy, instrumental improvisation, dance/movement, $n = 117$ 40min, 2x/week, 10 weeks	Validation, expression of feelings, and memories, shared experiences	MADRS ($p 0.000$) Cohen's $d = 0.49$	PEDro 9/11 PT
# Yap et al., 2017	Percussion instruments, free play, $n = 31$ 60 min, 1x/week, 10 weeks		GSD ($p 0.496$) non-significant	PEDro 10/11 PS, randomized cross-over pilot study

Key: Two-arm: an intervention involving only standard care and a music intervention, without a third condition comparator.

BDI, Beck Depression Inventory; CBS, Cornell-Brown Scale for Quality of Life; CES-D, The Center for Epidemiologic Studies Depression Scale; COD, crossover design; COMP, A composite depression scale constructed on the HAM-D (double weighted), BDI, and HADS-Dz-scores; CSDD, Cornell Scale for Depression in Dementia; GADI, Goldberg Anxiety and Depression Inventory; GDS, Geriatric Depression Scale; HADS, Hospital Anxiety and Depression Scale; HADS-D, Hospital Anxiety and Depression Scale- Depression sub-scale; HDRS, Hamilton Depression Rating Scale; HAM-D, Hamilton Rating Scale for Depression; MADRS, Montgomery-Asberg Depression Rating Scale; PHQ-9, Patient Health Questionnaire; POMS, Profile of Mood States; PWDs, Persons with dementia.

Intervention coding: * intervention delivered by trained or certified music therapist; # intervention delivered by other professional; and + unclear.

Design codes: CS, case study; CDA, collaborative discourse analysis; LA, longitudinal study; OS, observational study; PE, pre-experimental; PPGD, prospective, parallel-group design; PPT, pre and post-test; PS, pilot study; PT, pragmatic trial; QE, quasi experimental; QS, qualitative study; RCT, randomized control trial; RCS, retrospective cohort study; SSR, single subject research.

weekly. Interventions involved therapists' technique of empathic attunement, and activities involving mirroring, doubling, and role-reversal, dramatic embodiment of inner conflicts, dramatic projective in the form of roleplay and enactment. Session structure in group interventions typically involved a warm up, a main action and a closure phase. One on one sessions conducted by elder clowns involved techniques of affective attunement and humor, and activities involving reciprocal play.

Therapeutic Processes

Each study that included drama therapy involved therapeutic techniques derived from meta-processes (Cassidy et al., 2014) including the therapist being involved while working in the here and now alongside clients, the establishment of safety through the choice of techniques and clients being offered control and choice to enable them to exercise initiative and creativity. Other core processes, as identified by Jones (2007), included play, dramatic embodiment, dramatic projection, personification, and impersonation (role-play), empathy and distancing, life-drama connection, witnessing, and transformation. These were used to facilitate clients' short and long term goals. For example, in the study involving drama therapy and life review, stories of group members were embodied by other group members who took on the roles identified in the single group member's story and created dramatic images. This was intended to enable the story owner to "gain new perspectives about their life decisions and deepen their understanding of the associations between these decisions, in a way that gives rise to a more positive identity" (Keisari and Palgi, 2017, p.1080).

The core processes used to activate internal resources and externalize internal conflicts were discussed by Sajjani et al. (2018). Wilkinson et al. (1998), reported activities being chosen to stimulate reminiscence, socialization, and "provide opportunities for more organized self-expression through the use of metaphor" (p. 195). In the study in which elder clowns interacted with older adults, the primary processes described were (a) affective relationality; (b) reciprocal playfulness; and (c) co-constructed imagination.

Proposed Mechanisms of Change

The studies reviewed suggest that shifts in depressive symptoms that result from drama interventions are catalyzed by mechanisms of change such as:

- Physical: engagement in playful, embodied activity contributing to sense of vitality and regulated, relaxed breathing;
- Cognitive: orientation to past and present, reinforcement of positive coping strategies, coherent organization of self-expression, increased memory recall, facilitation of meaning making;
- Emotional/intrapersonal: use of metaphors, roles, and playful, embodied enactments providing a suitable distance to activate internal resources and externalize and communicate inner conflicts and strengths, and facilitate emotional regulation;
- Social: individual and group activities prompting increased positive social interaction.

Music Results

Summary of Studies and Quality Assessment

Forty-one studies met all inclusion criteria from an initial sample of 91 as detailed in **Table 4**. Depression was addressed as a primary diagnosis in 21 studies and as secondary diagnosis and depressive symptoms in 20 studies.

Sample sizes ranged between 1 and 12,576, with a mean sample of 379. Only six of the 41 studies included follow ups, undertaken after 3 or 6 months, all amongst most recent studies (Coulton et al., 2015; Kim H. et al., 2016; Sánchez et al., 2016; Särkämö et al., 2016; Pongan et al., 2017; Ray and Mittelman, 2017).

The quantitative studies scored between 4 and 11 on PEDro, and the one qualitative study met 29 of 32 elements in COREQ. Twelve interventions were led by a music therapist, 23 led by another professional; and six by a leader of unknown training. Twenty-six studies had significant findings: nine of these were led by a music therapist, twelve by another professional, and a further five had a leader of unknown training. Fifteen of the 26 music studies with significant findings were assessed as having high quality findings (8–11/11 on PEDro). The other six studies were assessed as being of low quality, with missing elements including blinding, similarity at baseline, concealed allocation, and clear randomization.

Interventions

Programs offered were sessions of between 15 and 360 min, with 30–60 min being most common; held between once weekly and daily, most often weekly or twice per week; for periods from one day to 24 months, most often 10–12 weeks.

Very different methods and intervention types were included in treatment. Most frequently reported interventions in the 26 studies with successful outcomes were receptive music therapy and music listening (17). In nine studies, mixed intervention types (between two and five types) were included in treatment. Instrumental play and improvisation were also utilized in nine studies. In eight studies, individualized individual preferred music or reminiscence were also included with music listening or singing. In six studies, the intervention type was singing, and music movement was included in six studies as well. Activities were selected due to theoretical models or findings of therapeutic processes or mechanisms of change described in the following paragraphs.

Therapeutic Processes

Therapeutic processes described in the music studies were closely linked to mechanisms of change. These processes focussed on physical activation, processing of emotion and social relationships. Physical activation was seen to be activated through rhythmic patterns (including march rhythms in 4/4 time), physical reaction to emotions and improvement of movement. Processing of emotions supported changes from feelings of anger and fear to increased positive emotions and emotional responses including stimulation of happy memories, subjects' interests, preferred autobiographical music, and musical interests, and enjoyment through activation of the limbic and paralimbic systems. Processes relating to social relationships are described

as interaction through playing of instruments, promotion of empathic relationships, increased communication, and reduced social isolation.

Proposed Mechanisms of Change

The studies reviewed suggest that shifts in depressive symptoms resulting from engagement in music and music therapy are a result of mechanisms of change across several domains:

- Physical: neurophysiological and neurochemical effects, such as endorphin release, stimulation of cognitive functioning i.e., reminiscence and activation of amygdala, hippocampus, and nucleus accumbens;
- Cultural (creative/aesthetic): processing of music stimuli in rhythm and pitch, musical experience including movement, physiological functioning, and imitating of musical rhythm;
- Intrapersonal: improvement of well-being, activation of remaining capabilities, self-efficacy, validation, increase of autonomy, and self-confidence developed through experiences of success;
- Social: improvement of interaction skills and relational abilities, to trigger interpersonal relationship, to stimulate social participation.

DISCUSSION

This review reveals significant differences between the creative arts modalities with respect to research quantity, type and quality. The number of studies about music interventions ($n = 41$) was significantly more than other modalities, i.e., art ($n = 17$), dance ($n = 13$), and drama ($n = 4$). Types of research were clearly distinct between modalities, with 40 of the 41 music studies, and all 13 dance studies being quantitative research, while art studies included predominantly quantitative, but also qualitative and mixed-methods studies, and the small number of drama studies involved qualitative, mixed-methods, and quantitative approaches. This indicates a need for more research in the creative arts therapy modalities that are as yet under-represented in the literature. While 13 dance studies were included in this review, none of those interventions was actually led by a dance movement therapist, so the need for more research in dance movement and drama therapy is particularly evident.

Quality issues differed between the modalities. Art therapy studies were found to be of medium quality with the main issues in quantitative studies being small sample size, a general lack of generalizability and a lack of rigorous efforts to ensure validity in the findings. Issues in qualitative studies in art therapy also relate to a lack of rigor to ensure creditable data analysis and inadequate reporting in data collection. This differs somewhat to the dance movement studies, which were largely RCTs and scored across the range from low to high on the PEDro scale roughly evenly. Quality issues for this modality relate to the lack of actual DMT interventions. Dance was the only modality for which this was an issue. Drama studies scored middle to high, with quality relatively high for quantitative studies (8 and 9/11 on PEDro), but lower for qualitative studies (19 and 21/32 on COREQ). Music studies scored high more consistently. Very few of the studies included follow up: art (0); dance 4/13; drama (0); and music 6/41.

The sections to follow discusses some of the most salient findings about each modality.

Art

The choice of art media that is culturally relevant to the participant was repeatedly found to be a key factor of engagement. The fact that art interventions examined were at least 12 weeks long indicates that longer-term approaches might be most effective with this population. In consideration of the many mental and physical challenges faced by older adults, longer-term approaches might be more congruent with relationship building and sustaining the outcomes of art therapy. The effectiveness and impact of short-term programs remains to be studied. Future studies might also examine how personalized use of traditional art media might contribute to client outcomes. The quality of most art intervention studies was scored as medium to low (based on PEDRO and COREQ scores) with few studies effectively randomizing participants and/ or providing adequate details in the methodology.

Dance

The dance studies primarily focussed on the learning of dance steps and sequences, and repetition of these across sessions. Dance movement therapy, in contrast, often does not include the learning of structured steps, but rather prioritizes more improvised and expressive dance experiences. However, the effectiveness of learning of steps for amelioration of depression and its symptoms evidenced in these studies may point to it being a worthwhile consideration for DM therapists, especially for this older adult age group. One issue arising in the dance studies was the perception by participants and possibly program hosts that dance interventions are more suitable for women. As the rate of depression is the same for men and women, and its functional impacts are greater for men, this indicates a challenge, with an effective modality not potentially being considered by 50% of the people impacted by depression.

The quality of dance studies was varied, with ratings evenly distributed from the lowest to highest PEDro scores. Lower scoring studies were often missing elements of blinding of subjects, therapists, and assessors, and concealment of allocation.

Drama

While few in number, the three studies involving drama therapists indicated that positive outcomes could be achieved in programs of 12 weeks in length. The findings of these studies were consistent with recent literature in drama therapy emphasizing the benefits derived from opportunities for playful interaction and the externalization of significant experiences through drama; these processes were found to reinforce internal resources and contribute to a sense of generativity (see Jennings, 2018).

Music

Twenty-six of the 41 music studies demonstrated significant findings in treatment of depression and depressive symptoms. The most effective interventions were provided by trained music therapists, with nine of the twelve studies involving these professionals having significant findings, whereas only twelve of the 23 studies involving other professionals had

significant findings. Thus, interventions led by music therapists appeared more suitable than those led by other professionals for treatment for depression and for depressive symptoms of older adults. Effective interventions were diverse and included receptive music therapy and music listening, mixed intervention types, instrumental play and improvisation, and individualized, individual preferred music or reminiscence in music listening or singing.

Methodological Issues

We began this review with the intention of exploring the effects of creative arts interventions on older adults experiencing depression, as well as relationships documented between intervention activities, therapeutic processes, and mechanisms seen to lead to outcomes. However, this second task proved not to be straightforward, with studies often not providing adequate (or any) discussion about processes or mechanisms that were expected or elicited through interventions. In articles that did discuss processes or mechanisms, claims were largely not substantiated with data. Other studies appeared to have been predicated on theories of change about outcomes expected from activities and associated therapeutic processes but did not explicate these. This was particularly evident in the dance studies, where there was much focus on physical movement, without specific articulation of the well-evidenced relationship between physical exercise and reduced depression or depressive symptoms.

This finding gives rise to a consideration that we did not assess one important quality point, that of the quality of interventions. Given that the quality of an intervention is likely to significantly impact findings, this would seem an appropriate and relevant process. While we scored the methodological quality of studies using COREQ and PEDro tools, this process did not offer any insight about how well-considered interventions appeared, how well substantiated they were from theory or evidence, or whether justification for activities or processes to be employed was adequate. Thus, an additional quality process we recommend would be for the assessment of the quality of choices made and processes employed. The use of manualised interventions or descriptions of clear intervention protocols may contribute to better practice in this respect.

Another methodological challenge was the lack of discussion in the studies examined of the relationship between expected outcomes and specific symptoms of depression as identified in DSM-V or ICD manuals. We had initially tried to align outcomes of studies with these formally identified symptoms, but few studies specifically mentioned addressing these. We recommend that future studies pay specific attention to identified symptoms of depression.

One risk of bias in this study is the fact that all authors are creative arts therapists. We attempted to minimize bias caused by this factor by ensuring that at least two authors were involved in extracting data from each study and that they double checked each other's work. Other strategies we employed for reducing bias were the inclusion of all studies, those with significant and non-significant findings, and adherence to strict inclusion criteria.

An additional limitation for research that was considering creative arts broadly was that our study did not include studies on writing, or the broader categories of expressive and creative arts that were not modality specific. Future research may be best to include these topics.

Recommendations for Further Research

Our first recommendation for future research is for studies that meet quality standards for both quantitative or qualitative approaches, given that so many of the studies we examined did not. Our findings indicated a significant need for well designed, detailed studies of the impact of all creative arts therapies in the targeted treatment of depression in older adults.

We recommend that future studies include more specific focus on *how* interventions work, as well as *if* they work, given the under-development of theories of change about how creative arts interventions are seen to be effective in addressing depression in studies reviewed, and the lack of clear explication and testing of processes and mechanisms considered to contribute to therapeutic outcomes. In addition, the differences between, and sequencing of, individual and group interventions remain understudied.

Creative arts therapies are increasingly being offered as part of a range of complementary therapies in integrative care settings. However, no studies examined their cost effectiveness, either comparing creative arts modalities with each other, or between CA modalities and other therapeutic approaches. This prompts a recommendation for future inquiry, which would increase understanding of how creative arts interventions, including CA therapies, might be utilized as psychosocial prescriptions to increase effectiveness and reduce costs of healthcare of older adults. Increased collaboration between creative art therapy researchers could also be useful for improving research outcomes. Future studies could also examine how new technology like virtual reality and telehealth might contribute to the potential of creative arts interventions for the health of older adults.

Implications for Practice

Given our findings that interventions led by certified creative arts therapists resulted in more significant or positive outcomes than interventions led by other professionals, we recommend that interventions for depression with older adults be provided by certified creative arts therapists. Because relatively few interventions included developed theories of change about interventions chosen, processes implemented and the expected relationship with these and changes in depressive symptoms, we consider that clinical practice may be similarly improved with better articulation of all of these considerations in the planning and delivery of interventions for depression.

CONCLUSION

This review examines evidence for the effects of creative art interventions on depression and depressive symptoms of older adults. The majority of 51 of the 75 studies examined demonstrated either significant quantitative or positive qualitative findings (12/17 of art, 10/13 of dance, 4/4 of drama

and 26/41 of music, and music therapy). The quality assessment of these studies differed between disciplines, with medium quality in art studies, the full range from low to high in dance studies, middle to high in drama therapy, and high in the majority of studies with significant findings in music. Certified art therapists were involved in the majority of studies with significant findings: in art, 8/12; in drama, 3/4; and in music, 9/12 studies involving music therapists and 12/23 studies involving other professionals. No studies involving DMT fitted this criterion.

Mechanisms of change gleaned from the studies include physical (improvements in balance, muscle strength; neurochemical effects, such as endorphin release), intra-personal (positive views of self; strengthened agency and mastery; communication and processing of emotions; coping strategies), cultural (creative expression, aesthetic pleasure), cognitive (stimulation of memory), and social (increased social skills and connection) elements that were all considered to be causal in reduced depression and symptoms. Recommendations for future research includes stronger focus on trialing of processes and mechanisms, considerations of the value of short vs. longer term therapy, and cost-effectiveness of creative arts therapy modalities in comparison with each other as well as with other type of therapeutic treatment.

AUTHOR CONTRIBUTIONS

FB, GK, NS, TW, and KD conceptualized the project and designed the study. KD co-ordinated the project, and led

writing of introduction, method and discussion sections and integrative analysis. KC-H, ED, JE, ME, KM, and OS undertook the data gathering, first stage of analysis and data entry for sections on art therapy, dramatherapy, dance movement therapy, and music therapy respectively. GK, KM, NS, ED, KD, FB and TW undertook the second phase of analysis and write up of results for sections on art therapy, drama therapy, dance movement therapy and music therapy respectively. All authors contributed to manuscript revision and read and approved the submitted version. Authors are listed alphabetically except first three authors Dunphy, Baker, and Dumaresq.

FUNDING

Contributions were funded by University of Melbourne Mackenzie Post-Doctoral Research Fellowship (KD); University of Melbourne Academic Assistantship (ED); Drexel University College of Nursing and Health Professions Research Fellowship (KC-H); New York University Research Assistance grant (OS); DAAD through Federal Ministry of Education and Research, Germany (TW, JE).

ACKNOWLEDGMENTS

The authors wish to acknowledge Patrick Condron and Georgina Binns from the University of Melbourne Library for invaluable consultation service.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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How Shall I Count the Ways? A Method for Quantifying the Qualitative Aspects of Unscripted Movement With Laban Movement Analysis

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OPEN ACCESS

Edited by:

Gianluca Castelnuovo,
Catholic University of the Sacred
Heart, Italy

Reviewed by:

Kim Frances Dunphy,
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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 14 September 2018

Accepted: 28 February 2019

Published: 28 March 2019

Citation:

Tsachor RP and Shafir T (2019)
How Shall I Count the Ways?
A Method for Quantifying
the Qualitative Aspects of Unscripted
Movement With Laban Movement
Analysis. *Front. Psychol.* 10:572.
doi: 10.3389/fpsyg.2019.00572

There is significant clinical evidence showing that creative and expressive movement processes involved in dance/movement therapy (DMT) enhance psycho-social well-being. Yet, because movement is a complex phenomenon, statistically validating which aspects of movement change during interventions or lead to significant positive therapeutic outcomes is challenging because movement has multiple, overlapping variables appearing in unique patterns in different individuals and situations. One factor contributing to the therapeutic effects of DMT is movement's effect on clients' emotional states. Our previous study identified sets of movement variables which, when executed, enhanced specific emotions. In this paper, we describe how we selected movement variables for statistical analysis in that study, using a multi-stage methodology to identify, reduce, code, and quantify the multitude of variables present in unscripted movement. We suggest a set of procedures for using Laban Movement Analysis (LMA)-described movement variables as research data. Our study used LMA, an internationally accepted comprehensive system for movement analysis, and a primary DMT clinical assessment tool for describing movement. We began with Davis's (1970) three-stepped protocol for analyzing movement patterns and identifying the most important variables: (1) We repeatedly observed video samples of validated (Atkinson et al., 2004) emotional expressions to identify prevalent movement variables, eliminating variables appearing minimally or absent. (2) We use the criteria repetition, frequency, duration and emphasis to eliminate additional variables. (3) For each emotion, we analyzed motor expression variations to discover how variables cluster: first, by observing ten movement samples of each emotion to identify variables common to all samples; second, by qualitative analysis of the two best-recognized samples to determine if phrasing, duration or relationship among variables was significant. We added three new steps to this protocol: (4) we created Motifs (LMA symbols) combining movement variables extracted in steps 1–3; (5) we asked participants in the pilot study to move these combinations and

quantify their emotional experience. Based on the results of the pilot study, we eliminated more variables; (6) we quantified the remaining variables' prevalence in each Motif for statistical analysis that examined which variables enhanced each emotion. We posit that our method successfully quantified unscripted movement data for statistical analysis.

Keywords: Laban Movement Analysis, movement, bodily emotional expressions, dance/movement therapy, motion analysis, Laban/Bartenieff Movement System, movement quality, non-verbal behavior

INTRODUCTION

Body movement is becoming ever more recognized as integral to both mental and physical health (Penedo and Dahn, 2005; Bradt et al., 2015; Liao et al., 2015; Teychenne et al., 2017). Dance/movement therapy (DMT) uses body movement as a primary tool to support and improve psycho-social well-being through creative and expressive movement processes. DMT is a well-established therapy with clinical evidence of effectiveness (Ritter and Low, 1996; Strassel et al., 2011; Kiepe et al., 2012; Koch et al., 2014; Lee et al., 2015; Sossin, 2018). One of the factors contributing to the therapeutic effects of DMT is the effect of movement on the client's emotional state. Researching which aspects of movement are responsible for the effects of different movements on specific emotions is challenging, because unscripted movement in individuals or groups is difficult to quantify for statistical analysis. Actual observable human movement is a complex phenomenon, with multiple, overlapping variables, uniquely presenting in each individual. Only a sophisticated observation and descriptive method can do justice to movement's content and context (Sossin, 2018). And, even with such an observation tool, the number of variables in movement is so large that the research design for each study needs to include a way to reduce the number of variables being analyzed to a smaller set of variables that can be tested statistically, as well as to quantify them in ways that capture the essential expression and context.

The problem is that of methodology: much of the research on the relationship between movement and emotion has been on static posture and positions, rather than on the movements in between those postures and positions (e.g., Cuddy et al., 2018). Movement has been difficult to investigate quantitatively due to the enormous number of variables involved. Complete description of all movement variables is cumbersome and some selection is necessary to examine a given problem (Davis, 1970). Thus, the first challenge movement researchers face is to identify and extract the variables most significant for that study. This paper outlines the methodology we used for identifying, coding and quantifying the multitude of variables present in ordinary (unscripted) movement, so statistical analysis could be used to identify which specific variables are significant for emotion elicitation. The same or similar methodology might be used in the future for other studies involving complex natural unscripted movements, such as studies examining motor emotional expressions, or movements that characterize specific populations (e.g., children with developmental coordination disorders), etc. Therefore, the purpose of this paper is to suggest

a set of procedures for preparing Laban Movement Analysis (LMA)-described movement data for statistical analysis.

Existing Methods for Analyzing Complex Movement

Researchers in numerous fields have developed a variety of methods to analyze movement behavior, many of which were devised to suit the purpose of that particular research. The use of so many systems has made it difficult to compare results and improve methods (Davis, 1975; Levy and Duke, 2003; Shafir et al., 2016). Additionally, many of these systems have limitations: Some researchers, such as Darwin (1872), Wallbott (1998), or Dael et al. (2012) identified several specific movements executed with specific body parts and examined the existence of those movements within natural movements. These systems are limited to the defined movements they can study. Other researchers used coding systems of various movement dimensions such as: vertical and sagittal directions, force, velocity, and directness (de Meijer, 1989); direction, force, tempo and form (Montepare et al., 1999) or they characterized movements by the specific muscles that are activated (Huis in 't Veld et al., 2014a,b) or kinematic variables such as joint displacement, velocity, and acceleration, or joint coordination (Pollick et al., 2001; Sawada et al., 2003; Roether et al., 2009; Gross et al., 2010, 2012; Barliya et al., 2013). These systems often cannot sufficiently track changes in qualitative aspects of unscripted movement, limiting their use for studying movement in contexts different from their study. The problem that was succinctly expressed by Levy and Duke (2003) still exists: that many movement analysis systems are designed to gather easily quantified empirical evidence, skewing research to what is easily studied, rather than what might be significant, yet difficult to quantify for scientific analysis.

Laban Movement Analysis as a Research Instrument

Our method is based in LMA, an internationally accepted comprehensive system naming movement components. LMA, and systems emerging from it, have a strong record of inter-observer reliability when applied carefully by raters trained for the research project (Davis, 1981; Winter, 1992; Levy and Duke, 2003; Connors and Rende, 2018; Melzer et al., 2018). It has long been used to study emotional expression and as a primary clinical assessment tool in DMT (Davis, 1981; Cruz, 2009; Goodill et al., 2017). LMA is often used in research for its ability to capture qualitative aspects of movement as components shift over time or remain constant, and for identifying patterns. It affords users the capacity to recognize movement themes at

both the macro and micro-analysis levels, and is valued for its accuracy in observing subtle and momentary motor changes, for its comprehensiveness in noting both functional and expressive aspects of movement, and for its language-based descriptors, which align with how people think about movement (e.g., ‘touch lightly’ as compared to measurements generated from a pressure sensor). While many have contributed to the development of LMA as an observational tool, and contemporary scholars often use the more current term “Laban/Bartenieff Movement System” (LBMS) to reflect the contributions of Irmgard Bartenieff to the comprehensiveness of the system, we chose to stay with the label LMA, so researchers from disparate fields (such as animation, human-machine interface, affective computing, and machine learning) can compare aspects from all Laban-based systems.

The LMA System

Laban Movement Analysis is adept at describing what moves, where it moves, how it moves, and the ‘why’ of movement, in the relationship of the mover to self, others and the environment (Davis, 1970). The smallest (irreducible) movement units described by LMA are components of four main movement categories: Body, Space, Shape, and Effort (Davis, 1970; Bartenieff and Lewis, 1980). The Body category describes “what is moving,” e.g., which body parts are moving, and the coordination of these parts as well as basic actions such as walking or jumping. The Space category describes “where the body moves,” such as the direction of a movement (up/down, forward/backward, sideways open or across), planes the movement occurs in (vertical, sagittal, and horizontal), as well as use of the Kinesphere (e.g., far-reach space, peripheral movement), and more. The Shape category can describe changes in the shape of the body itself, moving in relation to one’s surroundings, to others and to one’s own needs, often reflecting the “why” of movement. We observe Shape when we note such things as whether a body encloses or spreads, rises or sinks. The last movement category is Effort, describing “how the body moves”: the qualitative aspects of movement such as lightly, suddenly, freely, etc. Effort reflects the mover’s inner attitude toward the movement as manifested in four different Factors: Weight, Space, Time, and Flow, each spanning two opposite polarities. Weight-Effort spans between the poles of *Strong* and *Light* and refers to the amount of force invested in the movement. Space-Effort ranges between *Direct* and *Indirect* and refers to the attitude toward the movement’s direction or focus. Time-Effort spans from *Sudden* to *Sustained*, reflecting the acceleration and deceleration of movement. Flow-Effort expresses the mover’s attitude toward controlling the progression of movement, from a higher control–*Binding* to little control or moving with abandon–*Freeing* (Studd and Cox, 2013).

Advantages of the LMA Symbolic System for Identifying and Isolating Variables

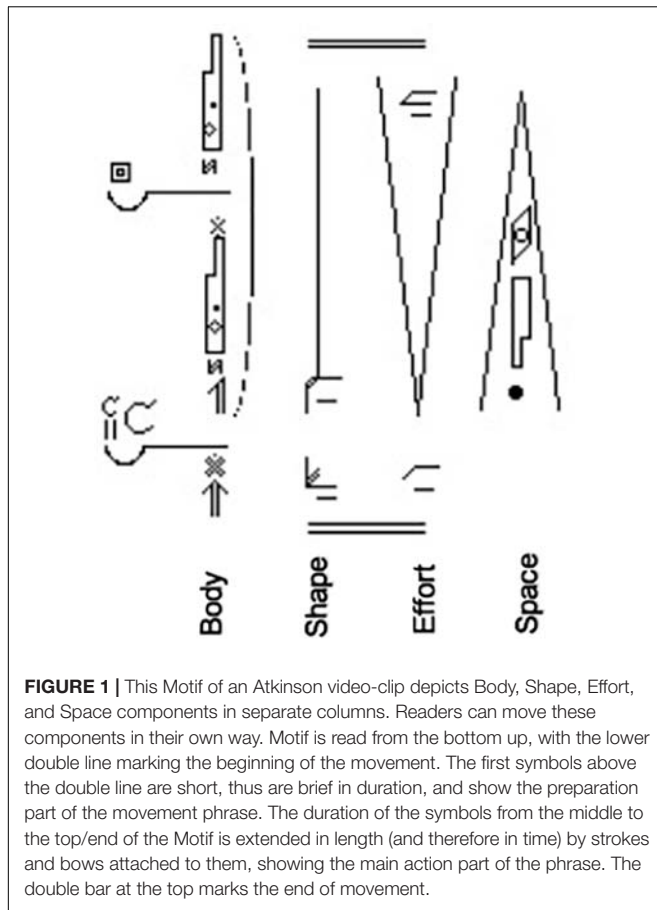
One advantage of LMA is its unique system for writing movement through symbols called Motif Writing, which has been used to annotate behavior in both animal (Foroud and Pellis, 2003; Whishaw et al., 2003; Alaverdashvili et al., 2008) and human studies (Foroud and Whishaw, 2006, 2012). A Motif can flexibly

capture not only movement components (written horizontally, like music notation), but also nuanced ways in which they appear in movement (written vertically to show duration and overlaps in timing), so non-component variables such as the phrasing of movement can be noted. A Motif provides symbolic representation of the movement which can be read directly, similar to reading music from notes, or math from numbers (Figure 1). Using Motif eliminates the need to show to study participants the movement to be performed. The advantage is that instruction for the execution of a movement sequence (a) generates clean data, and (b) allows us to encode and compare data from different study participants, each moving their own individual unique and slightly different movements, even though the movements by all participants include the same movement components (e.g., the component Light-Effort might be expressed in a hand gesture, a movement of the head, or lift of the chest).

(a) Clean data: when moving directly from Motif, participants generate movements that are uncontaminated by co-occurring movement components that might be unintentionally introduced through live or recorded motor demonstration. Similar to a musical score, which describes how to play sequences and combinations of notes over time, and may include both the notes to be played and the dynamics or expressive quality intended by the composer, Motif may include the Body parts doing the movement and their actions, the change in the mover’s Shape, the qualitative dynamics of Effort, and the advancement of the movement through Space.

(b) Motif allows us to encode and compare data from unscripted, individually unique movements of different people. When participants read and move Motifs of single components, combinations and sequences of components, they can move them in their own way, as long as the movement includes the required components. This enables researchers to isolate and analyze basic qualitative aspects of movement in any movement having the same components.

Laban Movement Analysis is increasingly used for movement research across disciplines precisely because of its ability to describe both quantitative and qualitative aspects of any movement. From its earliest development as a descriptive language, LMA has been used as a research tool for: assessing and treating polio (Bartenieff, 1955), rehabilitation (Bartenieff, 1962), cross-cultural studies (Bartenieff and Paulay, 1970), personality assessment (Eisenberg et al., 1972), for efficiency at work (Laban and Lawrence, 1974), performance style analysis (Bartenieff et al., 1984), and assessing psychiatric client behavior (Davis, 1981). The versatility of LMA (and systems emerging from it) is evident from its use in diverse types of research: it has been used to evaluate fighting behaviors of rats (Foroud and Pellis, 2003), to analyze behavior of non-human animals in naturalistic settings (Fagen et al., 1997), to diagnose autistic individuals (Dott, 1995), to evaluate motor recovery of stroke patients (Foroud and Whishaw, 2006), and to characterize the development of infants’ reaching movements (Foroud and Whishaw, 2012). Several studies have also used LMA-based systems to describe, recognize or create bodily emotional expressions for applications in human-robot interactions, interactive games such as the Xbox,



and in animations (Camurri et al., 2003; Zhao and Badler, 2005; Rett et al., 2009; Barakova and Lourens, 2010; Zacharatos et al., 2013); to identify the brain mechanisms underlying the production of some of the LMA motor elements (Cruz-Garza et al., 2014), to compare expression in musicians (Broughton and Davidson, 2014, 2016), to study emotion recognition (Melzer et al., 2018) and to capture individual differences in decision-making style (Connors et al., 2014, 2016; Connors and Rende, 2018).

Yet, even with LMA and systems emerging from it, such as the Kestenberg Movement Profile (KMP), Action Profiling (AP), or Movement Pattern Analysis (MPA), quantifying data from non-prescribed movement demands expert observers and multiple steps of investigation (Connors et al., 2014; Connors and Rende, 2018; Sossin, 2018; Melzer et al., 2018). Researchers who have approached this challenge have slowly built a record of methods solving their unique research goals, and established the validity of using the system to encode data in computational movement studies, behavioral sciences, animal studies and cultural studies, as detailed in the next section.

QUANTIFYING MOVEMENT VARIABLES

In computational modeling of movement, such as in robotics, motion capture and animation, a review of computable

descriptive expressors of human motion found LMA to be the most comprehensive analysis system (Larboulette and Gibet, 2015). While many in these and similar fields (e.g., animal behavior) continue to improve quantification of movement data using LMA, there are still gaps. The first gap is found in papers using LMA theory without describing how they extract the LMA features, so their methods can't be replicated (e.g., Woo et al., 2000; Foroud and Pellis, 2003; Whishaw et al., 2003; Alaverdashvili et al., 2008). Others didn't actually observe movement, relying instead upon existing research in psychology and non-verbal communication to provide generalities about movements to set LMA-related parameters (e.g., Badler et al., 2002). Some relied upon LMA experts to create a fixed repertoire of motions as a training set for their systems, but their systems were untested on general movement, or relied upon comparing varying expressions of the same repeated movements (Bouchard and Badler, 2007; Castellano, 2008). In the last decade, much progress has been made toward automated recognition of LMA components (Rett and Dias, 2007; Rett et al., 2009; Santos and Dias, 2010; Bernstein et al., 2015a,b), but these are still not as capable as expert observers in capturing data from both unscripted movements and multiple movers, as a sampling of 2018 publications shows: Inthiam et al. (2018) recorded upper-body movements with a Kinect, to analyze for LMA features expressing emotion (taken from Shafir et al., 2016) in order to elicit critical parameters for generating robotic movement. However, their automatic assessment is limited to speed and Shape, and a human observer evaluated the consistency with the target emotion. Souza and Freire (2018) used Kinect to attempt to identify LMA Basic Effort Actions, testing only for 3 Effort factors in only one mover—and their accuracy isn't described. Dewan et al. (2018) built a motion descriptor for emotion expression based on LMA which achieved 87% recognition. However, this was achieved by using a database of previously annotated skeletal poses of 3-d body-joints of only 6 gestural Body parts, and not by using *movement*. While their system identified Space, Shape and some Effort components, in order to achieve this result, they note that the dataset was annotated by "3 groups of observers," for which no details of methods of observation are given. Bernhardt and Robinson's (2007) computational model for emotion detection relies upon a data set of fixed actions: knocking, throwing, lifting and walking motion. They note that their system was impeded by the fact that "different people tend to display the same emotion in very different ways, so its ability to distinguish between sad and happy was smaller than hoped for."

In the behavioral sciences, sophisticated, systematic methods for expert observers using LMA to code complex, unscripted movement behavior in individuals were laid out as early as the 1970s (Davis, 1970, 1981; Davis and Hadiks, 1994). More recently, Cruz and Koch (2004) wrote guidelines for movement observation using LMA (and systems emerging from it) in DMT research and clinical practice, noting how Davis (1987) already laid out the intricacies necessary to define the coding system. However, these methods don't fully solve the quantification problem for statistical analysis of multiple movers and most researchers still use LMA-based systems for case studies or gather

data from only some LMA aspects, such as Effort or Shape (Gross et al., 2010; Crane and Gross, 2013; Perugia et al., 2018).

Quantification of LMA components has often been attempted with various degrees of success for Body, Space, and Shape, but has been elusive without human observers. This is especially true for the Effort category, which describes qualitative aspects of movement. Development of a system capable of quantifying the majority of LMA components in unscripted (natural or improvised) movements of multiple people has remained a challenge, although researchers have made progress on quantification of limited sets of components (Davis, 1981; Gross et al., 2010, 2012; Samadani et al., 2013; Aristidou et al., 2015; Bernstein et al., 2015a,b) or in situations of prescribed movements (Nakata et al., 2002; Hachimura et al., 2005; Torresani et al., 2007; Truong and Zaharia, 2017) or used averaging to overcome the noisy data, and were unable to quantify data for statistical analysis (e.g., Senecal et al., 2016).

OUR METHODOLOGY

We devised our method for the study *Emotion Regulation through Movement* (Shafir et al., 2016) in order to discover which movement components contribute to the enhancement and/or evocation in people of each of four emotions: happiness, sadness, fear, and anger. Atkinson et al. (2004) had already found that basic emotions are readily identifiable from body movements, and that exaggeration of body movement enhanced recognition accuracy, producing higher emotional-intensity ratings indicating that emotional intensity judgments of expressive body gestures rely more on movement than static form information. Shafir et al. (2013) went further, demonstrating that when participants (who did not know these movements were emotion-related) performed the specific movements from Atkinson's clips, they experienced the same emotion as portrayed.

Yet, while numerous studies like these confirmed that emotions can be recognized from movement, and that movement affects emotions (e.g., Gross et al., 2010, 2012), identifying predominant movement parameters which were recognized or elicited emotion in unscripted movement remained a challenge. Atkinson's study generated a set of validated clips that were ideal for this next challenge, so we began our study with a subset of his video clips. In these clips, 10 masked actors (5 male, 5 female) portrayed each of 4 basic emotions, Happiness, Sadness, Fear, and Anger, making a total of 40 clips. As in life, each actor expressed each target emotion in an individually unique way, so each of the 10 clips for one emotion (e.g., happiness) shows different movements. Even so, in all 10 clips of one emotion, that emotion was proven by Atkinson to be recognizable, providing an ideal data set for analyzing what specific movement components were being perceived as associated with each emotion. We developed our method to identify which movement components were essential to the expression and experience of these four basic emotions based on Atkinson's clips.

Our first task was to identify the variables likely to be significant, and to reduce the number of variables down to

a testable number from the numerous potential variables, in order to make possible the statistical analysis necessary to scientifically determine which components contribute to the elicitation of each emotion.

To achieve this task, we began with a 3-step protocol established (as early as 1970) by Martha Davis for analyzing patterns to identify important variables, which became our Stage A: (1) Look at all the material under consideration repeatedly to identify what motor components (variables) are important to study, and eliminate those which are minimal or absent; (2) develop clear criteria for narrowing down the number of components to be studied to those most characteristic to the researched movement, (3) analyze small units of variations (in our case: Atkinson's short video clips, which included 10 different variations of motor expressions of each emotion, i.e., 10 different movements in 10 different clips), to learn how components within them appear to cluster (Davis, 1970). These three steps were carried out by Certified Movement Analysts (CMAs), experts trained in detailed observation and coding of LMA movement components, and in recognizing patterns of meaning in the phrasing and inter-relationship of those components.

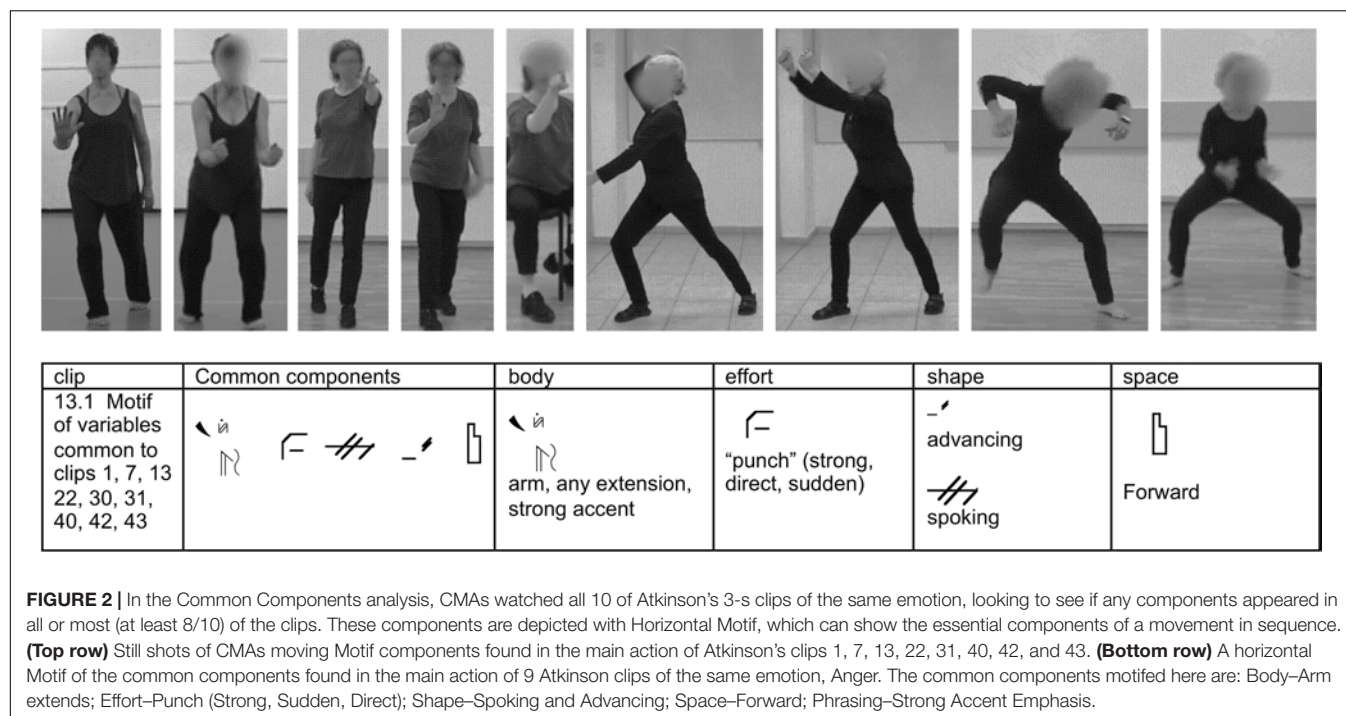
Our method added three new steps to this protocol to integrate the best analysis from observation by CMAs with testing the effects of movement on participants:

Stage B: (4) Create Motifs (LMA symbols) of different combinations (clusters) of motor components extracted from motor expressions of the same emotion; (5) Conduct pilot studies to quantify participant's emotional experience in response to moving the different Motifs with a forced-choice questionnaire, and based on the results, reduce the number of Motifs and components to be analyzed; (6) Code the prevalence of movement components within each Motif to enable quantifying their effects, for statistical analysis.

Stage A: Using Martha Davis's 3-Step Protocol

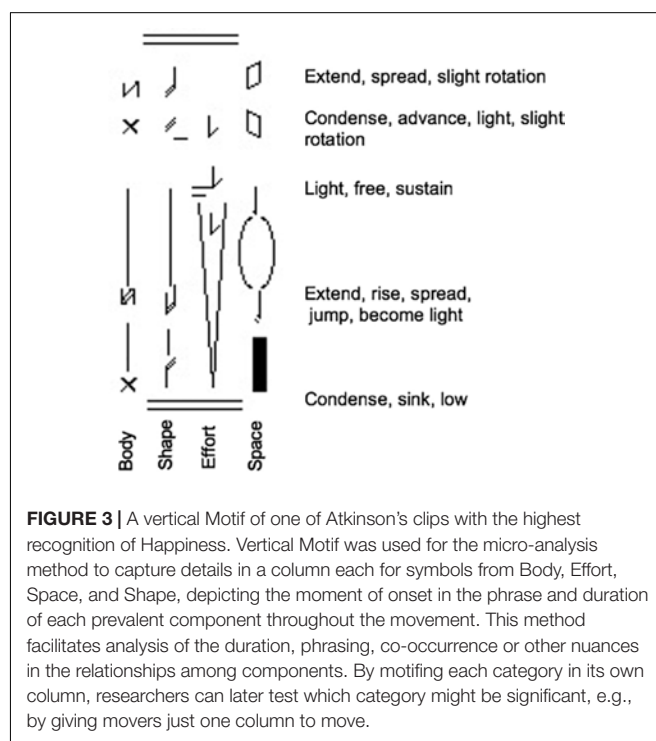
Step A1–2: Identification of Motor Components (Variables) and Criteria

We used two different methods to identify the prevalent movement variables and eliminate those appearing minimally or absent. In the first, the "Common Components" method, two experienced CMAs viewed all of Atkinson et al. (2004) clips, annotating components common to all 10 motor emotional expressions of the same emotion with a horizontal Motif (a form of Motif writing which identifies the essential and main components of a movement segment; **Figure 2**). They discussed their observations using clear criteria for inclusion of components as variables: repetition, frequency, duration, and emphasis, to reach consensus regarding which were the "common components" to study. Repetition means that a component appeared several times in a row in the movement, for example, 3 bounces in the last second of a Happiness clip. Frequency refers to how often components appear, such as one or both arm extending partially or fully forward in all the angry clips. Duration criteria let us know if the component was fleeting or prevailed in the movement, and Emphasis criteria



were used in looking at the main action of the movements, rather than looking at the preparatory or follow-through stages of the clip.

In the second, "Micro-analysis" method for identifying the prevalent movement variables, two clips for each emotion (one performed by a male actor and one performed by a female actor) were motified in detail by two experienced CMAs. The clips selected for this analysis were those having the highest recognition rate for that emotion in Atkinson's study. The CMAs observed, and motified these eight sample clips (2 for each of the 4 emotions), using LMA Vertical Motif to capture details, annotating for each clip its unique combinations of Body, Effort, Space, and Shape characteristics. In the Vertical Motif, there was a column each for symbols from Body, Effort, Space, and Shape, precisely annotating the presence and duration of each prevalent component throughout the movement, so the co-occurrence or other relationship of components during the movement could be readily seen (Figure 3). An advantage of Vertical Motif over Horizontal Motif is its ability to note nuances which might be important to the context of expression, such as each component's duration, phrasing (i.e., how the components appear, shift, disappear in preparation to move, the peak of movement and follow through, etc.), in relationship to components in other columns, making obvious any timing overlaps in the appearance/disappearance of components that are not exactly concurrent. This micro-analysis of two 'variations' of motor expression (two clips) of each emotion was intended to find out how movement components appeared to cluster in the observed movement, and to pick up non-component variables such as sequence of the components, combinations of them or duration of them, etc.



Step A3: Movement Analysis for Clusters and Patterns of Components

Using both the above methods, we analyzed variations of samples to find how variables appeared to cluster: first, by comparing all samples of the same emotion, we isolated only the variables common to all samples. Second, by analyzing in detail two

validated (by Atkinson et al., 2004) representative samples, we hoped to determine if phrasing, duration or relationship among variables might be significant.

Stage B: Using Motif to Test Combinations of Variables Identified in Stage A

Step B4: Creating Motifs

We took all the prevalent components identified in the first stage that withstood the criteria of the “common component” method, and all the components of the vertical Motifs of the two best recognized clips of each emotion, and created combination-Motifs of single constituent components (for example, the Effort symbols only, **Figure 4**), and combinations of two or three component types (for example, in the vertical Motif, a column of the Effort and Shape symbols). In creating these combinations of components (some of which we hoped would elicit the associated emotion when moved) we took into account our findings from the analysis of the vertical Motifs: e.g., which components tend to appear together, which tend to appear one after another in a certain sequence phrasing, etc. We used Motif to organize the components into combinations for testing, in order to ask people to move them and to examine their emotional response to the movement (**Figure 5**). All together, the Motifs of combinations of components (both horizontal and vertical Motif) and the full vertical Motifs of the 8 best recognized clips of each emotion) resulted in 33 different Motifs for anger, 22 for fear, 33 for sadness, and 40 Motifs for happiness.

