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Existential narratives: Increasing psychological wellbeing through story

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Existential narratives: Increasing psychological wellbeing through story

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Editorial: Existential narratives: Increasing psychological wellbeing through story

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Editorial on the Research Topic
Existential narratives: Increasing psychological wellbeing through story

Humans are story-telling animals; they understand reality through story, they learn and make sense of the world through story (Schank and Berman, 2003; Mar and Oatley, 2008; Gottschall, 2012). From Homer's *Odyssey* to the movie *Titanic*, and from Little Red Riding Hood to the Netflix series *Stranger Things*: fictional story worlds confront the audience with complex social and interpersonal situations that often involve tragic love affairs, violence, loss, and death. The fact that humans voluntarily seek out tragic stories is striking, because they go to great lengths to avoid tragedy in real life. What, if anything, do people gain from watching or reading tragic stories? While extensive research on the so-called sad film paradox (Oliver, 2006) has been conducted to understand why we appreciate tragic movies or books, research on psychological, health-related effects is scarce. Could existential stories help viewers or readers face fundamental fears, overcome psychological hurdles in life, and increase their psychological wellbeing? If so, which story aspects and processes play a role in producing these effects? The relatively little attention that has been paid to the relation between narratives and psychological wellbeing is surprising because mental health problems are highly prevalent in modern society and became even more urgent during the COVID-19 crisis in the last couple of years (OECD, 2021). Indeed, the reframing of narrative research to focus on its psychological and health impact is timely and potentially valuable.

The aim of this Research Topic is to fill this gap by examining how narratives, and in particular existential narratives, affect mental processes, and psychological outcomes. Existential narratives are stories in which questions about the meaning of life and death are explored through the individual experiences of characters who find themselves at a turning point in their life. Drawing from existential psychology, a turning point is understood as moments when characters' basic beliefs about their world are disrupted,

such as moments of death or loss (Martin et al., 2004). For example, the films *Life Is Beautiful* (1997) and *American Beauty* (1999) raise these existential questions by appealing to a wide range of emotions, from despair to delight. In line with the idea that particularly the combination of eudaimonic (i.e., meaningful) and hedonic (i.e., pleasurable) experiences fosters wellbeing (Huta, 2016), existential narratives transcend the eudaimonic-hedonic distinction and encompass aspects of meaningfulness as well as on aspects of enjoyment. Similarly, existential narratives are not bound to a particular genre or medium: they can be audiovisual (television or Netflix series, movies), textual (poetry, novels), digital (interactive stories, games), fictional or non-fictional, entertaining or persuasive or informative, et cetera.

The broad variety of existential narratives is represented in this Research Topic, with articles exploring the relation between various types of existential narratives and psychological wellbeing as well as underlying processes from theoretical and empirical perspectives. Based on that, three structuring lines emerge: (1) along the types of existential narratives addressed, (2) in terms of wellbeing related effects, and (3) in terms of underlying narrative and reflective processes.

1) Types of existential narratives

Seven of the articles in this Research Topic focus on experiences related to individual (Bálint et al., study 2; (Daalmans et al.; Fitzgerald et al.; Rieger and Schneider; Sopcak et al.) or collective death (Bilandzic and Blessing), confirming the dominant theme of mortality in existential narratives. For example, Bálint et al. (study 2) used an animated short film about dealing with grief throughout life, Daalmans et al. investigated a popular Netflix series about suicide, and Bilandzic and Blessing included an apocalyptic science-fiction parody of modern man's inability to face terrifying facts. Human suffering is another regular theme in the articles, such as the hardships of Canadian Indigenous people in Residential Schools (Sopcak et al.), giving an eulogy at a funeral of a good friend (Fitzgerald et al.), or suffering from depression (Scholl et al.), pulmonary embolism (Kalch et al.), and burnout (Bálint et al., study 1).

2) Wellbeing related aspects

Two studies do not focus on specific types of existential narratives but instead follow an overarching approach by looking at the use and effects of entertainment following experiences of a natural disaster as a life changing event (Raney et al.) as well as longitudinal effects of eudaimonic and hedonic entertainment (Reinecke and Kreling). Results of the study by Raney et al. indicate that self-transcendent media use is positively related to post-traumatic growth. By contrast, results of the study by Reinecke and Kreling showed no effect of eudaimonic and hedonic entertainment on the wellbeing aspects of hope, meaning in life, or resilience. Together, these findings suggest that media stories may affect certain aspects of wellbeing but not others, and perhaps only in times of existential need, such as periods when people are grappling with challenging life events. A range of additional wellbeing correlates is studied in the various other studies, such as loneliness, emotional distress, connectedness, emotional clarity, death acceptance, and coping with self-threats. For example, Kalch et al. discuss how narratives may function to promote self-reflection and inspire mindful mastery while reducing feelings of loneliness and emotional distress among patients suffering from a cardiovascular disease. Hanauer furthermore shows that narrative writing could enhance wellbeing in terms of heightened levels of insight and emotional clarity. This finding demonstrates that beneficial wellbeing effects can be achieved not only by consuming narratives, but also by actively producing narratives.

3) Underlying narrative and reflective processes

How does the narrative impact on wellbeing come about? Eight of the articles aim to answer this question. Rieger and Schneider demonstrate how narratives can serve as a coping tool *via* heightened narrative experiences of transportation, enjoyment, and appreciation. In a similar context, Fitzgerald et al. compared the impact of a poignant-focused eulogy vs. a humor-focused eulogy on death acceptance through narrative processing. Scholl et al. demonstrate how interactive narratives positively affect readers' transformative learning about depression through identification with the narrative character. Several other studies focus on how self-reflection on emotional experiences could promote wellbeing, specifically through people's manner of reflection. Daalmans et al. reported that existential narratives can provoke moral rumination among young adults, whereas Bilandzic and Blessing introduce the idea of critical thinking as a mind-set effect, which implies that media narratives can stimulate viewers and readers to think critically within and outside of the situation that originally triggered this mindset. Sopcak et al. investigate how reading literature promotes empathy and moral outcomes *via* different forms of reading engagement, cognitive perspective taking, and empathy. In addition to these reading processes, Hanauer investigates self-effects of writing about significant, life-changing moments in a poetic style vs. free writing about daily events.

Together, the findings point to promising avenues for future research about existential narratives and the intricate relation between their form and content, the processes they generate and their impact on wellbeing. First, we observe that in existential narratives, the themes of death and human suffering are put center stage, suggesting that such narratives simulate experiences that are too terrifying or dangerous to try out in real life (Gottschall, 2012). Second, several studies suggest a thin line between complex emotional narrative content on the one hand and moral reasoning and critical reflection on the other hand. For example, mixed affect can stimulate or decrease learning from a narrative, depending on the topic. Finally, we conclude that reading and writing existential narratives can contribute to wellbeing by

giving meaning to life and by providing tools to cope with existential threats.

Author contributions

ED and KK drafted a concept article. ED, KK, AK, and GK provided edits and comments. All authors approved of the final version of the manuscript.

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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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All the reasons why: Exploring the relationship between morally controversial content in *13 Reasons Why* and viewers' moral rumination

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Controversial media content has mainly been dealt with in relation to concerns about how the media we consume might be detrimental to its viewers as individuals and society at large. Nevertheless, researchers have started to take a different approach to these types of content, namely that these might lead to processes of reflective appropriation, meaning-making, and moral rumination. *Via* qualitative in-depth interviews with young adults ($N = 45$, age 18–24), we sought to gain deeper insights into the experiences of and reflective thoughts (i.e., moral rumination) about controversial media content. To map when and what forms of moral rumination are incited in viewers, we chose a popular example of a morally conflicted and highly controversial type of media content, namely the Netflix series *13 Reasons Why*. The results reveal that moral rumination can exist in at least two forms, *morally conclusive* (i.e., rumination that ends in a moral judgment) and *morally inconclusive* (i.e., rumination that does not formulate a moral judgment but remains morally in doubt) rumination. The grounds for the ruminations are mostly text-based or based on the interaction of text and viewer characteristics, and are mostly focused on the show's central themes, such as suicide, guilt and responsibility, sexually transgressive behaviors, and themes tied to identity formation. Overall, the tendency of morally complex entertainment to promote moral rumination suggests that such material should be examined as a type of eudaimonic entertainment, which argues that viewers reflect on how the meaning of the content relates to their own lives.

KEYWORDS

moral rumination, moral evaluation, *13 Reasons Why*, qualitative interviews, controversial media content

Introduction

In 2017, Netflix released the first season of *13 Reasons Why*, based on the similarly titled bestseller by Jay Asher. The wildly popular high school drama enumerates the events that led high school student Hannah Baker to take her own life. The show garnered unprecedented levels of social media engagement, quickly becoming the *most*

tweeted-about show, it received both popular and critical acclaim and quickly rose to Netflix's most popular list (Min, 2017). However, the show's success was also followed by an overwhelming backlash to the show's tone and message from varied parties like high schools, parents, and medical associations. The show was seen by these parties as controversial, and their concerns are particularly focused on the potential for social contagion and copycat suicides, because (initially, the scene is now removed) the show portrays the act of suicide in such specific detail (Uhls et al., 2021). And while these concerns have received some empirical support for young-at-risk-viewers (Hong et al., 2019), research has also revealed the potential the show has for fostering empathetic behaviors by youngsters, openness about mental health needs, and reported a better understanding of difficult topics such as depression, suicide, bullying, and sexual assault (Wartella, 2020). As such it seems that the show, which focuses on topics that are societally perceived as controversial, provides viewers a platform, to engage in moral (self-)reflection, or rumination if you will, on complex themes.

Controversial media content, like *13 Reasons Why*, has been at the core of the discipline of communication science since its inception. This type of content, often tied to depictions of graphic violence, sex, or a combination, has mainly been dealt with—in both societal debate and scholarly work—in relation to concerns about how the media we consume might be detrimental to its viewers as individuals as well as society at large (Eden et al., 2011, 2017; Raney et al., 2020). The debate has been rather consistent over time. On the one hand, the debate focuses on a cluster of adverse effects on the individual level, such as an increase in (potential for) aggressive behavior and a decrease in empathy and prosociality. On the other hand, it discusses concerns on the societal level, particularly the decay of public morality and social norms (Bartsch et al., 2016; Eden et al., 2017).

Quite recently, researchers have started to take a different approach to controversial media content, showing that it might lead to processes of reflective appropriation, meaning-making, and moral rumination (Bartsch et al., 2016; Eden et al., 2017). Beginning from the assumption that the consumption of (some of the) controversial media content could be based on more than mindless thrill-seeking, violent fantasies, and escapism, and might even be tied to personal wellbeing and growth (*cf.* Dill-Shackleford et al., 2016). Studies by for example Bartsch et al. (2016) and Scherr et al. (2017) have outlined that controversial media content might be attractive to viewers because it offers the potential for meaning-making.