Step B5: Testing the Combinations in Pilot Studies to Further Reduce the Number of Variables

We tested the combination Motifs in two pilot studies. All participants of the pilot studies, and the later online study, joined the study voluntarily, and signed a written informed

consent form prior to taking part in the study. This study was carried out in accordance with the recommendations of University of Michigan HRPP (Human Research Protection Program) Operations Manual. The protocol was approved by the Institutional Review Boards of the University of Michigan Medical campus. All subjects gave written informed consent in accordance with the Declaration of Helsinki.

The first pilot study was conducted with 10 expert LMA readers, during one session of 2.5 h, and another session of 50 min. Although our pilot study pool was small, the participants represented a multi-cultural sample of people: 6 North Americans, 2 from South or Central American, 1 from Eastern Europe, and 1 from Western Europe.

Participants in the first pilot read the Motifs generated in step 4 above, one after another. They were asked to read and move the components depicted by each Motif in their own way until the movement elicited an emotion. These readers' expertise was sufficient to accurately read and move from the Motifs, after which they answered a forced-choice questionnaire in which they indicated which, of the emotions Happiness, Sadness, Fear, Anger, Neutral/no emotion, they felt when moving the Motif, and what intensity their emotions were following the movement, on a scale of 1 (very weak) to 5 (very strong.). In the first pilot, participants received an envelope with 4 Motif variations from the same emotion. They moved each Motif, answered the questionnaire about which emotion (if any) they felt moving it and its intensity, then received a new envelope containing another set of four Motif variations of another emotion, until all the envelopes were read by the participants.

By moving directly from symbols, as opposed to watching a video or learning to move the combination of movement components from another person, the participants' impression from each motor component was

clip	notation	body	effort	shape	space
13.1 Horizontal Motif of variables common to clips 1, 7, 13 22, 30, 31, 40, 42, 43					
13.19 Vertical Motif (Micro- analysis) of movement in video 13					

FIGURE 4 | Depicts Motifs from Stage A3, Movement Analysis for clusters and patterns of components. In this stage, one can graphically see the common components, and also where and how they appear in a whole movement phrase.

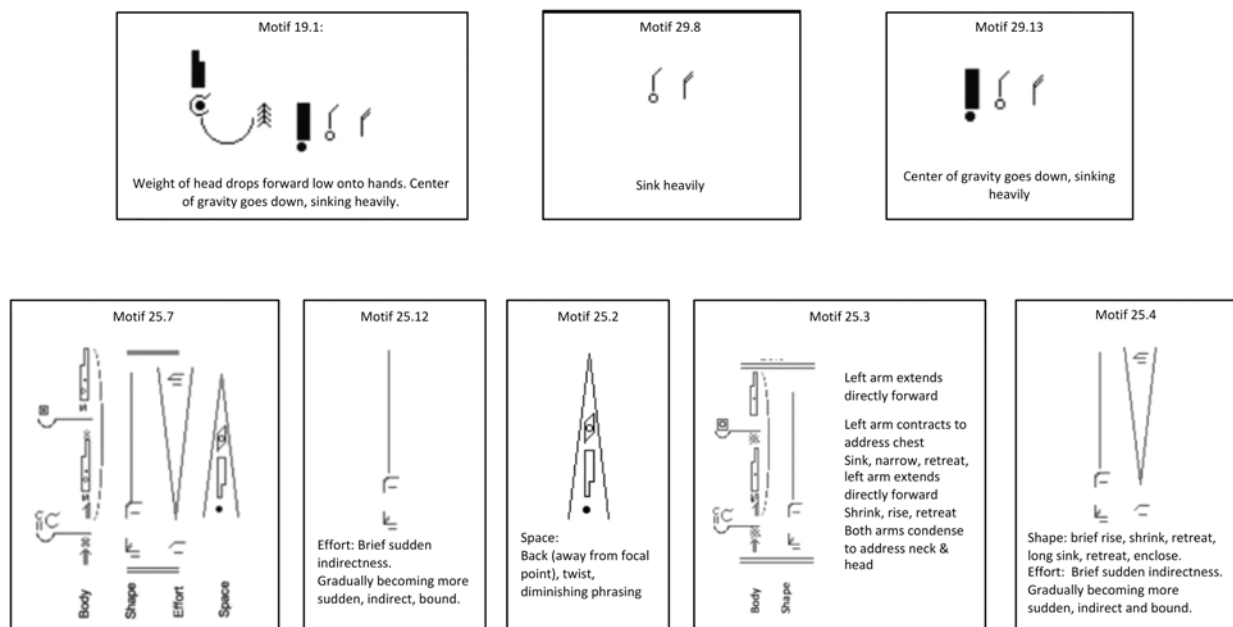


FIGURE 5 | Examples of the combination-Motifs: the (top row) shows horizontal Motif of the common components method (19.1) for Sadness, and combinations of two or three components for testing variables (29.13 and 29.8). The (bottom row) shows a vertical Motif sample micro-analysis method of clip 25 (25.7) for Fear, and parts of it separated into columns for testing, such as single constituent components (the Effort symbols column only in 25.12 or the Space symbols only column in 25.2), or two columns testing: Body and Space Symbols together in 25.3, and Shape and Effort in 25.4.

‘uncontaminated’ from any unintended influence of co-occurring other motor components as might occur through live or recorded demonstration.

Results from the first pilot indicated that recognition of Happiness from horizontal Motifs (common components method) was less robust than recognition from vertical Motifs, indicating that the set of symbols in the common components had not yet been clearly identified. Thus, three additional CMAs were asked to each view all 10 clips for each emotion and Motif components predominating the clips of that emotion. Their Motifs were compared to those generated earlier, and any components they identified as possibly significant, which were not included earlier, were added. Following this identification of additional predominating components, we added 2 new full Motifs (of common components) from this second CMA team’s analysis, and Motifs of combinations of their components, to the set we were testing in Pilot 2. Also, results from the first pilot indicated that duration of the movement was significant, but reading single Motif symbols in horizontal Motif seemed to be confused with reading symbols of short duration, as in vertical Motif. In the cases where the horizontal Motif didn’t score high on enhancement of the correct emotion (such as for common components of happiness), we wondered if motifing the duration might matter. Therefore, for the next round of testing, we converted the Motif of the common components from horizontal Motif to vertical, extending the length of each symbol (to show its duration) with an ad-lib

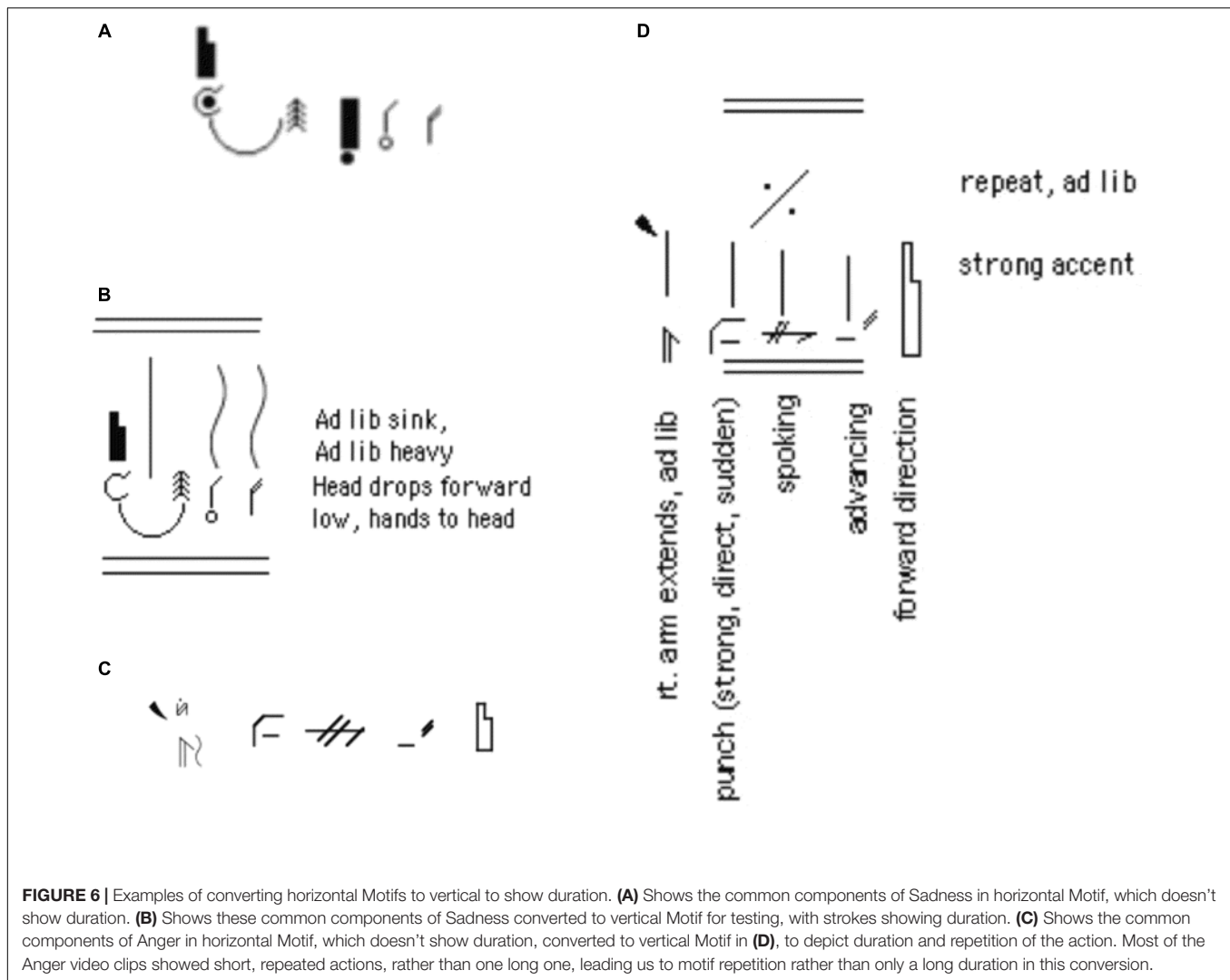
action stroke (a Motif symbol for “continue to move in this way at liberty”) for a longer duration, to match the length of similar vertical Motif. Sometimes we inserted a repeat sign, signaling readers to do the movement more than once (Figure 6). For the second pilot, we also eliminated Motifs that the first pilot clearly showed unsuited for further study, i.e., Motifs that hardly evoked any emotion. This procedure resulted in having 13 Motifs for each emotion. Lastly, in this second pilot, participants received Motifs for all 4 emotions in each envelope, thereby removing the chance that they might infer the emotion of one Motif from moving the previous one.

In the second pilot, eight additional readers were asked to read and move the new set of Motifs. The readers’ expertise was sufficient to accurately read and move from the Motifs, after which they answered the same forced-choice questionnaire as in the first pilot.

Descriptive results from the two pilot studies indicated that several Motifs did not evoke the original emotion (i.e., the emotion expressed in the clips from which the components in the Motif were taken) by any participants. These Motifs were eliminated and reduced the overall number of Motifs that were used in the final study to 40:

9 Motifs composed of components originating in movements expressing anger,

8 Motifs composed of components originating in movements expressing fear,



13 Motifs composed of components originating in movements expressing happiness, and 10 Motifs composed of components originating in movements expressing sadness,

However, the number of components in those Motifs was still too large for statistical analysis and additional steps were taken to reduce it to 32 for coding: decisions were made to code some similar components under one variable. For example, some Motifs depicted specific areas of the torso as the Body component “Chest,” while others depicted larger areas of the torso with the symbol for “Core.” We decided to unite them under one variable, so that all Motifs for “Chest” were coded simply as “Core,” and when either the chest or core component appeared in a Motif, it was considered as this “core” variable. The Motifs for chest expanding and core to distal expanding were also combined into one variable of expanding in general. Similarly, the Motif for Center of Gravity dropping down and the component of sinking were combined into one “sinking” variable for coding, so either or both would be recorded as one variable, and the component of Rotation in Space and twisting the Body were combined into one coded variable of Rotation. Lastly, in the happy Motifs, Buoyancy

and Re-initiating Phrasing/rhythmic repetition were condensed into one variable: Rhythmicity.

Of the 32 variables coding the LMA components in the remaining 40 Motifs that were moved by the study participants, two did not appear at all, and one appeared only once. Thus, they were not included in the final analysis, which was therefore based on only 29 variables.

Step B6: Quantification of the Data Onto the Coding Sheet

In our study, participants rated their emotion in response to moving each Motif. These Motifs were each composed of a different combination of several components, where each component appeared in several different Motifs. We were interested in knowing the effect of each LMA component on the participant's emotional state. Thus, our variables for the statistical analysis were the components and not the Motifs, even though the emotional scores were related to Motifs. We therefore had to establish a way to “transform” the quantitative emotional ratings we got for each Motif into quantitative rating that related to

each LMA component. We did that based on the “coding sheet” that we created, in which we “quantified” the amount of each component within each Motif, so that for the purpose of the statistical analysis, the emotional rating of each participant for any specific movement component (variable) was calculated as the product of multiplying the emotional rating for each Motif by the “amount” (prevalence) of that component within that Motif.

We organized our coding sheet so that we could code components for each Motif within the categories of Body, Effort, Space, Shape, and Phrasing in columns, which concurred with the columns of Motif combinations that were tested.

Nine Effort variables—Flow Effort: Bound and Free; Time Effort: Sudden and Sustained; Space-Effort: Direct and Indirect; and Weight Effort: Strong and Light, plus One Effort-related Body variable: the lack of weight activation: Passive Weight/Heavy.

Eight Shape variables—Expand, Condense; Rise, Sink; Spread, Enclose; Advance, Retreat.

Seven Space variables —Up, Down; Forward, backward; Side Open, Side Across, and

Rotation (which could be a Space component or a Body action), and was combined with twist as one variable.

Five Body components were coded—three Body-parts: core, arms and head; and two Body-actions: arm(s) to upper body, and jump.

Three Phrasing components—Increasing; Decreasing and Rhythmicity (a combined variable of Reinitiating, repeated movement and buoyant accents).

Of the 32 variables on the coding sheet, the 3 that were eliminated before statistical analysis were: Side open and Side across (which were not present in any of the Motifs that stayed in the final study) and Decreasing intensity phrasing (which appeared in only one of the Motifs that were tested in the final study) (see Coding Sheet in **Supplementary Material**).

The original Atkinson’s emotional expression video clips, which served as the origin for the vertical Motifs, lasted 3 s. Thus, we divided each vertical Motif (in which motor components are annotated over time) into three equal segments, each representing one second of the movement, and checked to what extent each component appeared in each segment. Components that appeared in a segment of the Motif were coded as 1 for that segment, and those that didn’t appear were coded as 0. Because horizontal Motifs do not annotate timing, to establish comparable units for the vertical and horizontal Motifs, short horizontal Motifs were also divided into three segments and were coded as if each component in them lasted for all three seconds, to match the coding of the vertical Motif: This was appropriate because participants moved each Motif as long as needed to perceive its associated emotion.

In this way, every Motif had a total score for each component quantifying its prevalence in the Motif. This score had a value of 0 if the motor component didn’t appear in the Motif at all, a value of 1 if it appeared in up to one third of the duration of the Motif, the value of 2 if it appeared during two thirds of duration of the movement annotated in the Motif, and the value of 3 if it appeared along the entire duration of the movement. Thus, every Motif was coded from 0 to 3 for all 29 components.

Once we had our final decision regarding which Motifs and components to use, the Motifs, along with words describing each component in them, were entered into a Qualtrics questionnaire, that was distributed through the internet, so that any potential participant, anywhere in the world, who met the study criteria could take part in the research, read the Motifs, move them and rate his/her emotional response. Language instructions for specific aspects of qualitative movement (such as “lighten up”) have been demonstrated as effective at producing measurable changes in the movement of 20 study participants (Cohen et al., 2015). Thus, in the Qualtrics questionnaire, we added to each Motif a short language description of each component included in it, so participants could read the components in Motif or language, according to their skills. Overall, 80 people participated in the study. Their inclusion/exclusion criteria and demographic details can be found in Shafir et al. (2016).

Data Analysis

To determine which motor components contributed to the enhancement of each emotion, a logistic regression model was fitted to predict each emotion (anger, fear, happiness, and sadness) felt during the movement of a certain Motif, using each motor component (variable) score as a predictor. Because each participant performed multiple Motifs, we used a GEE (Generalized Estimating Equations) model to take into account correlations among the responses for each participant. To adjust for the multiple tests for each emotion, we applied the Bonferroni correction to the *p*-values, so that *p*-value of 0.0017 ($0.05/29 = 0.0017$) or less was considered to be statistically significant. The results of this analysis were published in Shafir et al. (2016).

LIMITATIONS

The most significant limitation of our method is that it is limited to the components that were predominant in the original samples used. In our study, all of the components we tested were taken from Atkinson’s (2004) clips, i.e., from motor expressions of only 10 different people. These, however, might not have included all possible motor components potentially associated with each emotion and may not be representative for all people. Thus, there might be additional motor components which we never tested that are also capable of enhancing emotions. In addition, some decisions for data reduction, based on the data we had, might have been wrong: for example, today in hindsight, after testing our results in a new study (Melzer et al., 2018) evidence that combining all rotation types as one variable meant that rotation did not turn up as a statistical predictor for the emotions tested. Retesting this variable in Melzer et al. (2018) found that Rotation (revolving in space) may be associated with Happiness, while twist may be better associated with Fear. Our method to reduce the number of variables through pilot studies, where expert LMA readers moved various combinations of motor components, may have another significant limitation: Any testing done by participants moving relies upon their ability to move/improvise the distinct components they read

either from Motif or language descriptions of the movement components. Research hasn't been done on different ways to use Motif in quantitative research, so there are some unknowns: how can a study take into account differences in skill level or cultural differences of those reading and moving the Motifs? In reading multiple Motifs, how does the previous reading influence successive readings? How well do movement outcomes for people who read Motif or language descriptions of LMA components represent social and cultural diversity? Most of the LMA expert readers who participated in our pilot studies were from North America. These questions indicate that the specific people who participated in the pilot studies might have affected which variables we chose to keep during the process of reducing the number of variables, and thus it might have affected the final results as well, even though the population participated in the final study was diverse. Lastly, as is the case for many research methods, an additional limitation of this method is that it requires a researcher with sufficient expertise in the method, here Laban Movement Analysis, to be involved in the study to carry out a similar sophisticated and extensive methodological process or adapt it to the needs of other studies.

CONCLUSION

While the research record of what LMA can track and quantify in individual expression or prescribed movements performed by multiple movers has been demonstrated by numerous researchers (see literature review in the section "Introduction"), the nature of expressive unscripted movement has been difficult to investigate quantitatively due to the enormous number of variables involved. The multi-stepped approach described here can bridge a gap in methods for observing improvised (unscripted) movements to identify recurring patterns in human movement behavior among multiple movers, and as such, can be valuable for research in the social sciences.

The main novelties in the methods we used to quantify the movement components compared to previous studies that used LMA are: first, developing three new steps (described in stage B) beyond those suggested by Davis (1970) used in Stage A. These new steps are: Step (4) Creating Motifs of combinations of elements, which enabled us to study unlimited numbers of movements containing specific motor components instead of using limited number of specific motor sequences, as well as using clean data, uncontaminated by co-occurring movement components that might be unintentionally introduced through live or video demonstration; Step (5) Testing the combinations in pilot studies and using their results to reduce the number of variables; and Step (6) Quantification of the data based on the coding sheet, and the use of logistic regression for data analysis. Second: using internet-based tools (Qualtrics software and email LISTSERV) to collect survey data from all over the world, which enabled to increase both the number of expert participants and the participants' cultural diversity.

The methods described in this paper suggest that expert observers (such as CMAs), who are trained to see the nuanced,

qualitative components of expressive movement, are crucial to teasing out, coding and quantifying testable variables for statistical analysis. We hope this method can be used by others to test how the effects of unfolding movement changes contribute to their therapeutic, communicative, or expressive intent, and to quantify them for research, not only in DMT, but in any field to which movement is of interest. With this method, dance/movement therapists, behavioral scientists and researchers in the arts can do justice to their sophisticated expert observations of movement's content in context.

AUTHOR CONTRIBUTIONS

RT was the Certified Movement Analyst for this study, primarily responsible for its movement design, developing the movement aspects of the methodology stages, recruiting volunteers for the pilot studies, overseeing CMA consultants, carrying out the movement analysis protocols discussed here, and interpreting the various stages of movement data. TS conceived of the original study and was its PI. She designed and directed the overall study, science processes and analysis, and all statistical analysis, co-designed all phases of the study, and was first author of the paper describing the entire study. RT wrote the manuscript. TS contributed to writing and revising the manuscript. RT and TS approved the manuscript and agreed to be accountable for all aspects of the work.

FUNDING

The Research Open Access Article Publishing (ROAAP) Fund of the University of Illinois at Chicago, provided financial support toward the open access publication fee for this article.

ACKNOWLEDGMENTS

We thank Antony P. Atkinson for providing the clips from which we extracted the motor components used in this study. Special thanks to the six expert CMAs that helped during the first phase of the study to identify which motor components should be tested during the second phase of the study: Rusty Curcio, Frederick Curry, Jackie Hand, Susan Scarth, Karen Studd, and RT. We are also extremely grateful to Laban/Bartenieff Institute of Movement Studies for the use of their facilities for the pilot studies, and to all the participants in the study for contributing their time, effort and expertise. Without all of you, this study could not have happened.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.00572/full#supplementary-material>

TABLE S1 | *Quantifying unscripted movement with LMA Coding Sheet.*

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- Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
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Effectiveness of Dance Movement Therapy in the Treatment of Adults With Depression: A Systematic Review With Meta-Analyses

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OPEN ACCESS

Edited by:

Changiz Mohiyeddini,
Northeastern University, United States

Reviewed by:

Ditty Dokter,
Anglia Ruskin University,
United Kingdom
Ella Dumaresq,
The University of Melbourne, Australia

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Specialty section:

This article was submitted to
Psychology for Clinical Settings,
a section of the journal
Frontiers in Psychology

Received: 29 December 2018

Accepted: 08 April 2019

Published: 03 May 2019

Citation:

Karkou V, Aithal S, Zubala A and
Meekums B (2019) Effectiveness of
Dance Movement Therapy in the
Treatment of Adults With Depression:
A Systematic Review With
Meta-Analyses.
Front. Psychol. 10:936.
doi: 10.3389/fpsyg.2019.00936

Background: Depression is the largest cause of mental ill health worldwide. Although interventions such as Dance Movement Therapy (DMT) may offer interesting and acceptable treatment options, current clinical guidelines do not include these interventions in their recommendations mainly because of what is perceived as insufficient research evidence. The 2015 Cochrane review on DMT for depression includes only three studies leading to inconclusive results. In a small and underfunded field such as DMT, expensive multi-centered Randomized Controlled Trials (RCTs) are as yet rare. It is therefore, necessary to not only capture evidence from RCTs, but to also look beyond such designs in order to identify and assess the range of current evidence.

Methods: We therefore conducted a systematic review of studies that aimed to explore the effectiveness in the use of DMT with people with depression. This led to a qualitative narrative synthesis. We also performed meta-analyses that calculated the effect size for all included studies, studies with RCT designs only, followed by a subgroup analysis and a sensitivity analysis. In all meta-analyses a random effects model was used with Standardized Mean Differences (SMD) to accommodate for the heterogeneity of studies and outcome measures.

Results: From the 817 studies reviewed, eight studies were identified as meeting our inclusion criteria. Three hundred and fifty one people with depression (mild to severe) participated, 192 of whom attended DMT groups while receiving treatment as usual (TAU) and 159 received TAU only. Qualitative findings suggest there was a decrease in depression scores in favor of DMT groups in all studies. Subgroup analysis performed on depression scores before and 3 months after the completion of DMT groups suggested changes in favor of the DMT groups. When sensitivity analysis was performed, RCTs at high risk of bias were excluded, leaving only studies with adult clients up to the age of 65. In these studies, the highest effect size was found favoring DMT plus TAU for adults with depression, when compared to TAU only.

Conclusions: Based on studies with moderate to high quality, we concluded that DMT is an effective intervention in the treatment of adults with depression. Furthermore, by drawing on a wide range of designs with diverse quality, we were able to compile a comprehensive picture of relevant trends relating to the use of DMT in the treatment of depression. Despite the fact that there remains a paucity of high-quality studies, the results have relevance to both policy-making and clinical practice, and become a platform for further research.

Keywords: dance movement therapy, depression, effectiveness, systematic review, meta-analysis

BACKGROUND

Rationale: Why Is It Important to Do This Review

According to the World Federation for Mental Health (WFMH, 2012), depression is the largest cause of mental ill health worldwide, described as a “global burden” (Scott and Dickey, 2003) or a “global crisis” (WFMH, 2012). Similarly, the World Health Organization (WHO, 2017) indicated that more than 350 million people of all ages are faced with depression as a clinical diagnosis. This condition differs from just feeling “low” or experiencing mood swings in response to daily life events; serious depression can affect people in multiple ways and can be disabling to the individual and disruptive to family and whole communities. According to the American Psychiatric Association (APA, 2000), for a diagnosis of major depression, five or more of the following symptoms are needed in the same 2 week period, causing significant distress or impairment of functioning: low mood, loss of interest or pleasure in most activities, sleep disturbances, changes in appetite or unintentional changes of weight, decreased energy, either slowed or agitated movement, decreased concentration and in some cases, feelings of guilt, worthlessness and thoughts of suicide.

In England and Wales, the current draft guideline from the National Institute for Health and Care Excellence (NICE, 2018) for adults suggests that talking therapies and medication are the most effective treatment options. The Scottish Intercollegiate Guidelines Network (SIGN, 2010), the Scottish equivalent to NICE, makes similar suggestions. Amongst the psychological treatment options for depression recommended by the new National Institute for Health and Care Excellence (NICE, 2018) draft guideline, cognitive behavioral therapy, interpersonal psychodynamic psychotherapy, counseling for depression, short-term psychodynamic therapy and couples therapy are mentioned. Exercise has also made its way into the guidelines for less severe depression.

However, despite the prevalence of multiple and, often, body-based symptoms in depression, non-verbal and creative types of psychotherapy such as Dance Movement Therapy (DMT)¹ are not among the recommended treatment options.

It is possible that this is because to date systematic reviews of research studies including Meekums et al. (2015) have not been able to draw confident conclusions of the effectiveness of this intervention for clients with depression; the low number and heterogeneity of studies available have been reported as reasons for inconclusive results. Reviews of research that allow for confident conclusions are increasingly required by policy makers in order to justify resource allocation. However, the question of whether limited research evidence should be taken to indicate limited effectiveness is highly debatable. Altman and Bland as early as (1995) argued that “When we are told that ‘there is no evidence that A causes B’ we should first ask whether absence of evidence means simply that there is no information at all.” (p. 485). The same authors also suggest that when there is data, even non-significant results need to be considered for their clinical significance, especially for new treatment options.

This systematic review is, therefore, not just important for facilitating efficient integration of information into policy making in adult services; it is also necessary to demonstrate clearly and transparently where the effects of DMT are consistent and how they vary across contexts in order to translate research findings to clinical practice. Meta-analysis can provide more precise estimates than individual studies, minimizing bias and reducing chance effects. DMT is a relatively new intervention with an emerging evidence base. It is necessary to evaluate the wider range of available evidence stemming from different types of study designs alongside emerging new data, to allow for decision-making that is based on the totality of available evidence, whilst checking for consistency of results across designs.

A Critique of What Constitutes “Evidence”

The definition of what constitutes good evidence is debated at length, especially for psychotherapy. Randomized Controlled Trial (RCT) is the design that is generally perceived as the golden standard for establishing effectiveness (Higgins et al., 2017). It has however been questioned if this is the only and an appropriately fitted design for research in psychotherapy (Clay,

and spiritual aspects of self.” (Association of Dance Movement Psychotherapy UK – ADMP UK, 2013, p.1). The discipline is also known under other names: in the USA is known as Dance/Movement Therapy, in Australia as Dance-Movement Therapy, in Germany as Dance Therapy. Other terms used interchangeably are: Dance Psychotherapy, Movement Psychotherapy and Movement Therapy. We will use the term Dance Movement Therapy (DMT) as a term with international recognition to refer to all of these different names for the same profession.

¹The discipline in the UK is formally called Dance Movement Psychotherapy to reflect the fact that it is regarded as a form of psychotherapy. It is defined as “...a relational process in which client/s and therapist engage creatively using body movement and dance to assist integration of emotional, cognitive, physical, social

2010; Holttum and Huet, 2014). For example, in RCTs there is often an expectation that intervention groups will consist of participants with one set of diagnoses, who are randomly allocated to certain groups, a premise that clashes with regular psychotherapy practice. Participants with mixed diagnosis and other co-morbid characteristics are common amongst those receiving group psychotherapy. The overall group fit is an important concern in regular group psychotherapy. In contrast, pre-stated single-diagnosis inclusion criteria and randomization in RCTs tend to ignore these common group practices.

Furthermore, there have been arguments that studies in the field are not sufficiently powered to detect true differences (Leichsenring et al., 2017). Calculating changes within groups, i.e., before and after therapy, may have limitations (Eysenck, 1963; Cuijpers et al., 2016), but may also accommodate for the smaller power of the studies in the field.

According to Shean (2014), RCT design favors treatment options that are simple and deal with uncomplicated symptoms. In contrast, most psychotherapists argue that they offer complex interventions to clients with complex needs. In the UK, the Medical Research Council (MRC) (Craig et al., 2008) acknowledges that complex interventions present additional challenges when designing studies of effectiveness. They suggest that there are several phases in evaluating such interventions which do not need to be followed linearly. Although experimental and RCT designs are highly valued, practical applicability needs to be considered. In all cases, demonstration of an understanding of the process is important, as evidenced by a clear description of the intervention. The MRC report, while highlighting the importance of a focus on outcomes and attempts at standardization, recommends the adaptation of the study to local circumstances and context.

Without diminishing the importance of RCTs, the value of looking at a broad range of evidence and alternative research designs when it comes to policy making and evidence-based practice has been argued extensively (Shadish et al., 2001, 2008; Kazdin, 2010). Some researchers suggest that quasi experiments may provide useful information about the potential effectiveness of an intervention (Colliver et al., 2008). Either way, the advantage of randomization is that it can prevent selection bias and reduce the difference between groups on both known and unknown confounding variables. Even without randomization, studies can still reflect many other aspects of therapy.

In all cases systematic reviews remain important and highly valued summaries of evidence of effectiveness, the most respected being reviews published by the Cochrane Collaboration (Higgins et al., 2017).

Evidence in the Treatment of Depression

In the treatment of depression, existing evidence from Cochrane reviews covers both the effectiveness of anti-depressant medication, different types of talking therapies and cognitive behavioral therapy in particular. While there are systematic reviews that provide evidence for the value of these interventions (Arroll et al., 2009; Hetrick et al., 2012; Rummel-Kluge et al., 2015; Davies et al., 2018), there are some that present a critical perspective on these prevalent approaches. For example, Arroll

et al. (2009), in their review of the use of anti-depressant medication, acknowledge that the side effects of medication are not sufficiently reported. Others, such as Shinohara et al. (2013), report that the benefits and harms of behavioral therapy are not appropriately shared raising concerns around participant responses and withdrawal. Reviews on other forms of psychotherapy, for example from Abbass et al. (2014), highlight the value of psychodynamic interventions, arguing that there are sustained benefits after 3 months and after 6 months. Furthermore, there is a growing body of research literature that provides evidence for the value of different psychotherapy and counseling approaches when compared to cognitive behavioral therapy including short term psychodynamic psychotherapy, generic counseling and counseling for depression (Ward et al., 2000; Richards and Bower, 2011; Cuijpers et al., 2013; King et al., 2014; Freire et al., 2015; Pybis et al., 2017; Steinert et al., 2017).

Differences between types of client populations affected by depression have also been reported in the literature. For example, Dennis and Hodnett (2007) found that psychological and psychosocial interventions were more effective than usual care for women with postnatal depression. With children and adolescents, Cox et al. (2014) found it more difficult to establish a clear superiority of psychological interventions over antidepressant medication. They did however, raise high risk of suicidal thoughts in association with antidepressant medication, making psychological interventions potentially safer interventions to use. For older people with depression, the review by Wilson et al. (2008) concluded that cognitive behavioral and psychodynamic therapies were comparable and both potentially useful.

However, these approaches rely heavily on verbal interaction. Exercise, although not a form of psychotherapy, offers a non-verbal approach to the treatment of depression that is gaining popularity, finding its way into the 2018 draft guideline from NICE. Still, the Cochrane review of the literature on this topic by Cooney et al. (2013) suggests that the effect was small and did not seem to have long lasting effects. The same review also reported that attendance rates ranged from 50 to 100%, indicating the possibility of high attrition rates.

Given that available treatments may not be the treatment of choice for certain clients and/or client populations and there might be concerns about adverse effects as is the case with the use of medication, there is an urgent need to explore the evidence from diverse treatment options. DMT is one such option.

Dance Movement Therapy (DMT): Description of the Intervention

In the UK, DMT receives regulation via the UK Council of Psychotherapy (UKCP), one of the main regulatory bodies of psychotherapists. However, unlike verbal psychotherapy, and unlike the most prevalent forms of psychotherapy recommended for depression such as cognitive behavioral therapy, DMT does not require considerable cognitive and linguistic skills from the client/patient. Therefore, it can potentially bypass social or cultural barriers. Karkou and Sanderson (2006)

argue that DMT, alongside other arts therapies (art therapy, drama therapy, and music therapy are the other arts therapies practiced in the UK) offers an attractive option for clients since it allows them to work through issues that are located at a non- and pre-verbal level. Thus, DMT may offer a way to work through issues that are difficult to articulate or are buried in the unconscious because they are painful, frightening, or simply difficult to access and address through cognitive means.

DMT as a form of psychotherapy is extensively discussed by authors such as Meekums (2002), Karkou and Sanderson (2006), Payne (1992), Payne (2006), and Levy (1988). In particular, Meekums (2002) discusses DMT as a *creative* form of psychotherapy. Following on from her theory-generating doctoral research (Meekums, 1998), Meekums (2002) argues that the therapeutic process follows the same pathway as the creative process. This process comprises the following phases: preparation, incubation, illumination, and evaluation. Moreover, she identifies the central importance of the movement metaphor within this process, including its links to body memory, body language, and mediation of the therapeutic relationship.

DMT has also been researched as one of the arts therapies by Karkou and Sanderson (2006) for example, who reported on survey results (Karkou, 1998) that explored similarities and differences between DMT and the other arts therapies. This study argued, amongst other things, that DMT shares with the other arts therapies similar overall therapeutic approaches, namely humanistic, psychodynamic, developmental, artistic/creative, active/directive, and eclectic/integrative therapeutic approaches. An updated survey 17 years later (Zubala, 2013; Zubala et al., 2013; Zubala and Karkou, 2015) suggests that these trends remain largely unchanged. However, similar to the work by Meekums (1998, 2002), these studies focus on defining the field and identifying relevant processes and do not attempt to answer questions of effectiveness.

With regards to effectiveness, Cochrane reviews in DMT with different client groups are available, albeit often with a small number of studies included. For example, next to the Cochrane review on depression mentioned above (Meekums et al., 2015), there are Cochrane reviews on DMT for schizophrenia (Ren and Xia, 2013), cancer care (Bradt et al., 2015), and dementia (Karkou and Meekums, 2017), none of which had more than three studies included due to the strict inclusion criteria posed by the Cochrane Collaboration. The difficulty in capturing the effectiveness of this field with different client populations when the included studies were limited to designs of RCTs is apparent in these highly stringent systematic reviews.

In contrast, a larger number of studies was included in the meta-analysis by Koch et al. (2014) not confined to RCTs. Of the total 23 studies included, ten studies with RCT and controlled trials included measures of depression (total scores or subscales). A moderate effect of DMT and dance on depression was reported. However, in addition to the diverse research designs, populations were equally diverse (not confined to depression), and interventions included any form of dance practice (not solely DMT).

DMT and Depression: How the Intervention Might Work

Following an early scoping review of the literature (Mala et al., 2012) that identified a number of empirical research studies on the effectiveness of DMT for depression, the Cochrane review on this topic was completed (Meekums et al., 2015). The Cochrane review identified three studies that met the criteria for inclusion (147 participants). A sub-group analysis suggested that for adults, there was evidence of a positive effect for DMT in reducing depression. However, the evidence was too thin to allow any firm conclusions due to the low number of studies (and associated number of participants) and the varying, generally low, quality.

Another important contribution of this Cochrane review was that it hypothesized on the reasons of why this intervention could be useful for depression and identified several “active ingredients” as follows:

Participating in Dance as an Art Form and as Exercise

The authors discussed the potential contribution of dance as a central component of DMT to generate vitality, even joy, for clients who, due to their depression, lacked animation. They supported this claim with reference to a seminal theoretical article by Schmais (1985) and recent empirical studies including Koch et al. (2007). Further arguments can be made regarding dance participation due to physiological responses associated with exercise such as the excretion of endorphins, the enhancement of chemical neurotransmitters (Jola and Calmeiro, 2017) and the active engagement of almost every part of the brain (Bläsing, 2017).

The positive contribution of music and music therapy in decreasing levels of depression has already been demonstrated (Aalbers et al., 2017). Although music is not an essential component of dance practice in a DMT context, its regular use may act as a supporting component to the central active ingredient of dance with this client population.

Building the Therapeutic Relationship/s Through Mirroring

The presence of a therapeutic relationship is a key difference between dance as a sensitive form of teaching or community practice on the one hand and DMT as a form of psychotherapy on the other (Karkou and Sanderson, 2000, 2001, 2006; Meekums, 2002). This relationship is also highly valued as an agent of change for clients with depression who often experience isolation and loneliness. Literature in humanistic and existential approaches to psychotherapy (e.g., Yalom, 1980; Rogers, 1995) suggests that a meaningful interaction is central to the therapeutic process. In more recent years several psychotherapists argue that this relationship is also the main agent of therapeutic change and directly linked with therapeutic outcomes (Ardito and Rabellino, 2011; Stamoulios et al., 2016).

In DMT, the therapeutic connection can take the shape of an embodied relationship, particularly present in the model developed by Chace (Chaiklin and Schmais, 1986). The technique

of mirroring² is frequently used in this practice as a way of enhancing embodied relationships (McGarry and Russo, 2011; Fischman, 2015) and discussed with regards to studies in neuroscience (Meekums, 2002; Berrol, 2006; Rova, 2017). The sensori-motor mirroring system (Rizzolatti et al., 1996; Gazzola et al., 2006) for example, appears to be particularly relevant, offering an additional explanation of the mechanism behind the technique of mirroring, though neuroscience does not fully explain the psychological processes behind this complex practice.

Accessing Unconscious Material Through Imagination, Symbolism, and Metaphor

Another reason why DMT might be an effective intervention is its capacity to tap into unconscious, hard to reach or taboo feelings and thoughts. Imagery, symbolism and metaphors are important DMT tools in this process. Activating imagination is a component of DMT that was discussed as early as Dosamantes-Alperson (1981) in the context of the approach known as Authentic Movement³ (Whitehouse, 1979; Pallaro, 2007; Chodorow, 2013). Active imagination allows access to difficult feelings, and anger in particular, which for people with depression may be internalized, attacking one's own self (Freud, 1917). With this psychodynamic explanation of depression in mind, it is therefore possible that imagination might act as a vehicle to express difficult emotions and, through symbolism and metaphor, to process them in a safe way, finding resolutions to one's underlying difficulties (Meekums, 2002; Karkou and Sanderson, 2006). This proposition suggests that DMT could have profound and long-lasting effects that are not present for interventions that do not address the underlying reasons for depression.

Achieving Integration Through Reflection, Creativity, and Movement Narratives

As early as 1985, Schmais argued that integration between mind and body is a key therapeutic factor for DMT. Integration is still a term used in the ADMP UK (2013) definition of the discipline as the overall aim of the work. In practice integration can happen through reflecting on movement material that may or may not be congruent with one's own thoughts and feelings. Exploring new and unexpected connections between known things, i.e., engaging in a creative process (Karkou and Sanderson, 2006), can also have an integrative character. Finally, summarizing one's experience of therapy in a movement sequence or a symbolic posture or gesture can act as an essential and potent reference back to the process of therapy. Movement material can therefore, act as a form of story-telling, a movement and embodied narrative of key moments in the therapeutic journey (Karkou, 2015).

The formation of links between body, thoughts and feelings becomes important for people with depression who may experience a disconnect between what they feel, think and/or

do. Integration, an important outcome for a number of different forms of psychotherapy including integrative psychotherapists such as Norcross and Goldfried (2005), may therefore, be another important "active ingredient," which can be relevant to and responsible for therapeutic change.

Researching DMT Practice

These "active ingredients" presented above appear to respond and add to therapists' views on the topic as explored by the survey of practitioners by Zubala et al. (2013) and clients' experiences of the DMT process (Genetti, 2011). While there is growing research evidence in the field (Zubala and Karkou, 2018), DMT remains largely under-funded and thus, under-researched. RCTs, the gold standard for assessing the effectiveness of an intervention (Higgins et al., 2017), require resources that are often beyond the reach of many researchers in the field, including those associated with time, money, access to large numbers of clients, specialist clinical trials support, and control over the environment in which a study can take place. Furthermore, as discussed above, RCTs pose limitations when applied to complex interventions. Since DMT is indeed a complex intervention, other research approaches need to also be considered. Quasi-experimentation, a predominant approach adopted in DMT research, may reveal important information that is typically overlooked and omitted from many systematic reviews. In this review we attempt to change this.

Overall Aim

To explore evidence of effectiveness in the use of DMT with people with a diagnosis of depression.

Research Questions

The main research question we asked for this study was:

- Is DMT effective for clients with a diagnosis of depression?

We were also interested in the following sub-questions:

1. What patterns emerge from the collected evidence relating to the severity of depression, the setting and overall context, the length, duration or type of intervention?
2. Is there evidence of effectiveness for DMT in decreasing levels of depression when pre and post-treatment scores of depression are compared?
3. Is there evidence of long-lasting effects of DMT on scores of depression?
4. Is there evidence of effectiveness when DMT is compared with no treatment, treatment as usual (TAU) or another treatment?
5. Is there evidence of effectiveness of DMT in the treatment of depression based on studies with high quality, i.e., low risk of bias?

Objectives

- a. To synthesize results from all studies of effectiveness of DMT for clients with depression
- b. To establish effect sizes within groups, comparing pre and post scores on depression immediately after treatment and at the time of follow up

²Mirroring: a technique in which the dance movement therapist attempts to find ways of experiencing the feelings of clients by taking on and reflecting back to the client some of their expressive movements.

³In Authentic movement, internal sensations are focused upon as they give rise to associated movement.

- c. To establish effects sizes between groups, comparing end scores between the experimental and control groups for all RCT designs and for those with low risk of bias.

METHODS

A systematic literature review was chosen as the best way to answer the main research question and as the most highly valued methodology of synthesizing evidence from different studies. According to Higgins et al. (2017), a systematic review offers a high level of evidence regarding the effectiveness of an intervention.

In this review, conventions and processes used in Cochrane reviews (Higgins et al., 2017) were adopted; the study by Meekums et al. (2015) in particular was an important reference point. However, unlike the restrictive inclusion criteria of Cochrane reviews, a more open approach to the choice of studies was followed, aiming to offer a more comprehensive picture of available evidence on the topic. In this review, both a qualitative meta-synthesis and a quantitative meta-analysis of the reviewed studies are provided. While the former retains a narrative character, the latter involves the use of statistical calculations that enable a quantitative synthesis of data from several studies.

The analytic framework and its alignment with the main and sub-questions of this review is presented in **Figure 1**.

As indicated in this diagram, a qualitative meta-synthesis was conducted (see no. 1 in **Figure 1**) to answer the first sub-question of the study (i.e., “What patterns emerge from the collected evidence relating to the severity of depression, the setting and overall context, the length, duration or type of intervention?”).

As an exploratory study, a few meta-analyses were also performed to answer the four remaining sub-questions as follows:

The first meta-analysis was conducted in response to the second question (i.e., “Is there evidence of effectiveness for DMT in decreasing levels of depression before and after treatment?”) and focused on pre/post treatment scores of depression for all the studies identified by the systematic review process and synthesized through the qualitative meta-synthesis (see no. 2 in **Figure 1**). Long lasting effects were considered through a subgroup analysis of this initial set of studies in which only studies with follow up scores on depression were included (see no. 3 in **Figure 1**). The third sub-question was considered in this calculation (i.e., “Is there evidence of long-lasting effects of DMT on scores of depression?”).

The third meta-analysis summarized the effect size for RCTs only (i.e., “Is there evidence of effectiveness when DMT is compared with no treatment, TAU or another treatment?” no. 4), while the final calculation involved sensitivity analysis of this last set of studies, retaining only RCTs with low risk of bias (no. 5). Results from this analysis answered the final question of the study which was “Is there evidence of effectiveness of DMT in the treatment of depression based on studies with high quality, i.e., low risk of bias?”

Criteria for Considering Studies for This Review

Study Design

All RCTs were considered as well as studies with quasi-randomization or systematic methods of allocation. Unlike the Cochrane review on DMT for depression (Meekums et al., 2015) however, in this review, controlled trials and studies with pre-post-testing were also included. Qualitative studies were excluded because they were perceived as providing information about process rather than outcome; the latter being the main focus of this review.

Participants

Included studies offered interventions to people with symptoms of depression as defined by the trialist and assessed through diagnostic means such as ICD-10 or DSM or through using a standardized measure such as Becks Depression Inventory, the Symptom Check List-90-Revision or the Hamilton Rating Scale. There was no restriction in terms of severity of depression, age, gender or ethnicity. Studies with participants whose primary diagnosis was something other than depression and/or individual symptoms of depression (e.g., low mood) in the absence of sufficient evidence to form a firm diagnosis of depression were excluded.

Intervention

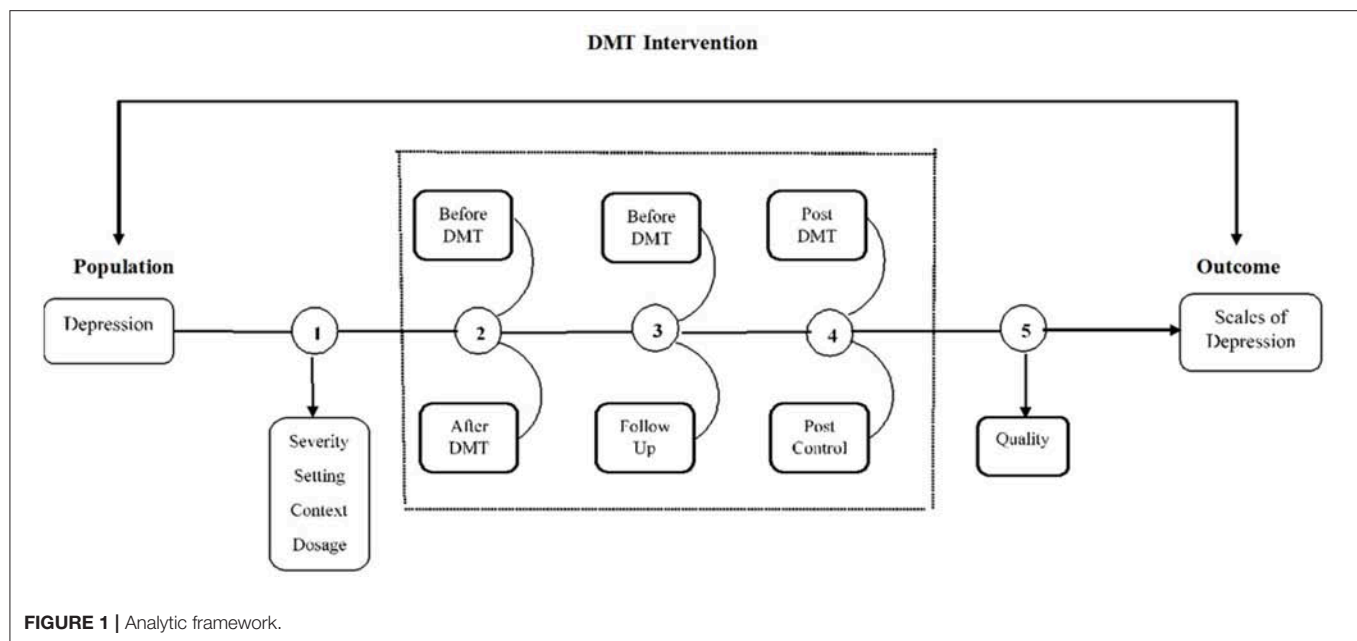
The intervention was facilitated by a practitioner who had received formal training, was a dance movement therapist in training or was otherwise accredited in the country in which the study was conducted. In countries where professional accreditation was not available, the available description of the intervention was examined to establish that it demonstrated key relevant characteristics of DMT practice. DMT practice was defined as an active engagement of participants in dance movement in the presence of a therapist. All DMT approaches were considered, but in all cases the intervention had a clear psychotherapeutic intent and fostered a psychotherapeutic relationship. Dance classes with therapeutic benefit were therefore excluded.