Furthermore, a study by Eden et al. (2017) explored if controversial and conflicted content—specifically a controversial narrative from *The Sopranos* that depicted an act of unpunished and graphic rape—could lead to moral rumination in viewers. In that study, moral rumination was defined as "the capacity and process by which a person evaluates several perspectives on a moral issue, through which it becomes clear which moral value is the most important in a specific situation and what the preferred moral action is going to be" (Eden et al., 2017, p. 143). The authors tied moral rumination to the potential for moral growth and moral maturity. They found that moral rumination was predicted by transportation into the narrative world and was related to increased appreciation of the shown episode. In the literature, appreciation—rather than enjoyment—is seen as a eudaimonic gratification, and is typed as "an experiential state that is characterized by the perception of deeper meaning, the feeling of being moved, and the motivation to elaborate on thoughts and feelings inspired by the experience" (Oliver and Bartsch, 2010, p. 76).

Moral rumination and morally complex content: *13 Reasons Why*

The studies by Bartsch and Mares (2014), Bartsch et al. (2016), Eden et al. (2017), and Scherr et al. (2017) outlined that reflective thoughts—such as moral rumination—could be sparked by conflicted and controversial media content. However, it remains unclear what the ground or starting point for this reflection or rumination exactly is. In this study, we aim to provide insight into moral rumination as a concept, by exploring what the antecedents of this concept are. We opted for a qualitative approach, conducting in-depth interviews since this methodological approach offers deep insights into the experiences of and reflective thoughts about controversial media content.

To map possible antecedents of moral rumination, we chose a popular example of a morally conflicted and highly controversial type of media content, namely the Netflix series *13 Reasons Why*. As previously outlined, the show has sparked worldwide concerns regarding the possible negative effects that the (graphic and unpunished) depiction of controversial content—such as suicide, rape, (cyber)bullying, and slut-shaming—might have on (young, at-risk) viewers (e.g., Jacobson, 2017; Tolentino, 2017; Arendt et al., 2019; Hong et al., 2019; Niederkrotenthaler et al., 2019; Bridge et al., 2020). While recent meta-analytical research has argued that there is no evidence to support the belief that fictional media with suicide themes lead to a suicide contagion among viewers (Ferguson, 2019), the concerns regarding the potential for suicide contagion effects remain (Stafford, 2017; Arendt et al., 2019; Scalvini, 2020). Nevertheless, critics also suggest that the show's unflinching portrayals might lead to thoughtful reflections and conversations among peers and parents about the prevalence of bullying, depression, and gendered violence in our culture (e.g., Ryan, 2017a,b; Lauricella et al., 2018). This line of reasoning has also received empirical support (for non-at-risk youths) (Lauricella et al., 2018; Arendt et al., 2019; Carter et al., 2020; Chesin et al., 2020; Cingel et al., 2021). For example, in

a study by Lauricella et al. (2018), the authors found that the show resonated with teens and young adults, and they felt it was beneficial for them and people their age to watch. Additionally, the survey revealed that the show prompted conversations between parents and adolescents about complex issues and led adolescents to exhibit greater empathic and helping behavior toward others.

These results provide initial support for the idea that *13 Reasons Why* might prompt moral rumination in viewers. Still, it remains unclear when it is prompted (e.g., before, during, or after viewing) and what the moral rumination is about (e.g., specific characters, topics, or storylines). The current study aims to explore and map if and how moral rumination can be sparked in viewers who watched the Netflix series *13 Reasons Why*.

Moral evaluation of narratives

Research that has analyzed moral evaluations of televised narratives in studying moral rumination forms an important theoretical starting point. Moral rumination can be seen as a complex form of morally evaluating various perspectives present in the narrative to come to a moral judgment (Eden et al., 2017). Previous research focusing on moral evaluations, i.e., the process through which moral judgments are formed, builds heavily on Affective Disposition Theory (ADT, Zillmann, 2000) as well as Raney (2004) extension of this theory (EADT). ADT assumes that viewers judge every character's action according to their own moral make-up (Zillmann, 2000; Raney, 2004), and the eventual moral judgment is based on a possible fit or misfit between characters' actions and the moral standards of the viewer. EADT provides a base for arguing that this lens of moral scrutiny for characters might work differently for characters we like, and or characters who do not fit nicely into a hero/villain mold (Raney, 2004; Shafer and Raney, 2012). Previous research on moral evaluation revealed that these moral evaluations can be based on (at least) three grounds or routes: primarily driven by the text, both text and viewer characteristics, and primarily driven by viewer characteristics (van Ommen et al., 2014, 2016). We assume these grounds or routes might also be at play in moral rumination (cf. Eden et al., 2017).

Potential antecedents of moral rumination

When considering the role that the text (in this study *13 Reasons Why* as a media narrative) might play in prompting moral rumination, previous empirical work and several theoretical concepts should be considered. First, when the moral structure of *13 Reasons Why* as a media narrative is considered, the complexity of this narrative (with single episode storylines as well as season-long arcs), the lack of moral closure, and the morally ambiguous nature of the majority of the main characters should be taken into consideration. Additionally, building on the study by Eden et al. (2017), we know that the specific content of a narrative can play an important role in prompting moral rumination. They concluded that a narrative featuring graphic, unjustified, and unpunished violence with no moral resolution led to a conflicted state in viewers, prompting moral rumination. Since there are a variety of controversial situations of unjustified and unpunished violence in *13 Reasons Why* (e.g., the rapes of Hannah and Jessica), the question is if these also spark moral rumination.

From research on the moral evaluation of complex narratives, we know that mediated closeness plays an important role in the moral evaluations and (subsequent) enjoyment of characters (van Ommen et al., 2014, 2016, 2017). Mediated closeness points to our transportation into the narrative world and the closeness people can feel to characters and their plight (Bilandzic, 2006). However, considering this for *13 Reasons Why*, we know that with each new tape (or episode) new, morally complex information regarding controversial topics (i.e., suicide, sexual harassment, bullying, rape) will come to light. This might complicate the feelings of closeness viewers have toward characters, and in guarding these feelings, viewers might potentially enter into internal ruminations about the closeness they (want to continue to) feel toward favored characters.

Building on attribution theory, Tamborini et al. (2018) argued that viewers might continue to like imperfect characters who commit distasteful acts, through the active mental attribution of the reprehensive behavior to external causes portrayed in the media content. For example, in season 1, the protagonist Hannah is a victim of bullying, shaming, and rape, but also a bystander of rape and reckless behavior (which indirectly causes another character, Jeff, to die). These complex storylines might complicate feelings of closeness viewers feel, which could lead to a process of attribution to external causes through the process of moral rumination.

Second, aside from moral rumination potentially arising from (conflicting) cues in the narrative, it might also be the case that moral rumination occurs because of the interplay of narrative and viewer characteristics. This interplay, made up of the experiences and characteristics of the viewer and the power of the narrative to transport viewers in the narrative, will culminate in a specific reading of the narrative (Fiske, 1987; Michelle, 2007; van Ommen et al., 2016). When focusing on the interaction between the text and the viewer, schemas that viewers have from previous media experiences might also play a role in their responses to the show and the possible presence of moral rumination. When someone watches a television show, such as *13 Reasons Why*, various schemas are used to (immediately) assess whether a character is good or bad (Fiske and Taylor, 1991). A schema can be described as an efficient map of prior information about characters, events, or situations in clusters

of related facts (Keen et al., 2012). As such, schemas consist of a predictable pattern that viewers can use when encountering media characters. However, if the chosen schema does not fit and reclassification (i.e., inconsistency resolution, Sanders, 2010) is in order, this process might spark moral rumination in viewers. For example, the character of Justin is initially introduced as a stereotypical "bad boy" and a teenage heartthrob, priming viewers with schemas they have about these types of characters (Gopaldas and Molander, 2020). However, this is later complicated by Justin's family backstory of neglect and drug abuse, as well as his unwavering love for Jessica. This shift in the characterization of Justin could lead viewers to a process of recategorization of the character, which (if complex) might spark moral rumination.

Another way in which the narrative and viewer characteristics might interact and potentially lead to moral rumination is via "indirect" experiential closeness (van Ommen et al., 2014). This form of closeness describes the state where viewers mentally put themselves in a protagonist's position and explore internal questions, such as: What would I do if I were in the protagonist's shoes, or what if I were confronted with this type of problem or dilemma? This mental process of going back and forth between what a character has done (in relation to the characters) and how a viewer feels about these actions and taking on various perspectives, as presented in *13 Reasons Why* might lead to moral rumination.

Additionally, moral rumination might also be sparked by the temporary expansion of the self-concept (i.e., TEBOTS, Slater et al., 2014) through engagement with *13 Reasons Why* as a narrative. TEBOTS argues that the desire for release from the confines of the self leads viewers to the vicarious experience of characters and fictional lives that are (in)comparable to our own. As such, people expand their sense of self through (briefly) living vicariously through characters and transcending their limitations by temporarily being a different self (Slater et al., 2014; Johnson et al., 2015). However, due to the morally complex buildup of the episodes and the narrative arcs in *13 Reasons Why*—and the possibility of binge viewing and immersion into the story world—this might complicate identification and character loyalties and various ways in which the viewer can expand the boundaries of the self. Thus, potentially also forming ground for moral rumination.

Finally, moral evaluations, and thereby possibly also moral rumination, might be created through a reading of the narrative in which viewer characteristics are the most dominant. As Hall's (1993) model of encoding and decoding describes, viewers are not passive recipients of a narrative. Instead, viewers give meaning to mediated narratives based on personal history and frameworks of knowledge and meaning, which then leads to the possibility of a large array of interpretations of the same narrative (Livingstone, 1990; Chisholm, 1991). Furthermore, viewers may have a specific moral make-up that relates to (or conflicts with) the experiences, behavior, and moral framework of the characters featured in *13 Reasons Why*. The moral rumination can then be guided by the moral makeup and viewers' past experiences with the topic and themes discussed in *13 Reasons Why*.

More specifically, research has outlined that when making moral evaluations, a connection between the content of the narrative and personal experiences and expertise can through perceived realism lead to more enjoyment of the narrative and guide the outcome of the moral evaluation toward specific judgments (Bilandzic, 2006; van Ommen et al., 2016, 2017). In the case of such *experiential closeness,* the media content activates relevant structures the viewer has and cues moral evaluations based on a comparison of one's own beliefs and norms and the belief structure in the text. Previous research has outlined that a mismatch between portrayed events in the narrative and viewers' personal experiences and values resulted in a distance toward the narrative coupled with *counter-argumentation* in the moral evaluation (Bilandzic, 2006; van Ommen et al., 2016). This extensive counter-argumentation in moral evaluation could be a form of moral rumination. This has been previously conceptualized as a complex form of moral evaluation in which the viewer considers multiple perspectives (Eden et al., 2017). Therefore, we believe that viewers with explicit experience with particular narrative themes in *13 Reasons Why* (i.e., high school experience, identity formation, bullying) and vivid memories of this (high school) period, in general, might be more prone to morally ruminate about the issues presented in the narrative.