Comparators

Studies with all types of comparators to DMT as a main intervention were included such as waiting list, TAU, another psychological therapy, pharmacological interventions, physical interventions or different types of DMT. In this review, and unlike the Meekums et al. (2015) review, studies without a comparator were also included.

Outcome Measures

Scores on levels of depression were seen as the primary outcome measure. Both self-rated standardized measurements (e.g., the Beck Depression Inventory, Beck et al., 1961; the Symptom Check List-90-Revision, SCL-90-R, Derogatis, 1977) as well as observational tools (e.g., the Hamilton Rating Scale for Depression, HAM-D, Hamilton, 1960) were considered. Attrition rates, where available, were also considered as a sign of acceptability of the intervention.



Secondary outcomes included social and occupational functioning, quality of life, self-esteem, body image, cost effectiveness and adverse events. In this paper however, only results from primary outcomes are reported.

Systematic Review Protocol

According to Uman (2011), the presence of a protocol offers a rigorous a priori process that minimizes selection bias. The protocol for the completed Cochrane review on the topic was published by the Cochrane Collaboration (Meekums et al., 2012). As indicated before, there were a few differences from this protocol, the main being in the inclusion of types of study design. In a departure from the initial protocol (Meekums et al., 2012) that was used to guide the subsequent Cochrane review (Meekums et al., 2015), the current review included all studies with randomized, controlled and pre/post quasi experimental designs. A revised protocol was therefore prepared.

Search Strategy

The search took place in two phases. The first was part of the Meekums et al. (2015) Cochrane review and was up to date on the 2nd October 2014.

A new search was completed between 2nd October 2014 and 1st March 2018 using the same key words and databases as the first search (see **Table 1**). In this second search the online package Covidence (www.covidence.org) was used which was not available at the time of the first search.

In the first instance, all known DMT professional associations were contacted through the use of a standardized letter with a request to provide any studies known to them. During the second search, key researchers in the field were contacted to provide any additional new research studies completed since October 2014.

Data Screening, Eligibility and Data Extraction

With regards to the first set of studies identified during the Cochrane review process we revisited all studies that were excluded on the basis of the study design as indicated on the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) diagram of this original review (Meekums et al., 2015).

During the second phase, all new studies found since the 2nd October 2014 were screened at a title and abstract level and then at a full text level.

As for the first phase, two reviewers were involved simultaneously while a third reviewer was on call in case of disagreements⁴. The process and the number of included studies were recorded on a new PRISMA diagram that collated both the original and the new search (see **Figure 1**).

In consultation with the review team, a spreadsheet was created in the Covidence software to collect and organize all the relevant information from the studies. The first two authors (VK and SA) extracted data independently from all included studies on the characteristics of the design, the population, intervention and outcomes. Effect size data (mean, SD, and number of participants) for the calculation of meta-analysis was also extracted. Any mismatches between the two sets of data-extractions and discrepancies were resolved through consensus after jointly checking the full-text papers. In case of missing data or incomplete information, VK contacted the authors via email. Permission to include one of the studies that was still unpublished at the time of the review was sought from the authors. Additional information was also requested in order to

⁴VK and BM were the reviewers in the first search; VK and SA were the reviewers in the second review and BM acted as a referee.

TABLE 1 | Databases and search terms.

Databases
<ul style="list-style-type: none"> • The specialized register (CCDANCTR-Studies and CCDANCTR-References) • World Health Organization's International clinical trials registry platform (WHO) • ClinicalTrials.gov • Allied and Complementary Medicine Database (AMED) • Education Resources Information Center (ERIC) and • Dissertation Abstracts (to August 2013) <p>Also: contacted DMT experts from around the world.</p>
Keywords
<ul style="list-style-type: none"> • Depress or dysthymia* or adjustment disorder* or mood disorder* or affective disorder* affective symptom* • AND • Dance* or authentic movement* or movement therapy* or movement psychotherapy* or body psychotherapy

provide clarification on the methods and procedures followed and complete the assessment of risk of bias.

Assessment of Risk of Bias

The risk of bias for all the reviewed studies was assessed using Cochrane criteria (Higgins et al., 2017): (i) random sequence generation (ii) allocation concealment (iii) blinding of participants and personnel (iv) blinding of outcome assessment (v) incomplete outcome data (vi) selective reporting and (vii) other sources of bias.

Data Analysis and Synthesis

In the present study, careful qualitative synthesis was conducted for all studies that met the inclusion criteria. The key areas of interest for this qualitative meta-synthesis were: the severity of depression, the setting and overall context, the length, duration or type of intervention.

The quantitative meta-analyses were conducted using the Review Manager software (RevMan 5.3). The first included all studies and a within-groups calculation. The second involved studies with follow up measures. They were sub-grouped and effect size was calculated considering any long-lasting effects for DMT with this client population. The third calculation included only studies with RCT designs and between-groups scores. Finally, studies with low risk of bias were included in the last calculation that involved a sensitivity analysis.

Because of the outcome measures of depression used, the data collected was continuous. For this reason, and assuming that they measured the same construct, outcome measures of depression, such as BDI and HAM-D, were brought together for the calculation of our meta-analysis. Still, given that there were different scales used in each case, Standardized Mean Differences (SMD) were chosen over Mean Differences (MD). The SMD was calculated using Hedges' *g* method. This method can accommodate for the danger of a small sample size bias (Deeks and Higgins, 2010).

A random effects model (DerSimonian and Kacker, 2007) was considered as an appropriate approach for this meta-analysis. Its

selection was based on the assumption that the data for meta-analysis was drawn from a hierarchy or variety of population whose differences influenced the analysis. The random effects model assumes that the included studies are not identical, and the true effect size varies between studies or there is a random distribution of true effects. This is unlike the fixed effects model which presupposes that the effects are identical (Borenstein et al., 2010).

Although there was heterogeneity, the studies reviewed in this study were reasonably comparable as all participants had a common diagnosis of depression and received the same intervention. Still, if one were to ignore methodological heterogeneity, there would be a risk of an overly precise or too narrow confidence interval summary result which may wrongly imply that a common treatment effect exists when actually there are real differences in treatment effectiveness across studies (Thompson and Sharp, 1999). Hence, to allow for unobserved heterogeneity (differences in instruments or across units being studied), a random effects meta-analysis appeared to be the appropriate analytic choice.

The overall mean or pooled estimate was calculated as a weighted average. In a random effects model, the weight is the inverse of the variance capturing the two sources of variance, within study variance and between study variance, which depends on the distribution of the true effects across studies (tau square).

Although data from secondary outcomes were also measured in some of the included studies such as anxiety, quality of life and body image, in this paper our focus remained on results from the primary outcome only.

For this paper we also considered the type of subgroup analysis performed in the Meekums et al. (2015) study based on age, but chose not to pursue this mainly due to the fact that only one study survived scrutiny that did not involve adults; this one study was also assessed as having high risk of bias. Subgroup analysis for the type of intervention was not performed either because there were no obvious differences between DMT practices used in the reviewed studies. Finally, although there were differences in the severity of depression at the start of the study, subgroup analysis on the level of depression was not performed because of the limited number of studies; differences were discussed in the narrative meta-synthesis.

RESULTS

Study Characteristics and Qualitative Meta-Synthesis

As the PRISMA diagram indicates (see **Figure 2**), 803 records were identified through searching electronic databases (595 were identified in the initial Cochrane review search and 208 in the newest search), whilst 14 were found through personal contact (13 during the first stage of the search and 1 in the second search), taking the total number of records identified to $N = 817$. From these records, 63 were duplicates and were taken out, leaving 760 records to screen at a title and abstract level. From these, 57 records were examined as full text articles, excluding 51 studies

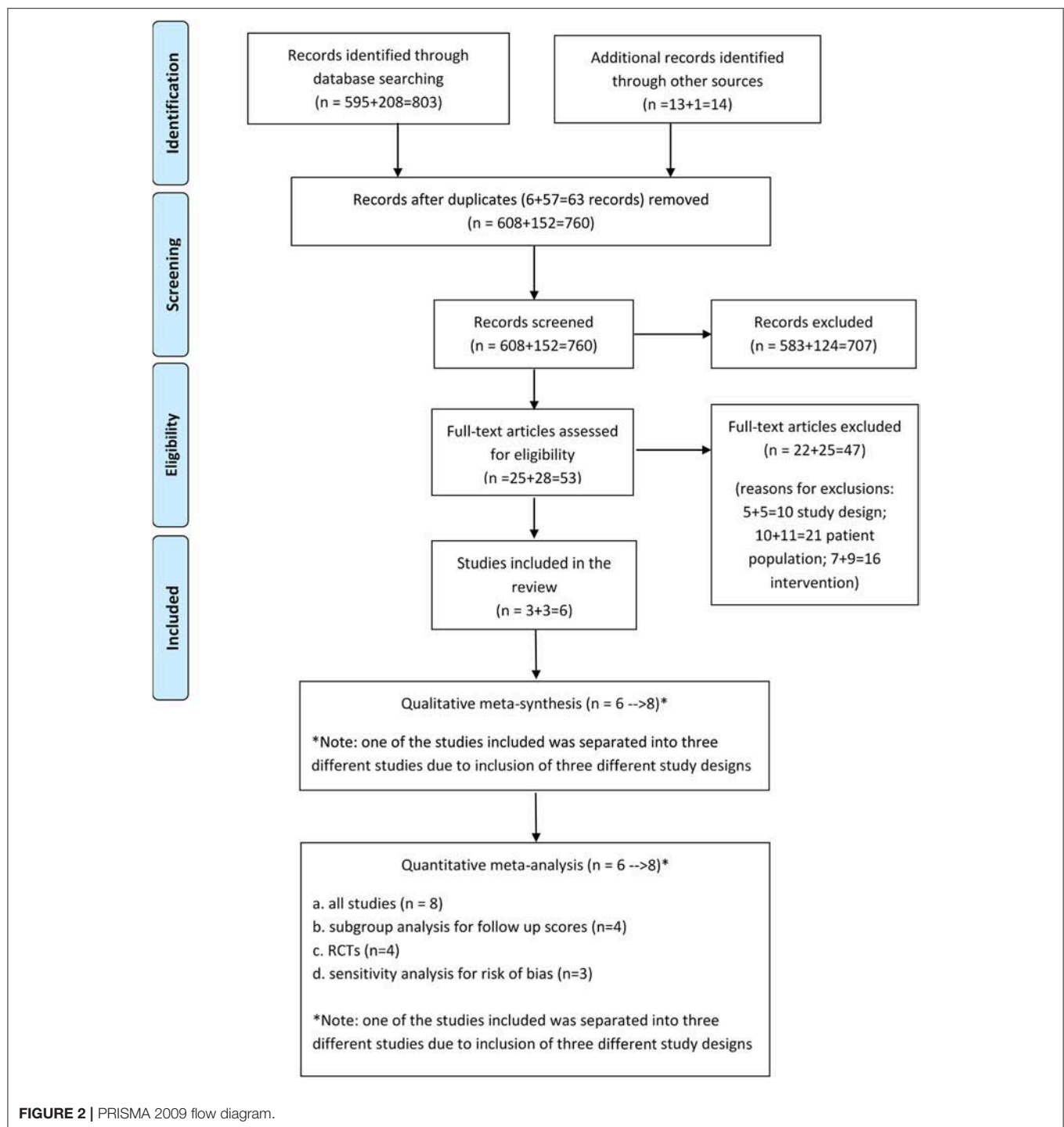


FIGURE 2 | PRISMA 2009 flow diagram.

due to: the study design ($n = 10$), the population ($n = 21$), and the intervention ($n = 16$).

From the six studies that met the inclusion criteria, one by Hyvönen et al. (2018) was considered as three separate studies for the purposes of both the qualitative meta-synthesis and the quantitative meta-analysis because the researchers had adopted three different research designs, namely RCT, non-RCT (controlled trial) and pre- post-testing (see **Figure 2** and **Table 2**).

This study, the most recent and largest of the studies included in this review, was still unpublished at the time of writing this paper. Information about the methodology and preliminary results were supplied directly by the researchers.

Similarly, there was more than one reference associated with some of the studies included, e.g., Pylvänäinen et al. (2015), Röhrich et al. (2013) and Punkanen et al. (2014) leading to the inclusion of eight studies from 817 records identified (**Table 2**).

Sample Size

A total of 351 participants were involved in all the studies included in this review (Table 2). From those participants, 192 attended DMT groups and 159 were part of control groups.

Study Design

Methodologically the eight studies ranged from pilot studies with pre/post testing (Punkanen et al., 2014), to a controlled trial (Pylvänäinen et al., 2015), three small RCTs in one location and with one therapist in each (Jeong et al., 2005; Xiong et al., 2009; Röhrich et al., 2013) and a triple multi-centered study involving several therapists that followed three types of designs: randomization in some locations, non-randomization in some others and pre/post testing in a third (Hyvönen et al., 2018). Both the Röhrich et al. (2013) and the Hyvönen et al. (2018) RCT strand had a cross over design.

Setting

Although the studies came from different parts of the world such as Korea, China, and the UK, it is worth noting the increased research activity in Finland with three studies completed there, one of which (Hyvönen et al., 2018) had three different strands that were conducted in different settings and different cities across Finland. The other two studies from Finland (Punkanen et al., 2014; Pylvänäinen et al., 2015) were conducted in an outpatient psychiatric clinic and in a private center. Two of the remaining studies took place in a psychiatric/mental health hospital either as inpatient provision (Xiong et al., 2009) or as an outpatient community service (Röhrich et al., 2013). The oldest of the reviewed studies took place in a middle school in Korea (Jeong et al., 2005).

Participants

There were 68 male and 283 female participants, the latter being 81 percent of the total population. One study, the Korean (Jeong et al., 2005), recruited exclusively female participants. The studies in Finland were mixed but involved more women than men. In two of the included studies, the Chinese (Xiong et al., 2009) and the UK (Röhrich et al., 2013) studies, the ratio between men and women was balanced with 51 men and 56 women participating in the two studies.

With the exception of the study by Jeong et al. (2005) which involved adolescents, all of the included studies addressed adults with depression. The age range for the studies with adults was 18–65 with an average of 40.6 years of age. The average age for the Korean study was 16 (Jeong et al., 2005).

Interventions

As Table 2 shows, the number of sessions varied from 12 in the Pylvänäinen et al. (2015) study to 36 in the Jeong et al. (2005) study with all the remaining studies offering 20 sessions. DMT groups were offered once, twice, three times and, in the case of the Chinese study, five times per week. The duration of each session also varied from 45 min in the Korean study that took place in a school to 120 min in the Chinese study that took place in an inpatient psychiatric hospital. The studies conducted in Europe included sessions that lasted from 60 to 90 min each.

In three of the studies reviewed here, the models of DMT adopted were named, and to varying degree described, as a combination of the interactive model by Chace with influences from Authentic Movement and analytic psychology (Xiong et al., 2009; Pylvänäinen et al., 2015; Hyvönen et al., 2018). From the remaining studies, one offered a description of themes that resembled a Chacian approach to DMT practice (Jeong et al., 2005), another conceptualized the intervention with strong influences from solution-focused and resource-based to reflect the additional training of the therapists involved in the study (Punkanen et al., 2014), while the last labeled the intervention as Body Psychotherapy and offered a detailed description of the intervention that resembled a manualized version of DMT practice (Röhrich et al., 2013). This last study was also delivered by an experienced DMT practitioner.

From the included studies, there are several detailed descriptions of the intervention offered through separate publications (Papadopoulos and Röhrich, 2014; Punkanen et al., 2017; Pylvänäinen, 2018).

In the studies where there was a control group, DMT groups were added to existing TAU and were compared with TAU alone. The only exception to this was the Korean study, for which the control group was a waiting list. TAU often included medication and some brief contact with a mental health professional. Participants in all the studies included did not receive another form of regular and weekly psychotherapy.

Outcomes

In all studies the primary outcomes were the severity of depression measured through SCL, BDI, and HAM-D. Two different versions of BDI were used (the first one published in 1961 and the other a revised version BDI II published in 1996). BDI and SCL are self-reported inventories, while HAM-D is observational. Despite their differences, these tools are regarded as sensitive to capture mood, body image, health anxiety, sleep loss, appetite and many other factors related to the diagnostic criteria of depression.

As shown on Figure 3, all the included studies showed a decrease in the severity of depression. Two studies (Xiong et al., 2009 and Röhrich et al., 2013) involved participants with very severe depression and the majority of the other studies (all five Finnish studies) involved participants with moderate depression at the beginning. Only the Jeong et al. (2005) participants had mild depression at baseline assessment. Toward the end of the DMT intervention, all the studies with moderate severity of depression at baseline showed a reduction to either mild (Punkanen et al., 2014; Hyvönen et al., 2018) or minimal depression (Pylvänäinen et al., 2015). Results from the randomized and well-controlled Röhrich et al. (2013) study indicate a gradual shift from severe depression to moderate depression. Xiong et al. (2009) report a drastic improvement and a sharp shift from severe depression to mild depression. Pylvänäinen et al. (2015) is the only study which resulted in participants having minimal depression after the DMT intervention, i.e., appearing to present full recovery.

TABLE 2 | Study characteristics.

Study ID	Sponsor	Location		Study design			Population		Interventions			Outcome measures			
		Country	Setting	Method	Experimental	Control	Total number of participants	Age	Gender	Severity of depression	Theoretical orientation	No. of sessions	Frequency of sessions	Duration of sessions	
Jeong et al., 2005	Supported by Wonkwang University, Korea	Korea	Middle school	RCT	DMT	Waiting list	40 (exp.20 and con.20)	Mean 16	40 females	Mild	Groups designed around four major themes: (a) awareness of the body, the room, and the group; (b) movement expressions and symbolic quality of movement; (c) movement, feeling, images, and words; and (d) differentiation and integration of feelings	36	3 times a week	45 min	SQL-90-R (depression scale DEP and SOM, O-C, I-S, ANX, HOS, PHOB, PAR, PSY and global scores: GSI, PST, and PSDI), Plasma serotonin, dopamine and cortisol
Xiong et al., 2009	Not available	China	Hospital	RCT	DMT plus Treatment as Usual (TAU)	TAU	76 (exp.38 and con.38)	Mean 32.26, SD 8.71	33 males and 43 females	Very severe	Group informed by Chace methods and analytic psychology	20	5 times a week	120 min	HAM-D Chinese version of GSES
(Rohricht et al., 2013) (also, Papadopoulos and Rohricht, 2014)	No external funding	UK	Adult outpatients in secondary mental health services	Cross-over RCT	Body Psychotherapy in Chronic Depression delivered by a dance movement therapist, plus TAU	TAU	31 (exp.15 and con16)	Mean 47.7, SD 10.4, range 18-65	18 males and 13 females	Very severe with current episode of over 2 years	Manualized group designed to address symptoms of depression, with influences from body psychotherapy that included movement-based work, interactive components and insight work.	20	Twice a week	90 min	HAM-D, MANS, Rosenberg Self-Esteem Scale
(Punkanen et al., 2014) (also, see Punkanen et al., 2017)	Finnish Center of Excellence in Interdisciplinary Music Research, University of Jyväskylä	Finland	Private center	Pre-/post-testing, pilot study	DMT plus some received medication but no other form of therapy	No control	21	Mean 40, SD 13, range 18-60	3 males and 18 females	Moderate	Group, solution focused and resource-based	20	Twice a week	60 min	BDI, HADS Anxiety, TAS, DIF, TAS, DDF, TAS, EOT, TAS, Total BFI, Extraversion BFI, Neuroticism RQ-A, Secure RQ-B, Fearful RQ-C, Preoccupied RQ-D (Attachment), Dism Satisfaction with Life Scale (SWLS)
(Pylvänäinen et al., 2015) (also, see Pylvänäinen, 2018; Pylvänäinen and Lappalainen, 2018)	Support from City of Tampere Psychiatric Clinic	Finland	Psychiatric outpatient clinic	Controlled Trial	DMT plus TAU	TAU	33 (exp.21 and con 12)	Mean 41, SD 11.9, range 20-59	9 males and 24 females	Moderate or severe, recurrent and/or chronic type	Group following the interactive model of Chace and analytic psychology of Authentic Movement	12	Once a week	90 min	BDI-II, HADS Anxiety, SCL-90, CORE
(Hyvärinen et al., 2018) RCTs	The Finnish Social Insurance Institution (KELA)	Finland	Different settings	Multi-centered RCT (cross over design) Randomized groups in five larger cities	DMT plus TAU	TAU	109 (exp. 52 and con. 57)	Mean 42, range: 18-64 For all three strands	5 males and 145 females for all three strands	Moderate	Group, Chace model and Authentic Movement	20	Twice a week	75 min	BDI, CORE-OM, SCL-90, FMQ, RQ (Attachment), WAI, Body image interview

(Continued)

TABLE 2 | Continued

Study ID	Sponsor	Location		Study design		Population			Interventions			Outcome measures			
		Country	Setting	Method	Experimental	Control	Total number of participants	Age	Gender	Severity of depression	Theoretical orientation	No. of sessions	Frequency of sessions	Duration of sessions	
(Hyvärinen et al., 2018) non-RCTs	The Finnish Social Insurance Institution (KELA)	Finland	Different settings	Non-randomized groups (controlled trial) in smaller cities	DMT plus TAU	TAU	36 (exp. 20 and con. 16)	Mean 42, range: 18–64 for all three strands	5 males and 145 females for all three strands	Moderate for all three strands	Group, Chace model and Authentic Movement	20	Twice a week	75 min	BDI CORE-OM SC-90 FMQ RQ (attachment style) WA Body image interview
(Hyvärinen et al., 2018) Disability pension	The Finnish Social Insurance Institution (KELA)	Finland	Not known	One group with pre-/post-testing with participants who received disability pension	DMT plus TAU	TAU	5	Mean 42, range: 18–64 for all three strands	5 males and 145 females for all three strands	Moderate for all three strands	Group, Chace model and Authentic Movement	20	Twice a week	75 min	BDI CORE-OM SC-90 FMQ RQ (attachment style) WA Body image interview
Funded-3 Support from the University or clinic-3 Not funded-1		Finland-5 Korea-1 China-3 UK-1	School-1 study Different settings-2 Hospital (OPD-1) (IPD-1)	RCT- 4 studies Controlled-2 Pre- Post- 2	DMT plus TAU-6 Body Psychotherapy-1 DMT-1	TAU-6 Waiting list-1	Range: 5–109	Range: 16–64	Two hundred and eighty three Females(81% out of the total participants) Sixty eight Males (19% out of the total population)	Range- Mild to Very Severe	Group, Chace model and Authentic Movement- Most frequent Manualized protocol- 1 study	Range:12–36 Range: 120–45 min	Range: 1 session/ week to 5 sessions per week Two sessions/ week- 5 studies Five sessions/ week- 1 study Three sessions/ week- 1 study One session/ week- 1 study	Range: 120–45 min 120 min-1 90 min-1 60 min-2 75 min-3 45 min-1	BDI (two versions) HAM-D and SCL

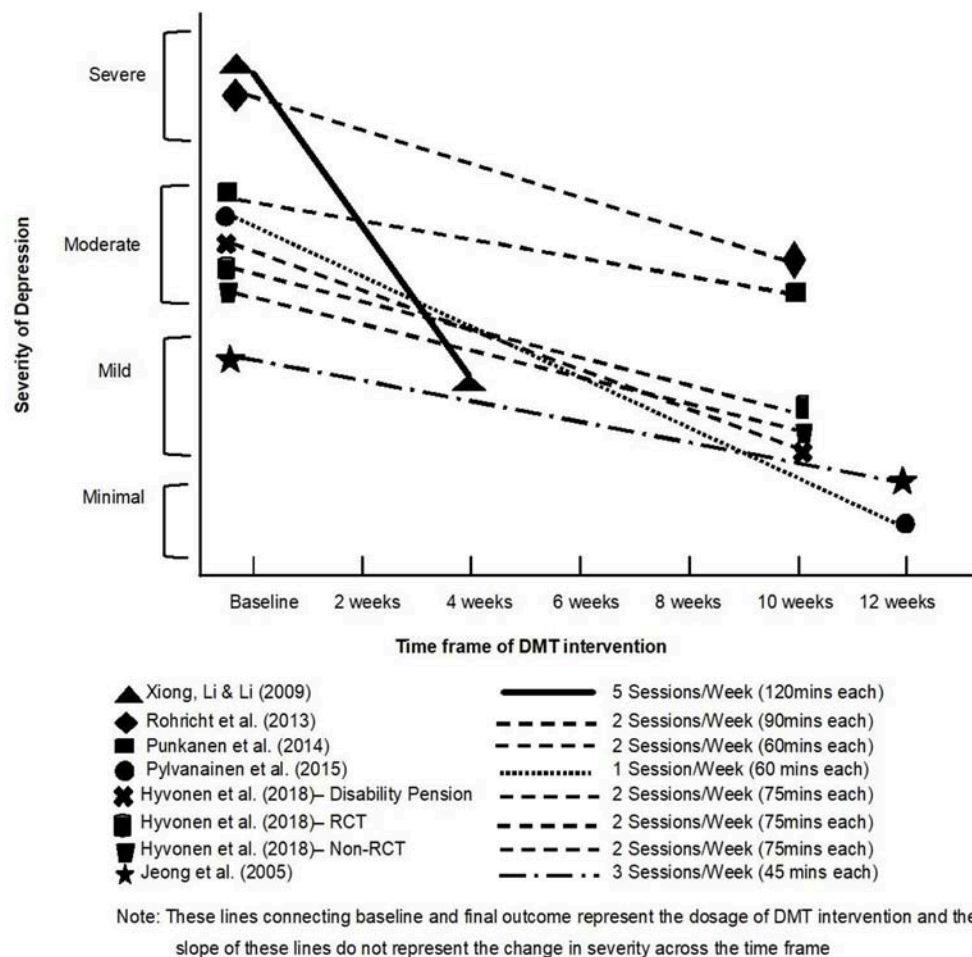


FIGURE 3 | Depression outcome scores before and after DMT groups.

RISK OF BIAS

Figures 4, 5 shows the risk of bias of the studies assessed against Cochrane criteria (Higgins et al., 2017). An emphasis on randomization and blinding is included in the risk of bias assessment. However, in three of the eight studies, randomization had not taken place resulting in high risk of bias (Punkanen et al., 2014; Pylvänäinen et al., 2015; Hyvönen et al., 2018 disability pension group). Furthermore, blinding for participants and personnel, as for all studies in psychotherapy, was not possible. For this reason, this criterion was omitted from the assessment of quality as suggested by Schünemann et al. (2013).

As **Figure 5** shows, the earliest included publication, the study by Jeong et al. (2005) had quality limitations, even though an RCT design was followed. Only one of the risk of bias criteria was scored as low, namely selective reporting (see green color). Most of the remaining criteria were scored as high risk (red color) or uncertain risk (empty box).

The study from China, Xiong et al. (2009), was of moderate quality, presenting concerns due to insufficient information around random sequence generation, allocation concealment

and blinding of outcome assessment. Attempts to contact the authors to clarify these were unsuccessful. Since this study was the only study not published in English⁵, it is possible that the language created a barrier that we did not manage to overcome.

The study by Röhrich et al. (2013) was assessed as the study with the highest quality (the lowest risk of bias). Both the design and a thorough reporting against all criteria of risk of bias added to the quality of study.

In contrast, the study by Punkanen et al. (2014) had methodological limitations mainly due to the fact that it did not have a control group and thus, there was no randomization. In addition, since this was a small pilot study the researchers tried different methods, the outcomes for all of which were not reported, including results from measurements of attachment styles. From the findings presented, it was not clear whether outcome assessors were blinded for all outcomes. It was not clear either how many participants were involved, and information

⁵It was published in Chinese and translated with support from the Cochrane Collaboration by Dr Li Weixiao.

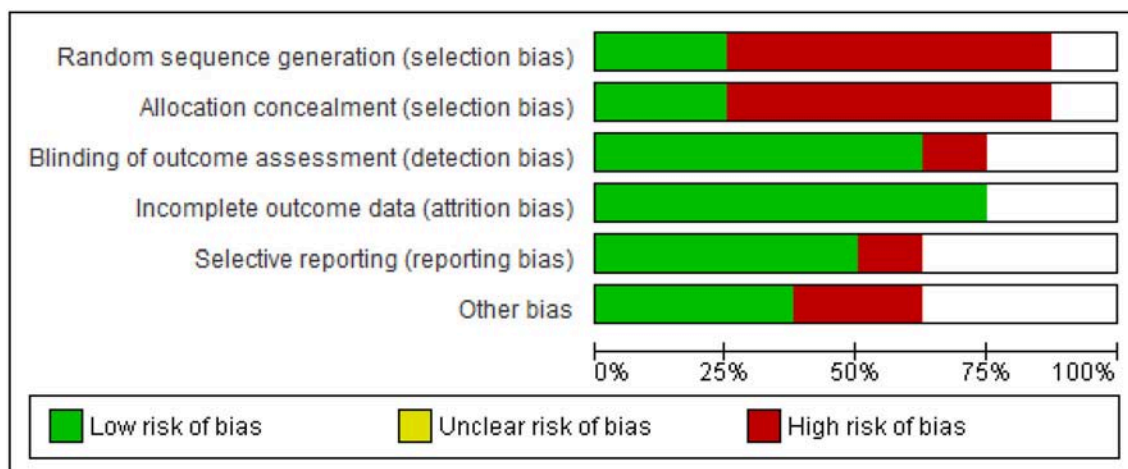


FIGURE 4 | Risk of bias across all included studies.

concerning attrition was omitted. However, this was a multi-faceted study presenting rigor and clarity of roles between the research team from the University of Jyväskylä and the team of therapists involved. The first phase of the study reported in Punkanen et al. (2017) also adds to the DMT literature in that through the use of the technology “motion capture” it outlined movement characteristics particular to people with depression; comparisons were made between a group of people with depression and a group of people with no depression identifying important movement differences between the two groups.

The study by Pylvänäinen et al. (2015) is a study “in the real world.” The limitations that our risk assessment highlights are compensated for the fact that the study was conducted in a clinical environment and as part of regular work. The findings are thus potentially directly applicable to clinical work.

The value placed on randomization in the conventional hierarchy of evidence (Higgins et al., 2017) is at odds with the prevalent culture in a clinical setting that prioritizes client choice. While the Cochrane criteria concerning risk of bias imply that the therapist should be a different person from the researcher, the dual role in practice might add an element of trust, rigor and depth both for the development and delivery of the intervention and for an insightful interpretation of results (Meekums, 1998).

Finally, in the design of the study by Hyvönen et al. (2018) there is strong potential to compensate for the risks of bias in all previous studies without limiting the quality of the intervention. However, since this study had three different strands with different designs (RCTs, controlled trials and pre/post testing), the risk of bias in these strands was different. Furthermore, given that findings were still being processed at the time of writing this review, we were unable to include information for all the criteria each study was assessed as indicated on Figure 5.

To summarize our findings, as indicated in Figure 4, 75% of the included studies had low risk of attrition bias. This is the only criterion which most of the studies met. The next lowest risk of bias criterion was detection bias. Whilst as for all types of psychotherapy, it is impossible to blind participants to the type

of intervention, it appears from our results to be less challenging to blind for the outcome assessment. The type of measuring tools used in the study (observational/self-reports) might have played a role in allowing (e.g., in the case of observational measures) or hindering (e.g., in the case of self-rating scales) the possibility for blinding for the outcome measure. Since, we have included quasi-experimental designs it is obvious that only 25% of the included studies had low risk of bias in sequence generation and allocation concealment and the majority (75%) of the studies were therefore, of high risk.

QUANTITATIVE META-ANALYSES

Meta-analyses were performed as a way of synthesizing quantitative evidence of effect size across studies. Although studies varied in their designs, they all addressed the same fundamental question around the effectiveness of DMT. These different designs were therefore grouped in different ways in order to identify the direction of effect and effect size. The analyses performed were based on four different data sets as follows:

- Studies with before and after DMT scores; all the reviewed studies were included
- Studies with 3 months follow up data (pre DMT vs. 3 months follow up) as a sub-group analysis
- Studies with RCT designs only (post DMT experimental vs. post TAU or no care)
- Studies with RCT designs with lower risk of bias through sensitivity analysis.

As per our protocol, only scores until the point of the crossover were considered. In all four cases the effect of DMT in decreasing scores on depression was evaluated. As shown in the forest plots (Figures 6–9), each study included for the analysis was represented by its point estimate with 95% confidence interval. It is noticeable from the plots that the size of the square between

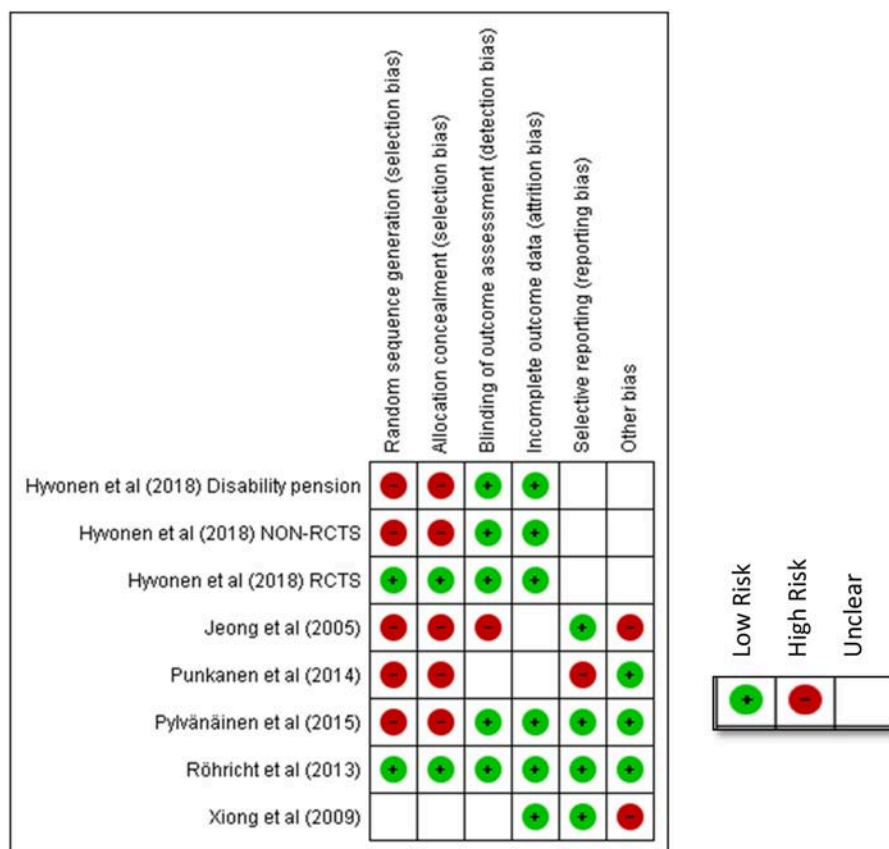


FIGURE 5 | Risk of bias for each included study.

the studies varied based on the allocated weight associated with the calculation of each power estimate. The larger studies with less variance and more precise results were given larger weight. The overall measure of effect and the direction of effect is visually represented on the forest plots by the location of the diamond.

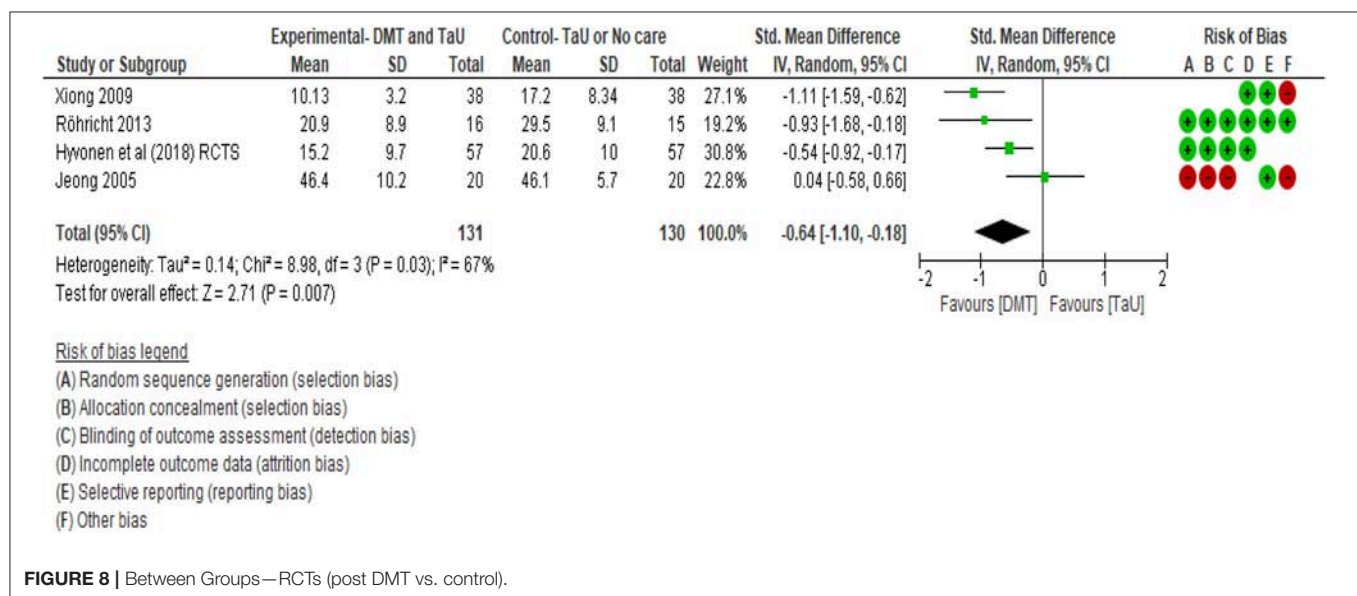
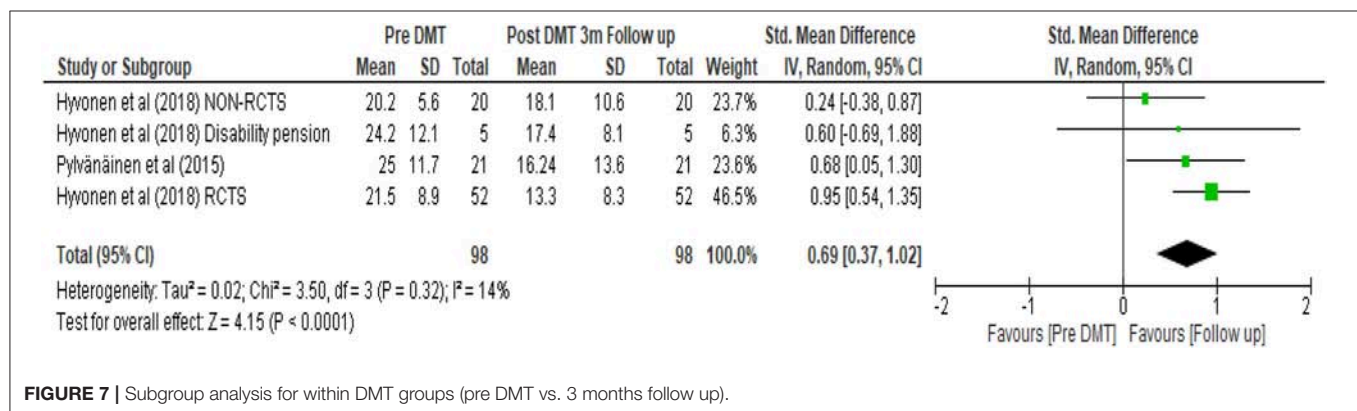
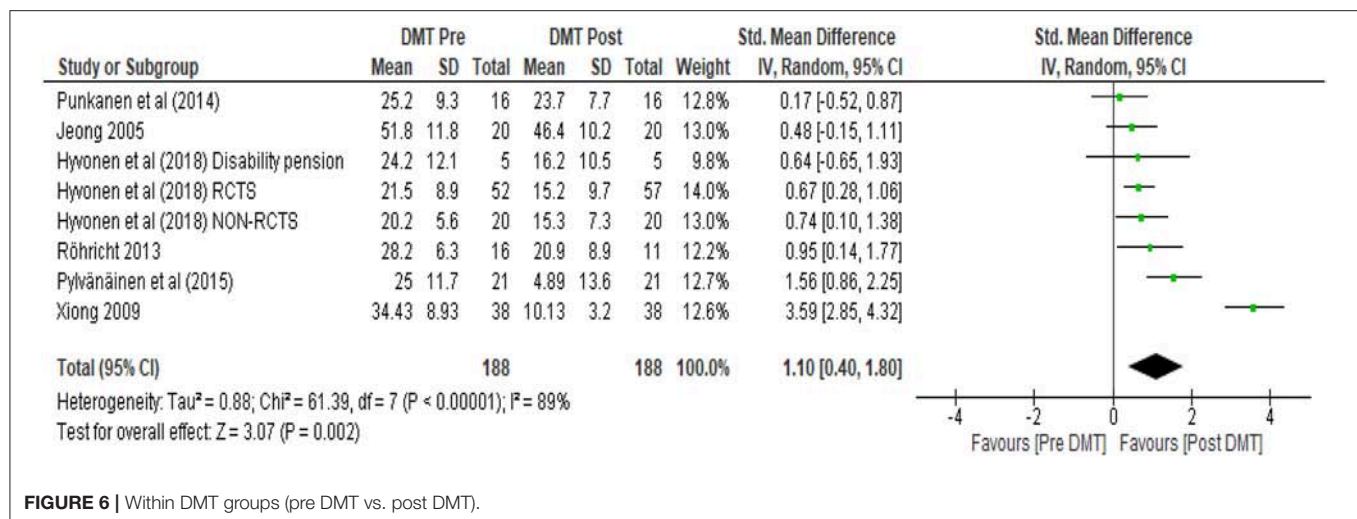
The first analysis (see **Figure 6**) in which all reviewed studies were included unsurprisingly had the largest total number of participants ($N = 188$). The SMD using a random effects model was 1.10 (95% CI 0.40, 1.80). As the confidence interval did not contain zero, there was strong evidence of a positive treatment effect. The I^2 was calculated which is a measure of heterogeneity amongst studies indicating the percentage of variance amongst studies (Higgins et al., 2003). In this calculation I^2 was 89%, suggesting 89% of the variability in treatment effect estimates was due to real study differences (heterogeneity) and only 11% due to chance. This is visually evident from the wide scatter of effect estimates with little overlap in their confidence intervals (**Figure 6**). Xiong et al. (2009) showed greater effect estimate than all the other studies, appearing further apart from these other studies.

A subgroup analysis was performed on this initial set of data as shown in **Figure 7**. Only studies with a follow up depression score were included in order to assess any lasting effects of DMT. This calculation had the smallest number of participants

($N = 98$). The random effects model provided an estimate of the average treatment effect. It revealed 0.69 SMD with 95% confidence interval (0.37, 1.02). Using Cohen's rule of thumb (Lipsey and Wilson, 2001), a SMD of 0.69 was considered to be of medium effect. Although the confidence interval depicts uncertainty around this estimate, since the confidence interval does not cross the zero line, it shows positive effect of the treatment even 3 months after completion of the intervention.

In this calculation, the I^2 was 14%, suggesting that variability in treatment effect was mainly due to chance. Regardless of treatment, people may recover in time on their own, but some may do so at a slower rate than others. The rate of their recovery may be to a great extent influenced by their baseline characteristics or condition. Thus, patient characteristics need to be considered and the findings should be interpreted with caution.

When the SMDs were compared as end scores between the groups that received DMT and the control groups, an effect size of -0.64 favoring DMT treatment was found (see **Figure 8**). This third calculation included all the RCTs that were found in our included studies. The total number of 131 participants were involved in four studies. The confidence interval ranging between -1.10 to -0.18 did not cross zero. This supported the effect direction favoring the DMT group. In terms of heterogeneity,



~67% of the variability in treatment effect estimates was due to real study differences among the studies and only ~33% was due to chance. **Figure 8** shows that there is wide scatter of effect

estimates with little overlap in their confidence intervals. Among these four RCTs, the study by Jeong et al. (2005) was the weakest study as indicated by the number of negative red marks in the

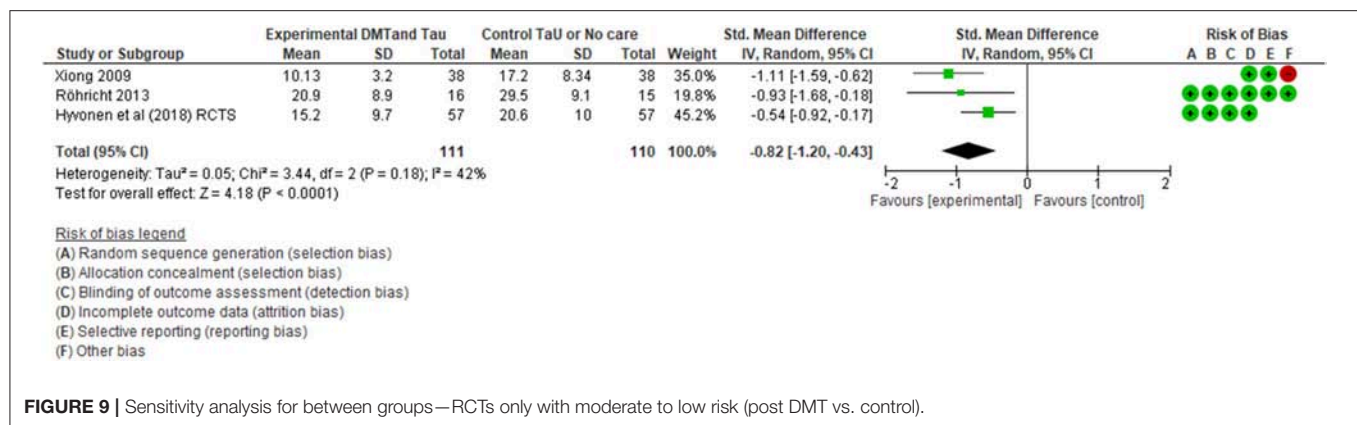


FIGURE 9 | Sensitivity analysis for between groups—RCTs only with moderate to low risk (post DMT vs. control).

risk of bias table (Figure 5), suggesting very low methodological quality. Hence, a “crude sensitivity analysis” was carried out (see Figure 9).