The current study: Rationale and research questions

Taken together, this study will explore young adults (18 years and older) viewing experiences and potential moral rumination as a result of *13 Reasons Why*. Young adults will likely have a vivid recall of the high school experience, but also have a greater potential for (self)reflection of the period since they are no longer in high school (King and Kitchener, 1994). Our research aims to increase the understanding of moral rumination sparked by conflicted media content that depicts controversial topics. Building on previous work that has mapped the grounds of moral evaluation, for complex media content, we, therefore, believe that cues in the text, the interaction between viewer and text, and viewer characteristics might function as antecedents (or grounds) in prompting moral rumination (van Ommen et al., 2014, 2016, 2017). Furthermore, we extend the work of Bartsch et al. (2016) and Eden et al. (2017), in our ambition to present knowledge that moral rumination can be sparked by controversial content (in this study: the widely debated *13 Reasons Why*). Therefore, this study aims to answer the following question:

RQ1: How do young adult viewers come to morally ruminate about the content of 13 Reasons Why, and what are the grounds for this moral rumination?

Materials and methods

To explore the possible antecedents of and variations in moral rumination, as well as map which specific content leads to moral rumination, we conducted qualitative in-depth interviews with a sample of 45 participants. Qualitative research was used in this study because it was concerned with exploring how moral rumination was sparked by the interaction of viewers with *13 Reasons Why* (specifically the first season, which was broadcast a few months before the interviews) as a morally complex narrative. Qualitative research aims to produce a well-rounded and contextual insight into and understanding of how certain aspects of the social world are experienced, interpreted, or produced based on rich, descriptive, and in-depth data (Braun and Clarke, 2013).

Participants

Following the principles of theoretical sampling (Patton, 2002), participants were selected based on criteria derived from theoretical research and ethical considerations. As outlined before, young adults were sampled based on the idea that they might reflect on the representation of teenage life in *13 Reasons Why* because it might correspond with events that they had encountered as teenagers in high school (i.e., *direct experiential closeness*; Bilandzic, 2006; van Ommen et al., 2016). Furthermore, due to the controversial content, all participants were recruited with the explicit condition that they had seen all episodes (of the first season) of the show to ensure that they were aware of the explicit depictions of controversial content such as rape and suicide. This procedure was approved by the ethics committee of the host university at (university blinded; code blinded). The interviews were conducted between October 2017 and December 2017 in The Netherlands. Participants were recruited through personal contact with the researchers and their students, although the interviewer in each separate interview did not intimately know the interviewee. The group of forty-five participants consisted of 14 males and 31 females, and their ages ranged between 18 and 24 years old.

Procedure

The interviews lasted about 80 min (range: 56–105 min) and took place in respondents' familiar surroundings (i.e., in their home, in a quiet place at their university). Participants were first informed about the procedure, including recording, transcription, anonymity, and confidentiality, and subsequently asked to fill out the informed consent form. After the interview, they were given a debriefing about the aim of the study and why they were selected, as well as information for post-interview psychological care if needed. The post-interview psychological care was arranged with Korrelatie (2015), a Dutch non-profit foundation that specializes in anonymous psychological help.

Interview guide

This study used a semi-structured interview guide consisting of three open-ended initial questions paired with potential probing and follow-up questions. The interview guide and the order of the questions were not rigidly enforced to facilitate the natural flow of conversation and not limit the interviewees' flow and elaboration. With each initial question, probing questions were used to get participants to elaborate on their questions and choices.

The interview started with a question that asked the participants what their most prominent memory was from watching *13 Reasons Why*. Next, our initial question asked participants which of the characters they felt was the most responsible or to blame for Hannah Baker's suicide. They were told to use small photo cards that showed headshots of all the main characters to rank the characters' blameworthiness. They were asked to elaborate on their answer, for example by asking them to make lists from least to most blameworthy, and were probed to elaborate on the moral intricacies of their answers. Thirdly, based on their previous answers, participants were shown clips from the episodes, which showed that different characters held different/conflicting moral outlooks on events that happened throughout the show. Participants were asked to respond to the clips and whether these scenes changed their perspective on that character or that event. We used the clips to either elicit further elaboration on previous answers (also as a validity check) or to probe the participant for possible nuances or moments of reflection by showing them video clips that would "challenge" earlier held views on characters or situations. As such, the selection of scenes was tailored to each participant's answer pattern and was used to further elaborate or deepen our understanding of their position. This was done by, for example, choosing to watch and discuss a scene that represented an opposed position taken by the respondent or showing the perspective of other characters on a specific conflict in the series. Finally, the participants were asked about their demographic characteristics and viewing behavior connected to *13 Reasons Why*.

A selection of fifty-three video clips from the first season of show[1], a photo-overview sheet that captured all the main

1 A short summary for all the episodes of the first season can be found here: https://www.imdb.com/title/tt1837492/episodes?season=1.

characters of the show, as well as cards with an individual headshot of all the main characters, and if the occasion arose, the episodes themselves were used as visual stimuli in the interviews to help the interviewees recall the characters and storylines, help order their attribution of guilt in Hannah's suicide and to generally get the interview started (Collier, 1967; Pauwels, 1996; van Ommen et al., 2016).

Quality measures: Validity and reliability

In this study, several techniques were used to secure the (internal) validity and reliability of the study. To test the interview guide, the primary researchers conducted the first fifteen interviews, and students conducted the other thirty interviews in the study. The students were trained as part of a research seminar in qualitative interviewing on moral rumination. The research seminar explored the literature on moral rumination and television drama. The interviewers received several interview training sessions, in which they familiarized themselves with the moral predicaments in the series *13 Reasons Why*, the interview guide, and practiced conducting in-depth interviews on potentially sensitive topics (such as depression, suicide, and slut shaming).

In this context, the internal validity and the study's reliability were secured by constant discussion among the interviewers, enabling peer debriefing (Braun and Clarke, 2013) and the consistent creation of *memos* to list externalized thought processes throughout the process of analysis. The setup of this study also enabled *researcher triangulation*, which meant that the use of several interviewers canceled out individual biases, and several researchers' involvement in the data analysis compensated for potential single-researcher biases (Denzin, 1989). The internal validity was also secured by *member checking*, which entailed that the interviewers reported back to the participants during and after the interviews so that they could comment on the researcher's descriptions and summaries of the responses (Patton, 2002).