As shown on Figure 9, only three RCTs with moderate to low risks were included in this last calculation that included end scores from 111 participants, all of whom were adults. Our meta-analysis showed a SMD of -0.82 suggesting a large effect size according to Cohens rule of thumb (Lipsey and Wilson, 2001), favoring the DMT intervention. The confidence interval was -1.20 – 0.43 . Since it did not contain zero, there is limited uncertainty around the average treatment effect estimate. We can therefore say with confidence that DMT has an impact in reducing scores of depression. The confidence interval depicts the uncertainty around the average treatment effect estimate. In this analysis, as the confidence interval does not contain zero, there is strong evidence that, on average, the DMT effect is beneficial to the participants.

A heterogeneity analysis with I^2 calculation demonstrates that 42% of the variability in treatment effect estimates was due to between study variations and the rest due to chance. Although there were only three studies, all three were of moderate to low risk of bias and there was consistency in the findings.

Results from this final calculation demonstrate the highest level of effectiveness of DMT in treating depression amongst adults. Since we used a random effects model we have not ignored heterogeneity and thus, we have a precise confidence interval (Brockwell and Gordon, 2001; Borenstein et al., 2010). So, it is less likely that our summary result may wrongly imply that a treatment effect exists when actually there are real differences in the effectiveness of treatment across studies.

DISCUSSION

Summary of Main Results

This review gathered evidence from eight studies that involved 351 participants. Unlike the Cochrane review of DMT for depression (Meekums et al., 2015), in this new review we were able to be quite conclusive concerning the effects of DMT on depression: when we conducted a sensitivity analysis on three studies of moderate to high quality involving 111 participants, we found that DMT offered in addition to TAU had the highest impact on decreasing levels of depression compared to TAU. This

result is in accordance with a previous but differently focused meta-analysis that suggested dance and DMT can be potentially effective in decreasing symptoms for depression (Koch et al., 2014). Through this review, we can now say with confidence that DMT exclusively (that is, without combining results of dance and DMT studies together) can have a positive impact on patients with a primary diagnosis of depression.

Interestingly, when scores from all RCT designs were considered in our calculations, including studies with high risk of bias, a smaller (i.e., moderate) effect size was found, suggesting that the lower quality studies dropped the calculated effect size.

The meta-analysis performed with all studies and with all designs on scores of depression before and after the DMT interventions also indicate a favorable trend for DMT groups since scores of depression were decreased in all cases. Since scores from control groups were not considered in this calculation, it is not possible to know whether this change took place due to what Eysenck (1963) termed “spontaneous remission.” We therefore, do not know whether participants simply recovered because time passed as opposed to the beneficial effect of DMT.

Similarly, following from arguments in the literature that DMT is not simply a form of dance and/or exercise that provides temporary relief only (Karkou and Sanderson, 2006; Meekums et al., 2015), we explored whether any long-lasting effects could be found. Calculations with studies that had included follow up measures resulted in a moderate effect size, which however was not conclusive due to different baseline characteristics of the participants and other variables influencing the results. The heterogeneity found in these studies was majorly due to chance, suggesting the need for further research attention in this direction.

Although on the basis of both of these two last calculations, we are not able to draw firm conclusions, we can see certain trends which can have useful clinical and research implications. For example, in all cases we can see that the scores on depression decreased, and this decrease continued several months after the completion of DMT.

Gender

Another important trend relates to the gender of participants. The fact that 81 percent of the participants were women may reflect the fact that dance is seen as an art form that stereotypically

attracts women. Research bias can be seen in studies such as Jeong et al. (2005) that involved adolescent girls only. When choice was offered as was the case with most of the remaining studies, most studies, with the exception of Xiong et al. (2009) and Röhricht et al. (2013), did not accommodate for gender diversity resulting in samples with a large number of women (see all the Finnish studies for example). This skewed sample limits our capacity to draw firm conclusions that DMT can be of equal value to both men and women, especially since there is research literature to suggest that men and women respond differently to the use of psychotherapy (Ogrodniczuk, 2006).

Age

Unlike gender, the age of our sample was widely ranging from 16 to 65 years of age. However, all studies but one (Jeong et al., 2005) did include adults with depression only. Although it was not our intention to focus solely on adults, the evidence we found related to the effectiveness of DMT mainly with this age group. Nevertheless, as reported in several publications before (Karkou and Sanderson, 2006; Karkou, 2010; Karkou et al., 2010), dance movement therapists work extensively with children and adolescents. However, Zubala and Karkou (2018) argue that depression is rarely diagnosed amongst children and adolescents. This could explain why we only have one study included in this review that involved a non-adult population.

Similarly, studies with people older than 65 who may be struggling with depression were also missing despite the increased research activity relating to people in this age group (Karkou and Meekums, 2017; McHitarian et al., 2017). Co-morbid medical conditions such as dementia, Parkinson's, heart disease, strokes and so on might explain why studies with depression as a primary diagnosis were not found.

Severity of Depression

As indicated in our qualitative narrative synthesis and our first meta-analysis, all the studies included in this review demonstrated a decrease in the levels of depression for the intervention with participants with a range of levels of depression. As Zubala and Karkou (2015) suggest, dance movement therapists work with clients with depression extensively, some of whom are fairly unwell, presenting moderate or severe levels of depression. As expected, when the work took place in hospitals and in psychiatric units, the severity of depression was higher than in other settings as we see in the different baseline scores in studies by Xiong et al. (2009) and Röhricht et al. (2013). Most of the participants on average had moderate depression (in 5 out of 8 studies) at baseline which was reduced to mild in most of the cases. The only study where participants had mild depression at baseline was in the Korean study that took place in a mainstream school and involved adolescent girls (Jeong et al., 2005).

DMT Dosage

As presented in our qualitative narrative meta-synthesis, the most common trend amongst the reviewed studies was two sessions per week across 10 weeks. The only Chinese study (Xiong et al., 2009) offered five sessions per week for 120 min each time for 4

weeks, in an inpatient hospital setting. Another study with high DMT dosage was the study by Jeong et al. (2005) that offered three sessions per week. This latter study was the only study that was conducted in a school setting. It is possible that in a school environment, and in inpatient hospital environments as was the case with the Chinese study by Xiong et al. (2009), it is more feasible to have frequent sessions when compared to community-based settings. It is also worth noting that the two studies with the higher frequency of sessions were from Korea and China. It is therefore, possible that culture may have a role to play on the high treatment dosage in these two studies.

The length of the sessions ranged from 45 to 120 min. On average, and in all the European studies, sessions lasted from 60 to 90 min. The shortest sessions were available in the Korean study by Jeong et al. (2005) that offered 45 min-long sessions. The age of the participants and plans around fitting to the school timetable might be reasons to explain this choice. The study with the longest sessions was the Chinese study (Xiong et al., 2009) that offered 120 min each time; a fairly unusual length of time for a DMT session in Europe and the USA. This might be associated with either the cultural context and/or the severity of depression of the participants in this study.

On the whole, it is worth considering whether high therapy "dosage" was associated with higher level of severity of depression. In the Chinese study (Xiong et al., 2009) for example, participants with severe depression received high overall DMT dosage. There was also a dramatic decrease on the levels of depression post DMT. Although in the literature we can find arguments for the need for longer term interventions for clients with higher levels of distress (Lutz et al., 2015), the intensity of sessions in this study of five sessions per week, as far as we know, has only been seen in Freudian analysis (Freud, 1917). In DMT, and given the physical engagement of participants, it is possible that such intensity may lead to fatigue. Furthermore, given that length of this intervention was only 4 weeks, it was not clear whether underlying issues were sufficiently processed, a practice that may also lead to relapse, a common feature of cognitive behavioral therapy (Ali et al., 2017) and exercise (Sullum et al., 2000).

Another study that involved participants with similar levels of severity of depression at the baseline was the study by Röhricht et al. (2013). Even with a lower dosage, the severity of depression was still reduced, albeit less dramatically than in the Chinese study. Given the successful results from both of these studies in reducing depression to either mild or moderate, it is worth considering whether a more intense dosage of DMT is needed with severe depression.

With the exception of the study by Pylvänäinen et al. (2015), most studies that involved participants with moderate depression offered DMT groups twice a week for 20 sessions. The Pylvänäinen et al. (2015) study offered only one session per week for 12 weeks, but still demonstrated substantial changes on levels of depression. Follow up scores also indicated that the low level of depression remained 3 months after the completion of the intervention, with the participants in the study not returning to the clinic for at least 3 years after the completion of the intervention. Based on this, we speculate that a degree of time

between sessions might be needed to allow for processing some of the deeper work that can take place in sessions (Karkou and Sanderson, 2006). It is also worth considering whether more frequent sessions are needed initially as in the Xiong et al. (2009) study. Once severity is reduced, the dosage of therapy might need to be gradually reduced offering DMT over a longer period, as in the Pylvänäinen et al. (2015) study, consolidating and stabilizing any acquired changes.

All the studies except for Punkanen et al. (2014) showed a shift in the level of depression. In the Punkanen et al. study (2014), there was a decrease in the scores of depression post DMT, but the level of depression did not drop from moderate to mild. Since this was a small pilot study, researchers and therapists might have tried different DMT methods and processes in the sessions.

Type of Intervention

On the whole, the studies included in this review used integrative models that combined the interactive model by Chace (Chaiklin and Schmais, 1986) with in-depth methods developed by Whitehouse (1979). Variations to these can be found in the study by Jeong et al. (2005), where the description of the intervention is thin and relevant references are not included even if the brief description does resemble DMT practice. Similarly, the Chinese study (Xiong et al., 2009) offered thin descriptions around the intervention but named Chace and Jungian psychology as strong influences in the intervention used. Although in these two studies dance movement therapists were not used, the studies were included because the discipline in these two countries at the time the studies took place was still in the process of development and professionalization and the descriptions of the intervention included in these two studies met our DMT definition.

The DMT approaches used in the Finnish studies is worth looking at carefully. The Pylvänäinen et al. (2015) study presented a very comprehensive treatment protocol and a significant decrease in scores of depression (Pylvänäinen, 2018). Key principles from this study were also used to inform the intervention used for the large multi-centered study completed by Hyvönen et al. (2018). In both cases Chace (Chaiklin and Schmais, 1986) and Whitehouse (1979) were mentioned as important influences in the work. The third of the Finnish studies (and the first of the included studies that was conducted in Finland) by Punkanen et al. (2014) was the only study that named solution-focused and resource model as the basis for this intervention (Punkanen et al., 2017). Similarly, the UK study by Röhrich et al. (2013) indicated strong influences from Body Psychotherapy, a form of psychotherapy linked to DMT practice but less often discussed amongst DMT practitioners (Payne et al., 2014).

In all the studies conducted in Finland and the study in the UK, qualified and registered dance movement therapists delivered the intervention. Due to their training, it is possible that similar methods were used and an overall integrative model of DMT practice was adopted reflecting similar trends in psychotherapy in general (Norcross and Goldfried, 2005). This integrative approach limited our capacity to comment on whether one type of DMT practice was more relevant to depression than another or whether certain active ingredients

were more “potent” than others; the whole “package” appeared to contribute to decreasing levels of depression.

Quality of Studies

The study with the highest quality at the time of writing up this review was the UK study by Röhrich et al. (2013). This was led by a psychiatrist who offered important support to a new intervention such as DMT. It may also be significant that this study was conducted in the UK, a country where DMT has been practiced in hospitals since the 1970s; the profession is relatively established (ADMP UK, 2013) and recognized as a form of psychotherapy.

In contrast, the first review study by Jeong et al. (2005) remained of low quality and was subsequently dropped from our final calculation. Its low quality could reflect both the historical period during which the study was conducted and the professional development of DMT in that country at that time.

All three of the most recent studies came from Finland, a country with particular interest in identifying appropriate treatment for depression due to its high rate of depression and Seasonal Affective Disorder (SAD—Saarijärvi et al., 1999; Magnusson, 2000); also a country with high quality in health provision (Afonso and Aubyn, 2006). In addition, it appears that the team of the Finnish DMT researchers gradually built on evidence from a preliminary pilot stage to a large, well-funded study supported by the Finnish Social Insurance Institution (KELA), which is responsible for funding health interventions. It is possible that this last study by Hyvönen et al. (2018) benefitted from the knowledge gradually accumulated in the field and within the particular research team. Furthermore, as a multi-centered study, it was delivered by different therapists in different locations in both large and smaller studies. Because of the presence of different therapists, we can argue that significant results in decreasing the scores of depression were not based on the particular skills and/or charisma of the therapist but on the intervention itself, supporting our confidence on the beneficial impact of DMT on the treatment of depression.

CONCLUSIONS

During this systematic review we were able to explore evidence of effectiveness around the role of DMT in the treatment of depression and answer our main research question concerning whether DMT is an effective treatment for clients with a diagnosis of depression. We conclude that there is evidence from high quality studies of a positive effect for DMT in reducing depression in adults. Our positive conclusion offers additional and stronger support to existing evidence from previous reviews of DMT for depression (e.g., Meekums et al., 2015) and dance/DMT for symptoms of depression (Koch et al., 2014). Furthermore, we have found that moderate to high quality studies demonstrate strong impact, the strongest possible, when a summary result of the effect size of an intervention is calculated. Additional results, albeit tentative, support the overall conclusion that DMT is a useful intervention in the treatment of depression and offer information about useful trends.

Still, studies that involved children, adolescents and older people were generally missing from this review, confining our positive conclusions to adults with depression only. We were not able to conclude with any confidence whether DMT is beneficial for both men and women. Similarly, in this review, although there were findings relating to secondary outcomes, we did not look at them. Future studies should consider both younger and older populations, men and women and, where available the impact of DMT on secondary outcomes such as anxiety, quality of life, self-esteem and body image next to other clinically relevant outcomes including potentially physiological or neurocognitive changes. Further research attention is also needed on the degree to which positive results, indicated in some of our calculations, can be sustained at a follow up stage and what is the impact of the process of therapy on levels of depression through, for example, mid assessments.

The use of dance, the embodied therapeutic relationship, unearthing and working through difficult issues non-verbally and integrating possible discoveries and solutions creatively may be some reasons for the positive impact of DMT. However, further research on the active ingredients of DMT is needed that can offer further confidence about whether these are indeed helpful factors in the treatment of depression. In-depth study of the manuals of the different types of DMT practice used can result in further refinement of what we think is currently responsible for the significant effects of DMT on reducing depression. A new project called “Arts for the Blues” (Haslam et al., 2019; Karkou et al., 2019; Parsons et al., in press) may offer relevant support in this direction for DMT as well as the other arts therapies.

Furthermore, we propose that studies need to take place where DMT is not simply added to TAU and compared to TAU alone, but it is also compared with other, regularly available, treatment options. Controlling for other forms of psychotherapy such as counseling, art forms such as dance and music, and either group work or recreational activities will also be of considerable benefit as a way of both narrowing down the active ingredients of the intervention and providing comparable results with other, widely

used treatments. A new study recently funded by the UK National Health Service might act as a response to this need where DMT, next to art therapy and music therapy, is compared with person-centered counseling (Carr, 2018). This new study, the largest in the field that we know of, will not focus on depression only but on diverse mental health diagnoses to reflect the mixed groups present in regular practice. Still, data extracted from this study for DMT for people with depression will be of particular interest, making a substantial contribution to field.

Finally, the type of approach used, its frequency and overall dosage need to be further explored leading to an associated clinical guideline that takes into account the severity of depression. Such guidelines are currently available for psychological treatment options and exercise (see NICE, 2018), but information about the contribution of DMT is still missing, as are calculations around the cost and cost effectiveness of this intervention. Future developments in this direction are now urgently needed, especially given the positive results of this review.

AUTHOR CONTRIBUTIONS

VK was responsible for organizing, drafting, and finalizing the current paper. She also completed the systematic search with BM for the Cochrane review, i.e., the first search, and with SA during the second search. She also guided the statistical analysis for the current review. SA contributed to the systematic review, performed the statistical analyses, and contributed to the writing and editing of the text. BM led the Cochrane review, acted as a referee for the current review and edited the final paper. AZ contributed to revisions and edits of the paper.

ACKNOWLEDGMENTS

We would like to acknowledge the support we received from the research office and our statistician from Edge Hill University.

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Conflict of Interest Statement: VK and BM are dance movement therapists registered with ADMP UK and as such may be seen as having invested interest in demonstrating the effectiveness of the intervention. SA, originally a speech and language therapist and a dancer, is completing her doctoral studies on DMT. AZ is a psychologist who has been researching arts therapies in her doctoral and post-doctoral work. The submitted work was not carried out in the presence of any other personal, professional, or financial relationships that could potentially be construed as a conflict of interest.

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Creative Arts-Based Therapies for Stroke Survivors: A Qualitative Systematic Review

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OPEN ACCESS

Edited by:

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Specialty section:

This article was submitted to
Clinical and Health Psychology,
a section of the journal
Frontiers in Psychology

Received: 15 May 2018

Accepted: 16 August 2018

Published: 25 September 2018

Citation:

Lo TLT, Lee JLC and Ho RTH (2018)
Creative Arts-Based Therapies for
Stroke Survivors: A Qualitative
Systematic Review.
Front. Psychol. 9:1646.
doi: 10.3389/fpsyg.2018.01646

Background: Stroke is a life-threatening cerebrovascular disease. Without proper and immediate treatment, it can cause long-term disabilities and even death. While current rehabilitation focuses on functional needs, it does not fully address the psychosocial issues. Creative arts-based therapies, however, may have the potential to be of assistance.

Methods: A systematic review was conducted to synthesize the qualitative findings of the stroke survivors' positive and negative experiences in participating in creative arts-based therapies. A systematic literature search was conducted across diverse databases. A thematic synthesis was adopted to analyze the results from different qualitative studies and mix-method studies.

Results: Among the 367 studies extracted from various databases, 11 studies met the inclusion criteria and were of acceptable quality. The following five analytical themes were identified: functional restoration, psychological support, social engagement, spiritual experience, and short-comings and barriers.

Conclusion: Creative arts-based therapies have demonstrated their strengths in addressing psychosocial needs for stroke survivors. Different art modalities are perceived to be useful in achieving different therapeutic goals. Therapies based on a single art modality or combined modalities have different specialties and characteristics. Further research is needed to demonstrate the differential benefits or special advantages of using single or multiple art modalities as well as having qualified therapists in creative arts-based therapies.

Keywords: creative arts-based therapies, expressive arts therapy, qualitative systematic review, rehabilitation, stroke

INTRODUCTION

Stroke is a severe cerebrovascular disease. The World Health Organization (WHO) defined stroke as a disease that has "rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin" (WHO MONICA Project Investigators, 1988). Without immediate and proper treatment, it can cause permanent physical disabilities such as paralyzed limbs, or even

death. There are three main types of stroke, namely, ischemic stroke, hemorrhagic stroke, and transient ischemic attack (TIA). According to the American Heart Association (2018), ischemic stroke occurs when there is a blockage in the blood vessel which supplies blood to the brain. Hemorrhagic stroke refers to the fracture in a weakened blood vessel in the brain. Transient ischemic attack (TIA), also named “mini-stroke,” occurs when there is a temporary obstruction in the blood vessel(s) of the brain.

Current Situation of Stroke

According to the latest global statistics, the prevalence rate of stroke was approximately 25.7 million and was the second leading cause of death in 2013 (Benjamin et al., 2017). Although older people have a higher risk of stroke, the onset of stroke among people aged 20–64 years has increased by 25% from 1990 to 2010 worldwide (Feigin et al., 2014). In the United States, around 795,000 people experience a new or recurrent stroke every year. Stroke is also the fifth leading cause of death and the leading cause of severe long-term disabilities in the United States (Benjamin et al., 2017). In Hong Kong, there are ~2 million patients with chronic illnesses and 2.2% of them are stroke patients (Census Statistics Department, 2015). Every year, ~3000 people die of stroke (Hospital Authority, 2018). Cerebrovascular diseases, including stroke, are the fourth leading causes of death in Hong Kong (Centre for Health Protection, 2018). These statistics indicate that the world is now facing a grave challenge with an increasing number of stroke survivors, thus more resources are needed for rehabilitation and post-stroke support.

Current Rehabilitation for Stroke Survivors

Current rehabilitation for stroke survivors depends heavily on physiotherapies, occupational therapies, and speech therapies. These rehabilitation programs are essential for stroke survivors as they aid in functional recovery. Physiotherapy, also recognized as physical therapy, focuses on the movement and physical function of patients and aims at the maintenance, development, and restoration of mobility (World Confederation for Physical Therapy, 2017). The main goal of occupational therapy is to facilitate patients to participate in their daily life activities and enhance their self-autonomy (World Federation of Occupational Therapy, 2012). Speech therapy aims at treating the patients’ speech, language, and swallowing problems and at enhancing the patients’ verbal communication and swallowing abilities (American Speech-Language-Hearing Association, 2018). Functional recovery is of utmost importance in stroke rehabilitation, especially during the first 6 months after the onset of stroke. The sudden loss of physical ability as well as the changes in various aspects of life caused by stroke also trigger psychological distress, social withdrawal and confusion in the meaning in life (Knapp et al., 2000; Yeung et al., 2011), which together need to be further addressed. These psychosocial and spiritual needs are also suggested to be crucial for the quality of life for stroke survivors (Katona et al., 2015). Enhancing the post-stroke quality of life has therefore been increasingly emphasized in recent years, in particular, in the United States

(American Heart Association, 2013) and Australia (Australian Stroke Foundation, 2008). Due to their non-intrusive processes, therefore, non-pharmacological approaches, in particular, have been drawing considerable attention. Among them, creative arts-based therapies, which are mostly playful and without side-effects, have been recommended for stroke survivors. Different art modalities are also being suggested to be useful in stimulating different parts of the brain, and the stimulations from diverse art forms may further enhance the neuroplasticity in the brain and this may be helpful for facilitating the recovery process after stroke (Demarin, 2017). In addition, neurological evidence has shown that regularly listening to music after stroke may lead to structural changes in the brain among stroke survivors, and these structural changes may, in turn, relate to improvements in cognition (Särkämö et al., 2014). Moreover, engaging in a regular visual arts intervention has also been proven to facilitate the spatial improvement in functional connectivity in certain parts of the brain which may be associated with the psychological resilience in adults (Bolwerk et al., 2014). Apart from the above evidence, dance movement has also been suggested as an innovative approach for the rehabilitation for stroke survivors, due to its nature of engaging both physical and cognitive functions, dance may thus have the potential to tackle both the physical and cognitive impairments simultaneously (Dhami et al., 2015).

Arts-Based Therapeutic Approaches

There are various types of arts-based therapeutic approaches. While creative arts-based therapies emphasize specific art forms such as music therapy, art therapy, dance movement therapy, drama therapy, and expressive writing, other approaches such as expressive arts therapy make use of the integrative approach and multiple art forms. Although each approach has its own uniqueness and characteristics, all arts-based interventions have a common goal of providing stimulation of different sensations, cultivate a safe environment for self-exploration, and encourage self-expression, creativity, and imagination through the use of arts. Over the past decades, an increasing number of studies have been conducted in examining the outcomes of creative arts-based therapies for stroke survivors. Several systematic reviews and literature reviews on the outcomes of specific types of creative arts-based therapies for this population have also been published. For instance, Strzemecka (2013) completed a review of music therapy in stroke rehabilitation, focusing on the role of different types of music therapy in stroke rehabilitation. Reynolds (2012) also published a review of art therapy for stroke survivors, which gathered both quantitative and qualitative findings from various studies. Nevertheless, these review articles only focused on a single art modality approach. In this qualitative systematic review, however, different forms of creative arts-based therapies were included, as there appears to be a paucity of transparent understanding of the beneficial outcomes of different creative arts-based therapies. With a better understanding of the characteristics and specialties of therapies using different art modalities, art therapists, service providers, and users, may afford a better appreciation on how creative arts-based therapies can provide the most favorable experience to stroke survivors.

The present qualitative systematic review serves the specific aim of examining both the positive and negative experiences of creative arts-based therapies for stroke survivors. As the stroke survivors' personal and unique experiences of participation in creative arts-based therapies can provide in-depth information on their perspectives, the present review has thus adopted the qualitative approach.

METHODS

This qualitative systematic review was conducted based on the framework in the Preferred Reporting Items for Systematic Reviews and Meta-analyses Protocols ("PRISMA-P") (Moher et al., 2015).

Definition of Key Words

Creative arts-based therapies refer to interventions that usually apply one major art form as a medium to achieve a physiological, psychosocial, social, or any other therapeutic goals. Hence, the type of art form can include music, dance movement, visual arts, creative writing, and drama. Creative arts-based therapies designed for survivors of the two major strokes, namely, ischemic stroke, and hemorrhage stroke, were included in the review because the severity and effects of the TIAs are short-lived.

Search Strategy

A literature review of publications on creative arts-based therapies for stroke survivors was conducted. This qualitative review was based on the materials retrieved from a systematic literature search using six computerized databases, namely, PsycINFO, PubMed, MEDLINE, CINAHL, Cochrane, and Embase. The search was completed on February 20, 2018 and there were no restrictions on the publication period. The search was based on whether the combination of the following keywords appeared in any abstract: "stroke" and "music OR art OR dance OR dance movement OR drama OR writing" and "qualitative OR interview OR focus group OR observation OR thematic analysis OR grounded theory OR content analysis OR framework approach OR phenomenographic." The key words for selecting the materials related to any kind of creative arts-based therapies were inspired by Beard (2012), who conducted a systematic review in dementia care that also required different kinds of creative arts-based therapies. To enhance the coverage and accuracy of the studies, reference lists of the included studies were also screened to extract relevant articles that were overlooked in the databases. Manual searches on the internet and the Google Scholar website were also performed.

Eligibility Criteria

Studies included in this review were based on the inclusion criteria listed in **Table 1**.

Data Extraction

The process of data extraction began with comprehensive searches on different databases and from other resources. All searches were run independently in each database. Each result from each database was extracted into EndNote. For the first

screening, duplicated studies were identified and removed. For the second screening, titles, and abstracts of the studies were examined. Studies, however, were excluded if the titles were not relevant. For the third screening, full texts of the remaining studies were examined by the first two authors, LTLT and LJLC, based on the eligible criteria. Appropriate reasons were also provided for any excluded studies. The last screening was the quality assessment and was conducted by LTLT in cooperation with LJLC. Data extractions were conducted on the final remaining studies. In order to enhance accuracy and to avoid any bias, LTLT and LJLC also jointly conducted the data extraction process. Data extractions were based on a tailor-made Excel file that included the study design, data collection methods, setting, informants, interventionists, use of art forms, samples, and sampling methods.

Data Synthesis

The data synthesis process adopted the thematic synthesis approach developed by Thomas and Harden (2008) which involves three steps: the first step is to conduct line-by-line coding, the second, to develop descriptive themes, and the last, to generate analytical themes. The result sections from the included studies were then extracted for free line-by-line coding. The two authors, LTLT and LJLC, conducted the coding independently. The two authors then joined together to discuss the consistencies and discrepancies of the codes and the interpretation of the findings. Subsequently, the two authors decided on the descriptive themes based on the similarities and differences of the preliminary codes. Finally, after several rounds of discussion, the analytic themes were developed. A summary of the results based on the decided descriptive and analytical themes was then drafted by LTLT and reviewed by LJLC and HRTM together. All discrepancies throughout the data synthesis process were resolved by consensus. Quotations from the studies were also extracted to support the descriptive and analytical themes.

RESULTS

Selection Flow

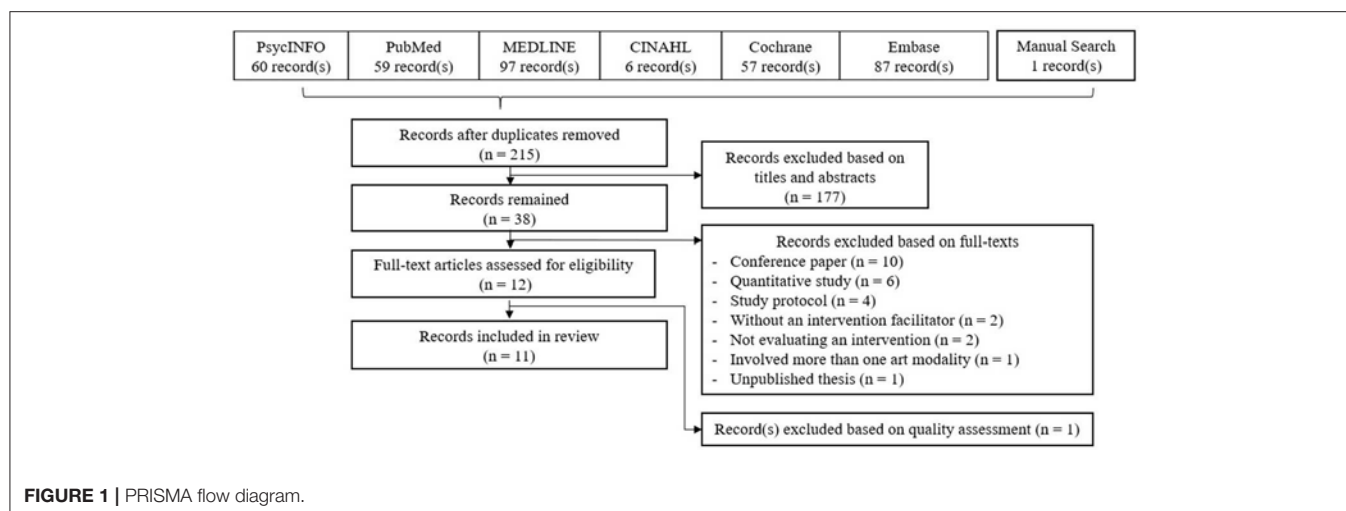
After searching for relevant materials, 367 studies were identified. After eliminating duplicated studies, 215 studies were selected. After screening through title and abstract, 38 studies were selected, and their full text were examined. After that, 26 studies were further excluded with reasons provided. The remaining 12 studies underwent quality assessment, after which one study was excluded (Demers and McKinley, 2015). Finally, 11 studies were identified and included in the qualitative systematic review. The process of identification and selection of inclusion materials is illustrated in **Figure 1**. The flow diagram is based on the PRISMA guideline.

Quality Assessments

To evaluate the quality of qualitative research suggested by Murphy et al. (1998), the quality of the retrieved materials was based on two main aspects, namely, credibility and relevance. The credibility of the studies was assessed by the following five criteria: appropriate sampling and data collection method,

TABLE 1 | Inclusion criteria of reviewed articles.

Criteria	Description
Study types	Qualitative studies, mixed-method studies, and quantitative studies supplemented with qualitative results were included. Studies without the full text, abstracts presented in the conferences, brief reports, and unpublished theses were excluded in this review
Study designs	There were no restrictions on the study designs, and studies with any qualitative elements intended to record the stroke survivors' perceived experiences or perspectives in participating in creative-arts based therapies, were included.
Participants	Patients diagnosed with two major types of strokes: hemorrhage stroke or ischemic stroke. No restrictions on age and nationality were imposed.
Creative arts-based therapies	Any intervention that applied one art modality as a medium to achieve any therapeutic goal. The interventions could be delivered in a group or individual formats.
Interventionists	Interventions both guided by qualified creative arts therapists and by other professionals were included.
Duration	There were no limitations on the length or duration of the interventions.
Setting	There were no restrictions on the setting of the interventions. They could be conducted in any venue such as a hospital, or anywhere within the community setting.
Language	Only articles written in English were included in this review.



auditability, reflexivity, handling negative cases, and fair dealing (Murphy et al., 1998). The relevance of the studies was assessed by the following two criteria: transferability and analytic generalization (Murphy et al., 1998). This quality assessment method was adopted from a qualitative meta-synthesis study on the life experiences of stroke survivors conducted by Salter et al. (2008). Thus, studies which did not meet the standards of the two main aspects, namely, credibility or relevance, were excluded. Quality assessments were also conducted by LTLT and LJLC independently. Results of the quality assessments were later discussed among themselves and their disagreements resolved by consensus. Supplementary Material (Table S1) presents the results of the quality assessments.

General Characteristics

Eleven studies published between 2005 and 2017 were included in the systematic review. Table 2 lists the general characteristics of those studies. Eight studies were qualitative studies and three were mixed-method studies. The studies were conducted in different countries and cities which included Australia, Brazil, Hong Kong, New Zealand, Sweden, the United Kingdom, and the United States. Nine studies were conducted in a

community setting and two in a hospital setting. Six studies applied the convenience sampling method, three adopted the purposive sampling method, and two used the voluntary sampling method for sample recruitment. Nine studies involved semi-structured interviews for data collection, three used focus group interviews, two involved observations, and one applied structured interviews.

As to the details of the interventions, six studies applied music-based interventions, three applied visual arts-based intervention, one applied dance-based intervention, and one study applied literature-based intervention. Among the six music-based intervention studies, five music-based interventions were led by qualified music therapists, and one music-based intervention was led by music facilitators. Other art modalities interventions were led by artists, fine arts students, nurses, actors or actresses, and dance instructors. Other details of the interventions are listed in Table 3.

Themes

Overall, five analytical themes were identified, namely, “functional restoration,” “psychological support,” “social engagement,” “spiritual experience,” and “short-comings

TABLE 2 | Descriptive information of included studies ($N = 11$).

		f	Corresponding studies
Research types	Qualitative	8	Higgins et al., 2005; Beesley et al., 2011; Guerrero et al., 2014; Sit et al., 2014; Thornberg et al., 2014; Morris et al., 2016; Tarrant et al., 2016; Wolff et al., 2017
	Mixed-method	3	Tamplin et al., 2013; Fogg-Rogers et al., 2016; Street et al., 2017
Countries/Cities	United Kingdom	4	Higgins et al., 2005; Morris et al., 2016; Tarrant et al., 2016; Street et al., 2017
	Australia	2	Beesley et al., 2011; Tamplin et al., 2013
	Brazil	1	Wolff et al., 2017
	Hong Kong	1	Sit et al., 2014
	New Zealand	1	Fogg-Rogers et al., 2016
	Sweden	1	Thornberg et al., 2014
	United States	1	Guerrero et al., 2014
Setting	Community	9	Beesley et al., 2011; Tamplin et al., 2013; Guerrero et al., 2014; Sit et al., 2014; Thornberg et al., 2014; Fogg-Rogers et al., 2016; Tarrant et al., 2016; Street et al., 2017; Wolff et al., 2017
	Hospital	2	Higgins et al., 2005; Morris et al., 2016
Sampling methods	Convenience sampling	6	Beesley et al., 2011; Tamplin et al., 2013; Guerrero et al., 2014; Fogg-Rogers et al., 2016; Tarrant et al., 2016; Street et al., 2017
	Purposive sampling	3	Higgins et al., 2005; Sit et al., 2014; Morris et al., 2016
	Voluntary sampling	2	Thornberg et al., 2014; Wolff et al., 2017
Data collection	Semi-structured interviews	9	Higgins et al., 2005; Beesley et al., 2011; Tamplin et al., 2013; Sit et al., 2014; Thornberg et al., 2014; Fogg-Rogers et al., 2016; Morris et al., 2016; Tarrant et al., 2016; Wolff et al., 2017
	Focus group interviews	3	Beesley et al., 2011; Guerrero et al., 2014; Tarrant et al., 2016
	Observations	2	Higgins et al., 2005; Guerrero et al., 2014
	Structured interviews	1	Street et al., 2017

and barriers.” Each analytical theme was supported by its corresponding descriptive themes which are listed in **Tables 4–8**. Supporting quotations from stroke survivors, significant others, and interventionists were also retrieved to support each descriptive and analytical theme.

Functional Restoration

The theme “functional restoration” involves the following descriptive themes: “improvement in physical abilities” and “improvement in communication.” The informants stated that the process of creating arts provided opportunities for them to use their affected limbs (Beesley et al., 2011; Morris et al., 2016). Playing musical instruments was useful in physical rehabilitation, particularly with respect to fine movements such as finger movements (Guerrero et al., 2014; Street et al., 2017). Whereas dance and rhythmic movements guided by music facilitate the whole-body connection and coordination (Thornberg et al., 2014; Wolff et al., 2017). “Improvement in communication” was a common theme for studies that used singing intervention (Tamplin et al., 2013; Fogg-Rogers et al., 2016). Group setting in a visual arts-based intervention also enhanced communication ability (Morris et al., 2016).

Psychological Support

The theme “psychological support” includes the following descriptive themes: “self-expression,” “enhancement in

confidence,” “enhancement in mood,” “relaxation and distraction,” “encouragement,” “connection with oneself,” and “sense of control.” The informants felt that various art-based interventions such as music, visual arts, and literature were able to provide opportunities for self-expression (Higgins et al., 2005; Beesley et al., 2011; Guerrero et al., 2014; Sit et al., 2014; Morris et al., 2016). Different creative arts-based therapies enhanced stroke survivors’ confidence in different ways. For instance, they regained their self-confidence in communicating with others through singing intervention (Tamplin et al., 2013; Fogg-Rogers et al., 2016), increased their self-esteem by creating their own artwork and receiving positive feedback from others (Beesley et al., 2011; Morris et al., 2016), and by improving their mobility status (Guerrero et al., 2014). Their enjoyable experiences while engaging in different art forms were also frequently mentioned (Beesley et al., 2011; Tamplin et al., 2013; Guerrero et al., 2014; Sit et al., 2014; Fogg-Rogers et al., 2016; Morris et al., 2016; Street et al., 2017; Wolff et al., 2017). Participating in various art modalities activities were thus helpful in enabling relaxation and provide distraction in a tense rehabilitation environment (Higgins et al., 2005; Beesley et al., 2011; Morris et al., 2016; Tarrant et al., 2016). The informants also sensed the encouragement to move forward with different art modalities (Higgins et al., 2005; Beesley et al., 2011; Morris et al., 2016; Street et al., 2017). Different art forms stimulated different sensations, reconnecting the informants with their inner selves and their affected body parts (Higgins

TABLE 3 | Interventions' characteristics of included studies.

Studies	Art forms	Interventionists	Interventions			
			Contents	Duration	Hours	Frequencies
Beesley et al., 2011	Visual arts	Fine arts graduates; members of the community stroke team; assistants	Art groups	8 weeks	2 h	Weekly
Fogg-Rogers et al., 2016	Music	Music therapists; volunteers	Choral singing practices	6 months to 2 years	/	/
Guerrero et al., 2014	Music	Nordoff-Robbins music therapists; occupational therapists	Integrated music therapies and occupational therapies	6 weeks	45 min	Twice a week
Higgins et al., 2005	Literature	Professional actors	Individual, group reading sessions	/	Individual/group: on average 20–21 min	/
Morris et al., 2016	Visual arts	Artists	Tayside Creative Engagement Intervention ("TCEI")	8 weeks	Individual: 40 min; Group: 1.5 h	Weekly
Sit et al., 2014	Visual arts	Nurses	Leisure Art-based Creative Engagement ("LACE")	7 weeks	2.5 h	Weekly
Street et al., 2017	Music	Neurologic music therapists	Therapeutic instrumental music performance ("TIMP")	6 weeks	20–30 min	Twice a week
Tamplin et al., 2013	Music	Music therapists	Singing rehearsals	20 weeks	2 h with 30 min break	Weekly
Tarrant et al., 2016	Music	Music facilitators	Singing sessions	/	1.5 h	/
Thornberg et al., 2014	Music	Music therapists	Ronnie Gardiner Rhythm and Music Therapy ("RGRM")	10 weeks	/	Weekly
Wolff et al., 2017	Dance	Dance instructors	Dance lessons	3 years	1 h	Weekly

"/" represents unclear or not mentioned.

et al., 2005; Guerrero et al., 2014; Sit et al., 2014; Thornberg et al., 2014). The informants also mentioned regaining a sense of control that came from the opportunity to exercise a little control over the reading intervention (Higgins et al., 2005) and noticing an improvement in mobility during visual arts (Morris et al., 2016) or music-based intervention (Thornberg et al., 2014).

Social Engagement

The theme "social engagement" is comprised of the following descriptive themes, "peer support," "social interactions," and "connection with society." The informants expressed that the homogeneity of the group cultivated a common understanding, which in turn, enhanced peer support (Beesley et al., 2011; Tamplin et al., 2013; Guerrero et al., 2014; Sit et al., 2014; Tarrant et al., 2016) and provided an appropriate and safe occasion for social interactions (Higgins et al., 2005; Beesley et al., 2011; Tamplin et al., 2013; Morris et al., 2016; Tarrant et al., 2016). The informants further elaborated that individual sessions facilitated communication with interventionists and that a rapport was built so that they could talk freely about their concerns with their interventionists (Higgins et al., 2005). The informants also mentioned that they were not only encouraged to interact within the intervention sessions but were also encouraged to leave their

homes regularly, reconnect with society, and resume normal social activities (Beesley et al., 2011; Tamplin et al., 2013; Fogg-Rogers et al., 2016; Wolff et al., 2017).

Spiritual Experience

The theme "spiritual experience" involves the following descriptive themes: "hope infusion" and "maintain religious practices." The informants described that the process of creating artwork inspired them to believe that they still had hope in the world (Beesley et al., 2011; Sit et al., 2014; Morris et al., 2016). Reading religious materials further encouraged informants to restore a certain level of religious practices (Higgins et al., 2005).

Short-Comings and Barriers

Although the effect of art-based interventions seems promising, the process of creating art and appreciating the artwork of others may also bring about negative effects. The findings of the studies also captured themes on the barriers encountered. The themes included "demanding process," "struggled to use affected limbs," "triggered sad memories," "linked with disabilities," and "could not genuinely accept appreciation." One of the key barriers was that the process of creating and engaging using art may be too cognitively demanding (Beesley et al., 2011; Thornberg et al., 2014). The struggle to use their affected limbs could also

TABLE 4 | Descriptive themes under “functional restoration.”

Descriptive themes	Supporting studies	Selected supporting quotations
- Improvement in physical abilities	Guerrero et al., 2014; Thornberg et al., 2014; Fogg-Rogers et al., 2016; Morris et al., 2016; Street et al., 2017; Wolff et al., 2017	<p><u>Music</u></p> <p>- [SS] “I can put my arm in a position which is easier for me to get dressed.” “I feel like my fingers have become more active, especially my thumb, the opening and closing of my thumb has definitely improved” (Street et al., 2017) (Q)</p> <p><u>Visual arts</u></p> <p>- [I] “I think when they are involved in doing something like painting, they are so involved in the creative process that they don’t realize that maybe they are doing physical things, using their arms and thinking as well. I guess doing art helps their skills, with using their limbs, their hands and their sight, but they don’t really think of it in that sense” (Morris et al., 2016) (NQ)</p> <p><u>Dance</u></p> <p>- [SS] “Leg, arm, foot [...] and better speaking [...] the exercises helped me a lot. [...] sweeping, dusting, fixing the bed” (Wolff et al., 2017) (NQ)</p>
- Improvement in communication	Higgins et al., 2005; Tamplin et al., 2013; Fogg-Rogers et al., 2016; Morris et al., 2016; Wolff et al., 2017	<p><u>Music</u></p> <p>- [SO] “I think his speech is a little bit better than what it was. I mean he was always good, but he seems to have got clearer in his speech” (Tamplin et al., 2013) (Q)</p> <p><u>Visual arts</u></p> <p>- [SS] “One of the nurses says, before you came here, you couldn’t say a word... you came in here and I asked you questions and you just pointed at things. But, however, after doing art you came out talking” (Morris et al., 2016) (NQ)</p>

[SS] Stroke survivor; [SO] Significant other; [I] Interventionist; (Q) Intervention led by qualified therapist; (NQ) Intervention led by other professionals.

be challenging and frustrating (Beesley et al., 2011). Reading through literature also sometimes brought back sad memories from the past (Higgins et al., 2005). Some informants also reported that they felt embarrassed when others praised their artwork as they themselves believed that it was terrible (Morris et al., 2016).

DISCUSSION

This review systematically reviewed qualitative studies and mixed-method studies of creative arts-based therapies with stroke survivors. Based on the literature search, 11 studies matched the inclusion criteria and were reviewed in detail. The major objective of this review was to organize the positive and negative experiences the stroke survivors had when they joined the creative arts-based therapies.

Regarding positive experiences, the reviewed studies provided promising findings that creative arts-based therapies brought about a certain degree of physical, psychological, social, and spiritual benefits. These interventions demonstrated their specialties and strengths in taking care of the stroke survivors’ psychological issues such as boosting their self-confidence, providing motivation, and creating enjoyment for them. Furthermore, interventionists and stroke survivors’ significant others also reported similar benefits from their observations and perspectives. Thus, service providers may consider using creative arts-based therapies in conjunction with existing rehabilitation programs for stroke survivors to help them recover not only physically but also psychologically and spiritually.

Regarding the types of arts used in the reviewed studies, around half of the studies applied music-based interventions (Tamplin et al., 2013; Guerrero et al., 2014; Thornberg et al., 2014; Fogg-Rogers et al., 2016; Tarrant et al., 2016; Street et al., 2017). Other studies applied visual arts (Beesley et al., 2011; Sit et al., 2014; Morris et al., 2016), dance (Wolff et al., 2017), and reading (Higgins et al., 2005). No studies were found to apply drama-based intervention though. Furthermore, each art form appears to have its own strengths and uniqueness in bringing about certain types of perceived benefits and experiences of the stroke survivors. For example, music and singing were reportedly very effective in helping stroke survivors regain their communication abilities (Tamplin et al., 2013; Fogg-Rogers et al., 2016); rhythmic movement guided by music and dance activities worked well for training mobility for the whole body (Thornberg et al., 2014; Wolff et al., 2017); playing musical instruments (Guerrero et al., 2014; Street et al., 2017) and creating artwork (Beesley et al., 2011; Morris et al., 2016) were able to challenge stroke survivors to use their affected limbs. Besides, visual arts-based interventions were perceived as more likely to infuse hope and faith among stroke survivors (Sit et al., 2014; Morris et al., 2016). Thus, this evidence suggested that different forms of creative arts-based interventions would be able to bring about different positive experiences on stroke survivors. Future arts-related interventions for stroke survivors may include single art form or a combination of different art modalities based on the needs and expectations of the stroke survivors.

Over the past decade, expressive arts-based therapy that uses multiple art modalities during the intervention process has been receiving increasing attention. Application of different art forms

TABLE 5 | Descriptive themes under “psychological support.”