Analyses

In-depth interviews were held in Dutch, audio-taped and transcribed verbatim, and subsequently analyzed using the qualitative data analysis program MaxQDA[2]. The analysis was grounded in three distinct phases of grounded theory research (Strauss and Corbin, 1998; Boeije, 2002; Patton, 2002). In the exploration phase, the researchers formulated as many codes that could be relevant given the research questions focused on (1) grounds for moral rumination and (2) topics of moral rumination. In the subsequent specification phase, axial coding was used to specify further the concepts and categories concerning the central questions and related (theoretical) topics. In the reduction phase, selective coding was used to establish the relationships between the core theme of moral rumination and the developed categories and codes. Finally, this phase resulted in an ordering of the core theme, categories, and codes in a way that would describe the aspects relevant to the research questions (Patton, 2002). This phase resulted in one model (which for compactness is split up in Figures 2A–C), which integrates the variation in antecedents for moral rumination and the topics the viewer ruminated about.

Results

Based on the analysis of the interviews, the first empirical distinction that was found was a variation in the nature of moral rumination, between (1) *conclusive moral rumination* and (2) *inconclusive moral rumination*. The distinction between the two categories was constructed in the analysis when it became clear that participants who engaged in moral rumination had two "endpoints." One in which at the end of their ruminations, of comparing the weight of several moral arguments, taking the perspectives of several characters, or using narrative cues to nuance their position, they came to a final moral judgment or conclusion (i.e., *conclusive moral rumination*). The other option, was when participants remained stuck in this process of rumination, and even though they tried continuously, they were unable to decide on a definitive moral judgment (i.e., inconclusive moral rumination). They simply did not know their definitive moral outlook, and continued to go back and forth and nuance their moral evaluations. In other words, inconclusive moral rumination was constructed as a category in analyses when it became clear that the viewer experienced doubt, and ruminated but was continuously unable to formulate a final moral judgment or their conclusion is still filled with duality or doubt.

As seen in Figure 1, these two types of moral rumination in 13 Reasons Why were prompted by text characteristics, by the interaction between the text and viewer, and purely based on viewer characteristics. Additionally, it is important to stress that overall, the participants only ruminated about complex (i.e., offering multiple perspectives, showcasing changes over time) and morally ambiguous storylines (i.e., unclear who is to blame, who is immoral). Finally, respondents felt that the storylines in *13RW* were realistic, valid, and truthful representations of reality, and this seemed to be a prerequisite for rumination. Sparingly, there were some scenes or character behaviors where they felt that it was unrealistic (i.e., arguments like *it does not happen that way*, *no way that would happen in real life*, and *they*

2 The dataset is not available online. Due to the ethically sensitive nature of the interview(topics) the informed consent guaranteed full confidentiality of the interview transcripts for all participants. The researchers are available to answer specific questions regarding the data.

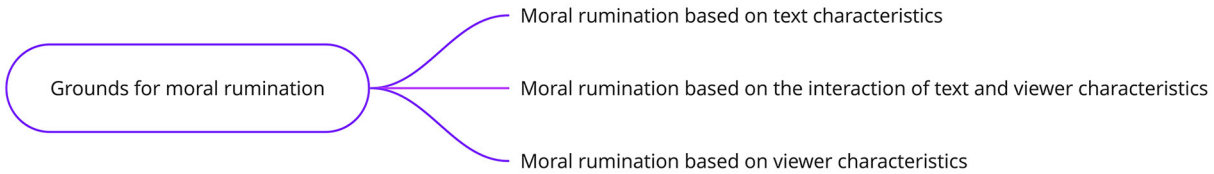

FIGURE 1
Overview of grounds for moral rumination.

just put this in there for the drama) and this hindered them in ruminating on the topics at hand.

Moral rumination prompted by text-characteristics

The results showcase that the greatest variety in antecedents for moral rumination is based on text characteristics (Figure 2A), specifically, it can be prompted by *mediated closeness*, *character evaluations*, *causal inferences,* and taking on a *meta-perspective*. These grounds and their variations will be discussed consecutively.

Mediated closeness

Mediated closeness, the degree to which viewers do or do not feel a degree of closeness to various characters, often forms a starting point for ruminations about the content. The most profound form of mediated closeness that participants described resulted from *identification* with various characters and their fates. Conversely, a complete lack of identification and, therefore, closeness—as seen in the example below, can result in a profound sense of distance toward a character.

> *R: No, no, no. I really don't know. I don't think I would have made the tapes… but well…I think that if you feel that way, I don't know if you really have specific reasons that everyone, that thirteen people have hurt you so much. Well I don't know, I have difficulty imagining myself doing that, I really do not know why you would do that and, well kill yourself.* (Interview 26, female, 19 years, inconclusive moral rumination)

On this constructed continuum of mediated closeness, identification is followed in intensity by a viewer (not) feeling *sympathy* for various characters. This sympathy participants feel for characters results in empathetic concern for characters and a resounding disavowal of certain characters' behaviors when viewers try but ultimately fail to sympathize with characters. Finally, the last variation of mediated closeness (or distance) can result from a level of (non) *understanding* of the behaviors of various characters. As the participant below shows, she struggles with *understanding* the viewpoints of various characters (specifically Zach and Hannah) in the series.

> *R: And with the fact that he mentions the list*[3] *again, I understand why she reacts that way. But she is immediately defensive, when he says that one thing about "I wanted you to be my Valentine." She is unable to see that he is for real I think, but on the other hand … well I can understand why, but on the other hand well I don't believe everyone is that way.*
> *I: And his conclusion, is that part of what happens to her [Hannah] is due to her own behavior. Is that a valid point?*
> *R: Ehm, well that that is difficult to say but I think I understand maybe in this instance, he gets really angry with her but well she is also not really nice. But in any other circumstance I really don't agree with him, so yeah maybe half true? I really find it hard to say really.* (Interview 7, female, 19 years, inconclusive moral rumination)

If there is a fundamental cognitive lack of *understanding* of why characters behave in a certain manner, this rumination will also result in a profoundly felt disconnect or distance toward the characters.

Character evaluations

Viewers also came to morally ruminate about characters and how they evaluated them and their behavior in a variety of ways. Viewers weighed the *nature of the behavior* by considering the characters' motives and their intent. For example, a respondent differentiated between Justin and Marcus *via* the intentionality of their behavior. "*Well maybe… partially so. I think the main difference is that Justin did not have ulterior motives, and in the case of Marcus his intent was to get in, it was really bad*" (Interview 5, male, 20 years, conclusive moral rumination).

3 The list refers to Season 1, Episode three ("Tape 2, Side A": https://tvtropes.org/pmwiki/pmwiki.php/Recap/ThirteenReasonsWhyS01E03Tape2SideA:) When Alex and Jessica broke up, he created a "Hot List," where he awards Hannah with "Best Ass" and Jessica with "Worst Ass." The unfortunate side-effect of all the boys – and particularly Bryce - assume the list means Alex has had sex with Hannah. This rumor

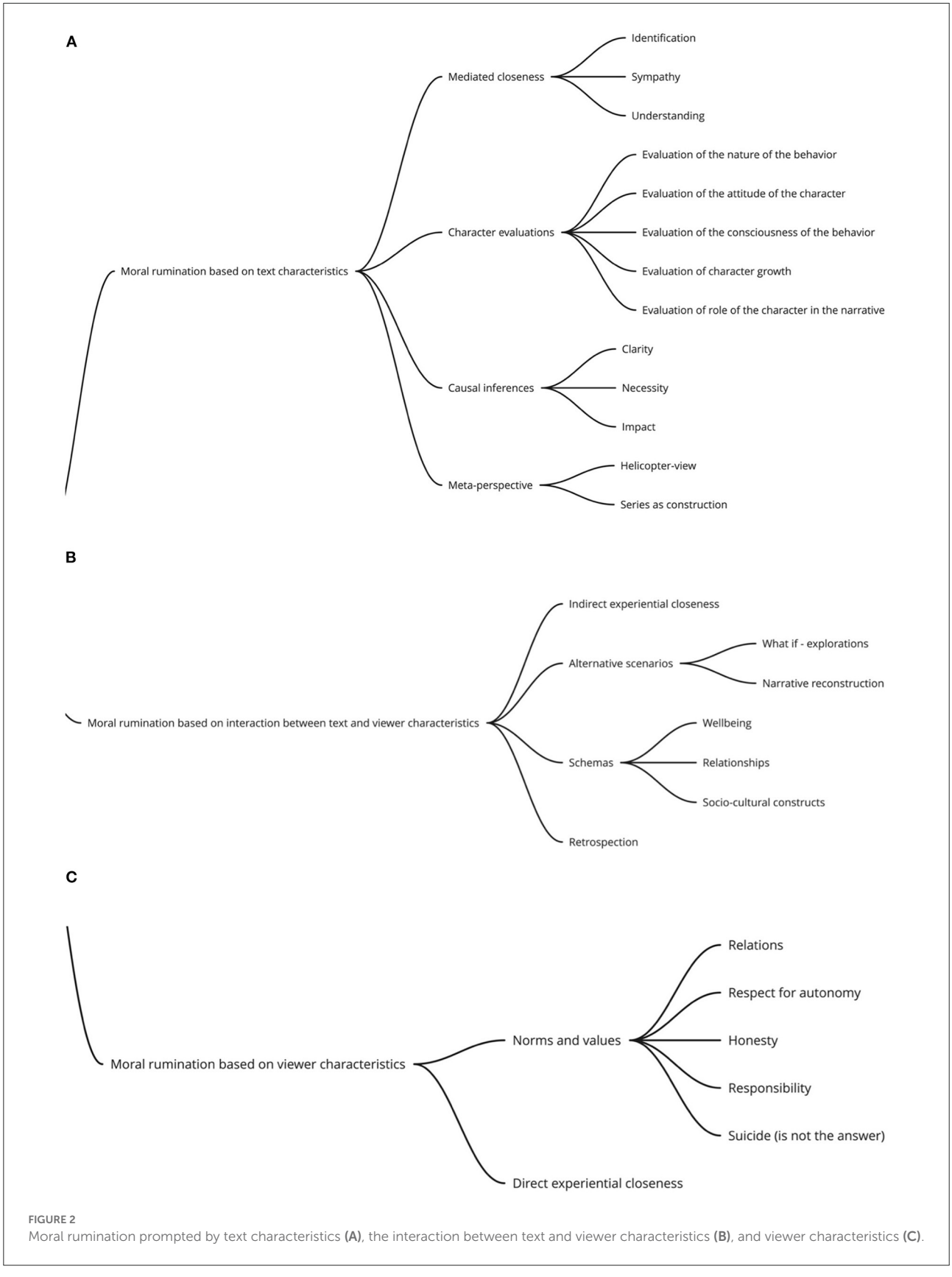

FIGURE 2
Moral rumination prompted by text characteristics **(A)**, the interaction between text and viewer characteristics **(B)**, and viewer characteristics **(C)**.

solidifies Hannah's promiscuous reputation and ruins her friendship with Jessica, who blames her breakup on Hannah.