Descriptive themes	Supporting studies	Selected supporting quotations
- Self-expression	Higgins et al., 2005; Beesley et al., 2011; Guerrero et al., 2014; Sit et al., 2014; Morris et al., 2016	<p><u>Visual arts</u></p> <p>- [SS] “I enjoyed it [group project], I did find it challenging because you put so much of yourself into it. Yeah” (Beesley et al., 2011) (NQ)</p> <p><u>Literature</u></p> <p>- [SS] “I can cry at those stories and they’re not even real, yet I can’t cry at my own situation. But in a strange way I am glad, and I feel better afterwards” (Higgins et al., 2005) (NQ)</p>
- Enhancement in confidence	Beesley et al., 2011; Tamplin et al., 2013; Sit et al., 2014; Fogg-Rogers et al., 2016; Morris et al., 2016	<p><u>Music</u></p> <p>- [SS] “(The choir helps me) to regain my confidence to face people again” (Tamplin et al., 2013) (Q)</p> <p><u>Visual arts</u></p> <p>- [SS] “I realized I had underestimated my ability. I always thought I could no longer perform many things. But, it was not the case. The stroke may have affected some aspects of my ability. Hence, I am not doing as efficiently as before. However, this does not mean that I cannot perform as well as before. I am proud of my artwork and of myself” (Sit et al., 2014) (NQ)</p> <p>- [I] “People often say “Oh that’s brilliant, that’s amazing, I didn’t know you could do that” and that again increases their self-esteem because they hear that coming from the artist or the staff and not from their own family, so that is a great confidence booster” (Morris et al., 2016) (NQ)</p>
- Enhancement in mood	Beesley et al., 2011; Tamplin et al., 2013; Guerrero et al., 2014; Sit et al., 2014; Fogg-Rogers et al., 2016; Morris et al., 2016; Street et al., 2017; Wolff et al., 2017	<p><u>Music</u></p> <p>- [SO] “They’re all so happy when they are here. Nigel is basically a very placid person, so in that respect I’m very fortunate. He just seems to be so happy to go, when I usually say “yes we are going to the choir” he is happy (Tamplin et al., 2013) (Q)</p> <p><u>Visual arts</u></p> <p>- [SS] “It is not simply having fun. The way I concentrated in doing the artwork, putting thoughts into action, and creating and visualizing my own art piece gave me an opportunity to experience a deep sense of enjoyment that I have missed for a long time since the stroke” (Sit et al., 2014) (NQ)</p> <p><u>Dance</u></p> <p>- [SS] “Of course... yes it is... for the better, right? [...] I feel happier” (Wolff et al., 2017) (NQ)</p>
- Relaxation and distraction	Higgins et al., 2005; Beesley et al., 2011; Morris et al., 2016; Tarrant et al., 2016	<p><u>Visual arts</u></p> <p>- [SS] “It was good to go there and relax and forget all about it [the struggles]” (Beesley et al., 2011) (NQ)</p> <p><u>Literature</u></p> <p>- [SS] “There’s nothing to do except sit there...this panicky feeling would well up and I couldn’t believe it was me there. So it was a relief to have the story sessions ‘cos you would just forget for a bit and get caught up with the storyline” (Higgins et al., 2005) (NQ)</p>
- Encouragement	Higgins et al., 2005; Beesley et al., 2011; Morris et al., 2016; Street et al., 2017	<p><u>Music</u></p> <p>- [SS] “Very encouraging, good, satisfying” (Street et al., 2017) (Q)</p> <p><u>Visual arts</u></p> <p>- [SS] “It’s helpful to see what other people deal with...because sometimes you feel like you are finished, but you’re not” (Beesley et al., 2011) (NQ)</p>
- Connection with oneself	Higgins et al., 2005; Guerrero et al., 2014; Sit et al., 2014; Thornberg et al., 2014	<p><u>Music</u></p> <p>- [SS] “I’ve gained a feeling in my body” (Thornberg et al., 2014) (Q)</p> <p><u>Visual arts</u></p> <p>- [SS] “I can visualize the two sides of my body reconnecting in my drawing. After the stroke, this was the first time that I could sense the wholeness of my body” (Sit et al., 2014) (NQ)</p> <p><u>Literature</u></p> <p>- [SS] “I thought my life was over, you know. I would be somebody else now when I met folks. But I did feel like myself, I’m still from Lambeth, same as Mary (another patient)... I remembered all the same shops (mentioned in the story) as she did. It made me think well I’m still here somewhere after all!” (Higgins et al., 2005) (NQ)</p>

(Continued)

TABLE 5 | Continued

Descriptive themes	Supporting studies	Selected supporting quotations
- Sense of control	Higgins et al., 2005; Thornberg et al., 2014; Morris et al., 2016	<p><u>Music</u></p> <p>- [SS] “I couldn’t sit straight at all to start with, I had terrible vertigo all the time and because of that the... therapy was perfect” (Thornberg et al., 2014) (Q)</p> <p><u>Visual arts</u></p> <p>- [SS] “I was really surprised that I was able to do it so well, especially with my left hand. Because it took a while just to learn the right way to hold a pencil. Well my first thought was, thank God I could do something with my left hand, because I’m not left handed, I’m right handed” (Morris et al., 2016) (NQ)</p>

[SS] Stroke survivor; [SO] Significant other; [I] Interventionist; (Q) Intervention led by qualified therapist; (NQ) Intervention led by other professionals.

TABLE 6 | Descriptive themes under “social engagement.”

Descriptive themes	Supporting studies	Selected supporting quotations
- Peer support	Beesley et al., 2011; Tamplin et al., 2013; Guerrero et al., 2014; Sit et al., 2014; Tarrant et al., 2016	<p><u>Music</u></p> <p>- [SS] “It was comforting and encouraging to be with people who are going through the same thing...and to be working on some-thing together” (Guerrero et al., 2014) (Q)</p> <p><u>Visual arts</u></p> <p>- [SS] “I sat next to Mary. Her left hand was disabled and mine’s on the right so we could help each other. I hold the file pen with my left hand and she opened its cap with her right hand. We are good working partners. They (other participants) said we are twins” (Sit et al., 2014) (NQ)</p>
- Social interactions	Higgins et al., 2005; Beesley et al., 2011; Tamplin et al., 2013; Morris et al., 2016; Tarrant et al., 2016;	<p><u>Visual arts</u></p> <p>- [SS] “I was at a stage where I didn’t want to go out anywhere... Because of all the obstacles of a disabled person, I just wasn’t adapting very well... I just stayed at home and didn’t go anywhere, so this group has allowed me to find the courage to get out and socialize, yeah” (Beesley et al., 2011) (NQ)</p>
- Connection with society	Beesley et al., 2011; Tamplin et al., 2013; Fogg-Rogers et al., 2016; Wolff et al., 2017	<p><u>Music</u></p> <p>- [SO] “Anything that takes them [people with stroke] out of their comfort zone is a really good thing. Anything, like the choir. I can just think of so many people who should’ve been going to that choir, but they probably wouldn’t leave the house” (Fogg-Rogers et al., 2016) (Q)</p> <p><u>Dance</u></p> <p>- [SS] “Yeah, birthday, weekend barbeque [...] And when I go out I talk a lot on the streets, I even talk too much...” (Wolff et al., 2017) (NQ)</p>

[SS] Stroke survivor; [SO] Significant other; [I] Interventionist; (Q) Intervention led by qualified therapist; (NQ) Intervention led by other professionals.

offers greater freedom and flexibility. The therapists can use different art modalities based on the participants’ reactions, group dynamics, topics, and themes. Baumann et al. (2013) conducted a study to evaluate the effectiveness of a person-centered arts program for hospital-based stroke survivors. Their intervention involved visual arts, literature, music, and dance and movement. The stroke survivors appreciated the personalization of the intervention. It also helped cultivate the meaning and articulation between the art processes and themselves, which may further facilitate the development of new perspectives and insights. Kongkasuwan et al. (2016) conducted a randomized controlled trial to evaluate the effectiveness of creative arts therapy on more than 100 stroke survivors. The therapeutic program also involved diverse art modalities such as music and visual arts. This study showed that survivors participating in creative arts therapy in addition to conventional

physiotherapy experienced lower depression levels, an enhanced quality of life, and an improvement in physical functions compared with survivors who had participated in physiotherapy alone.

Regarding short-comings and barriers, the stroke survivors felt that the experiences could sometimes be demanding and challenging. Similar to conventional physiotherapies, arts-based interventions can also cause physical fatigue. Visual arts activities require the coordination of fine movements for drawing (Beesley et al., 2011) and rhythmic movement activities involve body coordination and activation (Thornberg et al., 2014). Similar to cognitive training in occupational therapies, visual arts activities can also be cognitively demanding (Beesley et al., 2011). The process of creating artwork needs a certain level of mental energy, and rhythmic movement activities require memorizing several steps or movements (Thornberg et al., 2014). Although

TABLE 7 | Descriptive themes under “spiritual experience.”

Descriptive themes	Supporting studies	Selected supporting quotations
- Hope infusion	Beesley et al., 2011; Sit et al., 2014; Morris et al., 2016	<u>Visual arts</u> - [SS] “Yeah... it does, sort of inspire me at home. Unfortunately for me I see myself at a level that I was at when I was in uni... I’m not even close anymore. So it [the art group] has given me a sort of a track to try and get there... It has opened that door for me to go on” (Beesley et al., 2011) (NQ) - [SS] “It makes you feel good talking, makes you realize you’re not alone in this and there is still hope for something better” (Morris et al., 2016) (NQ)
- Maintain religious practices	Higgins et al., 2005	No quotations

[SS] Stroke survivor; [SO] Significant other; [I] Interventionist; (Q) Intervention led by qualified therapist; (NQ) Intervention led by other professionals.

TABLE 8 | Descriptive themes under “short-comings and barriers.”

Descriptive themes	Supporting studies	Selected supporting quotations
- Demanding process	Beesley et al., 2011	<u>Music</u> - [SS] “... terribly confusing but that is really what it is about... you must try no matter how it works” (Thornberg et al., 2014) (Q) <u>Visual arts</u> - [SS] “I didn’t get the concept of what it was about... it was the fact that I thought I hadn’t grasped the concept, so it was more ‘mind ability’ to grasp things” (Beesley et al., 2011) (NQ)
- Struggled to use affected limbs	Beesley et al., 2011	<u>Visual arts</u> - [SS] “You know I mean I didn’t use my right hand much during the course that I just did but I did use my right hand a little bit sometimes... I am trying to use it a little bit” (Beesley et al., 2011) (NQ)
- Triggered sad memories	Higgins et al., 2005	No quotations
- Linked with disabilities	(Higgins et al., 2005)	<u>Literature</u> - [SS] “It’s bad enough being stuck like this without being made to feel like an idiot as well. I can read you know” (Higgins et al., 2005) (NQ)
- Could not genuinely accept appreciation	Morris et al., 2016	<u>Visual arts</u> - [SS] “Well, they were kind, but everyone could see that it was a failure. I was really ashamed. Ashamed of my low level of achievement but also of my low persistence rate” (Morris et al., 2016) (NQ)

[SS] Stroke survivor; [SO] Significant other; [I] Interventionist; (Q) Intervention led by qualified therapist; (NQ) Intervention led by other professionals.

the application of art forms was joyful and playful, some stroke survivors still pointed out that the intervention triggered unpleasant or sad memories (Higgins et al., 2005). Therefore, creative arts-based therapies, which are also recognized as a type of psychotherapy, are likely to trigger undesirable thoughts during the process. However, these feelings should be considered as reasonable and a part of the therapeutic process. Nevertheless, the fundamental focus should be placed on how different art modalities can help participants develop insights and skills to cope with their challenges. In some studies, the stroke survivors also commented on feeling confused and unfamiliar with the process at the beginning of the interventions (Beesley et al., 2011; Thornberg et al., 2014), which may have caused some survivors to drop out (Beesley et al., 2011). At the same time, when they persisted until the end, they were able to gain desirable effects from the intervention (Thornberg et al., 2014). It is understandable that not all stroke survivors are able to express

themselves through different art forms or be able to articulate the art-making process, perhaps more time for exploration and guidance may be required from the therapists in that respect. It is also recommended that flexibility is allowed in the intervention sessions for the encouragement of diverse participation (Tarrant et al., 2016).

STRENGTHS AND LIMITATIONS

Although different studies regarding creative arts-based therapies on stroke survivors have been conducted, there remains a lack of common consensus as to which art form can bring about the best results. Different art modalities may benefit different participants in different ways. This qualitative systematic review synthesizes different findings and takes the first step to create an overview on which art media are more useful in achieving certain objectives and experiences in the stroke survivors. The findings suggest

that the flexibility of applying different art modalities and the sensitivity of the therapists are vital, and the integrated use of multiple art modalities may also have the special advantage of offering this flexibility.

Nonetheless, there are several limitations to this qualitative systematic review. First, among the included studies, not all the therapies or interventions were led by qualified creative arts therapists. While most music-based interventions were led by qualified music therapists, such as Nordoff-Robbins music therapists and Neurological music therapists, other creative arts-based interventions were led by other professional staff such as nurses and instructors. It should also be noted that it remains unclear as to how the qualification of the interventionists affects participants' perceived experiences in the interventions. Second, this review focuses on the experiences of creative arts-based therapies. As qualitative and mix-method studies were more suited to provide this information, quantitative studies were nevertheless excluded from this review. Third, as nearly half of the studies applied music-based interventions, results from other arts-based interventions may have been under-reported. Fourth, not all themes had corresponding quotations as some studies did not provide quotations for every single theme, especially those that adopted mix-method design. These studies conducted different interviews with the stroke survivors, but the results were not described in as much detail as those in the qualitative studies; hence, the supporting quotations of some specific themes were not reported. Last, the literature search was conducted only on the English written literature. The authors believe that other studies should have been conducted in some areas in which English was not the language used for writing the research reports.

FURTHER STUDIES

This systematic review included both studies on interventions led by qualified creative arts therapists and by other professionals, the findings are nonetheless not sufficient enough to present the differences in the stroke survivors' perceived experiences between interventions led by qualified interventionists and those led by other professionals. Further studies are required to investigate into this issue, as more and more professionals other than creative arts therapists have started to adopt arts-related interventions to assist the stroke survivors. Apart from that, more empirical findings are needed for creative arts-based therapies, particularly for interventions that adopt multiple art modalities. Further

studies may focus on the effectiveness of these interventions on stroke survivors or on other population groups. Other studies may also compare the effectiveness and the participants' experiences between different single art modality interventions and intervention using multiple art modalities.

CONCLUSION

Based on the experiences of the stroke survivors, creative arts-based therapies which focus more on psychosocial and spiritual development, demonstrate the potential to supplement existing stroke rehabilitation programs that primarily solely focus on functional recovery. Such comprehensive rehabilitation may provide holistic care and better post-stroke quality of life for the stroke survivors. Different art modalities are perceived to be useful in achieving different therapeutic goals. Interventions that offer opportunities for the participants to experience different art modalities during the process may foster participation and enhance flexibility. Therefore, further research is needed to demonstrate the differential benefits or special advantages in using single or multiple art modalities as well as having qualified therapists in creative arts-based therapies.

AUTHOR CONTRIBUTIONS

TL conceptualized the review, conducted the searches, data selection, data extraction, and quality assessments. JL cross-validated the data selection and data extraction and conducted the quality assessments independently. RH revised the manuscript and supervised the entire review. All authors have contributed toward revising the manuscript and have read and approved the submitted version.

FUNDING

This work was supported by the General Research Fund, Research Grants Council of Hong Kong (GRF/HKU/17609417, to TL and RH).

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01646/full#supplementary-material>

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Corrigendum: Creative Arts-Based Therapies for Stroke Survivors: A Qualitative Systematic Review

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OPEN ACCESS

Approved by:
Frontiers Editorial Office,
Frontiers Media SA, Switzerland

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Specialty section:
This article was submitted to
Psychology for Clinical Settings,
a section of the journal
Frontiers in Psychology

Received: 17 June 2019

Accepted: 18 June 2019

Published: 02 July 2019

Citation:
Lo TLT, Lee JLC and Ho RTH (2019)
Corrigendum: Creative Arts-Based
Therapies for Stroke Survivors: A
Qualitative Systematic Review.
Front. Psychol. 10:1538.
doi: 10.3389/fpsyg.2019.01538

Keywords: creative arts-based therapies, expressive arts therapy, qualitative systematic review, rehabilitation, stroke

A Corrigendum on

Creative Arts-Based Therapies for Stroke Survivors: A Qualitative Systematic Review
by Lo, T. L. T., Lee, J. L. C., and Ho, R. T. H. (2018). *Front. Psychol.* 9:1646.
doi: 10.3389/fpsyg.2018.01646

In the original article, we neglected to include the funder Research Grants Council of Hong Kong, General Research Fund (GRF/HKU/17609417), to Temmy Lee Ting Lo and Rainbow Tin Hung Ho.

Due to this omission, the following Funding statement will be added to the original article:

This work was supported by the General Research Fund, Research Grants Council of Hong Kong (GRF/HKU/17609417, to TL and RH).

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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How Do We Recognize Emotion From Movement? Specific Motor Components Contribute to the Recognition of Each Emotion

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OPEN ACCESS

Edited by:

Changiz Mohiyeddini,
Northeastern University, United States

Reviewed by:

Martijn Goudbeek,
Tilburg University, Netherlands
Alice Chirico,
Catholic University of the Sacred
Heart, Italy

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Specialty section:

This article was submitted to
Psychology for Clinical Settings,
a section of the journal
Frontiers in Psychology

Received: 30 April 2018

Accepted: 28 May 2019

Published: 03 July 2019

Citation:

Melzer A, Shafir T and Tsachor RP
(2019) How Do We Recognize
Emotion From Movement? Specific
Motor Components Contribute to the
Recognition of Each Emotion.
Front. Psychol. 10:1389.
doi: 10.3389/fpsyg.2019.01389

Are there movement features that are recognized as expressing each basic emotion by most people, and what are they? In our previous study we identified sets of Laban movement components that, when moved, elicited the basic emotions of anger, sadness, fear, and happiness. Our current study aimed to investigate if movements composed from those sets would be recognized as expressing those emotions, regardless of any instruction to the mover to portray emotion. Our stimuli included 113 video-clips of five Certified Laban Movement Analysts (CMAs) moving combinations of two to four movement components from each set associated with only one emotion: happiness, sadness, fear, or anger. Each three second clip showed one CMA moving a single combination. The CMAs moved only the combination's required components. Sixty-two physically and mentally healthy men ($n = 31$) and women ($n = 31$), ages 19–48, watched the clips and rated the perceived emotion and its intensity. To confirm participants' ability to recognize emotions from movement and to compare our stimuli to existing validated emotional expression stimuli, participants rated 50 additional clips of bodily motor expressions of these same emotions validated by Atkinson et al. (2004). Results showed that for both stimuli types, all emotions were recognized far above chance level. Comparing recognition accuracy of the two clip types revealed better recognition of anger, fear, and neutral emotion from Atkinson's clips of actors expressing emotions, and similar levels of recognition accuracy for happiness and sadness. Further analysis was performed to determine the contribution of specific movement components to the recognition of the studied emotions. Our results indicated that these specific Laban motor components not only enhance feeling the associated emotions when moved, but also contribute to recognition of the associated emotions when being observed, even when the mover was not instructed to portray emotion, indicating that the presence of these movement components alone is sufficient for emotion recognition. This research-based knowledge regarding the relationship between Laban motor components and bodily emotional expressions can be used by dance-movement and drama therapists

for better understanding of clients' emotional movements, for creating appropriate interventions, and for enhancing communication with other practitioners regarding bodily emotional expression.

Keywords: emotion recognition, Laban movement analysis, motor, emotion, movement, bodily emotional expressions, dance-movement therapy

INTRODUCTION

In this study, we aimed to investigate emotion recognition from movement using the framework and language of Laban Movement Analysis (LMA). Pioneering empirical studies in the field of emotion recognition showed an association between specific facial expressions and emotions. Ekman (1982) described six biologically based emotional facial expressions, with which we are born and spontaneously understand in others, regardless of our cultural background. Continuing the idea of existing associations between facial expressions and emotions, it was argued that emotions are recognized not only from facial expressions, but also from whole body expressions and movements even in the absence of a facial expression, and that these associations should be studied as well (de Gelder, 2009, p. 3475–3484). Indeed, many studies have shown that participants successfully identified emotions from watching other people's bodily movements (without seeing facial expressions) far above what is expected by chance (De Meijer, 1989, p. 247–268; Wallbott, 1998, p. 879–896; Montepare et al., 1999, p. 133–152; Atkinson et al., 2004, p. 717–746; Crane and Gross, 2007, p. 95–101; Crane and Gross, 2013, p. 91–105). Moreover, Aviezer et al. (2012, p. 1225–1229) asked participants to rate the valence (positive or negative) and the intensity of the expressions of high-level tennis players at losing or winning situations. They chose these situations, because such situations tend to evoke strong affective responses. Their participants were asked to watch one of the three options: facial expressions alone, bodily expressions alone, or facial and bodily expressions together. As they predicted, participants failed to correctly rate “winning faces” as more positive and “losing faces” as more negative when they saw faces alone, but succeeded when they watched the body and face or only bodily expressions. Their results indicated that during peak emotional situations, facial expressions of negative and positive valence may overlap, and when this occurs, people use bodily expressions to infer the valence of the expressed emotion.

The associations between certain movements and specific emotions were also demonstrated in studies which found that having specific feelings elicited specific body movement patterns (Sawada et al., 2003, p. 697–708; Crane and Gross, 2007, p. 95–101; Michalak et al., 2009, p. 580–587; Roether et al., 2009, p. 15; Dael et al., 2012b, p. 1085; Crane and Gross, 2013, p. 91–105). For instance, Crane and Gross (2007, p. 95–101) elicited one of four feelings (angry, sad, content, and joy) in participants and then filmed them walking in a self-selected pace. They found that body movements were affected by the different emotions.

Looking at emotionally expressive movement from yet another perspective, some studies have found that body

movements and postures elicit feelings and emotion-related behaviors (e.g., Strack et al., 1988, p. 768; Duclos and Laird, 2001, p. 27–56; Winters, 2008, p. 84–105; Carney et al., 2010, p. 1363–1368; Shafir et al., 2013, p. 219–227). Shafir et al. (2013, p. 219–227) investigated the effect of imagining and looking at others' emotional movement, and motor execution of emotion-related movements on mood, and found that executing body movements evoked their associated feelings. Imagining and looking at others' emotional bodily motor expressions also evoked the associated emotions in participants, but to a lesser degree. Carney et al. (2010, p. 1363–1368) investigated the influence of body postures on emotion. They asked participants to stay in either open/expansive “powerful” postures or closed, “weak/submissive” postures for 2 min. They found that participants who were positioned in the power poses not only felt more powerful and tended to take more risks, but also had higher testosterone levels and lower cortisol levels, while those positioned in the submissive postures tended to take less risks and had higher cortisol levels. Although a following study did not succeed to replicate the hormones related results (Ranehill et al., 2015, p. 653–656) and as a result some researchers questioned the effects of posture and movement on emotions (Simmons and Simonsohn, 2017, p. 687–693), a recent comprehensive review by Cuddy et al. (2018, p. 656–666) which analyzed this effect in 55 studies using a *p*-curve analysis, concluded that “Our *p*-curve analysis of emotion- and affect-related outcomes yielded robust evidence that postural feedback influence self-reported affective state” (Cuddy et al., 2018, p. 656–666).

Although many studies have looked at the different associations between emotion and movement (i.e., emotional expression through movement, emotion recognition from motor emotional expressions and emotion elicitation using movement), different studies used different movement analysis methods to describe those associations, causing a lack of a common base upon which it is convenient to compare results from different studies. A couple of researchers chose to overcome this difficulty by creating a systematic movement analysis method: (Dael et al., 2012a, p. 97–121) investigated emotional movement through the Body Action and Posture coding system which they created, and (Huis in 't Veld and Van Boxtel, 2014a; Huis in 't Veld and Van Boxtel, 2014b, p. 249–264; p. 1–13) created the Body Action Coding System which looks at muscle activation patterns during the perception and expression of different emotions. However, in this study, we chose to continue our previous work (Shafir et al., 2016, p. 2030), and therefore used Laban Movement Analysis (LMA), which is an existing comprehensive movement analysis system. Our decision to use LMA derived from LMA's advantages as a tool for describing and analyzing movement. First, it has the benefit of being a single descriptive language that can be used for

both research and therapy, as well as its usefulness as a cross-cultural and cross-disciplinary movement language: LMA is a well-established internationally recognized system for describing and understanding body movements (Amighi, 1999), which has been widely used by researchers from different fields such as animation (Chi et al., 2000, p. 173–182), robotics (Lourens et al., 2010, p. 1256–1265; Masuda et al., 2010, p. 372–380), affective computing and motion capture (Bernstein et al., 2015a,b, p. 1394–1398; p. 37–44), as well as by Dance Movement Therapists for describing and assessing their patient's emotional movement, for planning interventions and for discussing movement with clients (Tortora, 2011, p. 242–254). Second, the use of LMA in diverse research studies points to its comprehensiveness as a motor analysis method (for a more detailed review about the use of LMA in recent research see Shafir et al., 2016). Third, LMA's capacity for detailed notation of movement through symbols (called Motif writing) enables the study of an unlimited number of movements containing specific motor components, instead of using a limited number of pre-determined specific motor sequences. Fourth, using Motifs enables the study of clean movement data, uncontaminated by co-occurring movement components that might be unintentionally introduced through live or video demonstration. Lastly, several researchers who studied emotional movement were influenced by LMA, or investigated very similar characteristics to Laban's movement components (De Meijer, 1989, p. 247–268; Sawada et al., 2003, p. 697–708; Winters, 2008, p. 84–105), and others specifically used Laban terms as part of their research (Crane and Gross, 2013, p. 91–105; Shafir et al., 2016). Moreover, (Gross et al., 2012) found that using LMA enabled identification of more differences between emotions than using kinematic analysis.

LMA describes movement through four main movement categories: Body, Space, Shape and Effort. The Body category describes “what is moving,” e.g., which body parts are moving, and the coordination of these parts as well as basic actions such as walking or jumping. The Space category describes “where the body moves,” such as the direction of a movement (up or down, forward or backward or sideways or across), the planes the movement occurs in, as well as use of personal Kinesphere (Kinesphere is the sphere of space around the body in which our movement occurs, the space that we can access with our limbs without taking a step to a new place), paths in the general space, and more. The Shape category refers to changes in the shape of the body itself, as we move in relation to the surroundings, to others and to our needs. We observe Shape when we note such things as whether the body encloses or spreads, rises or sinks. The last movement category is Effort. Effort reflects the mover's inner attitude toward the movement. Effort can be manifested in four different Factors: Weight, Space, Time, and Flow, each spanning two poles. Weight-Effort spans between the poles of *Strong* and *Light* and refers to the amount of force invested in the movement. When giving in to gravity's pull without activation of Weight-Effort, the movement can be classified as Heavy/Passive-Weight or limp. Space-Effort ranges between *Direct* and *Indirect* and refers to the attitude toward the movement's direction. Time spans from *Sudden* to *Sustain*, and refers to the acceleration and deceleration of movement. Flow

expresses the mover's attitude toward controlling the progression of movement, from a higher control–*Binding* to little control or moving with abandon–*Freeing* (Studd and Cox, 2013).

Using the knowledge that execution, imagination, and observation of emotional movements can enhance affect (Shafir et al., 2013, p. 219–227), Shafir et al. (2016) took this one step further and used LMA to identify which aspects of movement might be responsible for enhancing the specific emotions of happiness, sadness, fear, and anger. They coded validated (Atkinson et al., 2004, p. 717–746) video-clips of whole body emotional expressions to examine which Laban motor components appeared in those clips, and then asked LMA experts to move different combinations of those motor components and to note which emotion was enhanced by moving each combination [for further explanation about the methods used in that study see also (Tsachor and Shafir, 2019, p. 572)]. Statistical analysis of these data yielded the following results: Happiness was enhanced by the Laban motor components of: Jumping, Rhythmic (reinitiating) movements, Spreading, Free-Flow, Lightness, moving Up, and Rising. Sadness was enhanced by the Laban components: Passive-Weight, Arms touching the upper body, Sinking and dropping the head. The main Laban movement components enhancing fear were Retreating, Condensing, Bind-Flow, moving Backwards, and Enclosing. Anger was enhanced by the Laban components: Strong-Weight, Sudden-Time, Advancing, and Direct movements. Interestingly, their study's findings pinpoint components noted in most of the existing literature regarding the connection between specific movements and emotions, when “translating” those specific movements into Laban terms.

In this study we aimed to investigate whether those LMA components (found to elicit a certain emotion when moved) will also be recognized by observers as expressing that emotion, regardless of the mover's emotional intent when moving. This study tests the strength of- and expands the associations between Laban motor components and specific emotions found in Shafir et al. (2016), and aims to refine our understanding of how we perceive emotion from whole body movement. We hypothesized that the same motor components which elicited certain emotions when included in a movement, will cause that movement to be recognized as expressing that same specific, associated emotion, even when the mover does not intend to express an emotion.

A unique aspect of our research design should be noted: In all previous studies of emotion recognition from bodily expressions, the stimuli were video clips of movers who intended to express a certain emotion through whole body movement. In this study, movers in the stimuli were not asked to express emotion, but rather instructed to move with specific motor characteristics. Therefore, “emotion attribution” is the most accurate term for what participants perceived and named when observing movement clips in this study (as opposed to “emotion recognition”), because one cannot recognize an emotion which was not expressed. Nevertheless, since our basic assumption is that both “recognition” and “attribution” are based on the same internal association between a certain set of movement characteristics and a specific emotion, and because it is this internal association that we investigate and try to characterize in

this study, we decided to use in this paper the term “emotion recognition” and not “emotion attribution,” in order not to confuse the reader with a new term.

MATERIALS AND METHODS

Participants

Sixty-two healthy males ($n = 31$) and females ($n = 31$), age 19–48 years old (Mean = 32.5, $SD = 8.8$) participated in the study. Participants were from diverse personal, ethnic backgrounds: 75.8% of the participants were identified ethnically as Jewish, 6.5% as Muslim, 6.5% as Druze, 4.8% as Christian and 6.5% defined themselves as having other religion. Exclusion criteria were: chronic or psychiatric illnesses, any movement disability, and taking psychiatric medication. All participants joined voluntarily and signed a written informed consent. The study was approved by the ethical committee of the Faculty of Social Welfare and Health Sciences, University of Haifa.

Stimuli

For each set of LMA components found by Shafir et al. (2016) to elicit a specific emotion when moved, we created video stimuli based upon all possible combinations of two, three, and four components from that set. Overall, 59 combinations were created and recorded: 11 for each of the emotions: sadness, anger and fear (which had four components in each set), 20 for happiness (which had six components in its set) and six for neutral (i.e., no specific emotion). Anger combinations were composed of the components: Strong, Sudden, Advance, and Direct. Sadness from the components: Passive-Weight, Arms-to-upper-body, Sink, and Head-drop. Fear combinations were composed of: Retreat, Bind, Condense and Enclose, and Twist and Back. Happiness combinations included: Jump, Rhythmicity, Spread, Free and Light, Up and Rise, and Rotation. Although Shafir et al. (2016) did not find rotation as a component enhancing happiness, this component was added following the results of an additional emotional-movements study of ours. The neutral combinations were composed of LMA components that were not associated with any of the other emotions, such as Indirect Space Effort or Sustained Time Effort. When creating the fear and happiness combinations, some motor components were combined together due to their resemblance, or because they often appear together, to reduce the number of possible combinations for each emotion. These were: “Condense and Enclose” and “Twist and Back” for fear, and “Free and Light” and “Up and Rise” for happiness. More combinations were created for happiness because happiness had more associated LMA components.

Five Certified Laban Movement Analysts (CMAs) were filmed performing short improvised (unscripted) movement sequences for each combination, composed of all the components included in that combination, and only those components. The CMAs were instructed to move those components in any way they chose to move, and emotional expression was not mentioned at all.

In order to verify that the components in the clips are the intended ones, and because it is very difficult to produce movements composed of only a few specific movement components, we asked four other CMAs to observe the videos,

tag all dominant components and trim the video-clips into 3 s clips showing movements comprised predominately by the required components. To assure the reliability of the tagging and trimming clips procedure, we asked these four tagging CMAs (who were different people from those who moved the combinations of motor components) to separately tag a set of 20 clips (four for each of the emotions: anger, sadness, and fear, six for happiness and two neutral). Coders were asked to write which of the target components they recognized to be dominant in the clip and whether there were other dominant components, which were not meant to be analyzed. Fleiss (1971, p. 378) category-wise Kappa was computed as an index of inter-rater agreement between these four raters on categorical data, using the “irr” package of the R Foundation for Statistical Computing version (3.0.1). Results indicated very high inter-rater agreement reliability ($kappa = 0.676$, $z = 56.3$, $p < 0.001$), which allowed them to each code and cut part of the 113 clips independently from one another.

During the tagging procedure, in the case of the combined components (in happiness and fear), the pairs were considered present whenever one of the paired components or both were present in the movement. Out of the five clips produced for each components-combination (by five CMAs, one clip each), we extracted two in which (1) All intended LMA components predominated movement in the clip and (2) No unintended meaningful components were added (i.e., the movement did not include any component that was found by Shafir et al. (2016) to be associated with a different emotion). Although we aimed to select two clips for each combination, for one sadness combination, one fear combination and one happiness combination, only one clip met the criteria, and for one neutral combination we could not find any clip to withstand the criteria. This happened because three combinations generated by theoretical methodological considerations (to investigate *every* possible combination of all components) were in fact very difficult to perform motorically. For example: one theoretical sadness combination was composed of the components Arms to upper body and Sink. Most movers could not isolate only those two elements; some movers crossed arms in front of their upper body and went spatially down, legs bending, without sinking. Others succeeded in sinking, but to do so, they ended up adding in Passive Weight or a drop of the head. Thus, we ended up using 113 clips in this study: 22 for anger, 21 for each sadness and fear, 39 for happiness, and 10 for neutral. We then blurred the faces of the movers in all chosen clips to ensure that the emotion recognized in those clips was based only on bodily movement cues and not facial ones, and asked the participants to observe those clips and rate (forced choice) which emotion is expressed in each clip (see **Figure 1**).

Participants were asked to observe and rate the recognized emotion from 50 additional clips of bodily emotional expressions (10 for each of the emotions: sadness, happiness, anger, fear, and neutral emotion) from the validated set of Atkinson et al. (2004, p. 717–746). These validated clips were used for verifying participants’ ability to recognize emotions from movement (to ensure that if participants didn’t recognize emotions from our clips, it is because of the content of our clips and not because they have a problem with emotion recognition), and to compare



FIGURE 1 | This figure shows a still shot from our stimuli clips of each of the studied emotions. **(A)** An image capturing a happy movement. The happiness components included Jump, Rhythmicity, Spread, Free and Light, Up and Rise, and Rotation. **(B)** An image capturing a sad movement. The sadness components included Passive Weight, Head drop, Arms to upper body, and Sink. **(C)** An image capturing a fear movement. The fear components included Blind, Retreat, Condense and Enclose, and Twist and Back. **(D)** An image capturing an angry movement. The anger components included Strong, Sudden, Advance, and Direct.

participants' accuracy in emotion recognition from Atkinson's validated emotional bodily expressions to their accuracy in attributing the correct associated emotion to the combinations of Laban motor components. One clip portraying disgust from Atkinson et al. (2004, p. 717–746) set (an emotion that exists in their set but was not included in the current study) was mistakenly included in our study as a happiness clip, and results pertained to recognition of that clip were therefore omitted from analysis.

Questionnaire

A demographic questionnaire collected data regarding age, gender, place of birth, family status, current occupation, ethnicity, and education.

Procedure

Meetings with the participants took place in a quiet room at their convenience. After signing a consent form, participants were asked to watch the stimuli clips which were displayed to them using a 15.6" laptop computer. All clips were presented using E-prime software (www.psychnet.com/eprime.cfm). Following the presentation of each clip, participants were asked to identify the expressed emotion (forced choice). The participants were encouraged to reply their most immediate answer. The presentation was divided into four parts: First there was a short training in which participants were asked to observe and respond to four of the LMA-component clips. After this training, participants were encouraged to ask questions about the procedure. Then, the first block of the LMA clips that included 57 clips was presented. At the end of the first block participants were invited to take a short refreshment break of up to 5 min, and then were presented the second block that included 56 clips.

After another short refreshment break, participants were asked to watch and respond to the 50 clips of Atkinson's bodily emotional expressions. Each of the first two blocks had a similar number of clips from each emotion. Within each block, the clips were presented in a random order, but the blocks were presented in the same order for all participants. Lastly, participants were asked to fill in the demographic questionnaire. At the end of the session, an explanation regarding the study was given to participants who were interested in it.

Statistical Analysis

Emotion Recognition From Movement

The percentage of correct recognition (attribution) was defined as the percentage of "correctly" (match-expectancy) recognized clips from all clips presented. Emotion recognition was considered correct if the emotion recognized matched the emotion associated with the movement components presented, based on Shafir et al. (2016). Percent correct recognition was calculated for each emotion and for the entire sample, separately for the Laban clips and the (Atkinson et al., 2004, p. 717–746) ones. To ensure that movements were recognized above chance level, we calculated the probability to have correct recognition by chance in n and more observations, using Bayes' theorem (Johnson and Bhattacharyya, 2010). We then looked for the threshold above which the probability to have that emotion recognition level is ≤ 0.05 . The thresholds that were found based on this test were: 21.8% for the clips associated with anger, sadness and fear (i.e., any recognition level equal to, or higher than 21.8% was statistically significant as expressing above chance recognition), 21.3% for the clips associated with happiness, 22.9% for the clips associated with neutral and 20.7% for the entire sample.

Taking into consideration that participants' choices of emotions may be inherently biased, we also used Wagner's (Wagner, 1993, p. 3–28) method for unbiased hit rate and chance proportions. According to this method we calculated the arcsine transformed unbiased hit rate accuracy scores per participant for each emotion separately. We then computed and arcsine transformed the chance proportion scores per participant for each emotion as well. Finally, we conducted pairwise comparison with Bonferroni correction between the arcsine transformed unbiased hit rates and the arcsine transformed chance proportion for each emotion (happy, sad, fear, and anger) separately. Because we repeated the pairwise comparison with four emotions, the Bonferroni correction adjusted the threshold for significance to $0.05/4 = 0.013$.

Exploring the Contribution of Specific Movement Components to Emotion Recognition

After establishing that our clips were recognized as expressing the emotions associated with the movement components comprising those clips, we wanted to investigate which components contributed most to the recognition level of their associated emotion. To do that, for each emotion (happiness, sadness, fear, and anger), a separate logistic regression model was fitted to predict the recognition of that emotion. We organized our data so that for each case (i.e., each clip associated with a specific emotion) the independent binary variables in this logistic regression were the presence or absence of each LMA component associated with that emotion as predictors, and the dependent variable was the number of expected recognitions ("event") vs. the number of recognitions other than the expected one ("non-event"). Thus, the binary variables of the presence vs. absence of the LMA components: Jump, Rhythmicity, Spread, Free and Light, Up and Rise, and Rotation were tested for the prediction of recognizing happiness. The binary variables of the presence vs. absence of the LMA components: Passive Weight, Arms-to-upper-body, Sink and Head-drop were tested for the prediction of recognizing sadness. The binary variables of the presence vs. absence of the LMA components: Retreat, Condense and Enclose, Bind, and Twist and Back were tested for the prediction of recognizing fear. Lastly, the binary variables of the presence vs. absence of the LMA components: Strong, Sudden, Direct, and Advance were tested for the prediction of recognizing anger.

Since anger was mainly confused with fear (i.e., most of the "anger clips" which were not recognized as expressing anger were recognized as expressing fear) and fear was mainly confused with sadness and anger (i.e., most of the "fear clips" which were not recognized as expressing fear were recognized as expressing sadness or anger), and since anger and fear were the least well-recognized emotions, we wanted to check if any of the components associated with anger and fear contributed to their "wrong" recognition, i.e., to the recognition of an emotion to which they were not originally associated with based on Shafir et al. (2016). To answer this question, another logistic regression model was fitted to predict the "wrong" recognition of fear by anger components, i.e., the binary variables of the presence vs. absence of the LMA components: Strong, Sudden, Direct, and Advance, which were originally associated with anger, were tested

for the prediction of recognizing fear. Additional regressions were fitted to predict the "wrong" recognition of sadness and anger by fear components: The binary variables of the presence vs. absence of the LMA components: Retreat, Condense and Enclose, Bind, and Twist and Back were tested separately for the prediction of recognizing anger and sadness.

No interaction between predictors were tested in any of the regression models. All the regressions were calculated by SAS 9.4 program.

Comparison to a Validated Set of Emotionally Expressive Video Clips

To compare emotion recognition from Atkinson et al., 2004 validated clips to the emotion recognition from our clips (which were based on combinations of Laban components), all together and separately for each emotion, a two-way, five Emotion [anger, fear, sadness, happiness, and neutral] \times 2 Clip-type [Atkinson, Laban] mixed-model repeated-measures analysis of variance (ANOVA) was run. When interactions were established, paired *t*-tests were used to assess the difference between individual means. Studentized Maximum Modulus (SMM) corrections were implemented to account for multiple comparisons in these *post-hoc* tests.

RESULTS

Emotion Recognition Accuracy

67.3% of all Laban clips were accurately recognized. Looking at each emotion separately, happiness was best recognized, with 81.3% correct recognition. Second was sadness with 78.5% of sadness-component clips recognized as expressing sadness. Then neutral (67.4%), fear (51.1%), and lastly anger in which 47.2% of the clips composed of anger-associated motor components were recognized by participants as expressing anger. Mean recognition levels for all emotions were much above the threshold for recognition above chance (Table 1 and Figure 2).

As seen in the error distribution table (Table 1), while happiness and sadness (which had the highest recognition levels) were rarely confused with other emotions, anger clips were

TABLE 1 | This table shows the Laban error distribution.

Intended emotion	Recognized emotion				
	Happy	Sadness	Fear	Anger	Neutral
Happy	81.39	1.36	1.65	2.07	13.52
Sadness	0.61	78.57	5.07	5.38	10.37
Fear	0.61	23.12	51.15	9.14	15.98
Anger	2.57	3.67	26.17	47.29	20.31
Neutral	11.77	11.45	5.00	4.35	67.42

All numbers represent percentages. Rows represent the intended ("correct") emotions and columns represent the emotion that was recognized. Thus, the number at each cell represents the percentage of clips recognized as the column emotion from all clips associated with the row emotion. For example: 47.29% of all anger associated clips were recognized as anger and 26.17% of all anger clips were recognized as fear.

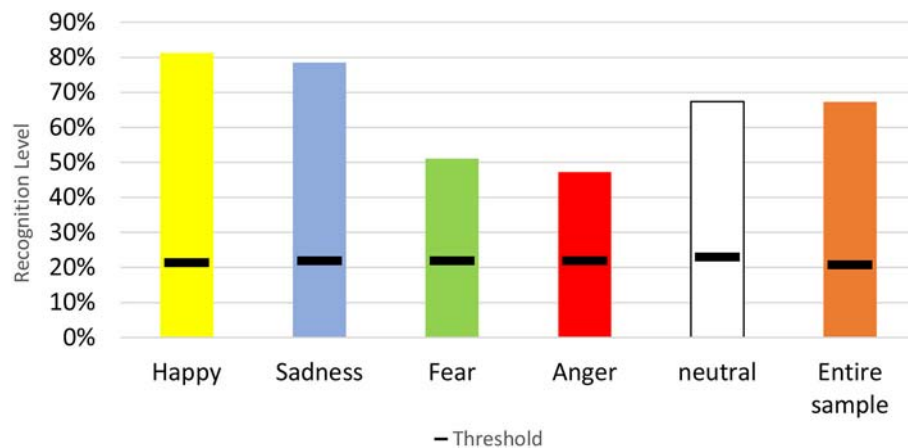


FIGURE 2 | This graph shows the percent correct recognitions of the expected emotion from Laban clips with the threshold for random recognition level. Each emotion is represented by a different color: Yellow for happiness, blue for sadness, green for fear, red for anger and white for the neutral emotion. The entire sample is marked orange.

mostly confused with fear (26.17% of the Laban anger clips were mistakenly recognized as fear) and fear was often confused with sadness and to a lesser degree with anger (23.12 and 9.14% of fear clips were recognized as sadness and anger, respectively). All emotions were relatively highly confused with neutral: 20.31, 10.37, 15.98, and 13.52% of the anger, sadness, fear, and happiness clips, respectively, were recognized as neutral. Only 30% of the clips which were recognized as neutral were actually made of the neutral components, indicating that participants tended to choose neutral when the emotion was not clear enough for them, therefore, when they chose an emotion, they were likely to think they recognized it well.

An additional analysis, which compared the unbiased hit rates with the chance proportions, also yielded similar results (Figure 3): the pairwise comparison (2-tailed) between happiness unbiased hit rate ($M = 0.89$, $SD = 0.17$) and the happiness chance proportion ($M = 0.1$, $SD = 0.01$) indicated a significant difference ($t = 38.32$, $p < 0.001$). The pairwise comparison (2-tailed) between sad unbiased hit rate ($M = 0.61$, $SD = 0.16$) and the sad chance proportion ($M = 0.04$, $SD = 0.01$) also indicated a significant difference ($t = 26.67$, $p < 0.001$). The pairwise comparison (2-tailed) between fear unbiased hit rate ($M = 0.31$, $SD = 0.12$) and the fear chance proportion ($M = 0.03$, $SD = 0.01$) indicated a significant difference ($t = 18.84$, $p < 0.001$). Lastly, the pairwise comparison (2-tailed) between anger unbiased hit rate ($M = 0.37$, $SD = 0.15$) and the anger chance proportion ($M = 0.03$, $SD = 0.01$), indicated a significant difference ($t = 18.61$, $p < 0.001$).

Results for the Exploratory Components Analysis

Fifteen out of 18 movement components significantly increased the likelihood that a clip will be recognized as the expected emotion, one component decreased the likelihood that a clip which contains it will be recognized as the expected emotion and two components out of the 18 tested increased

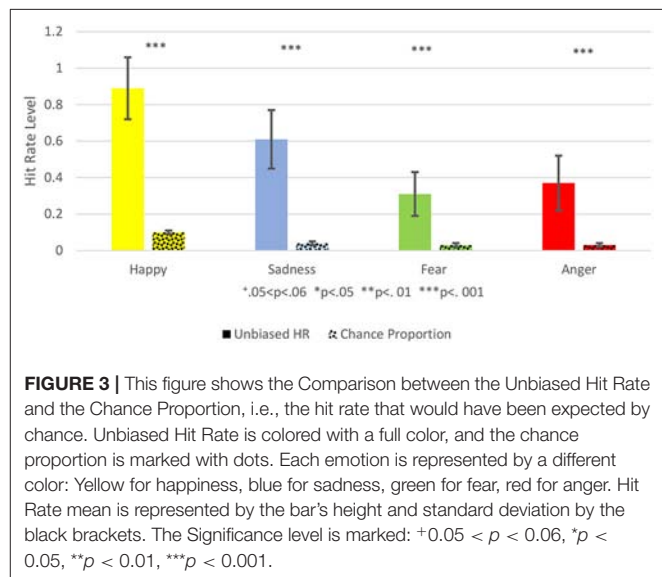


FIGURE 3 | This figure shows the Comparison between the Unbiased Hit Rate and the Chance Proportion, i.e., the hit rate that would have been expected by chance. Unbiased Hit Rate is colored with a full color, and the chance proportion is marked with dots. Each emotion is represented by a different color: Yellow for happiness, blue for sadness, green for fear, red for anger. Hit Rate mean is represented by the bar's height and standard deviation by the black brackets. The Significance level is marked: $+0.05 < p < 0.06$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

the likelihood that a clip which contains them will be recognized as expressing an emotion different from the expected emotion (Table 2).

Happiness

All components associated with happiness (Jump, Rhythmicity, Spread, Free and Light, Up and Rise, and Rotation) significantly increased the likelihood of happiness-recognition when present in a movement. The components that increased the likelihood of happy recognition most were rhythmicity and spreading. Rhythmicity increased the likelihood of happy recognition by nearly 35 times ($OR = 34.64$, $p < 0.001$) and spreading by 23 times ($OR = 23.416$, $p = 0.002$). The components Free and Light and Jump increased expected recognition likelihood by 15 times ($OR = 15.48$, $p = 0.007$ and $OR = 15.291$, $p = 0.007$, respectively),

TABLE 2 | This table describes movement components ability to predict the recognition of their associated emotions.

Emotion	Component	Estimate	SE	Wald S.	OR	Lower CL	Upper CL
Happy	Jump	2.73	1.02	7.20**	15.29	2.09	112.09
Happy	Rhythmicity	3.54	1.02	11.95***	34.64	4.64	258.47
Happy	Spread	3.15	1.01	9.63**	23.42	3.20	171.51
Happy	Free and light	2.74	1.02	7.24**	15.48	2.11	113.81
Happy	Up and rise	2.39	1.03	5.43*	10.94	1.46	81.89
Happy	Rotation	2.54	1.02	6.24*	12.68	1.73	92.98
Sad	Passive Weight	0.49	0.17	8.37**	1.64	1.17	2.28
Sad	Arms to upper body	0.18	0.17	1.08	1.19	0.85	1.68
Sad	Sink	0.90	0.18	23.92***	2.47	1.72	3.55
Sad	Head-drop	2.03	0.18	128.48***	7.60	5.35	10.79
Fear	Retreat	0.98	0.13	53.32***	2.65	2.04	3.45
Fear	Condense and enclose	-0.26	0.13	3.92*	0.77	0.60	0.99
Fear	Bind	0.03	0.13	0.04	1.03	0.79	1.33
Fear	Twist and back	1.12	0.13	69.67***	3.06	2.35	3.98
Anger	Strong	1.32	0.15	80.22***	3.74	2.80	4.99
Anger	Sudden	2.24	0.16	205.78***	9.42	6.93	12.80
Anger	Advance	1.16	0.14	66.15***	3.20	2.42	4.23
Anger	Direct	0.44	0.13	11.58***	1.56	1.21	2.02

Each emotion is colored with a different color: happiness is yellow, sadness is blue, fear is green, and anger is red. As can be seen from the table most components significantly increased the recognition of their associated emotion, and one component significantly decreased the recognition of the associated emotion. SE, Standard error of the estimate; Wald S., Wald Statistic; OR, Odds Ratio; Lower CL, Lower confidence interval; Upper CL, Upper confidence interval; Significance level was marked: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Rotation by nearly 13 times ($OR = 12.67$, $p = 0.013$), and lastly, Up and Rise increased the likelihood of happy recognition by 11 times ($OR = 10.94$, $p = 0.02$).

Sadness

The LMA components that were tested for predicting the recognition of sadness were: Passive Weight, Arms-to-upper-body, Sink and Head-drop. Three of them significantly increased the likelihood of sadness recognition when present in a movement. The component that increased the likelihood of sadness recognition most was Head-drop, which increased the likelihood of sadness recognition by nearly eight times ($OR = 7.601$, $p < 0.001$). Sink increased expected recognition likelihood by more than two times ($OR = 2.471$, $p < 0.001$), and Passive Weight by nearly two times ($OR = 1.636$, $p = 0.008$). The presence of Arms-to-upper-body was not found to significantly increase the likelihood of sad recognition when present in a movement ($OR = 1.197$, $p = 0.298$).

Fear

The LMA components that were tested for predicting the recognition of fear were: Retreat, Condense and Enclose, Bind, and Twist and Back. Two of them significantly increased the likelihood of fear recognition when present in a movement. Twist and Back increased the likelihood of fear recognitions by three times ($OR = 3.058$, $p < 0.001$) and Retreat increased fear recognition by more than two times ($OR = 2.654$, $p < 0.001$). The presence of Bind was not found to significantly increase the likelihood of fear recognition when present in a movement ($OR = 1.026$, $p = 0.843$) and Condense and Enclose significantly

decreased the likelihood of fear recognition by 0.77 times ($OR = 0.773$, $p = 0.047$).

The component Condense and Enclose was found to significantly increase the likelihood of sadness recognition by four times ($OR = 4.145$, $p < 0.001$), and the component Bind was found to significantly increase the likelihood of anger recognition by over three times ($OR = 3.75$, $p < 0.001$) when it was present in a movement. All other fear related components (Twist and back, and Retreat) were either negatively related or not related to recognition of sadness or anger (Table 3).

Anger

All anger components (Strong, Sudden, Direct, and Advance) significantly increased the likelihood of anger recognition when present in a movement. The component that increased the likelihood of anger recognition most was Sudden, which increased the likelihood of anger recognition by over nine times ($OR = 9.42$, $p < 0.001$). The components Strong and Advance have both increased expected recognition likelihood by more than three times ($OR = 3.744$, $p < 0.001$ and $OR = 3.199$, $p < 0.001$, respectively), and Direct increased the likelihood of anger recognition by 1.6 times ($OR = 1.561$, $p < 0.001$).

Although many of the clips of anger-associated components were unexpectedly recognized as expressing fear, none of the individual anger components was found significantly predicting fear recognition. Moreover, all anger components were found significantly negatively related to the unexpected recognition of fear: Advance decreases the likelihood of fear recognition

TABLE 3 | This table describes the relation between the ability of the components of anger and fear (the emotion least well-recognized) to increase the likelihood for recognitions of the emotions which they were most confused with (anger components with fear, and fear components with sad and anger).

Component	Expected emotion	Recognized emotion	Estimate	SE	Wald S.	OR	Lower CL	Upper CL
Strong	Anger	Fear	−1.49	0.17	74.46***	0.23	0.16	0.32
Sudden	Anger	Fear	−1.49	0.17	74.46***	0.23	0.16	0.32
Advance	Anger	Fear	−1.56	0.17	84.72***	0.21	0.15	0.29
Direct	Anger	Fear	−0.69	0.16	17.84***	0.50	0.36	0.69
Retreat	Fear	Sad	−1.13	0.15	54.29***	0.32	0.24	0.44
Condense and enclose	Fear	Sad	1.42	0.20	49.73***	4.14	2.79	6.15
Bind	Fear	Sad	0.14	0.16	0.78	1.15	0.84	1.57
Twist and back	Fear	Sad	−0.67	0.15	18.65***	0.51	0.38	0.69
Retreat	Fear	Anger	0.35	0.23	2.36	1.42	0.91	2.21
Condense and enclose	Fear	Anger	0.39	0.23	2.91	1.48	0.94	2.34
Bind	Fear	Anger	1.32	0.28	21.37***	3.75	2.14	6.57
Twist and back	Fear	Anger	−1.20	0.22	30.04***	0.30	0.19	0.46

Components that predicted an unexpected emotion were colored with the color of that emotion: red for anger, green for fear and blue for sadness. For example: Condense and Enclose which was originally associated with fear (green), was found to increase the likelihood of recognizing sadness (blue). SE, Standard error of the estimate; Wald S., Wald Statistic; OR, Odds Ratio; Lower CL, Lower confidence interval; Upper CL, Upper confidence interval; Significance level was marked: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

in 79% ($OR = 0.209$, $p < 0.001$), Strong and Sudden decrease fear recognition in 77% ($OR = 0.226$, $p < 0.001$ for both), and Direct decreases fear recognition in 50% ($OR = 0.502$, $p < 0.001$).

Comparison to a Validated Set of Emotionally Expressive Video Clips

The recognition results for Atkinson's (Atkinson et al., 2004, p. 717–746) validated set showed high recognition levels for these clips (81.5% of all clips were accurately recognized) indicating that the participants had good capability for emotion recognition from bodily expressions. Although our LMA-component stimuli were well-recognized, Atkinson's (Atkinson et al., 2004, p. 717–746) validated set was significantly better recognized for the entire sample: $F_{(4,610)} = 75.28$, $p < 0.001$, as well as for some of the emotions: anger: $F_{(1,610)} = 217.52$, $p < 0.001$, fear $F_{(1,610)} = 234.77$, $p < 0.001$ and neutral $F_{(1,610)} = 6.97$, $p = 0.008$. No difference was found for happiness $F_{(1,610)} = 0.34$, $p = 0.562$. Moreover, sadness was recognized slightly better in the Laban set, with close to statistical significance $F_{(1,610)} = 3.68$, $p = 0.056$ (Figure 4).

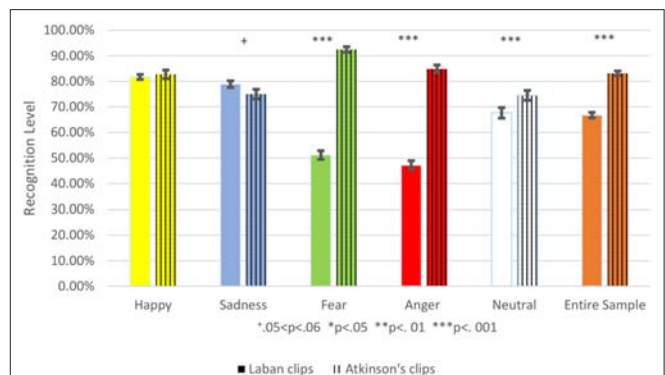


FIGURE 4 | This shows the Comparison between the percent of correct emotion recognition from the Laban stimuli to those from Atkinson's validated clips. The Laban recognition level is colored with a full color, and Atkinson's validated clips are marked with vertical lines. Each emotion is represented by a different color: Yellow for happiness, blue for sadness, green for fear, red for anger, and white for the neutral emotion. The entire sample is marked orange. Accuracy mean is represented by the bar's height and standard deviation by the black brackets. The significance level is marked: * $0.05 < p < 0.06$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

DISCUSSION

Consistent with our hypothesis, the results indicated that movements composed of motor components associated with specific emotions were recognized as expressing those emotions, even when the mover did not intend to express emotion. These findings complement Shafir et al. (2016) findings by showing that for the most part, the same components which elicited specific emotions when moved, also led to recognition of those emotions when being observed.

Following the finding that mirror neurons are activated in a very similar way during motor execution and during motor observation, it has been suggested that our emotional perception from movement during movement observation is

based on simulation by the mirror neurons of the brain activation that happens during motor execution of the same movements (Heberlein and Atkinson, 2009, p. 162–177; Shafir et al., 2013, p. 219–227). Based on Damasio's somatic markers hypothesis (Damasio, 1999; Damasio et al., 2000, p. 1049–1056), during motor execution, it is the specific proprioceptive and interoceptive feedback from the body that generates the associated emotion. During motor observation, Raos et al. (2007) found activation of the somatosensory cortex in monkeys (Raos et al., 2007, p. 12675–12683), and Gazzola and Keysers (2008) and Valchev et al. (2016) found somatosensory activation during motor observation in humans (Gazzola and Keysers, 2008, p. 1239–1255; Valchev et al., 2016, p. 1205–1217). Such

somatosensory activation during motor observation supports the idea of simulation of the proprioceptive and interoceptive feedback from the body during motor observation of a certain movement, a simulation which might elicit the associated emotion, similar to its elicitation by real proprioceptive input during motor execution of the same movement. Based on this idea, if the proprioceptive input from execution of a certain motor component is associated in the brain with a specific emotion and thus elicits that emotion, the observation of this motor component should simulate the same somatosensory activation and thus elicit the same associated emotion. Shafir et al. (2016) have demonstrated that certain movement components, when executed, are capable of enhancing specific associated emotions. In this study we have shown that 16 out of the 18 motor components taken from Shafir et al. (2016) study enhanced or activated the associated emotion when they were just observed, even when the mover did not intend ahead of time to express emotion. These results are in line with Damasio's idea that there are associations in the brain between certain proprioceptive feedback from the body and specific emotions, and support the notion that the mirror neurons create simulation of that proprioceptive feedback, and that this simulated proprioception causes us to feel those emotions and consequently to recognize them.

Happiness

The Laban components in the happiness clips were: Jumping, Rhythmic (reinitiating) movements, Spread, Free-Flow, Light-Weight, Up and Rise, and Rotation. Since happiness recognition levels were very high (81.3%), the happiness clips were not readily confused with any other emotion, and there was no statistically significant difference between recognition accuracy of the happiness Laban stimuli clips and the validated happiness clips of Atkinson et al. (2004, p. 717–746), it is evident that the set of components that was found here and in Shafir et al. (2016) as associated with the recognition of happy movements, is very well-defined, i.e., includes all or most of the Laban motor components that most people associate with happiness, and no components that most people associate with other emotions.

Several previous studies found results similar to ours: De Meijer (1989, p. 247–268) found that in movements that were recognized as expressing positive valence such as joy, the torso tended to stretch, which is similar to our finding of spreading as a component associated with happiness. Both Atkinson et al. (2004, p. 717–746) and De Meijer (1989, p. 247–268) found an association between arms lifting movements and happiness, similar to our finding of Up and Rise as happiness components. Dael et al. (2012b, p. 1085) found an association between happiness and “up down repetitive hand action,” where such hand action can be actually described as having the “Up and Rise” and “Rhythmicity” Laban components. Lastly, jumping movements were previously found by Atkinson et al. (2004, p. 717–746) to often occur when we are happy.

It should be noted that our analysis indicated that the appearance of either Rhythmicity or Spread contributed the most to the recognition of happiness in the movement. This result echoes (Camurri et al., 2003, p. 213–225) who listed movements

reaching out of the body center (which can be the spreading in Laban terms) and dynamic tension in movements that can be equivalent to rhythmicity, as movements characterizing joy expression in a dance. Interestingly, many other studies have found happy movements to be fast (De Meijer, 1989, p. 247–268; Sawada et al., 2003, p. 697–708; Crane and Gross, 2007, p. 95–101; Roether et al., 2009, p. 15), while in the current study Sudden (accelerating) movements were successfully attributed to anger. This attribution will be further discussed in the anger discussion. This finding, however, may be explained by the fact that the quality of sudden in LMA refers to the urgency of the movement as expressed by acceleration, rather than its velocity (i.e., fast).

Sadness

The Laban components included in the clips that were recognized as expressing sadness were: Passive-Weight, Arms-to-upper-body, Sink, and Head-drop. The clips composed of sadness components had also a high recognition rate (78.5%), which was higher even than sadness recognition from Atkinson et al. (2004, p. 717–746) validated set, and they were not readily confused with other emotions. This was an unexpected result, since movers in this study were instructed to move only specific movement components with no emotional intention, while the actors in Atkinson et al. (2004, p. 717–746) were specifically instructed to express sadness.

This result strengthens the association between the movement components used in our study and the emotion of sadness. The association between sadness and the movement component Head-drop, was previously reported in Atkinson et al. (2004, p. 717–746) and Crane and Gross (2007, p. 95–101). The association between sadness and Sinking movement had also been previously demonstrated by Wallbott (1998, p. 879–896), who associated sadness with collapse of the upper body, and by Michalak et al. (2009, p. 202–221) who noted that sadness was marked by more slumped posture. Although these previous studies did not use the same terminology, it can be assumed it referred to movements that include the Sinking component. Surprisingly, the movement component Arms to upper body, which was found related to sadness in previous studies (Atkinson et al., 2004, p. 717–746; Crane and Gross, 2007, p. 95–101) and was expected to be found related to sadness in the current study, was not found to increase the likelihood of recognizing a sad emotion from a movement.

It should be noted that previous studies have characterized sadness expressions also by Free Flow, Indirect focus, and Light weight (Crane and Gross, 2013, p. 91–105) as well as slow movements (De Meijer, 1989, p. 247–268; Atkinson et al., 2004, 717–746; Crane and Gross, 2007, p. 95–101; Roether et al., 2009, p. 15; Crane and Gross, 2013, 91–105). Interestingly, in this study, Free flow and Light weight were associated with the emotion of opposite valence: happiness. It is possible that this discrepancy was due to differences in the coding procedures, since Crane and Gross (2013) used novice, unprofessional coders, while in our study professional CMAs were coding. Although novice coders' observations may be closer to the everyday psychological processing of emotional movement, they may also be less

precise than those by professional coders, who are equipped to see subtle differences, and hence can lead to slightly different movement interpretations.

Fear

The components in the fear clips were: Retreat, Bind, Condense and Enclose, and Twist and Back. Although the recognition of fear level was higher than what would have been expected by chance, it was yet relatively low, and the fear clips were readily confused with the sadness and anger clips. The logistic regression model revealed that only the presence of the components Twist and back and Retreat significantly increased the likelihood of fear recognition. This result is similar to Dael et al. (2012b, p. 1085) finding that panic, fear, and anxiety were associated with “backward body lean.”

On the other hand, the component Condense and Enclose was found to significantly decrease the likelihood of fear recognition and increase the likelihood of sadness recognition. This finding is similar to De Meijer (1989, p. 247–268) finding that fear was easily confused with other negative emotions. It also corresponds with Roether et al. (2009, p. 15) finding of the association between fear and sadness and “being small,” since Condense and Enclose indeed make the body smaller. Such an association also makes sense in evolutionary terms, by making oneself small and “unseen” when facing a threat or a predator. Since the autonomic nervous system may cause one of three movement patterns in response to threat (fight, flight, and freeze), it is possible that fear has also several movement patterns, which could sometimes overlap with other emotions. This could be so in particular with sadness, which, like fear, is associated with withdrawal (as opposed to approach), and which is defined by some researchers as derived from separation distress, i.e., the *fear* of being alone (Panksepp and Yovell, 2014, p. 383–393).

Unexpectedly, the component Bind was also not found to be related to recognition of fear, but increased the likelihood of anger recognition. This result will be discussed at the anger discussion paragraph.

Anger

The LMA components that were found as contributing to anger recognition were: Strong, Sudden, Advance and Direct. Although only 47.2% of the clips that had anger components were recognized as expressing anger, anger recognition from Laban movement components was still above chance level, and the logistic regression model revealed that all anger components significantly increase the likelihood of anger recognition when present in a movement.

These results indicate that these four components: Strong, Sudden, Direct, and Advance) are probably crucial for anger recognition. Other studies have also found the same or similar components as expressing anger: Crane and Gross (Crane and Gross, 2013, p. 91–105) found that angry gait was associated with *direct*, *strong*, and *binding* qualities; Sawada et al. (2003, p. 697–708) found that movements expressing anger were *stronger* and *faster* than movements expressing sadness or happiness and Roether et al. (2009, p. 15) found that angry gait tended to be *fast* with large steps compared to neutral gait. Although Roether et al.

(2009, p. 15) and Sawada et al. (2003, p. 697–708) did not use a strict LMA terminology, we suggest that the *fast* movements they observed might be similar to the Laban component of Sudden (accelerating), which was one of the components related to anger in the current study.

Another similar, yet not identical match can be seen between findings of some *forward* movement in the angry movements in Crane and Gross (2013, p. 91–105) and Winters (2008, p. 84–105), and the Advance component associated with anger in the current study. In LMA terminology, forward indicates the direction in the general space in which the movement is progressing, while advance is a term related to the shape of the body. Usually when we advance in our torso, we also move forward in space, and vice versa, which might have caused other studies to relate to forward as a motor characteristic of anger expression.

Lastly, one component that was found to be associated with anger in Crane and Gross (2013, p. 91–105) and Winters (2008, p. 84–105), is Bind, which was associated in our study with fear. Interestingly, fear in our study was the emotion most confused with anger, i.e., many of the anger clips were mistakenly recognized as fear. Moreover, although Bind was a movement component originally associated with fear, the logistic regression model testing unexpected recognition of anger from fear clips, revealed that the presence of Bind in a movement increased the likelihood of anger recognition. These results may indicate that Binding is more important for the recognition of anger than for the recognition of fear. One possible explanation to the recognition of movements that contain Bind as expressing anger is that it is very difficult to perform a Strong but not Sudden movement without Binding when the movement is done in free space (e.g., as an open kinetic chain) and not against an object (in a closed kinetic chain), i.e., when not pushing an object. Thus, people often combine Strong with Bind. Another explanation might be related to the social taboo on anger expression: While “Punch” (i.e., Strong, Direct, and Sudden movement) may clearly express anger, substituting Binding (restraint of movement) for Suddenness may be more familiar to participants who often observe social situations in which anger is restrained (bound) vs. expressed/acted upon in a punch-like movement.

It should be mentioned that although misidentified anger clips were mostly confused with fear, the logistic regression model testing unexpected recognition of fear from anger clips, revealed that all anger components were negatively related to fear recognition and decreased the likelihood of fear recognition. Thus, the reason for the high confusion rate of anger related movements with fear recognition should be further investigated.

Limitations of the Study

Although the population of this study was relatively diverse, more careful analysis of cross-cultural influences were not performed as our sample size was too small for that. Furthermore, all movers in the stimuli clips were adult Caucasian females, which may influence the way participants recognized the emotions expressed in their movements.

Additional limitations derive from the fact that there might be more Laban components or considerations that affect

emotion recognition and which we did not test in this study. Although the LMA component stimuli were well-recognized, (Atkinson et al., 2004) validated set was significantly better recognized for the emotions of fear and anger, leading to the question about whether our set of components has identified all the components necessary for accurate recognition of emotions, and if there is a significance to sequencing or phrasing of these components. The phrasing (order, accent, and load) of movement components was not investigated here: In improvising the stimuli movement, some movers performed all the components in that combination simultaneously (all components at once) and others sequentially (one or two components first, then the others). This may have affected the strength of emotional expression, as the phrasing of movement is often significant to expression, and important to consider in future studies.

Another possible limitation that warrants further investigation is whether the body area in which the movement takes place has any effect on emotion recognition: Movers in our study who generated the stimuli clips were not instructed which specific body parts to use when moving the LMA components. Thus, some movers demonstrated the components with their whole body, and others just with limbs gestures or in isolated parts of the body. Future research will have to examine the effects of such considerations on emotion recognition.

Conclusion

We set out to establish whether emotions could be recognized from brief glimpses of movement components associated with those emotions, and next to identify which, if any, components were more significant to recognition of emotion than others. Results from our study strongly indicate that specific components of movement contribute to our recognition of bodily expression of emotions, even when there is no intent on the part of the mover to express an emotion. Observing momentary movement of these components alone, in the absence of facial cues, context, or intent of the mover to experience or express emotions was sufficient for participants to identify the associated emotion. These results constitute new and important demonstration of the hypothesized underlying brain mechanism for emotion perception from body actions. That these LMA components, moved in unscripted improvised movements, significantly concur with components identified in previous studies, lends strength to the conclusion that specific movement components and their proprioceptive feedback are indeed associated in the brain with each emotion, across cultures and studies.

Our results showed the strongest correlations between: spreading (or expanding) rhythmic movements and happiness, dropping the head with expressing sadness, moving or turning backwards with fear and strong, sudden and advancing movement with Anger. This study also teased out movement components which overlap two basic emotions and may contribute to embodied experience of emotional complexity and blended emotions. For example, Binding movements encouraged a confusion between fear and anger and Condensing and

Enclosing movements enhanced a confusion between fear and sadness.

Additionally, our review of previous studies findings using Laban Movement Analysis terms, combined with the results of our study, helps to pinpoint components noted in much of the existing literature regarding the connection between specific movements and emotions. The use of LMA terms for these findings and the literature review can provide a common research language for comparing results across studies and translating them into clinical application.

Lastly, our high inter-rater agreement about the observation of movement using LMA validates the high reliability of LMA as a movement analysis system, when carried out by certified observers.

The knowledge gained from this study's findings is clinically applicable, as it may help dance-movement, drama and music therapists understand their clients' bodily expressions and emotional movements, it may help them consider what intervention approach would serve each client best in a given situation, and help design their intervention and guide their suggestions to the clients, in relations to their emotional motor expressions. Moreover, the scientific strengthening to these associations between LMA components and emotional states, may encourage therapists to use LMA terms and language as an integral part of their assessments and professional communication.

ETHICS STATEMENT

The study was approved by the ethical committee of the Faculty of Social Welfare and Health Sciences, University of Haifa.

AUTHOR CONTRIBUTIONS

AM contributed to the design of the study, to stimuli preparation, data acquisition, statistical analysis, and results interpretation. She wrote the manuscript. TS conceived the study. She contributed to the design of the study, to stimuli preparation, data acquisition, statistical analysis, and to results interpretation. She revised the manuscript. RT contributed to the design of the study, to stimuli preparation, and to results interpretation. She revised the manuscript. All authors approve the manuscript and agree to be accountable for all aspects of the work.

FUNDING

The Research Open Access Article Publishing (ROAAP) Fund of the University of Illinois at Chicago, provided financial support toward the open access publication fee for this article. The Ben Zeev Foundation for Emotion Research, through the Graduate Studies Authority of University of Haifa provided financial support through a research scholarship to AM for this project.

ACKNOWLEDGMENTS

We would like to acknowledge the wonderful CMAs Karen Studd, Milca Leon, Tara Stepenberg, Sharon Gidron-Peskin, Michal Armon, and Esther Geiger for their invaluable voluntary work, generating, coding, and validating the stimuli clips. We would also like to acknowledge Prof. Robyn Flaum-Cruz, for her

important and much appreciated advice and support with the statistical analysis of the components. Thank is also sent to Mrs. Dana Hadar-Fruchter, who helped us performing the advanced statistical tests. Lastly, we wish to acknowledge the financial support AM received from the Ben Zeev foundation for emotion research, through the graduate studies authority of University of Haifa.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Effects of Dance Movement Therapy and Dance on Health-Related Psychological Outcomes. A Meta-Analysis Update

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OPEN ACCESS

Edited by:

Federica Scarpina,
Italian Auxological Institute
(IRCCS), Italy

Reviewed by:

Corinne Jola,
Abertay University, United Kingdom
Kim Frances Dunphy,
The University of Melbourne, Australia

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Specialty section:

This article was submitted to
Psychology for Clinical Settings,
a section of the journal
Frontiers in Psychology

Received: 22 January 2019

Accepted: 22 July 2019

Published: 20 August 2019

Citation:

Koch SC, Riege RFF, Tisborn K,
Biondo J, Martin L and Beelmann A
(2019) Effects of Dance Movement
Therapy and Dance on Health-Related
Psychological Outcomes. A
Meta-Analysis Update.
Front. Psychol. 10:1806.
doi: 10.3389/fpsyg.2019.01806

Background: Dance is an embodied activity and, when applied therapeutically, can have several specific and unspecific health benefits. In this meta-analysis, we evaluated the effectiveness of dance movement therapy¹ (DMT) and dance interventions for psychological health outcomes. Research in this area grew considerably from 1.3 detected studies/year in 1996–2012 to 6.8 detected studies/year in 2012–2018.

Method: We synthesized 41 controlled intervention studies ($N = 2,374$; from 01/2012 to 03/2018), 21 from DMT, and 20 from dance, investigating the outcome clusters of quality of life, clinical outcomes (with sub-analyses of depression and anxiety), interpersonal skills, cognitive skills, and (psycho-)motor skills. We included recent randomized controlled trials (RCTs) in areas such as depression, anxiety, schizophrenia, autism, elderly patients, oncology, neurology, chronic heart failure, and cardiovascular disease, including follow-up data in eight studies.

Results: Analyses yielded a medium overall effect ($d^2 = 0.60$), with high heterogeneity of results ($I^2 = 72.62\%$). Sorted by outcome clusters, the effects were medium to large ($d = 0.53$ to $d = 0.85$). All effects, except the one for (psycho-)motor skills, showed high inconsistency of results. Sensitivity analyses revealed that *type of intervention* (DMT or dance) was a significant moderator of results. In the *DMT cluster*, the overall medium effect was small, significant, and homogeneous/consistent ($d = 0.30$, $p < 0.001$, $I^2 = 3.47$). In the *dance intervention cluster*, the overall medium effect was large, significant, yet heterogeneous/non-consistent ($d = 0.81$, $p < 0.001$, $I^2 = 77.96$). Results suggest that DMT decreases depression and anxiety and increases quality of life and interpersonal and cognitive skills, whereas dance interventions increase (psycho-)motor skills. Larger effect sizes resulted from observational measures, possibly indicating bias. Follow-up data showed that on 22 weeks after the intervention, most effects remained stable or slightly increased.

¹This term includes the practice of dance movement psychotherapy (UK terminology) and dance/movement therapy (US terminology).

²For a list of abbreviations, see **Appendix**.

Discussion: Consistent effects of DMT coincide with findings from former meta-analyses. Most dance intervention studies came from preventive contexts and most DMT studies came from institutional healthcare contexts with more severely impaired clinical patients, where we found smaller effects, yet with higher clinical relevance. Methodological shortcomings of many included studies and heterogeneity of outcome measures limit results. Initial findings on long-term effects are promising.

Keywords: dance movement therapy, dance interventions, meta-analysis, randomized controlled trial, clinical controlled trial, creative arts therapies, integrative medicine

INTRODUCTION

Why This Meta-Analysis?

Dance movement therapy (DMT) is the psychotherapeutic use of movement, based on the assumption of the interconnection of body and mind, and the healing power of dance. The American Dance Therapy Association (ADTA) defines it as “the psychotherapeutic use of movement to promote emotional, social, cognitive, and physical integration of the individual, for the purpose of improving health and well-being” (ADTA, 2018); the European Association Dance Movement Therapy adds the “spiritual integration” to this list (EADMT, 2018). At the present state of professionalization, next to the development of knowledge on mechanisms of DMT (Koch, 2017), and of arts-based research methods (Hervey, 2000; Leavy, 2017), the implementation of evidence-based research is crucial for the survival, recognition, and thriving of the clinical field of DMT (see, e.g., Wengrower and Chaiklin, 2008; Bräuninger, 2012a,b; Dunphy et al., 2019) in the worldwide healthcare systems.

While the use of dance as a healing art is presumably as old as mankind, DMT became an established profession in Western countries from the 1940s, when the first pioneers developed professional dance therapy concepts, which spread in Eastern countries and worldwide beginning in the 1990s. Most DMT professionals work in psychiatric hospitals, rehabilitation centers, schools, and private practice. Throughout its existence, there has been much qualitative research in DMT (see, e.g., Goodill, 2005; Cruz and Berrol, 2012). However, in recent years, evidence-based quantitative research is getting stronger, in terms of numbers and quality of studies (e.g., Peters, 2012). A more general empirical evidence-base on the effectiveness of DMT will provide an orientation for patients, therapists, researchers, educators, and healthcare associations and influence professional and public recognition of DMT (Koch et al., 2014). According to standards of evidence-based medical practice, there are five levels of evidence (from the bottom to the top level): Level 4: expert opinions/textbooks, Level 3: case studies/non-experimental studies, Level 2: quasi-experimental studies, Level 1b: randomized controlled studies, and Level 1a: meta-analyses/reviews (e.g., Sackett et al., 2000). The present meta-analysis is an update of the meta-analysis published by Koch et al. (2014), tackling high-quality evidence-based research in the field. The aim was to synthesize data from controlled intervention studies published worldwide between January of 2012 and March of 2018.

Since dance is an important therapeutic ingredient in DMT, we also included studies on the effect of *dance interventions*, similar to the previous meta-analysis (Koch et al., 2014). There is a growing number of artists offering dance interventions in clinical and subclinical contexts (see Martin et al., 2018). Including dance intervention studies in addition to DMT studies had the further advantage that we obtained enough data to conduct sensitivity analysis. Dance interventions in this context are practices of various dance styles (e.g., ballroom dance, folk dance, contemporary dance), which aim to improve the quality of life or other health-related psychological outcomes of the participants. It is possible to synthesize dance intervention and DMT intervention studies, because they presumably share many *therapeutic mechanisms* (also termed *active factors*, denominating the effective ingredient of an intervention; Kazdin, 2007; Koch, 2017). Koch (2017) has distinguished five mechanism clusters through which creative arts therapies³ work that also apply to DMT and dance: (a) hedonism (pleasure and play, non-goal orientation), (b) aesthetic experience (experiencing beauty, body-mind unity, unity with a partner, etc.) and its authentic expression, (c) non-verbal meaning-making (communication, emotion expression and regulation, social interaction), (d) enactive transitional space (experiencing activity, agency, self-efficacy, constructive resources, test-acting, enactment, rituals, and transformation), and (e) creation (generativity, productivity; see Koch, 2017). In addition, there are mechanisms such as movement *per se* (arousal, hormonal changes, physiological changes through movement), dance *per se* (Jola and Calmeiro, 2017), as well as specific body feedback mechanisms related to distinct movement shape changes and qualities (Koch et al., 2007, 2014). Moreover, there are mechanisms of health-related changes that DMT shares with other forms of psychotherapy such as the therapeutic relationship, problem actualization, resource activation, etc. (Grawe et al., 1994; Wampold, 2015; Wampold and Irmel, 2015). Other more specific therapeutic mechanisms are connected to techniques of DMT, such as mirroring, movement analysis, non-verbal metaphors, imaginative techniques, meditative techniques, introspection, and focusing (Bräuninger, 2014). Furthermore, there are also specific group mechanisms of change. For example, if the intervention is conducted in a group setting, such mechanisms

³Creative Arts Therapies (European term: Arts Therapies; Karkou and Sanderson, 2006) consist mainly of art therapy, music therapy, dance movement therapy, drama therapy, and poetry therapy/expressive writing.

as cohesion, experience to be part of something larger, mutual trust, corrective emotional experiences, empowerment, mutual support, probing social roles, and enactive interpersonal learning are important (Schmais, 1985, 1998; Yalom, 1985; Rutan and Stone, 2001). More research is needed to deepen and sharpen the knowledge on therapeutic mechanism of DMT and dance interventions, and in turn improve outcome research in both fields.

The guiding questions and aim of this meta-analysis are to shed light on (a) the *extent* in which DMT and dance interventions initiate desired changes in health-related psychological outcomes, (b) the *moderators* or study characteristics that contribute to the variation of the effect sizes, and (c) the longevity or *duration* of these changes.

State of Research

In this section, we will provide an overview on the *secondary trials* (meta-analyses/systematic reviews) and some general information on the *primary trials* conducted on effects of DMT and dance between January 2012 and March 2018.

Overview of Meta-Analyses and Reviews (Secondary Trials)

Four general meta-analyses up to 2014

The first general meta-analysis on DMT by Ritter and Graff Low (1996) provided a broad overview on the effects of DMT on health-related outcomes, incorporating 23 primary studies up to the year 1995. It yielded promising results about the effectiveness of DMT across various populations and diagnoses (children; adults; elderly; non-clinical, subclinical, and clinical populations; physical and psychiatric disorders), particularly improved anxiety symptoms. Furthermore, the authors reported health-improving changes in psychological conditions, movement, body-awareness, anger, and self-concept. Nevertheless, the study by Ritter and Graff Low (1996) had some limitations. The methodological quality of the incorporated studies varied considerably, and the authors did not report any analyses of heterogeneity (see critique of Cruz and Sabers, 1998).

Koch et al. (2014) replicated most of these findings. In their general meta-analysis on the effectiveness of DMT and dance interventions, they incorporated 23 primary studies published between 1995 and 2012. Results suggested that DMT and dance interventions improve anxiety levels [post-value comparison of standard mean differences (SMD; for a list of statistics and symbol abbreviation, see **Appendix A**), taking into account the confidence interval (CI): SMD = 0.44, CI = 0.15–0.72], depression (SMD = 0.36, CI = 0.17–0.56), well-being (SMD = 0.30, CI = 0.07–0.53), quality of life (SMD = 0.37, CI = 0.18–0.55), and body image (SMD = 0.27, CI = –0.04–0.57). They also found a positive effect for interpersonal competence (SMD = 0.45, CI = 0.07–0.83), but this effect was inconsistent across studies ($I^2 = 52\%$). The results of this study ought to be interpreted with caution due to several methodological constraints of the primary trials, small analysis clusters (four to eight studies per outcome cluster), and broad confidence intervals.

In sum, we found 11 meta-analyses and nine reviews on effects of dance and DMT, published after the last literature search in 2012 of Koch et al. (2014) up to March 2018. Only one of these publications was a more general overview on the effects of DMT on depression, anxiety, and well-being. It was a Master thesis by Peters (2012), incorporating 26 randomized or quasi-randomized trials. The results indicated that dance/DMT had small, but significant and positive effects on general well-being ($d = 0.29$, $I^2 = 38.65\%$), depression ($d = 0.33$, $I^2 = 42.04\%$), and anxiety ($d = 0.31$, $I^2 = 2.97$), corroborating with the findings of Koch et al. (2014). The effects for general well-being and depression were moderated by *type of therapist* (with specialized dance instructors and DMT therapists yielding larger effects than non-specialized therapists, physiotherapists, exercise instructors, or researchers), but were not moderated by *age*, *gender*, *type of dance*, or *type of country*.

Eighteen specific (disease-related) reviews

The remaining 18 reviews and meta-analyses on effects of DMT and dance interventions focused on patient samples with specific diagnoses: seven on Parkinson's disease, four on anxiety and depression, four on physiological impairments, three on dementia/elderly, and two on oncology. The reviews on *Parkinson's disease* investigated the effects of DMT and dance on motor function and quality of life (De Dreu et al., 2012; Kiepe et al., 2012; Hackney and Bennett, 2014; Sharp and Hewitt, 2014; Loetzke et al., 2015; Shanahan et al., 2015; Aguiar et al., 2016). Significant improvements in balance (Berg Balance Scale), motor impairments (UPDRS-Scale, Timed-Up-and-Go scale), and quality of life were found in the intervention groups. Some of the effects remained significant, when comparing the results to a control group. We also found studies that yielded no improvements in quality of life and motor function (e.g., freezing of gait). Most trials reported participants' satisfaction and high adherence to the treatment. The secondary trials on *anxiety* and *depression* reported effects of DMT and dance on both outcomes including psychological distress (Kiepe et al., 2012; Peters, 2012; Boehm et al., 2014; Meekums et al., 2015). A high-quality primary trial was the study by Jeong et al. (2005) on health improvements through DMT in adolescent girls with mild depression. It showed increasing plasma serotonin concentration and decreasing concentration of dopamine in the participants of the DMT intervention group compared to participants of the control group. The effects on *medical conditions* such as heart failure and hypertension were investigated by Conceição et al. (2016), Gomes Neto et al. (2014), Kiepe et al. (2012), and Rodrigues-Krause et al. (2016). The results indicate that DMT (in this context termed "medical DMT"; Goodill, 2005) and dance might improve physiological conditions (e.g., systolic and diastolic blood pressure, V02-peak, exercise capacity) and quality of life, but not beyond the effects of other exercise interventions. One review on *dementia* and DMT in care homes showed that problematic behaviors decreased and social interaction and enjoyment in residents and care staff increased; adverse effects were also acknowledged, for example, from the care staff's perspective, there were fears of over-attachment with residents or embarrassment with dancing and concerns about staff shortages

affecting the organization of regular dance sessions in the home (Guzmán-García et al., 2013). Some residents showed signs of confusion, irritability, and anxiety during the dancing (Palo-Bengtsson and Ekman, 1997; Palo-Bengtsson et al., 1998). The meta-analysis on DMT and dementia by Karkou and Meekums (2017) did not include any studies, because no trials met the inclusion criteria (i.e., randomized controlled trial led by dance movement therapist). Regarding the effects of DMT and dance on quality of life in *cancer patients*, we found mixed results. One meta-analysis on DMT in oncology reported significant standard mean differences (SMD) for the reduction of anxiety (Boehm et al., 2014; see also Archer et al., 2015). The meta-analysis on DMT in oncology reports effects on quality of life, but no evidence for effects on depression, anxiety, stress, fatigue, or body image (Bradt et al., 2011, 2015).

Because of the scarcity or low quality of evidence-based research in the field of DMT, most secondary studies (particularly the high quality Cochrane reviews) included only a few studies (between one and three studies). Besides that, most authors reported that their results did not have sufficient statistical power, because of methodological constraints of the primary trials. Nevertheless, in previous quantitative research, we can observe a pattern that DMT and dance interventions are as effective as traditional psychotherapy in various populations and conditions (Beilmann and Heinrichs, 2015). In addition, some high-quality qualitative research suggests that DMT and dance are beneficial supportive treatments to traditional care and have some specific advantages, such as the non-verbal approach, body-oriented treatment process, etc. (McNiff, 1993; Barba et al., 1995; Hervey, 2000; Levine and Land, 2016).

Information on Primary Trials

Included studies

All included trials are displayed in **Table 1** in the results section and are marked with an “*” in the reference section. They were at least controlled intervention studies. We distinguished between primary studies in DMT and primary studies in dance interventions, and found 21 studies on the effects of DMT and 20 studies on the effects of dance on health-related outcomes (see **Table 1** for populations, criteria, and results).

Excluded studies

We located a number of *high-quality primary studies* that we were not able to include due to the defined criteria. Fourteen studies had been excluded due to missing data or other reasons outlined in the Methods section, some of which may be possibly recovered for future analyses. They investigated learning disabilities (Alotaibi et al., 2017), children with attention deficit/hyperactivity disorder (Alrazain et al., 2018), fornix integrity (Burzynska et al., 2017), depression (Cross et al., 2012), falls (Duim et al., 2015), oncological patients (Ho et al., 2016b), schizophrenia (Koch et al., 2017; Savill et al., 2017), Parkinson's disease (Lewis et al., 2014), autism (Mateos-Moreno and Atencia-Doña, 2013), trauma in unaccompanied minors (Meyer DeMott et al., 2017), development of kindergarteners (Stück and Villegas, 2017), personal development and increase

of emotional intelligence in students (Vancea, 2013), and traumatized children (Van Westrhenen et al., 2019).

Mainly through the reviews, we also found a number of formerly undetected studies from 2011 and earlier, not yet included into the general meta-analyses. We consider it important to enumerate them here for potential future analyses: Belardinelli et al. (2008), Burgess et al. (2006), Chouhan and Kumar (2011), Connolly et al. (2011), Coubard et al. (2011), Hall (2011), Hwang et al. (2010), Kaltsatou et al. (2011, 2015), Quiroga Murcia et al. (2009), and Xiong and Li (2009).

In general, our literature search revealed that there were at least as many studies on *physiological changes* after DMT and dance interventions as there were for *psychological changes* in health outcomes in the time frame of January 2012 to March 2018. We found around 50 primary studies with mere physical/physiological outcomes, which we excluded. However, since embodiment approaches such as DMT assume the body-mind unity, we would encourage researchers to include studies focusing on physical changes into future meta-analyses in dance and DMT.

Incorporated Outcomes

Synthesizing the outcome foci of the primary studies, this meta-analysis differentiates six outcome clusters: (a) quality of life, (b) clinical outcomes (e.g., anxiety, depression), (c) interpersonal skills, (d) cognitive skills, (e) (psycho-)motor skills, and (f) residuals (psychotic symptoms and physiological change). We based the allocation of dependent variables to outcome clusters on the meta-analysis of Koch et al. (2014) and detailed investigation of the primary trials. Our aim was to synthesize outcome clusters that were as comparable as possible (e.g., by similarity of measurement instruments).

Quality of Life

Quality of life is a broad construct, which contains subscales about subjective well-being (e.g., satisfaction with life) and conditions of daily living (e.g., general health, functional capacity and social integration). We decided to further include dependent variables about sleep quality, pain (invert coding), self-esteem, and control beliefs in this cluster. Most measures in this outcome cluster were based on self-report questionnaires (e.g., rating satisfaction with certain life conditions on a Likert scale), with only one study containing observations and ratings from an external person, who in this case was a clinician (Teixeira-Machado et al., 2017). We assume that DMT and dance interventions might influence quality of life on various dimensions, for example, movement might improve vitality and fitness, dance might foster joyful experiences (Koch et al., 2007), and interpersonal experiences might have a positive influence on social integration (Sandel et al., 1993).

Clinical Outcomes

Clinical outcomes summarize dependent variables directly related to conditions of mental health, particularly affective disorders (e.g., depression, anxiety, stress, anger). Studies in this cluster were conducted with a clinical (e.g., persons with a diagnosis of depression) or subclinical population (e.g., persons

TABLE 1 | Study characteristics chart of the included studies.

ID	Title	References	Country	N (Pre-Test)	Intervention, control group activity	Target group (Diagnosis, age range or M, SD)	Treatment intensity (Entire period, frequency, session hour)	Randomization, dropout (Percentage total)	Mean ES (d_i)
1	Dynamic neuro-cognitive imagery improves mental imagery ability, disease severity, and motor and cognitive functions in people with Parkinson's disease	Abraham et al., 2018	USA	20 NEG = 10 NCG = 10	DMT, Active (Learning + Exercise)	Parkinson disease, Elderly (MEG = 66.4; SDEG = 12.5)	2 weeks 5 × per week 120 min	Yes, Not Reported	0.41
2	Effectiveness of a combined dance and relaxation intervention on reducing anxiety and depression and improving quality of life among the cognitively impaired elderly	Adam et al., 2016	Malaysia	84 NEG = 44 NCG = 40	Dance (poco-poco dance), Active (Relaxation exercise)	Cognitive deficits, Elderly (M = 70.87; SD = 8.19)	6 weeks 2 × per week 60 min	No, Not Reported	1.43
3	Backing the backbones—a feasibility study of effectiveness of dance movement psychotherapy on parenting stress in caregivers of children with autism spectrum	Aithal and Karkou, 2018	India	11 NEG = 5 NCG = 6	DMT (Indian techniques: nritya, nrutya, natya), Non-Active	Caregivers of children with ASD, Adults (28–35 years)	2 weeks 3 × per week Minutes not reported	No, 8.33%	1.80
4	Dance therapy combined with patient education improves quality of life of persons with obesity: a pilot feasibility study for a randomized controlled trial	Allet et al., 2017	Switzerland	54 NEG = 34 NCG = 33	DMT, Active (Educational sessions)	Obesity, Adults (M = 46.19; SD = 10.15)	16 weeks 2 × per week 60 min	Quasi, 20.37%	0.38
5	Effects of dance movement therapy on selected cardiovascular parameters and estimated maximum oxygen consumption in hypertensive patients	Aweto et al., 2012	Nigeria	38 NEG = 23 NCG = 15	DMT, Active (Educational sessions)	Hypertension, Adults (MEG = 44.1; SDEG = 12.7)	4 weeks 2 × per week 50 min	Yes, 24%	0.50
6	Effectiveness of dance in patients with fibromyalgia: a randomized, single-blind, controlled study	Baptista et al., 2012	Brazil	75 NEG = 38 NCG = 37	Dance (Belly dance), Non-active	Fybromyalgia, Adults (18–65 years)	16 weeks 1 × per week 60 min	Yes, 6.66%	0.48
7	The effects of folk dance training on 5–6 years children's physical and social development	Biber, 2016	Turkey	40 NEG = 20 NCG = 20	Dance (Folk Dance), Non-active (TAU)	No Diagnosis, Children (5–6 years)	8 weeks 4 × per week 40 min	No, 0%	2.32
8	Dance movement therapy group intervention in stress treatment: a randomized controlled trial (RCT) AND The efficacy of dance movement therapy group on improvement of quality of life: a randomized controlled trial	Bräuninger, 2012a,b	Germany	162 NEG = 97 NCG = 65	DMT, Non-active	Stressed, Adults (16–65 years)	12 weeks 1 × per week 90 min	Yes, 8.02%	0.36
9	Enhancing positive affect and divergent thinking abilities: Play some music and dance	Campion and Levita, 2014	UK	56 NEG = 15 NCG1 = 13 NCG2 = 14 NCG3 = 14	Dance, active (Quiet, listening to music, cycling)	No diagnosis Young adults (18–23 years)	One session 5 min	Yes, 7.14%	−0.17
10	Efficacy of caregiver-mediated joint engagement intervention for young children with autism spectrum disorders	Chiang et al., 2016	Taiwan	34 NEG = 18 NCG = 16	DMT (Creative movement play) + adapted joint engagement, Non-active (TAU)	Autism Children (2–4 years)	8 weeks 2 × per week 60 min	Quasi, Not Reported	0.61

(Continued)

TABLE 1 | Continued

ID	Title	References	Country	N (Pre-Test)	Intervention, control group activity	Target group (Diagnosis, age range or M, SD)	Treatment intensity (Entire period, frequency, session hour)	Randomization, dropout (Percentage total)	Mean ES (d_i)
11	Creative dance improves physical fitness and life satisfaction in older women	Cruz-Ferreira et al., 2015	Portugal	57 NEG = 32 NCG = 25	Dance (Creative dance), Non-active	No diagnosis elderly (65–80 years)	24 weeks 3× per Week 50 min	Yes, 0%	2.54
12	Dance therapy improves motor and cognitive functions in patients with Parkinson's disease	De Natale et al., 2017	Italy	16 NEG = 9 NCG = 7	Dance (Tango), Non-active (TAU)	Parkinson disease Elderly (M = 67; SD = 6.9)	10 weeks 2× per week 60 min	No, 12.5%	0.25
13	Influencing self-rated health among adolescent girls with dance intervention	Duberg et al., 2013	Sweden	101 NEG = 48 NCG = 53	Dance (African, Jazz, Contemporary), Non-active	No diagnosis Teenager (13–18 years)	32 weeks 2× per week 75 min	Yes, Not Reported	0.51
14	Cognitive benefits of a dance movement therapy program in adults with intellectual disabilities	Guerra-Balic et al., 2017	Spain	28 NEG = 13 NCG = 15	DMT (Chacian approach), Non-active	Intellectual disability Adults (44–66 years)	13 weeks 2× per week 60 min	No, Not reported	0.11
15	Effects of dance on motor functions, cognitive functions, and mental symptoms of Parkinson's disease: a quasi-randomized pilot trial	Hashimoto et al., 2015	Japan	46 NEG = 15 NCG = 14	Dance (Modern, Jazz, Ballet, Aerobic), Active (physical exercise) + Non-active	Parkinson-disease Elderly (Mean = 67.9; SD = 7)	12 weeks 1× per week 60 min	Quasi, 21.74%	0.71
16	"We dance and find each other": Effects of dance/movement therapy on negative symptoms in autism spectrum disorder	Hildebrandt et al., 2016	Germany	78 NEG = 53 NCG = 22	DMT, Non-active	ASD Teenager + Adults (14–53 years)	10 weeks 1× per week 60 min	Yes, 57.38%	0.24
17	Effects of a short-term dance movement therapy program on symptoms and stress in patients with breast cancer undergoing radiotherapy: a randomized, controlled, single-blind trial	Ho et al., 2016a	Hong Kong	139 NEG = 69 NCG = 70	DMT, Non-active (TAU)	Breast cancer Adults (18+years)	3 weeks 2× per week 90 min	Yes, 10.77%	0.06
18	Effects of exercise training with traditional dancing on functional capacity and quality of life in patients with schizophrenia: a randomized controlled study	Kaltsatou et al., 2015	Greece	31 NEG = 16 NCG = 15	Dance (Greek traditional dance), Non-active (TAU, e.g., Psycho-therapy)	Schizophrenia Adults (Mean = 59.9; SD = 14.1)	32 weeks 3× per week 60 min	Yes, 0%	0.35
19	Six months of dance intervention enhances postural, sensorimotor, and cognitive performance in elderly without affecting cardio-respiratory functions	Kattenstroth et al., 2013	Germany	35 NEG = 25 NCG = 10	Dance ("Agilando"-special dance for elderly), Non-active	No diagnosis Elderly (60–94 years)	24 weeks 1× per week 60 min	Quasi, Not Reported	0.65
20	Fixing the mirrors a feasibility study of dance movement therapy on young adults with autism spectrum disorder	Koch et al., 2014	Germany	31 NEG = 16 NCG = 15	DMT, Non-active	Autism Young adults (16–47 years)	7 weeks 1× per week 60 min	Quasi, 0%	0.55
21	Breaking barriers: evaluating an arts-based emotion regulation training in prison	Koch et al., 2014	Germany	47 NEG = 29 NCG = 18	DMT based anti-violence training, Non-active	No diagnosis, Imprisoned Adults (21–63)	1 week 5× per week 60 min	Quasi, Not Reported	0.02
22	Embodied self in trauma and self-harm: effects of a single flamenco therapy session on traumatized in-patients. A pilot study	Koch et al., 2019	Germany	33 NEG = 16 NCG = 16	DMT (Flamenco based), Non-active (TAU)	Trauma Adults (18–59 years)	1 week 1× per week 60 min	Quasi, 2.13%	0.54

(Continued)

TABLE 1 | Continued

ID	Title	References	Country	N (Pre-Test)	Intervention, control group activity	Target group (Diagnosis, age range or M, SD)	Treatment intensity (Entire period, frequency, session hour)	Randomization, dropout (Percentage total)	Mean ES (d_i)
23	Fostering social cognition through an imitation and synchronization-based dance-movement intervention in adults with autism spectrum disorder: a controlled proof-of-concept study	Koehne et al., 2016	Germany	51 NEG = 27 NCG = 24	Dance (Synchronization based movement intervention), Active (Controlled movement intervention)	High-function ASD Young adults (M = 32.75; SD = 9.1)	10 weeks 1 × per week 90 min	No, 7.27%	0.34
24	Effectiveness of dance/movement therapy on affect and psychotic symptoms in patients with schizophrenia	Lee et al., 2015	Korea	38 NEG = 18 NCG = 20	DMT, Non-active (TAU)	Schizophrenia Adults (M = 41.5; SD = 9.1)	12 weeks 1 × per week 60 min	Quasi, Not Reported	0.28
25	Overcoming disembodiment: The effect of movement therapy on negative symptoms in schizophrenia—A multicenter randomized controlled trial	Martin et al., 2016	Germany	68 NEG = 44 NCG = 24	DMT, Non-active (TAU)	Schizophrenia Adults (M = 39.84; SD = 10.35)	10 weeks 2 × per week 90 min	Yes, 30.88%	0.74
26	Does 12-week Latin dance training affect the self-confidence of the university students?	Meric and Ilhan, 2016	Turkey	60 NEG = 30 NCG = 30	Dance (Latin), Not described	No diagnosis Young adults (M = 20.4; SD = 1.99)	12 weeks 1 × per week 120 min	No, Not reported	0.66
27	Dance therapy and the public school: The development of social and emotional skills of high school students in Greece	Panagiotopoulou, 2018	Greece	23 NEG = 11 NCG = 12	DMT, Non-active	No diagnosis Teenager (16–17 years)	12 weeks 1 × per week 60 min	No, 0%	0.29
28	Argentine tango dance compared to mindfulness meditation and a waiting-list control: A randomized trial for treating depression	Pinniger et al., 2012	Australia	66 NEG = 21 NCG1 = 29 NCG2 = 16	Dance (Argentinean Tango), Active (physical exercise) + Non-active	Stress Adults (18–80 years)	24 weeks 1 × per week 90 min	Yes, 31.96%	0.39
29	Tango dance can reduce distress and insomnia in people with self-referred affective symptoms	Pinniger et al., 2013	Australia	64 NEG = 24 NCG1 = 25 NCG2 = 11 NCG3 = 12	Dance Argentinean Tango Active (Meditation, Exercise), Non-active	Stress Adults (18–68)	8 weeks 1 × per week 90 min	Yes, 34.02%	0.67
30	Changes in well-being of schizophrenic patients after movement therapy: results of a multicenter RCT-study	Pohlmann et al., 2017	Germany	36 NEG = 24 NCG = 12	DMT, Non-active	Schizophrenia Adults (18–83)	20 weeks 1 × per week 90 min	Yes, 47.06%	0.50
31	Effectiveness of group body psychotherapy for negative symptoms of schizophrenia: multicentre randomized controlled trial	Priebe et al., 2016	UK	275 NEG = 140 NCG = 135	DMT (Manualised body psychotherapy), Active (Pilates)	Schizophrenia Adults (M = 42.2; SD = 10.7)	10 weeks 2 × per week 90 min	Yes, 4.54%	0.19
32	A dance movement therapy group for depressed adult patients in a psychiatric outpatient clinic: Effects of the treatment	Pylvänäinen et al., 2015	Finland	33 NEG = 21 NCG = 12	DMT (Chacian approach), Non-active (TAU)	Depression Adults (20–59 years)	12 weeks 1 × per week 90 min	No, 22%	0.74
33	Tango for treatment of motor and non-motor manifestations in Parkinson's disease: A randomized control study	Rios Romenets et al., 2015	Canada	33 NEG = 18 NCG = 15	Dance (Argentinean Tango), Active (Self-directed exercise)	Parkinson-disease Elderly MEG = 63.2; SDEG = 9.9)	12 weeks 2 × per week 60 min	Yes, 27.27%	0.20

(Continued)

TABLE 1 | Continued

ID	Title	References	Country	<i>N (Pre-Test)</i>	Intervention, control group activity	Target group (Diagnosis, age range or M, SD)	Treatment intensity (Entire period, frequency, session hour)	Randomization, dropout (Percentage total)	Mean ES (d_i)
34	An exploratory randomized controlled trial of body psychotherapy for patients with chronic depression	Röhrich et al., 2013	UK	21 NEG = 16 NCG = 15	DMT, Non-Active (TAU)	Depression Adults (18–65 years)	10 weeks 2 × per week 90 min	Yes, 24.24%	1.16
35	Effect of dance on cancer-related fatigue and quality of life	Serrano-Guzmán et al., 2016	Spain	67 NEG = 35 NCG = 32	DMT, Non-Active (TAU)	Hypertension Adults + Elderly (62–76)	8 weeks 3 × per week 50 min	Yes, 0%	0.55
36	Effect of dance on cancer-related fatigue and quality of life	Sturm et al., 2014	Germany	40 NEG = 20 NCG = 20	Dance (Group choreography), Non-active	Cancer Adults (26–74)	5 weeks 2 × per week 60 min	Quasi, 10%	1.03
37	Dance improves functionality and psychosocial adjustment in cerebral palsy	Teixeira-Machado et al., 2017	Brazil	26 NEG = 13 NCG = 13	Dance, active (kinesiotherapy)	Cerebral Palsy Teenager + Young adults (15–29 years)	12 weeks 2 × per week 60 min	Yes, 0%	2.79
38	The effect of dance on depressive symptoms in nursing home residents	Vankova et al., 2014	Czech Republic	162 NEG = 79 NCG = 83	Dance (Exercise dance for seniors), Non-active (TAU)	Various diagnosis Elderly in nursing homes (60+ years)	12 weeks 1 × per week 60 min	Yes, Not reported	0.32
39	A pilot study to evaluate multi-dimensional effects of dance for people with Parkinson's disease	Ventura et al., 2016	USA	15 NEG = 8 NCG = 7	Dance (Ballet, Musical-Jazz) + DMT Elements, active (Parkinson support group)	Parkinson Disease Elderly (MEG = 71.8; SDEG = 3.6)	10 weeks 1 × per week 75 min	No, 0%	0.61
40	A comparison of Irish set dancing and exercises for people with Parkinson's disease: a phase II feasibility study	Volpe et al., 2013	Italy	24 NEG = 12 NCG = 12	Dance (Irish set dancing), Active (Standard physiotherapy exercises)	Parkinson- disease Elderly (56–73 years)	24 weeks 1 × per week 90 min	Yes, 0%	0.99
41	Active factors in dance/movement therapy: Specifying health effects of non-goal-orientation in movement	Wiedenhofer and Koch, 2017	Germany	56 NEG = 28 NCG = 28	DMT (Improvisational non-goal-oriented movements)	No diagnosis Adults (19–49 years)	One session 50 min	Quasi, 1.79%	0.25

NEG, number of subjects in the intervention group; NCG, number of subjects in the control group; M, mean; MEG, mean in intervention group; SDEG, standard deviation in intervention group; TAU, treatment as usual; ES, effect size. Bold values indicate the total sample of each study.

at risk for depression). Usually, the dependent variables were assessed with self-report questionnaires (e.g., HADS, BDI, BSI, STAXI). Two studies contained an interview and one study used external observation and rating. We decided to conduct a sub-analysis of anxiety and depression, because the treatment of these conditions is of broad public interest and has been discussed in the previous literature (Peters, 2012; Koch et al., 2014). We assumed that DMT and dance interventions improve psychological functions of emotion regulation, which may be mediated, for example, by authentic expression, experienced agency, body–mind integration, and physiological changes.

Interpersonal Skills

The term “interpersonal skills” relates to competences persons apply in social interaction (e.g., empathy, synchronization, communication, prosocial behavior, self-other awareness, maintaining a relationship). Most studies in this cluster were conducted with children, some of whom had been diagnosed with developmental disorders (ASD, ADHD). Therefore, researchers used external observations (e.g., by a parent, teacher, or clinician) more frequently. There were also two adult populations (ASD, schizophrenia). Interpersonal experiences in DMT and dance might particularly improve skills allocated to this cluster, for example, the therapeutic relationship, group cohesion, and (non-verbal) communication. In recent years, researchers have started to investigate whether the “mirroring” technique, proposed by dance movement therapist Marian Chace (Sandel et al., 1993), fosters empathy and enhances activity of mirror neurons in the brain (McGarry and Russo, 2011). A link of mirroring in movement and attachment has recently been established (see Feniger-Schaal et al., 2018, this issue).

Cognitive Skills

Cognitive skills relate to the set of mental abilities and processes that we need to carry out any task from the simplest to the most complex (e.g., skills of language, memory, and conceptualizing). Because a decrease of these mental abilities is a typical issue in elderly persons, most primary studies focus on this population. Cognitive skills were assessed using psychological tests (e.g., memory tasks, word tasks, calculation tasks, attention tasks) and tests referring to body image or body imagery, which denominates the ability to perceive and visualize bodily changes and changes. Since the operationalizations of the concept in the included studies measure a mainly representational skill, we categorize it under cognitive skills, even though it includes sensorimotor and emotional aspects.

(Psycho-)Motor Skills

The assessment of (psycho-)motor skills was conducted in (mostly elderly) patients that were diagnosed with Parkinson's disease. It contained tests on walking, turning, balance, and freezing of gait, and self-report measures on daily functioning. Only dance interventions, no DMT, were found in this outcome cluster. Dance improves motor function by training muscular activity, balance, and flexibility. Furthermore, there is a training of cognitive skills associated with movement, for example, in executing imagined movements, following music, and observing

bodily changes (Hashimoto et al., 2015). Because we focused on psychological changes in this meta-analysis, studies with outcomes on mere physical skills (e.g., exercise capacity, arm range) were excluded. However, in our literature search, we found at least as many studies on physiological changes after DMT and dance interventions as on psychological changes. It is important to note that *changes in Parkinson's disease severity were categorized as psychomotor skills*, because Parkinson's disease is an extrapyramidal and neurodegenerative disorder (ICD 10), which entails physical and psychological components. The included studies with a focus on Parkinson's disease measured mixed psycho-physiological variables (as outlined above).

Residuals

Our residual category contained two types of outcomes too small to analyze in separate clusters: positive symptoms in schizophrenia and physiological changes (e.g., blood pressure). In schizophrenia, we distinguish positive symptoms (an overabundance of perceptions compared to average, e.g., hallucinations) from negative symptoms (a void or lack of perception and expression compared to average, e.g., apathy, mood, and blunted affect). While positive symptoms can be successfully addressed by anti-psychotic medication, DMT seems to be particularly useful for addressing negative symptoms (Röhrich and Priebe, 2006; Lee et al., 2015; Martin et al., 2016; Pohlmann et al., 2017). We allocated the negative symptoms to the clinical outcomes cluster. Pohlmann et al. (2017) postulated a concept of “disembodiment” in schizophrenia stressing that schizophrenia is a self-disorder and is characterized by disturbances of ipseity (selfhood). They state that mechanisms of body–mind integration improve self-awareness. Regarding physiological changes, the effects of dance and DMT are also detectable on a neural and hormonal level (e.g., Quiroga Murcia et al., 2009; Stück and Villegas, 2017; Abraham et al., 2018). Studies assessed positive symptoms in schizophrenia with self-report questionnaires or clinical interviews/observations, whereas physiological data were collected using medical examination procedures (e.g., sphygmomanometer).

METHODS

Study Selection

The following inclusion criteria were used to filter studies for meta-analysis:

- a) Experimental intervention study (independent variable: dance or DMT intervention, dependent variable: health-related psychological outcomes)
- b) Control group design
- c) Availability of necessary statistics to calculate effect sizes (pre- and post-intervention assessment in intervention and control group, mean, SD, *N*, *t*, or *F* values)
- d) Language of publication: English or German
- e) Period of publication: 01/2012 to 04/2018

Because we wanted to get a broad picture, we also included studies with interventions named “body psychotherapy” or “movement integration.” We decided to classify an intervention

BOX 1 | Search terms.

Single search terms	Combined search terms
<ul style="list-style-type: none"> • dance movement psychotherapy • dance movement therapy • dance therapy • therapeutic movement • dance-effectiveness • dance • dance-therapy • expressive movement • expressive dance 	<ul style="list-style-type: none"> • dance movement psychotherapy + controlled trial • dance movement therapy + controlled trial • dance therapy + controlled trial • dance movement psychotherapy + random • dance movement therapy + random • dance therapy + random • dance movement psychotherapy + controlled trial • dance movement therapy + controlled trial • dance therapy + controlled trial • dance movement psychotherapy + random • dance movement therapy + random • dance therapy + random • dance movement psychotherapy + controlled trial • dance movement therapy + controlled trial • dance therapy + controlled trial • dance movement psychotherapy + random • dance movement therapy + random • dance therapy + random • dance movement psychotherapy + controlled trial • dance movement therapy + controlled trial • dance therapy + controlled trial • dance movement psychotherapy + random • dance movement therapy + random dance therapy + random

as “DMT intervention” if a dance movement therapist conducted the session. When the qualification of therapist was missing (or unclear), we closely analyzed the descriptions of the intervention. If the intervention description suggested that predominantly typical tools of DMT were used (therapeutic use of dance/movement involving mirroring, conscious social interaction in movement, introspection and reflections on movement and body sensations; see also definition of DMT and description of DMT methods in Koch, 2019), we categorized the intervention as DMT. Trials that included dance elements but predominantly used methods of other creative arts therapies were excluded (Mateos-Moreno and Atencia-Doña, 2013; Jakobsen et al., 2017; Van Westrhenen et al., 2019). In contrast, we allocated methods to the dance intervention group, if they were dance training sessions conducted by dancers or exercise instructors from various backgrounds (physiotherapists, nurses, fitness instructors). We decided to include group as well as individual therapy sessions.

Literature Search

For this meta-analysis, we used multiple search strategies. First, we systematically searched electronic databases, namely, Psynx, PsycINFO, ERIC, CENTRAL, and Google Scholar. We used different terms for dance movement therapy (DMT) and dance-related interventions as single keywords and combined search terms, putting together the single keywords and terms related to the study design (see **Box 1**).

The number of hits is reported in the flowchart below (**Figure 1**). Additionally, we conducted a hand search examining professional journals without widespread indexing, sending

requests for unpublished and in process EBM studies to national and international professional listservs, and directly wrote to researchers with a history in EBM research on dance therapy, asking for references we may have potentially missed; we also included references that were mentioned in some of the secondary studies and that slipped by our systematic literature search (we received detailed responses from Dr. Vicky Karkou, Dr. Bonnie Meekums, Dr. Iris Bräuninger, Susanne Bender, Indra Majore-Dusele, and others).

The systematic database search yielded 132 records and was supplemented with 59 studies identified through hand search. Because each included research report contained only one study, we did not have to differentiate between the analysis of research reports and studies. After removing duplicates (i.e., the same studies found in different data sources), a total of 183 studies was screened. Fifty-four of these studies (30%) met the inclusion criteria, and their full-article texts were then assessed for eligibility.

We had to exclude 14 studies for the following reasons (more information in **Appendix**):

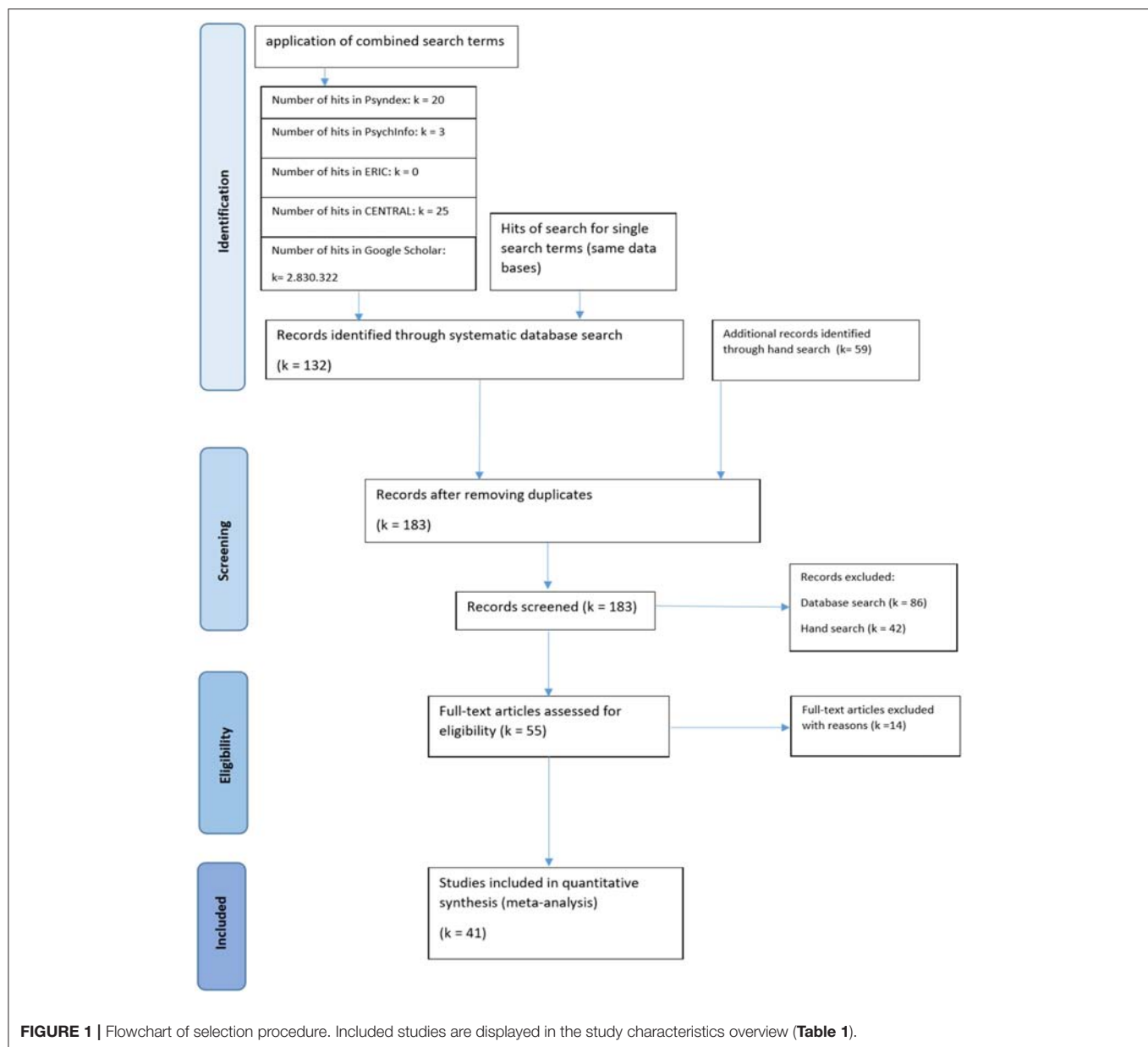
- Seven studies due to insufficient data (e.g., three had no data available; for four, it was not possible to calculate reliable effect sizes from the statistics provided)
- Four studies because closer examination of the intervention methods revealed that they did not match the criteria of either DMT or dance intervention (e.g., combined creative arts therapies, observations of dance pieces)
- One study contained only qualitative data
- One study contained no comparable control group (participants of the control group were caregivers of participants with Parkinson's diagnosis in the experimental group)
- For one study, data were reported and included from another publication

Finally, we were able to include a total of 41 studies into the analysis (see **Figure 1**).

Coding Procedure

We coded the study characteristics (see **Table 1**) using the following variables:

- *Identification*: author, title, year
- *Publication*: country, publication status
- *Sample*: sample size, age range, percentage of female participants, clinical vs. non-clinical sample, diagnosis
- *Intervention*: DMT or dance, qualification of implementing person, quality of intervention description (major intervention methods of DMT see Koch, 2019)
- *Control Group*: number of control groups, type of control group activity
- *Time*: one session vs. process, length of intervention period, frequency of intervention, length of session, period follow-up
- *Methods*: type of measurement, type of analysis, randomization, dropout



Data Synthesis

The analysis was done in SPSS (IBM, Version 25), employing meta-analysis macros by Wilson (2005). To synthesize data, we decided to use calculations of effect sizes. There were four levels of analysis (see Figure 2).

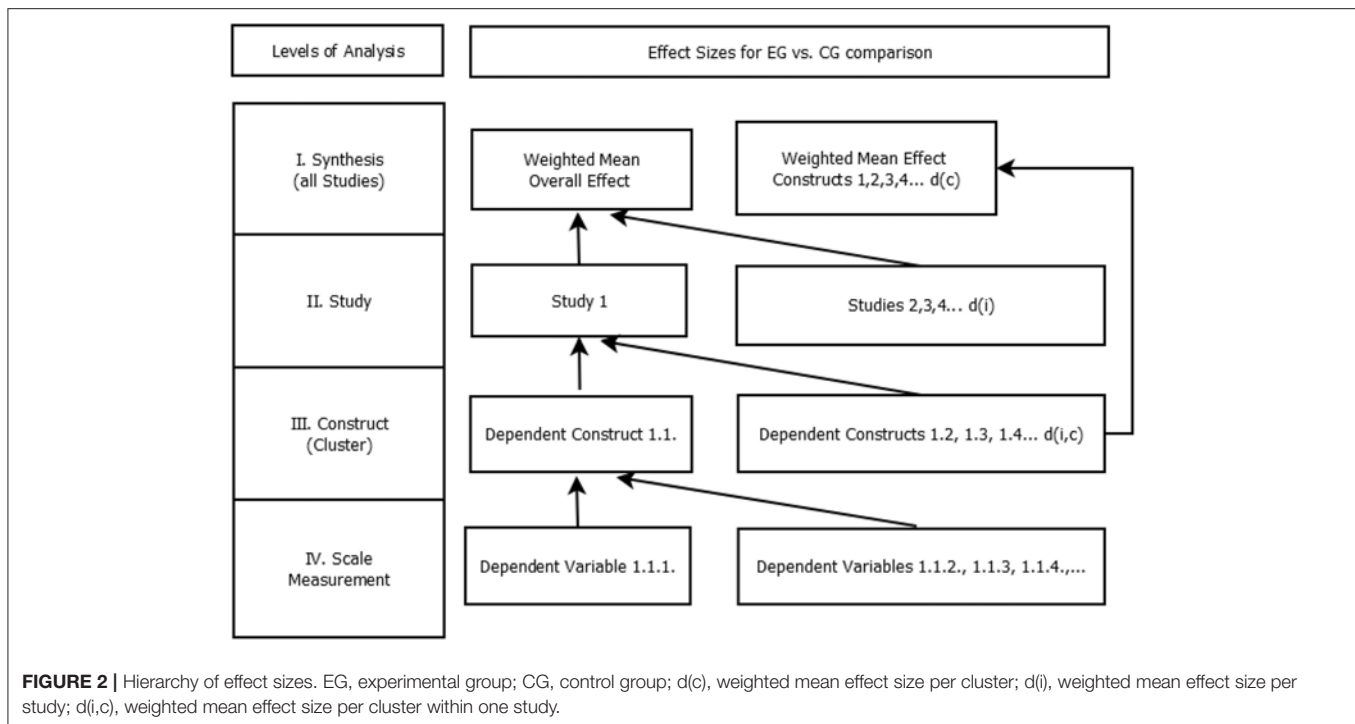
Most studies were using multiple scales or tests to measure the changes from pre- to post-intervention in one dependent construct (e.g., mental health, general health, and vitality as facets of quality of life). Furthermore, usually more than one dependent construct was observed in one study (e.g., quality of life, affect, and interpersonal skills). Thus, we had to synthesize data on several levels (Figure 2). From Level IV to Level III and from Level III to Level II effect sizes within studies were synthesized. From Level II to Level I effect sizes across studies

were synthesized. We started our analysis at the bottom level (Level IV), calculating effect sizes for each dependent variable (e.g., scales, tests). An adjusted formula of Cohen's d was used (Cohen, 1988):

$$d = \frac{(M_{IGpost} - M_{CGpost}) - (M_{IGpre} - M_{CGpre})}{SD_{pooledpre}}$$

$$SD_{pooled} = \sqrt{\frac{(N_{IGpre} - 1)SD_{IGpre}^2 + (N_{CGpre} - 1)SD_{CGpre}^2}{N_{IGpre} + N_{CGpre} - 2}}$$

This formula incorporates differences between pre- and post-intervention values in the intervention group controlling for changes that occurred in the control group (for abbreviations,



see list of symbols in **Appendix**). The effect is standardized using the pooled standard deviation, which is formed by the pooled variance of intervention and control group at the pre-intervention level. The natural variance of characteristic values in one sample is assumed to be confounded by the intervention; this is why the pooled variances at pre-time are more precise estimates of variation (Lipsey and Wilson, 2001).

Some studies reported median instead of mean and standard error of the mean or interquartile range instead of standard deviation. In these cases, we used the median as a mean and recalculated dispersion measures to approximate the effect sizes (Higgins and Green, 2008). In addition, we adjusted the polarization of the scales multiplying with -1 , where necessary. Where the polarization of scales or tests remained unreported in the original study, we conducted a literature search to ascertain the direction of the effect. All effects were polarized to ensure that a positive effect size means that the health or resources of the participant improved (e.g., more interpersonal skills, less depression). In total, we calculated 306 effect sizes ranging from $d = -0.82$ to a maximum of 9.61. Sixteen effect sizes were larger than 3.0 and could be viewed as outlier effect sizes that could have serious impact on the mean effect size and the moderator analyses. Therefore, to avoid an overestimation of the effectiveness (Lipsey and Wilson, 2001), we recoded all effect sizes greater than three to $d = 3.0$, because it seems that those effect sizes are not realistic within intervention studies (Beelmann, personal communication). Next, calculating mean effect sizes, we aggregated the data of multiple dependent variables that measured changes in one dependent construct (outcome cluster). As a result, we obtained 78 effect sizes, with each effect size referring to one dependent construct in one study ($d_{c,i}$, Level III).

Again, we calculated mean effect size, to synthesize the effect sizes of the dependent constructs into one mean effect size per study (d_i , Level II). Then, we planned to analyze data across studies (Level I) using methods developed by Hedges and Olkin (1985). Because studies with a greater sample size are generally more conclusive than smaller studies, each study was weighted with:

$$\omega_i = \frac{2(N_i)N_{iIG}N_{iCG}}{2(N_i)^2 + N_{iIG}N_{iCG}d_i}$$

To get one overall weighted mean effect size, we calculated:

$$d_{MEAN} = \frac{\sum_{i=1}^k d_i \omega_i}{\sum_{i=1}^k \omega_i}$$

To obtain weighted mean effect sizes for outcome clusters (dependent constructs), we used the same formula replacing the mean effect sizes per study (d_i) with the mean effect sizes per construct per cluster ($d_{c,i}$, Level III). Our analysis did not correct for multiple testing in order not to lose power. Instead, the chosen method is strong in avoiding Type I error. Having conducted 78 tests, it is important to note that four results may have been randomly significant (expecting five randomly significant results out of 100 tests).

Assessment of Heterogeneity

Heterogeneity is an important issue in meta-analysis. It deals with the question of whether all included studies measure the same intervention effect. Usually, if there is a more general research question and there are less strict inclusion criteria, as it is the case in our analysis, we expect that we can observe

more differences between studies in content- and method-related characteristics. We analyzed the heterogeneity of the effects using *Q*-statistics. A significant *Q* means that the heterogeneity is larger than we would expect from sampling error. In this case, we would need to calculate a random instead of a fixed-effect model (Lipsey and Wilson, 2001). In a random-effect model, we use a new inverse variance component resulting in greater confidence intervals of the effect sizes. From *Q*-statistics, we can calculate *I*-square, which is an estimator for the inconsistency of the results (Higgins et al., 2003). It is interpreted as the percentage of variance of the effect that is caused by heterogeneity (25% = low heterogeneity, 50% = moderate heterogeneity, 75% = high heterogeneity; Cohen, 1988).

Analysis of Outliers and Publication Bias

Due to the file-drawer problem (i.e., the problem that studies failing to produce a statistically significant result are less likely to be published than those that do produce a statistically significant result), meta-analyses are in danger of overestimating the effects of an intervention (Rosenthal, 1979). We used a funnel plot and trim-and-fill analysis, two methods for assessing publication biases, to explore whether this might be the case in our analysis. We also investigated outliers that might bias the results.

Assessment of Sensitivity

To address issues of heterogeneity and to obtain a better understanding of which study characteristics might influence the assessment of effect sizes, we conducted sensitivity analysis for categorical variables (METAF, Macros from David B. Wilson; Lipsey and Wilson, 2001) and for metric variables (METAREG, Macros from David B. Wilson; Lipsey and Wilson, 2001). The study characteristics were incorporated as moderators of the effects.

To compare different control group types (e.g., waiting-list control group, physical exercise control groups), we additionally conducted separate analysis of studies with more than one

control group, to ensure that all other study characteristics remained constant.

Analysis of Follow-Up Data

To obtain information about long-term effects, we created a separate file to analyze follow-up data. Using the same procedure as described above, we calculated the effects from pre-test to follow-up values.

RESULTS

Study Characteristics

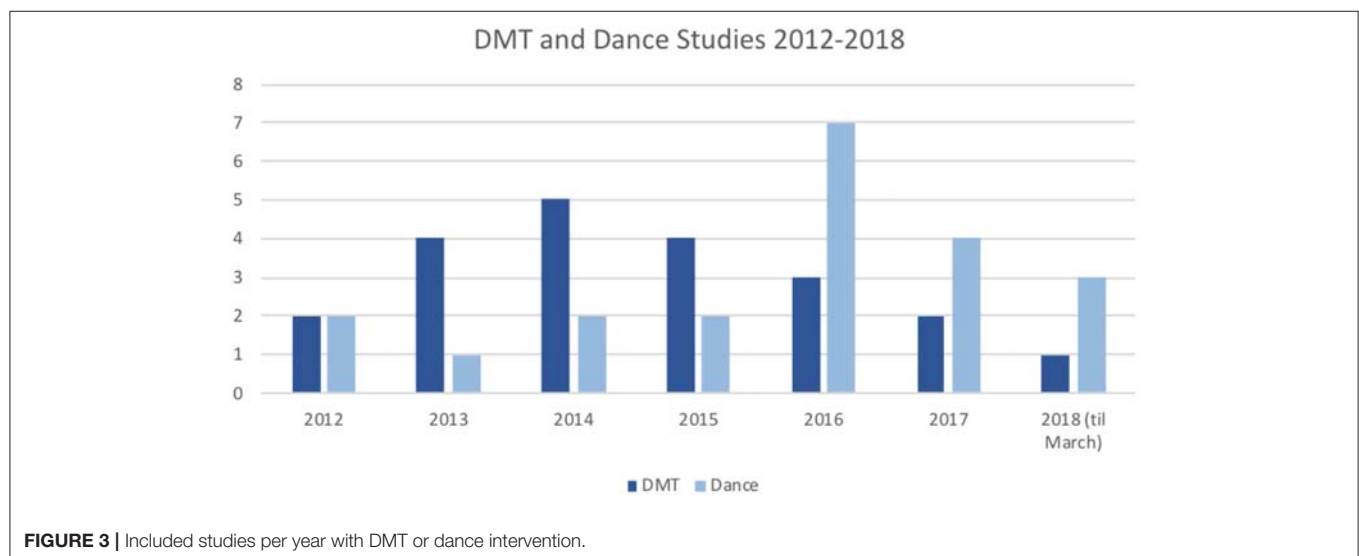
Countries of Publication

The incorporated studies came from 14 different countries. Most studies were conducted in Germany (11 studies, 26.8%). Overall, 25 studies (60.98%) were conducted in Europe. In addition, eight studies (19.51%) were conducted in Asia, three studies (7.32%) in North America, two studies (4.88%) in Australia, two studies in South America (4.88%), and one study in Africa (2.44%). Generally, one can observe that most studies stemmed from “Western” countries (Germany, UK, USA, Canada, Australia, Mediterranean, and Scandinavian countries). Most Asian studies were conducted in Hong Kong, Korea, and Japan. The remaining studies stemmed from Malaysia, India, and Nigeria. We found seven studies that had not been published yet (Aweto et al., 2012; Ventura et al., 2016; De Natale et al., 2017; Koch, 2017; Pohlmann et al., 2017; Abraham et al., 2018; Aithal and Karkou, 2018).

Figure 3 displays the number of studies that met the inclusion criteria found per year. The search dates were January 2012 to March 2018. While dance and DMT studies were equal in numbers in 2012, there were more DMT studies in 2013–2015, and more dance studies in 2016–2018.

Samples

Twenty-nine studies (70.73%) implemented the intervention in a clinical sample, and 11 (27.5%) were conducted with a non-clinical (educational) sample. From the clinical populations, 11



were diagnosed with affective disorders (depression), or reported feelings of stress, sadness, or anxiety. Six samples were diagnosed with Parkinson's disease, five with schizophrenia, four with ASD, and two with cognitive impairments. Overall, there were more female than male participants (percentage female participants: $M = 65.66\%$, $SD = 27.65$). Comparing intervention and control group, the distribution of female and male participants was even.

Interventions

About half of the studies were DMT intervention studies (21 studies); the other half were dance intervention studies (20 studies). In the *DMT group*, 16 interventions were provided by a trained dance movement therapist, at least four of them were also qualified clinical psychologists. In four trials, descriptions of qualification of therapists were missing or dance movement therapists in training (Aweto et al., 2012; Serrano-Guzmán et al., 2016; Guerra-Balic et al., 2017; Wiedenhofer and Koch, 2017). We allocated them to the DMT group because the intervention was predominantly DMT (distinguishing criterion is described above). In the study by Abraham et al. (2018), classification of qualification of therapist was difficult. The intervention was provided by a physiotherapist specialized at "dynamic neuro-imagery" intervention, a DMT-like introspection intervention. We decided to allocate the study to the DMT group, because of content-related similarities of the intervention to DMT. In the *dance intervention group*, seven interventions were conducted by an instructor with dance education. Additionally, seven interventions were conducted by exercise instructors with other backgrounds (physical education, physiotherapy, nursing). Six trials contained no description about qualification of dance instructors and were allocated to the cluster because of content-related similarities to the other dance intervention studies.

The *DMT studies* differed in the technique, e.g., the technique by Marian Chace ("Chacian approach", a standard method in DMT; Sandel et al., 1993), dance therapy with ethno-elements, DMT modified to suit Chinese culture, manualized body psychotherapy (conducted by dance therapists; manual of Röhrich and Papadopolous, unpublished), and dance therapy with elements of creative movement play (for more extensive description of intervention methods in DMT, see Koch, 2019). Dance interventions used various dance styles, mostly traditional folk dance or cultural dance forms (Irish set dancing, Greek traditional dance, Flamenco, Poco-Poco dance, Belly dance, Tango), further couple dance (Latin dance), and contemporary dance (jazz, modern, creative dance). All interventions took place in groups. DMT and dance interventions were modified to the age of the participants. In the studies of Meric and Ilhan (2016) and Panagiotopoulou (2018), the researcher and the implementing person were identical. The quality of intervention description differed widely across studies. Fifteen percent of the studies described the intervention very rudimentarily, 22.5% moderately, 22.5% more detailed, and 40% replicable, which is a clear increase in replicable descriptions compared to the seven studies in the former meta-analysis by Koch et al. (2014).

Control Groups

To control for unspecific effects, about one third of the studies (31.7%) used active control groups [e.g., listening to music,

cycling, Pilates, physical education/sports exercises (physical exercises), psychoeducation, meditation, relaxation exercises], and 65.9% of the studies used a passive control group (e.g., waiting-list group or treatment as usual). One control group description was missing (Meric and Ilhan, 2016).

Duration of Interventions

Most of the included studies were implementing the intervention over a longer period of time (Mean = 11.41 weeks, $SD = 7.89$, Min = 1 week, Max = 32 weeks). Only the studies by Campion and Levita (2014) and Wiedenhofer and Koch (2017) implemented one single-dance/DMT session and assessed short time effects immediately after the intervention. Their sessions lasted for 5 min in the study by Campion and Levita (2014) and for 50 min in the study by Wiedenhofer and Koch (2017). The other sessions were usually carried out two times per week (Mean = 1.85, $SD = 1.05$, Min = once per week, Max = 4 times per week), and lasted for 1 h or 1 1/2 h (Mean = 71.32 min, $SD = 19.02$, Min = 40 min, Max = 120 min).

Statistical Tests and Assessment Methods

To assess and compare pre-post differences of the dependent variable in the intervention and control group, either *t*-tests, ANOVAs, or MANOVAs were calculated. Mostly self-report questionnaires were used for assessment (49%), followed by observation rating scales (17.6%), cognitive tests (13.4%), tests of motor functioning (11.1%), interviews (6.5%), and psychophysiological measures (2.3%).

Sample Sizes and Randomization

The meta-analysis included studies with large and very small sample sizes (N : Mean = 57.90, $SD = 49.61$, Min = 11, Max = 275). In 21.95% of the cases, the samples were smaller than $N = 30$, 34.15% were $N = 30$ –50, 31.70% $N = 50$ –100, and 12.20% were larger than $N = 100$. The studies with the largest sample sizes are contributing most to the results (weighted mean effect sizes); these are (Priebe et al., 2016) ($N = 275$), (Vankova et al., 2014) ($N = 162$), (Bräuninger, 2012a) ($N = 162$), (Ho et al., 2016a) ($N = 139$), and (Duberg et al., 2013) ($N = 101$). In general, smaller studies are less conclusive and generalizable than studies with larger sample sizes (unless their methodological quality is significantly better). Therefore, we weighted their results discriminately, calculating weighted mean effect sizes (see previous paragraph). Notably, most studies did not meet established criteria or rules of thumb that would define desirable sample sizes to conclude effects for a certain population (Harris, 1985; Kraemer and Thiemann, 1987; Green, 1991). Nevertheless, it is assumed that (apart from publication bias) studies with a small sample size would not significantly bias the results of meta-analyses but contribute important information, for example, about heterogeneity and the effects in sub-groups (Higgins et al., 2003; Grainge, 2015).

Randomization is an important criterion for the reliability and validity of estimated effect sizes, because it addresses the issue of comparability of the inspected groups. Fifty-two and a half percent (52.5%) of the studies used randomization as group allocation process, 22.5% used quasi-randomization techniques, and 25% of the studies used no randomization

techniques (group allocation was based on self-selection or purposive sampling). Of the 10 non-randomized studies, only 5 included extra assessments of baseline differences, showing that there were significant differences in three of them (Pylvänäinen et al., 2015; Adam et al., 2016; Aithal and Karkou, 2018). The inclusion of studies with baseline differences is justified here, because our methodological approach takes those differences into account when calculating effect sizes. The studies from Biber (2016), Guerra-Balic et al. (2017), Meric and Ilhan (2016), and Panagiotopoulou (2018) used no statistical tests to assess baseline differences.

Dropouts

Thirty-one of the 41 studies reported dropout rates (Mean = 13.55%, SD = 15.18, Min = 0%, Max = 57.38%). Analysis of dropout rates revealed that 7 of the 31 studies reported a dropout that is higher than 30% (Pinniger et al., 2012, 2013; Röhrich et al., 2013; and Rios Romenets et al., 2015; Hildebrandt et al., 2016; Martin et al., 2016; Pohlmann et al., 2017). This was in many cases due to the fact that severely impaired patients with schizophrenia or depression had to actively travel to outpatient treatment, requiring a strong motivational state, which is precisely one of the problems in these disorders.

Overall Quality of Included Studies

Because we applied mild selection criteria, the methodological quality of the included primary studies is considerably heterogeneous, and risk of bias is a concern in most of the included studies. Referring to the Cochrane Collaboration's tool for assessing risk of bias in randomized trials, there are six domains of bias that should be considered: selection bias, performance bias, detection bias, attrition bias, reporting bias, and other sources of bias (Higgins et al., 2011). Selection bias relates to the group allocation of participants. As reported above, a quarter of the studies had a great risk of selection bias (or in this respect), because no randomization or quasi-randomization tools were used. Additionally, in 12.2% of the trials, no baseline characteristics were checked. Secondly, performance bias relates to blinding of the participants and staff involved. Any of the investigated trials might be affected by this risk of bias (Rosenthal effect), because blinding is a challenge in any type of intervention study. While it is possible to conceal, which is the experimental vs. control condition in active control group trials, it is more difficult in waiting list designs, such as is the case in many of the DMT and dance interventions here. However, it is plausible that self-report measures and external rating scales are more affected by performance bias than cognitive or motor tests or physiological data. Detection bias addresses blinding of the researcher, who assesses and analyses the results. We were not able to extract this information from most of our primary trials, but we assume that researchers usually know the treatment allocation of the participants. Attrition bias is about the issue of the amount and handling of incomplete outcome data. As we assessed dropout rates (see section above), we can state that about 42% of the studies are in danger for this domain of risk of bias. Because selective reporting (reporting bias) is hard to extract from primary trials, we did not assess this domain.

Concerning other risks of bias (e.g., conflicts of interest), in two studies, the researcher was also the implementing person (Meric and Ilhan, 2016; Panagiotopoulou, 2018). To conduct further analyses, we used dichotomous coding (higher-risk vs. lower-risk studies), including all studies in the higher-risk category that had a total N smaller than 30 or which yielded issues in any of the assessed domains of risk of bias (group allocation, attrition bias, other bias). A more detailed description on study characteristics is provided in **Table 1** (study characteristics chart).

Overall Effect

Overall, we synthesized data from 2,374 participants from 41 studies (more than twice the number of the last general meta-analysis by Koch et al., 2014). According to Cohen (1988), effect sizes between $d = 0.2$ and $d = 0.5$ are small effects, effect sizes between $d = 0.5$ and $d = 0.8$ are medium effects, and effect sizes larger than $d = 0.8$ are large effects. The mean effect sizes per study (Level II, $k = 41$) varied between one small negative effect size and large positive effect sizes (Unweighted Mean: $d = 0.67$, Min: $d = -0.17$, adjusted Max: $d = 2.96$). The maximum effect size is not bigger than 3.0, because of the adjustments we obtained at Level III. The unadjusted Maximum would be $d = 5.07$. Further details about the distribution of effect sizes across studies are described in the paragraphs below.

We calculated a fixed-effect model to obtain a weighted mean effect size across studies (Level I). The weighted overall fixed effect was $d = 0.48$ ($p < 0.001$, $CI_{\min} = 0.40$, $CI_{\max} = 0.57$). The analysis of heterogeneity showed a high inconsistency of results ($Q = 127.52$, $df = 40$, $p < 0.001$, $I^2 = 72.62\%$). Therefore, we calculated a random-effect model as recommended in Lipsey and Wilson (2001). The estimated weighted overall random effect was $d = 0.60$ ($p < 0.001$, $CI_{\min} = 0.44$, $CI_{\max} = 0.76$). In the following paragraphs, we will only report results that were calculated with the random-effect model.

Effect Sizes According to Outcome Cluster

The weighted mean effects sorted by constructs (outcome clusters) are summarized in the chart below. The analysis yielded a significant effect for each outcome cluster. The effect for interpersonal skills was the largest one, followed by quality of life and (psycho-)motor skills. Furthermore, all effects but the effect for (psycho-)motor skills showed high heterogeneity. Since we calculated a random-effect model, all effects showed broad confidence intervals (see **Table 2**).

Subanalysis

The subanalysis of anxiety and depression revealed that the differentiation of the two constructs did not lead to more homogeneous results. Depression yielded a slightly larger effect than anxiety. Both effects were medium and showed high heterogeneity. The effect for physiological variables was large but heterogeneous; the effect for positive symptoms in schizophrenia reached significance on the $p < 0.1$ level and was also heterogeneous (see **Table 3**).

TABLE 2 | Effect sizes according to outcome cluster.

Construct	<i>k</i>	Mean ES, <i>d_c</i>	CI	SE	<i>p</i>	<i>Q</i>	<i>p</i>	<i>I</i> ² %
Quality of life	20	0.67***	0.41–0.99	0.133	<0.001	89.30	<0.001	78.72
Affect	23	0.56***	0.34–0.79	0.115	<0.001	88.65	<0.001	75.18
Interpersonal skills	9	0.85***	0.41–1.28	0.222	<0.001	38.61	<0.001	78.15
Cognitive skills	10	0.53**	0.13–0.93	0.204	0.009	28.51	0.001	68.43
(Psycho-)motor skills	10	0.65***	0.36–0.96	0.152	<0.001	14.61	0.102	38.39
Residual	6	0.47*	0.06–0.88	0.208	0.025	20.04	0.001	75.05

k, number of studies; ES, effect size; CI, confidence interval; SE, sampling error; **p* < 0.05; ***p* < 0.01; ****p* < 0.001; *Q*, parameter of heterogeneity. The first *p*-value on the left refers to the mean effect size, whereas the *p*-value on the right side refers to *Q*.

TABLE 3 | Effect sizes according to sub-clusters.

Construct	<i>k</i>	Mean ES, <i>d_c</i>	CI	SE	<i>p</i>	<i>Q</i>	<i>p</i>	<i>I</i> ² %
Anxiety	9	0.47**	0.09–0.84	0.192	0.015	42.88	<0.001	81.34
Depression	18	0.54***	0.30–0.78	0.124	<0.001	65.35	<0.001	73.99
Physiological variables	2	0.88**	0.22–10.54	0.338	0.009	2.63	0.105	61.98
Schizophrenia (pos symptoms)	4	0.40*	–0.01–0.79	0.205	0.05	7.99	0.046	62.45

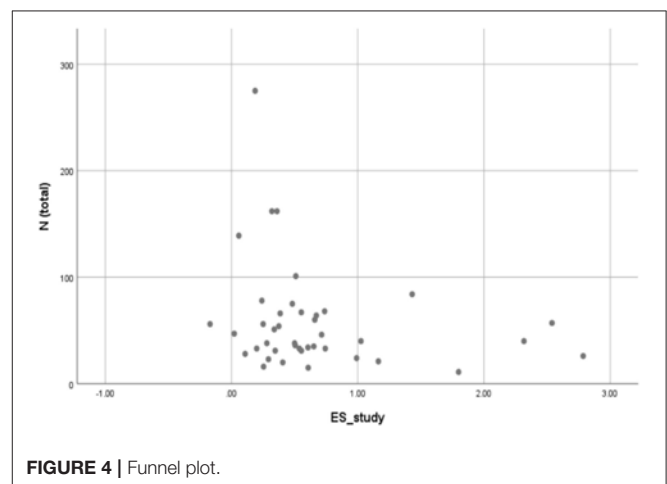
k, number of studies; ES, effect size; CI, confidence interval; SE, sampling error; **p* < 0.05; ***p* < 0.01; ****p* < 0.001; *Q*, parameter of heterogeneity.

Analysis of Outliers and Publication Bias

The one-session study from Campion and Levita (2014) was the only one to show a (small) negative effect ($d = -14$). Other studies that were at the lower end of the distribution were Koch et al. (2015a,b) that included an anti-violence training ($d = 0.02$) and Ho et al. (2016a) that aimed to improve the quality of life of cancer patients ($d = 0.06$). On the other side of the distribution, we could observe large effect sizes ($d = 1.8$ up to $d = 2.96$) in the studies of Cruz-Ferreira et al. (2015), Biber (2016), Teixeira-Machado et al. (2017), and Aithal and Karkou (2018). If we had not recoded the effect sizes from Chiang et al. (2016), Pohlmann et al. (2017), Teixeira-Machado et al. (2017), and Aithal and Karkou (2018) at Level IV, they would have been even larger (up to $d = 5.07$). Possible reasons for the effect size distribution across studies are detailed in the next paragraphs.

To analyze the distribution of effect sizes and to address the issue of publication bias, we created a funnel plot (see **Figure 4**) that shows the distribution of unweighted effect sizes as a function of sample sizes. The distribution would be asymmetrical in case of a publication bias, because then small sample studies with positive effect sizes would be published, whereas small sample studies with no positive effects would remain unpublished (Lipsey and Wilson, 2001).

The diagram in **Figure 4** shows a skewed distribution to the right; that is, the large positive effect sizes on the right have no equivalent on the left. This is an indication of a publication bias. Therefore, we conducted a regression analysis (independent variable: sample size, dependent variable: unweighted effect size). There was a small negative gradient parameter that did not reach significance ($\beta = -0.003$, $p = 0.147$). We can thus assume that the publication bias does not have a great impact on the results. Nevertheless, the fact that the gradient parameter did not reach significance does not mean that there is no publication bias at all. We also conducted trim-and-fill analysis as a more

**FIGURE 4 |** Funnel plot.

elaborate method to explore publication bias using the random-effect model and an L_0 estimator (Duval and Tweedie, 2000). The number of estimated missing studies on the left side, meaning the number of studies that are assumed not to be found due to publication bias, was zero. Thus, the new estimated overall effect did not differ from the original one.

Assessment of Sensitivity

As described above, we conducted analysis of sensitivity using study characteristics as metric and categorical moderator of the effect sizes per study (d_i).

Metric Variables

Regression analyses revealed that no metric variable alone reached significance as a moderator of effect sizes (see **Table 4** below). *N* total was closest to significance, indicating that studies

with a greater sample size yielded smaller effects. This can be interpreted as a result of the file-drawer problem, risk of bias of smaller studies, or as an estimator of quality of implementation (we can assume that, in smaller samples, the intervention was implemented more appropriate to the individual) (see **Table 4**).

Overall, 40.84% of variance (R^2) was explained by metric moderators.

Categorical Variables

We conducted sensitivity analysis with the following categorical moderators: country, publication status, higher vs. lower risk of bias, age range, clinical vs. non-clinical sample, diagnosis, DMT vs. dance intervention, qualification of implementing person, quality of intervention description, one-session vs. process, randomization, dropout rates, type of control group activity, and measurement type.

Two moderators were significant on a $p < 0.05$ level: DMT vs. dance intervention studies (between variance: $Q = 5.54$, $df = 1$, $p = 0.019$), and qualification of implementing person

(between variance: $Q = 8.89$, $df = 3$, $p = 0.031$). Trials with DMT interventions yielded significant but slightly lower effect sizes ($d = 0.35$, $p < 0.001$) than trials with dance interventions ($d = 0.81$, $p < 0.001$). In addition, the results of the group with DMT interventions were consistent ($I^2 = 3.47$), whereas the results in the dance intervention group were inconsistent ($I^2 = 77.96$). Country, higher vs. lower risk of bias, and age range were significant moderators of effect sizes on a $p < 0.1$ level. In children, teenagers, and seniors, larger effect sizes were observed than in adults, but the effect sizes in adults were more consistent. Furthermore, lower-risk studies yielded smaller effect sizes than higher-risk studies and were more homogeneous. In clinical trials, effect sizes were smaller than in non-clinical trials, but the results remained more consistent than in non-clinical trials (weighted mean effect sizes sorted by group, see **Table 5**).

Control Group Type

Across all studies, the type of control group activity was not a significant moderator of effect sizes. A different picture resulted, when we only included studies with more than one control group into the analysis ($k = 9$, active control groups: meditation, physical exercises). For these studies, the weighted mean effect size remained significant when compared to non-active control groups (in most cases, waiting list CGs), but declined to a visible but non-significant effect when compared to active control groups ($d = 0.43$, $p = 0.009$ vs. $d = 0.21$, $p = 0.126$). Especially when compared to meditation intervention, the effects declined to almost zero, which means that the two interventions are equally effective.

Measurement Type

Type of measurement was a significant moderator of effect sizes (between variance: $Q = 97.92$, $df = 5$, $p < 0.001$). Observation rating scales yielded the largest effect sizes ($d = 1.34$, $p < 0.001$, $I^2 = 76.01\%$). They were followed by physiological data ($d =$

TABLE 4 | Metric moderators.

Moderator	β	p
<i>N</i> total	-0.0025	0.074
Percentage women (total)	0.1739	0.592
Relation women EG vs. CG	0.2861	0.477
Length process (weeks)	0.0096	0.356
Length session (min)	-0.0024	0.545
Frequency (times per week)	0.1375	0.091
Dropout percentage EG	-0.0087	0.257
Dropout percentage (total)	-0.0092	0.172

EG, experimental group; CG, control group; β , gradient parameter; p , significance parameter.

TABLE 5 | Categorical moderators.

Variable	Between variance (Q , df , p)	Group 1 (d , p , I^2)	Group 2 (d , p , I^2)	Group 3 (d , p , I^2)	Group 4 (d , p , I^2)	Group 5 (d , p , I^2)	Group 6 (d , p , I^2)
Country	9.68 5 0.085	Germany (0.46, 0.002, <1%)	North/Middle/West Europe (0.44, 0.028, <1%)	South/East Europe (0.81, <0.001, 61.26%)	Far East (0.37, 0.142, <1%)	USA/Australia/Canada (0.45, 0.065, 20%)	Others (1.17, <0.001, 61.79%)
Higher vs. lower risk of bias	3.27 1 0.071	Lower risk (0.48, 0.000, 8.68%)	Higher risk (0.76, 0.000, 34.48%)	–	–	–	–
Randomization	2.27 2 0.320	No randomization (0.85, <0.001, 44.17%)	Quasi-randomization (0.48, 0.003, <1%)	Randomization (0.57, <0.001, 37.48%)	–	–	–
Age range	10.71 5 0.098	Children (1.40, <0.001, 79.51%)	Teenager (0.93, 0.003, 79.29%)	Young adults (0.55, 0.051, 27.18%)	Younger + older adults (0.46, 0.000, <1%)	Older adults (0.30, 0.172, <1%)	Seniors (0.83, <0.001, 43.75%)
Diagnoses	4.17 5 0.654	Cognitive impairment (0.87, 0.017, 68.75%)	Affective disorders/stress (0.57, <0.001, <1%)	Developmental disorders (0.41, 0.106, <1%)	Schizophrenia (0.40, 0.075, <1%)	Parkinson (0.53, 0.033, <1%)	None (0.90, <0.001, 72.41%)

df , degree of freedom ($df = k - 1$).

TABLE 6 | Effect sizes only in DMT studies.

Construct	<i>k</i>	Mean ES	CI	SE	<i>p</i>	<i>Q</i>	<i>p</i>	<i>I</i> ² %
Overall	21	0.35***	0.23–0.46	0.059	<0.001	20.72	0.414	3.47
Quality of life	10	0.32*	0.02–0.63	0.155	0.036	1.50	0.997	n.s.
Affect	12	0.51**	0.18–0.85	0.171	0.003	9.49	0.577	n.s.
Interpersonal skills	6	0.49	0.00–0.97	0.249	0.051	0.43	0.994	n.s.
Cognitive skills	3	0.26*	(–0.48)–0.99	0.268	0.011	0.23	0.890	n.s.
Motor skills	2	0.30	(–0.28)–0.88	0.297	0.315	0.14	0.712	n.s.

k, number of studies; ES, effect size; CI, confidence interval; SE, sampling error; **p* < 0.05; ***p* < 0.01; ****p* < 0.001; *Q*, parameter of heterogeneity.

TABLE 7 | Effect sizes only in dance intervention studies.

Construct	<i>k</i>	Mean ES	CI	SE	<i>p</i>	<i>Q</i>	<i>p</i>	<i>I</i> ² %
Overall	21	0.81***	0.52–10.11	0.149	<0.001	86.22	<0.001	77.96
Quality of life	10	1.02***	0.69–1.34	0.165	<0.001	23.41	0.005	61.55
Affect	11	0.69***	0.34–1.04	0.177	<0.001	16.63	0.083	39.86
Interpersonal skills	3	1.65***	0.90–2.40	0.383	<0.001	8.71	0.013	65.57
Cognitive skills	7	0.68**	0.16–1.21	0.268	<0.001	10.85	0.093	44.65
Motor skills	8	0.76***	0.44–1.08	0.163	<0.001	8.67	0.277	19.23

k, number of studies; ES, effect size; CI, confidence interval; SE, sampling error; **p* < 0.05; ***p* < 0.01; ****p* < 0.001; *Q*, parameter of heterogeneity.

0.71, *p* = 0.001, *I*² = n.s.), motor tests (*d* = 0.58, *p* < 0.001, *I*² = n.s.), self-report-questionnaires (*d* = 0.42, *p* < 0.001, *I*² = n.s.), cognitive tests (*d* = 0.30, *p* = 0.002, *I*² = n.s.), and interviews (*d* = 0.25, *p* = 0.001, *I*² = n.s.). We thus can assume that the type of measurement, especially observation rating scales, is one of the most significant sources of heterogeneity across studies. We also checked whether observation rating scales were more frequently used in dance intervention studies than in DMT studies, which was not the case.

Explorative Analyses

Since sensitivity analysis revealed type of intervention as a significant moderator, we decided to exploratively conduct separate analyses of the DMT and dance intervention trials (the results are reported in the **Tables 6, 7** below; they were also reported briefly in the paragraph above).

We also analyzed weighted mean effect sizes according to outcome clusters separately for the two groups. For quality of life, the effect remained significant in both clusters, but showed consistency only in the DMT group. For clinical outcomes, both effects were significant but heterogeneous. Related to interpersonal skills, there was a significant but inconsistent effect in the dance intervention group and a significant (*p* = 0.05) and homogeneous effect in the DMT group. In the cognitive skills cluster, the effect remained significant but heterogeneous in the dance intervention group, but did not reach significance in the DMT group (*k* = 3 trials). The effect for motor skills was significant and consistent in the dance intervention group; in the DMT group, it was not significant (*k* = 2 trials).

In **Tables 6, 7**, changes in depression and anxiety are the main outcomes under *affect changes*. It is notable that the *changes in interpersonal skills* just barely missed significance in

DMT studies. Considering the high heterogeneity of outcome measures in this domain, they need in any case to be further investigated (plus more standardized outcome measured need to be developed). *Changes in motor skills* are most pronounced and consistent in dance intervention studies, with the most and the most rigorous evidence from studies of interventions for Parkinson patients (e.g., Hackney and Bennett, 2014; Sharp and Hewitt, 2014; Loetzke et al., 2015). Changes in motor skills are usually not in the focus of DMT studies. The non-significant results on motor skills confirm DMT as a psychotherapeutic intervention.

Assessment of Follow-Up Data

In order to obtain information about the long-term effects of DMT and dance interventions, we analyzed the available follow-up data (see **Table 8**). Eight studies reported follow-up data, the mean period from post- to follow-up assessment was 22 weeks. In most studies, the effect remained constant. The largest decline was observed in the study by Bräuninger (2012a,b). The effect was reduced by half, but remained significant. In Baptista et al. (2012), Pylvänäinen et al. (2015) and Priebe et al. (2016), there was a slight decline, which was close to zero; in De Natale et al. (2017), there was a slight increase. In the studies from Pinniger et al. (2012), Duberg et al. (2013), and Cruz-Ferreira et al. (2015), there was a large increase (e.g., in Pinniger the effect tripled). The authors explain this unusual increase with an increase in mindfulness (detachment from negative thoughts, ruminations, and worries, which led to a reduction in symptom severity; Ree and Craigie, 2007) and a personal bond between the participants as a learning process, which became more effective after the participants had practiced for a while.

TABLE 8 | Effect sizes follow-up.

Study	Period follow-up (weeks)	Pre-post effect (d_i)	Pre-follow-up effect (d_i)	Post-follow-up effect (d_i)	Weight (w_i)
Baptista et al. (2012) -D	32	0.48	0.39	-0.09	18.22
Bräuninger (2012a,b)	24	0.64	0.38	-0.26	37.12
Cruz-Ferreira et al. (2015) -D	24	2.54	3.00	0.46	7.83
De Natale et al. (2017)	8	0.25	0.39	0.14	3.91
Duberg et al. (2013) -D	48	0.51	0.81	0.30	24.40
Pinniger et al. (2012)	4	0.27	0.82	0.55	11.59
Priebe et al. (2016)	24	0.19	0.14	-0.05	68.43
Pylvänäinen et al. (2015)	12	0.74	0.65	-0.09	7.18
Weighted mean (p)	22	0.67 (0.001)	0.79 (0.001)	0.05 (0.613)	-

The bottom line displays the weighted mean effect sizes across the eight studies and a significance parameter (p -value); D, dance intervention study.

DISCUSSION

Summary of Results

In this meta-analysis, we investigated the effectiveness of DMT and dance interventions on health-related psychological outcomes. We included 41 primary trials published between 2012 and March of 2018 that contained a total of 2,374 participants. Twenty-one of these trials considered DMT interventions, whereas 20 trials considered dance interventions. We grouped the dependent variables into six outcome clusters: quality of life ($k = 20$ trials), clinical outcomes (23 trials; sub-analysis: depression, anxiety), interpersonal skills ($k = 9$ trials), cognitive skills ($k = 10$ trials), (psycho-)motor skills ($k = 10$ trials), and residuals ($k = 6$ trials; physiological data, positive symptoms schizophrenia). The overall mean effect size was $d = 0.60$ ($p < 0.001$, $CI_{\min} = 0.44$, $CI_{\max} = 0.76$), which is a significant medium effect (Cohen, 1988). Analysis of heterogeneity yielded that an estimated 71.62% of variance of results can be traced back to dissimilarity of results, which makes the interpretation of results more difficult. In the outcome clusters, we also obtained significant medium effect sizes [quality of life: $d = 0.67$, affect: $d = 0.56$, cognitive skills: $d = 0.53$, (psycho-)motor skills: $d = 0.65$, residuals $d = 0.47$] and one significant large effect size (interpersonal skills: $d = 0.85$). This could be due to the fact that in the interpersonal skills cluster, many trials assessed dependent variables with observation rating scales, which yielded larger effect sizes in general. Sub-analyses revealed that the mean effect in the anxiety cluster was as large as the effect in the depression cluster. Physiological data yielded a mean large, significant effect size, whereas improvements of schizophrenia yielded a mean small effect size, which reached the $p < 0.1$ level. Assessment of heterogeneity in the outcome clusters revealed that all mean effects, except the effect for (psycho-)motor skills, remained inconsistent (i.e., significant Q , I^2 larger 60%). Furthermore, the larger the mean effect, the larger the heterogeneity of results, which indicates that larger effects were produced by outliers rather than by consistently higher effect sizes (see end of the next paragraph).

In order to identify which study characteristics contributed most to dissimilarities of results, we conducted a sensitivity analysis. Most importantly, we found that the type of intervention (DMT vs. dance) was a significant moderator

of results. Therefore, it was reasonable to analyze data in two separate groups to obtain more meaningful results:

In the *DMT group*, we obtained smaller but more consistent effects. The *overall medium effect* was small, significant, and consistent/homogeneous ($d = 0.30$, $p < 0.001$, non-significant Q , $I^2 = 3.47$). For the individual outcomes, the effects varied between $d = 0.26$ and $d = 0.51$ and were all homogeneous. The effects for quality of life, affect, and cognitive skills remained significant, whereas the effect for interpersonal skills reached the $p < 0.1$ level. Effects of motor skills were non-significant, thus confirming DMT as a mainly psychotherapeutic intervention.

In the *dance cluster*, we observed larger but less consistent effects. The *overall medium effect* was large, significant but non-consistent/heterogeneous ($d = 0.81$, $p < 0.001$, significant Q , $I^2 = 77.96$). The effects in the outcome cluster varied between $d = 0.68$ and $d = 1.65$. They were all significant, but only the effects for (psycho-)motor skills, cognitive skills, and affect were consistent (non-significant Q , $I^2 < 50\%$). Apart from Koch et al. (2015a,b) and Aithal and Karkou (2018), all outliers we mentioned in the “Analysis of outliers and publication bias” section were part of the dance intervention group. The consistent effects for (psycho)motor skills were carried by the dance for Parkinson studies.

Dance studies seem to uphold certain characteristics that produce a broader range of results, especially in the large-positive spectrum of effect sizes (i.e., greater than $d = 1.0$) that are not evident in DMT studies. One factor might be different sample characteristics: Most DMT studies were conducted in a clinical setting, whereas most dance studies were conducted in a non-clinical setting. In severely impaired patient samples, such as in most of the DMT primary studies that entered into this analysis, effects are usually smaller than in non-clinical or subclinical populations (we know this, for example, from pretests of designs with student populations; e.g., Koch, 2011). This may be a major reason why the dance intervention studies have yielded larger medium effect sizes. Non-clinical samples also contained a broader age range. Additionally, in dance interventions, the implementation and methods were more heterogeneous than in the DMT group. In terms of culture, most DMT studies were conducted in Germany and other Western European countries, whereas the majority of

dance intervention studies were conducted in non-Western countries. Dance intervention studies tended to have smaller sample sizes, less randomization, and more missing information in the reporting of results.

In sum, we obtained encouraging results, which indicated that DMT and dance have positive effects on various health-related outcomes. Most studies found evidence on the effectiveness of DMT on clinical outcomes ($k = 12$ trials), followed by quality of life ($k = 10$ trials) and cognitive skills ($k = 3$ trials). There was also a tendency that DMT improved interpersonal skills ($k = 6$ trials; $p = 0.051$). We did not find enough studies on (psycho-)motor functioning, physiological changes, and positive symptoms of schizophrenia in the DMT cluster to draw conclusions. Dance interventions improved (psycho-)motor skills ($k = 8$ trials), clinical outcomes ($k = 11$ trials), and cognitive skills ($k = 7$ trials). The high variety of results, especially in the dance cluster, needs more investigation in future studies.

Specific Research Issues and Practical Implications for Researchers

In our meta-analysis, we also assessed and analyzed various study characteristics to deepen our understanding of factors that influenced the effects of DMT and dance on health-related outcomes. One important issue in most intervention studies is the question about *unspecific and specific effects of the intervention*. Often the fact that we pay attention to the participants already can change their symptoms (Hawthorne effect: firstly described in Roethlisberger and Dickson (1964), and reviewed by McCambridge et al., 2014). Using alternative interventions in the control groups helps to distinguish attention effects from specific effects. Therefore, we assessed control group activity. In the primary trials, one third of the DMT and dance intervention groups were compared to active control groups. The participants followed the following tasks: listening to music, cycling, Pilates, physical exercises, psychoeducation, meditation, or relaxation exercises. Control group activity was not a significant moderator of effect, which means that the effects of DMT and dance interventions were still evident when we controlled for attention effects. In other words, this indicates that there are specific effects of DMT and dance interventions. Control group activity seemed to matter, when we kept all other study characteristics constant, which was only possible in studies with an active and a non-active control group ($k = 9$).

We compared the intervention groups to control groups that participated in physical exercises and meditation exercises. The effects of DMT and dance interventions declined but remained significant. The advantages of DMT and dance interventions were larger compared to physical exercises than to meditation. This indicates that the change mechanisms of DMT and dance possibly lie beyond the pure execution of sports or mindfulness. This is in line with other research on the mechanisms of change in DMT and dance (Bräuninger, 2014; Koch, 2017). The effect sizes observed in DMT and dance intervention groups were about as large as the effect sizes in meditation interventions. There is plenty of evidence that meditation interventions, for example, training programs in mindfulness-based stress reduction (MBSR;

Teasdale et al., 2000; Michalak et al., 2008), are successful in treating several psychological conditions (e.g., depression, anxiety, stress, obsessive-compulsive disorders; Bohlmeijer et al., 2010; Fjorback et al., 2011). On basis of this evidence, there is also an increase in promotion and support of mindfulness-based interventions by the health insurance companies, such as free MBSR training programs at work. Thus, observing that DMT and dance interventions seem to be as effective as meditation suggests promoting these kinds of interventions as well. One interesting research issue that we should investigate in more detail is: *What do DMT/dance interventions and mindfulness-based interventions have in common?* Mindfulness is an important component of DMT. For example, mindful investigation of body sensations is part of DMT, with similar techniques as the body-scan exercise in MBSR training programs (Dreeben et al., 2013). Besides that, getting mindfully in contact with other people (therapist or other group members) is an important mechanism of change in DMT. Concerning dance interventions, there is less explicit use of mindfulness, but if we look closer, similar mechanisms of change stand out. One central component frequently mentioned in the literature on mindfulness is the termination of rumination and automatic negative thoughts, which occurs, because there is high concentration, focus on the here-and-now, and a state of mind, which allows the participant to observe feelings and thoughts from a more distant perspective (non-judgmental state of mind). Future research should investigate to what extent these mechanisms are relevant in DMT and dance intervention and how they influence the outcomes of the interventions. Moreover, we assume that an important overarching therapeutic factor in both mindfulness practice and DMT could be introspection (Price and Smith-DiJulio, 2016). Another central mechanism of change in dance and DMT might be the experience of flow (Csikszentmihalyi and Csikszentmihalyi, 1975). It is based on the same principles as mindfulness, such as high concentration, absorption, focus on the here-and-now, physical presence, and joy (Csikszentmihalyi and Csikszentmihalyi, 1975).

In order to find out which populations DMT and dance interventions are indicated for, we investigated the influence of *sample characteristics* on the effect sizes. Age range and clinical vs. non-clinical populations were two correlating moderators on a $p < 0.1$ level. We observed larger mean effects in children and elderly than in younger and older adults. At the same time, there was higher heterogeneity of results in the group of children and elderly. The fact that outcome variables in children and elderly were assessed with observation rating scales more often might contribute to these differences. Furthermore, the larger effects in children may also have come about because there were more prevention studies or studies in educational context with children and older adults, whereas the adults were mostly severely impaired clinical populations. Prevention studies yielded larger effects but higher heterogeneity than clinical studies. Again, this means that rather than more pronounced effects, there are outliers at the large-positive spectrum of effect sizes. From these results, we cannot come to recommendations about the indication of treatment in certain populations. Further research is needed to ascertain moderators that produce the variety of results. Regarding

outcomes characteristics, DMT is indicated when a psychological change is intended, whereas dance interventions are indicated to improve motor skills (the consistent effect only occurred on those).

The so-called *method effect* (“any characteristic of measurement procedure contributes to variance of scores”; Maul, 2013) is a widely discussed limitation of intervention studies. Thus, we assessed and analyzed methodological characteristics of studies. We found one significant moderator, *type of measurement*, and two moderators that reached a $p < 0.1$ level, *country of publication* and *methodological quality of study* (risk of bias, randomization, sample size). Observation rating scales yielded the largest effect sizes followed by physiological data, motor tests, self-report questionnaires, cognitive tests, and interviews. Some measurements may be superior to detect changes or more sensitive to certain risks of bias, therefore producing larger effects than others. For example, observation rating scales and self-report questionnaires are more likely to be affected by expectation effects, which will be discussed further in the limitations of the present study paragraph. However, it is important to mention that method effects can also systematically bias the results. There was also a correlation between country of publication and methodological characteristics of the trials (risk of bias, randomization, sample size), with both factors having a slight influence on the observed effects. This is not surprising, because standards and traditions of research vary between countries. In countries with less evidence-based research traditions, methodological standards tend to be less strict and resulting effects tend to be larger. However, the effect of country could also be related to other cultural factors such as experience with the specific dance form, or the (sub-)cultural value system around dance, which may all influence motivation for and responsiveness to treatment.

We also analyzed whether the *intensity of treatment* had an influence on effect sizes. The intensity of treatment was indicated by three factors: duration of the whole treatment, duration of one session, and frequency of treatment. None of these factors reached significance. Frequency of treatment was closest to significance ($\beta = 0.1375$, $p = 0.091$), indicating that higher frequency of treatment corresponded with slightly higher effect sizes.

In the last paragraphs, we discussed moderators that showed a significant influence on the effects of DMT and dance in our sensitivity analysis. However, we assume that there are *more potentially important moderators of effects*, which we were not able to address in our analysis. In the literature, there are factors that we can allocate to four clusters: (a) factors that relate to characteristics of the participants, (b) factors that relate to characteristics of the intervention, (c) factors that relate to characteristics of the implementing person, and (d) factors of environment and factors that relate to the relation between persons involved.

Firstly, we will discuss characteristics of participants. Savill et al. (2017) stated that *gender* is an important moderator for the effectiveness of body psychotherapy on negative symptoms in schizophrenia. They performed a secondary analysis with the data of a large multicenter randomized controlled trial by

Priebe et al. (2016), the so-called “NESS paper.” The interaction between gender and treatment allocation as a predictor of outcomes was examined in 275 participants (72 women and 203 men) randomized to either a body psychotherapy or a Pilates group (for a critique of the study, particularly its control group selection, see the last paragraph of the discussion on the need for mechanism studies). Negative symptoms in schizophrenia “were found to significantly decrease in women randomized to the body psychotherapy condition in comparison to Pilates, while no such effect was detected in men” (Savill et al., 2017, p. 1). To approach this issue, we also assessed percentages of female participants in intervention and control groups in our meta-analysis. We conducted a sensitivity analysis using the total percentage of female participants and the relation between female and male participants of intervention group and control group as a moderator. We found no significant influence of gender. This type of analysis has low power, which means that there is a high risk for a β -error. Thus, future research needs to investigate whether gender is an important moderator of effects. Further potential participant-related factors are self-efficacy or outcome expectations (Murrock and Madigan, 2008), attitude toward intervention (treatment adherence, motivation), and previous dance experiences. Regarding characteristics of DMT interventions, there is a high variety of methods and therapeutic styles, because only a few of the trials included manualized implementation of treatment (Martin et al., 2016; Priebe et al., 2016). Dance instructors used many different dance styles and teaching approaches. Although it was not possible in our meta-analysis, it would be useful to investigate differences between the effects of several methods and styles in the DMT and dance spectrum, in order to gain more knowledge about differential indications (Koch, 2019) and therapeutic factors. In her meta-analysis, Peters (2012) found *qualification of therapist* to be a significant moderator of effects. Concerning environmental factors, she discussed the influence of *social support*. Murrock and Madigan (2008) found that social support from friends mediated the effect between culturally specific dance and lifestyle physical activity. Finally, as in most therapeutic interventions, the relationship between the therapist and the participant is important (Grawe et al., 1994; Wampold and Irmel, 2015). As previously mentioned in the Introduction, the relationship between participants (group cohesion) is also assumed to be an important mediator of effects (Schmais, 1985, 1998; Yalom, 1985) in interventions that are conducted in a group setting.

It is always difficult to observe *long-term effects* in meta-analyses. In our sample, only eight of the included trials reported follow-up data (mean period: 22 weeks). The analyses yielded various results, but most effects remained constant or increased. Regarding the encouraging follow-up findings, we assume that DMT and dance interventions have the potential to initiate a learning process (body access, interoception, insight) that might instigate positive changes several months after the intervention. Additionally, it is plausible that the permanence of effects depends on the participants’ behavior after the intervention, such as revising what they have learned, continuing dance or movement classes, or maintaining contact with the other

participants. Further research needs to follow to investigate long-term effects and their moderators.

Limitations

One of the biggest limitations of our present study was the heterogeneity of results, which occurred due to mild inclusion criteria and various study characteristics of the included trials. The heterogeneity mostly concerned the dance intervention studies, whereas the DMT studies were rather homogeneous. Heterogeneity was caused, for example, by dissimilarities in methodological designs of studies, methods of interventions, and sample characteristics. Besides that, we observed effects on several different health-related psychological outcomes. For this reason, we employed a random-effect model, which considers that not all studies measure the same effect. Consequently, we obtained broad 95% confidence intervals, meaning that the “true effects” could also be much larger or smaller than the weighted mean effect sizes reported in this paper (e.g., some of the confidence intervals varied between no effect and medium effects or small effects and large effects). Such results are less conclusive. This leads to a typical critique of meta-analysis as “*comparing apples and oranges*” (Sharpe, 1997), which means that non-comparable outcomes are unjustifiably compared with each other. Yet, in cases where there is not a lot of evidence, it might be a useful start, if we want to obtain information about “fruits”—to stay in the metaphor. However, we should be aware that we lose specific information about discrete sorts of fruits and mostly create a starting point to generate useful hypotheses for future, more specific secondary analyses and primary trials.

Our meta-analysis is one of the first in the field to conduct *sensitivity analysis*, which is one approach to deepen the understanding about the sources of heterogeneity. Nevertheless, it is impossible to detect all important factors and to draw firm conclusions about causal relationships between those factors. The strength of our paper is that it provides a broad overview of current research on the therapeutic use of dance as an orientation for researchers (summarize findings, identify explanatory variables, help identifying research gaps and develop research questions, control standards of research). It informedly transfers knowledge about the effectiveness of DMT and dance interventions to practitioners, clients, and public decision-makers. However, the disadvantage of broad analyses is that we only obtain results for a rough orientation. It is the assignment of secondary analyses with more narrow research questions (such as provided in Cochrane Reviews for single clinical populations) to gain sharp and more detailed knowledge about the effectiveness of DMT and dance interventions and the interdependency with contributing contextual factors.

Another issue is the so-called “garbage-in–garbage-out problem,” meaning that the results are less conclusive if we include primary outcome trials with poor methodological quality. In the present study, we also included studies with considerable methodological constraints (e.g., small N , no randomization, high dropout, deficient report of implementation or statistics, conflicts of interest). The most important question is how much the methodological constraints may systematically bias the results reported in this paper (the weighted medium effect

sizes). We approached the methodological variety of primary trials with sensitivity analysis. There was a tendency that more outliers, especially with large effect sizes, were studies with more severe methodological constraints. “Higher vs. lower risk studies” was a moderator of effects on a $p < 0.1$ level. The medium effect size in “lower risk studies” was $d = 0.48$ ($p < 0.001$, $I^2 = 8.68\%$), which is slightly lower and more homogeneous than the overall weighted mean effect size ($d = 0.60$, $p = 0.001$, $I^2 = 72.62\%$). This might be a hint that studies with more significant methodological constraints tend to overestimate the effects of DMT and dance. Since all of these problems were more pronounced in the dance intervention studies, one resulting recommendation is to separate DMT and dance intervention studies in the next general meta-analysis.

One important source of bias might be the “Rosenthal effect” or *expectancy effect*, which means that the expectations of the researcher are subtly communicated to the participants. By guessing the goal of the research, participants try to comply with its assumed goal (Rosenthal, 1966). Thus, self-report-questionnaires or observation rating scales are more prone to bias than cognitive, physiological, or motor test, which are somewhat less subjective, but still reactive (note that the reactivity of measurement type ranked differently in our study as indicated above). Furthermore, it is possible that researchers tend to analyze, interpret, and report results in favor of positive effects, because of their own expectancies or potential conflicts of interest.

Another critical element that might contribute to the fact that higher-risk studies yielded larger effect sizes could be *publication bias*. One criterion of methodological quality of study was sample size. If there is publication bias, smaller studies yield larger effects, on average, because smaller studies, which did not detect positive effects, remained unpublished. In the distribution of our sample of primary trials, there was a small tendency for publication bias, which did not affect our results significantly (see Methods section). Furthermore, smaller studies yielding larger effects could also be explained by the fact that, in smaller samples, the intervention was more tailored to the individual and therefore more focused.

Apart from quality of included trials, *quantity of studies* is also a matter in meta-analysis. Compared to Koch et al. (2014), we obtained larger analysis clusters; however, especially for interpersonal skills, cognitive skills, and (psycho-)motor outcomes, more research is needed to obtain more meaningful results. The advantage of a bigger sample per outcome would be that more homogeneous clusters could be considered and addressed with sensitivity analysis. In addition, several included trials were conducted by the same research group (total: 7 of 41 trials by Koch et al., 2019), which is a threat to external validity. This is particularly relevant, when it comes to analysis of clusters (DMT group: 7 of 21 trials, clinical outcome cluster: 4 of 12 trials, interpersonal skills trials: 2 of 6 studies by the research group of Koch et al., 2019).

Finally, there is a *general discussion* on the issue of whether quantitative analyses are the appropriate means to evaluate the therapeutic use of dance. Borg (1993) stated that the dilemma of scientific (positivistic) research in behavioral sciences is that

it applies traditional concepts of physical science to the study of living organisms, although living organisms are far more complex than physical objects of study. The authors imply that naturally dynamic, interdependent networks of factors involved in psychological phenomena are sometimes hard to detect when we apply concepts of causality, predictability, and scientific reducibility. This argument is underlined by a vivid discussion on the ecological validity of studies reducing complex processes, such as an aesthetic experience or the impact of art perception and production on health, into its single components (see e.g., Christensen and Jola, 2015). While quantitative methods are helpful for generating facts and explanations, qualitative methods might be more suitable for meaning-making and understanding of such (Berrol, 2000). In order to overcome the gaps between a non-linear reality and linear means of investigation, and to generate new scientific insights, quantitative research ought to be applied together with qualitative research, ideally in mixed-methods designs that reflect the epistemological background assumptions of the studied processes.

Hervey (2000) takes the discussion a step further by stating that *artistic inquiry* is needed to adequately reflect the results of such process-oriented domains as DMT. She introduces the concept of artistic inquiry, as part of *arts-based research* to DMT, which implies the use of the respective art form (dance) not only as an intervention to help the recipient but also as a form of data assessment, analysis, and presentation that aims at answering the research question. Leavy's textbook (2017) is the basic source for arts-based research today, providing a terminological and historical overview and best practice examples of arts-based research. Best practice examples of specific and particularly well-described arts-based research methods are Jola's embodied neuroscience (Jola, 2013), and Eberhard's aesthetic answering (Lange et al., in press), both participatory approaches with the researcher in an active embodied role, diving into non-verbal processes to inform and answer the research question. However, at this point, final recommendations about arts-based research as a method are difficult, because the field is young and in a dynamic development (Leavy, 2017). Generally, non-verbal methods employing DMT or dance may detect changes in psychological outcomes that are not necessarily accessible with traditional methods and thus create innovative knowledge.

Recommendations for Future Research

This meta-analysis shows that quantitative research on the therapeutic use of dance is augmenting. However, there is still an urgent quest for more trials with rigorous standards in respect to the chosen way of research (quantitative, qualitative, arts-based). Quantitative trials should consider larger sample sizes, randomized controlled designs, and active control groups, which compare DMT and dance interventions to other psychotherapeutic interventions with existing knowledge about therapeutic mechanisms (different types of psychodynamic therapies, cognitive behavioral therapy, pharmacological therapy). Furthermore, a detailed description of the intervention and its implementation is necessary (e.g., for replications). To avoid bias, there should be as much blinding as possible involved in the process. While complete blinding is not possible

in therapy studies (and should thus not be part of the quality assessment of therapeutic trials to add this critique here), blinding of the randomization process and the assessor should be standard. Researchers ought to employ assessment tools that are least sensitive to expectation effects (e.g., standardized tests, psychophysiological measurement). All relevant treatment conditions should be reported in as much detail as possible (e.g., sample characteristics, characteristics of therapists, dropouts, structure and content of the treatment, other therapies provided, and interim circumstances, i.e., all "external" events that occurred in the time of the treatment, such as change of partner or job, etc.). Statistical results should be reported in detail including results that were not in line with the central hypotheses of the papers and descriptive statistics (means, standard deviations, and sample sizes in each group). To provide information on the impact of a treatment, long-term effects must be considered. Therefore, we highly recommend including follow-up assessment in intervention studies on the therapeutic use of DMT and dance.

In order to obtain more comparable research across the globe, there should be more communication between researchers, and they should strive for international standards. We recommend researchers conducting future meta-analyses to include more precise assessment of risk of bias, than was possible here. In addition, systematic analyses of moderators of effects should be performed in the future. Because we observed many dissimilarities between DMT and dance intervention studies, we recommend analysing those two types of studies separately in future studies.

Finally, to draw conclusions for practice, there is a need to complement quantitative research inquiry with qualitative and arts-based research (best in mixed-methods designs, reflecting the epistemological framework) and with clinical mechanism studies.

Mechanism Research Needs to Inform Outcome Research

The urgent need for mechanism studies (Kazdin, 2007) and their interdependency with outcome studies shall here be exemplified with the debate around the included "NESS paper" (Priebe et al., 2016). Priebe et al. (2016) tested the decrease of negative symptoms in patients with schizophrenia after movement therapy (i.e., body psychotherapy, BPT, conducted by dance movement therapists; for definition of these terms, see Martin et al., 2016) in a randomized sample of $N = 275$ participants. They found that "the adjusted difference in negative symptoms was 0.03 (95% CI -1.11 to 1.17), indicating no benefit from body psychotherapy. Small improvements in expressive deficits and movement disorder symptoms were detected in favor of body psychotherapy. No other outcomes were significantly different." With the interpretation of these findings, the authors question other relevant studies of the field, including their own earlier work (see Röhrich and Priebe, 2006; Lee et al., 2015; and Martin et al., 2016—the latter a study from the same year, employing the same treatment manual (Röhrich and Papadopolous, unpublished). with a TAU control group, showing

a significant reduction of negative affect after DMT (measured with the SANS). The NESS paper's data were mixed though, and further analyses in the secondary trial of Savill et al. (2017) have shown that the null effect discussed in the NESS paper was only true for men, not for women after the intervention.

Three arguments call for the necessity of a reappraisal of the NESS paper: the problematic domain overgeneralization from DMT/BPT to all arts therapies (domain and terminology-related aspect), the control group selection (DMT/BPT vs. Pilates), and the selective reporting and shortfall in conclusions, which do not appropriately reflect what is evidenced in the data (e.g., from the measures of negative symptoms, the PANSS showed no significant difference between groups, whereas the CAINS did; SANS, PANSS, and CAINS are all standardized observational measures to assess positive and negative symptoms of schizophrenia). In the context of the mechanism problem, we will merely discuss the second argument here.

Active control groups are recommended for most studies by the increasing standards of the evidence-based medicine. Priebe et al. (2016) thus tried to implement a suitable active control group. From the perspective of DMT though, with its present pronounced research on therapeutic mechanisms, Pilates is not a suited control group to DMT. Both interventions, DMT/BPT and Pilates, employ methods that are suited to increase body awareness. In Pilates, the torso is the focus of the work, the muscle tone is actively controlled and altered in specific regions of the torso, the muscles are strengthened and stretched, and the practice includes breath work for bringing the movements of the torso in resonance with the breath. Pilates had the goal of addressing the trinity of body, mind, and spirit in a holistic way ("Return to Life through Contrology," Pilates and Miller, 1945). In DMT theory, the torso is the seat of the emotions, and the breath brings the emotions to the fore: on the basis of DMT core knowledge, the work with the torso and breath is the direct pathway to sensation, experience, and expression of emotions (e.g., Caldwell, 1996). Thus, the resulting null findings on the PANSS are not surprising. While we know very little about the mechanisms of BPT and DMT, we know even less about the mechanisms of Pilates and other body practices. Thus, it is very difficult, if not impossible, to select suitable active control groups for DMT studies, without any knowledge of either intervention's main mechanisms. This example shows that good outcome research needs scholarly mechanisms research (Hayes, 2013) and that there is a strong interdependency between these two types of clinical research.

Because mechanisms of DMT/BPT are not well-researched, and even less so mechanisms of Pilates, both the experimental group and the control group may have experienced similar working mechanisms, which may have caused the inconclusive results. As long as the major mechanisms of these therapies remain unclear, it is hard to draw any valid conclusions from the according outcome research. Thus, the effect of DMT/BPT on the reduction of negative symptoms needs to be investigated with a range of control groups. Primarily therapeutic mechanisms of DMT/BPT and potential control interventions, respectively, need to be further investigated, before conducting another primary study of the scope of the NESS paper. With this paragraph, we hope to have illustrated the urgent need for

mechanisms studies due to their intricate interdependency with outcome research.

CONCLUSION

In conclusion, the results of our meta-analysis suggest that therapeutic use of dance potentially affects various health-related psychological outcomes. In total, there was a medium significant overall effect based on heterogeneous results. However, since *type of intervention* was a significant source of heterogeneity, we explored trials on DMT and trials on dance interventions in two separate groups. We found empirical evidence that DMT consistently and with a high homogeneity improved affect-related psychological conditions by decreasing anxiety and depression levels, and increased quality of life and cognitive skills. Concerning interpersonal skills, the effect reached the $p < 0.1$ level. More high-quality primary studies need to be conducted and included into meta-analyses to expand the evidence. Dance intervention studies consistently improved motor skills, while findings for the other outcomes had a high heterogeneity. Results of this meta-analysis suggest that DMT and dance interventions improve clinical outcomes, cognitive outcomes, and (psycho-)motor outcomes. The high variability of results, especially in the dance cluster, needs further attention. Moreover, this study contributes initial findings that DMT and dance interventions have persistent long-term effects. These encouraging results are limited by methodological shortcomings of the primary studies. Further research is needed that expands on the evidence of effects of DMT and dance interventions on health-related psychological outcomes.

AUTHOR CONTRIBUTIONS

SK conceived, planned, co-wrote and revised the study and supervised the Master's (RR, KT) and doctoral level students (LM, JB). LM and KT did the systematic literature search. LM, KT, and SK did the hand search. RR and AB planned and implemented the methodological approach, AB supervised the methodology of the study. KT, JB, and RR organized the results. RR analyzed the results and wrote the first draft. All authors contributed to the paper and revised it into its final version.

FUNDING

The study was conducted by the Research Institute for Creative Arts Therapies (RIArT) at Alanus University funded by the Software AG Foundation in Darmstadt, in collaboration with the University of Jena, Drexel University, and SRH University Heidelberg. The Faculty of Therapy Sciences at SRH University Heidelberg funded the publication.

ACKNOWLEDGMENTS

We would like to thank Simea Schönenberger, Friederike Klodwig, and Katrin Sachau for helping to extract data from the primary studies as part of their DMT student elective hours.

We would like to thank all colleagues who have supported us to find relevant literature, and all authors of primary studies who helped to clarify data issues. Thanks to all participants of the primary studies for completing the scales and driving research on embodied interventions further.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.01806/full#supplementary-material>

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