The participants also evaluated the *attitude* a character held (and possible changes therein throughout the series), based on valued character traits and behavior related to topics like loyalty, authenticity, miscommunication, and the degree to which they were active participants or instigators of morally reprehensible behavior. For example, one respondent ruminates about how she feels about the last interaction between the counselor and Hannah, and how his intent and start to that interaction were good and Hannah's expectations might have been skewed, but in the end, she feels the counselor failed Hannah.

> *R: and ehm … it is unrealistic what she expects there, but I do get her because something truly awful happened to her. And his initial response is good, I have to say, telling her he will do everything to make her safe. But then he also stresses the fact that she needs to press charges, and he does not ask her how she feels about that or what can I do for you. It is very much you HAVE to press charges, and that is the only possibility.* (Interview 10, female, 19 years, conclusive moral rumination)

Participants also ruminated on the *consciousness of behavior* characters enacted. Herein, participants use the narrative as a basis to assess and judge if they believed that a character was fully present, willing and able, and an active participant in the acts that they felt were morally reprehensible or that the character was only circumstantially involved and therefore not as blameworthy or responsible. They pondered the degree to which they felt a character showed *growth* throughout the show. This growth was often assessed through the weight viewers attributed to the degree to which they saw a character feel and take responsibility for their actions, the acknowledgment of guilt, and the perceived (and justified) suffering a character endured.

> *R: Well yes, you get a clearer vision of him [Alex]. He truly has remorse for his actions, and that is maybe also why later in the end he tries to commit suicide. That he just cannot deal with it anymore, in this scene you truly get to know him, he is truly sorry and he didn't mean to do it.*
> *I: Does that make him less guilty?*
> *R: No, he made the list so he is responsible […] I understand what he did on the one hand, but also … if you love someone then you shouldn't do that, just because she will not sleep with you.* (Interview 42, male, 19 years, conclusive moral rumination)

Finally, they evaluated the *role* of the character in the show, and they zoomed in on the function characters had in relation to the protagonist (who are they to Hannah), their prominence over the narrative (i.e., are they important enough to have their own tape or episode) as well as their function as characters who create plot points that drive the story within the narrative. Viewers, for example, consider the relationships characters have toward one another (e.g., Marcus' reprehensible behavior is less crucial than Alex's since he was not Hannah's friend) and the role they fulfill in the narrative (e.g., feelings about Alex as the catalyst for truth-telling surrounding Jessica's rape).

Causal inferences

A third way viewers come to morally ruminate about the show, based on text characteristics, is through causal inferences. When participants engaged in causal inferences, they take all the factors that played a role in a situation into consideration and try to analyze if there is truly a clear cause-and-effect relation present for a specific problem or a certain situation. Viewers ruminate about the perceived *clarity* of a problem for all involved, for example, a respondent pondered if Clay could have done more for Hannah, but also feels that Hannah did not communicate her needs well enough. They ponder thereby ponder if Clay's behavior was actually to blame (i.e., a cause), for Hannah's suicide.

> *R: Yes, she had the feeling that she was not in it alone. That someone would help slay her demons. Because these thoughts are real, I think she may be needed a little push to share that with someone. But […] Well maybe he could have done more … He should have done more, but on the other hand he really couldn't have done more. He tried talking to her. He engaged with her, but if she really wanted someone to be there for her, she should have said so and not cursed him out and told him to leave. So yeah, I do believe he could have made the difference, but I also believe that the reason he didn't stay is due to her own behavior.* (Interview 31, female, 21 years, inconclusive moral rumination)

Viewers also ruminate about the perceived *necessity* or logic of certain behaviors, for example, viewers discuss their understanding but also confusion about the lengths to which Courtney goes to keep her lesbian sexuality hidden and protect her gay fathers. Lastly, viewers also discuss the negative *impact* certain behaviors have on (innocent) others as grounds for rumination. With the previous example of Courtney in mind, viewers feel conflicted since they have some understanding of why she would want to protect her identity, but also think that she causes undue harm to Hannah, who is an innocent bystander in this.

Meta-perspective

The final way text characteristics are the grounds for moral rumination, is when viewers take on a meta-perspective in their evaluation of the characters, their behavior, and the show as a whole. On the one hand, this meta-perspective manifests itself in viewers, using information from the series' narratives and taking on a *helicopter*

perspective through this. This perspective leads viewers to, for example, ponder the behaviors of characters side-by-side, or compare the weight of the "reasons" for Hannah's suicide side by side, thereby combining information from several episodes.

> *R: Well, I think he [Zach] just goes in the flow of the other boys, because they all actually do worse stuff. But I, well … I don't think he can be blamed, same as with Clay, that if only this one thing happened and not all the other things it would not have had an impact. This may be true for a lot of things though, but comparatively, Zach is actually really inconsequential.* (Interview 1, female, 19 years, conclusive moral rumination)

The other way this meta-perspective manifests itself is when viewers ponder the *series as a construction.* One respondent, for example, considers the use of the tapes as a mechanism in the show and how it creates a certain perspective for viewers and characters.

> *R: Yes, well that is what I constantly wonder about because there are all these reasons why she committed suicide, so I do not think he was the one factor who could have saved her, but on the other hand it is so hard to look inside someone's head even though the tapes do provide us some input on what she thought and felt in many cases.* (Interview 17, female, 20 years, inconclusive moral rumination)

Moral rumination prompted by the interaction between viewer and text

Viewers can also come to ruminate because characteristics of the text intersect with their own characteristics, *via indirect experiential closeness*, pondering of *alternative scenarios,* the use of *schemas,* and *retrospective* assessment of the series (see Figure 2B).

Indirect experiential closeness

In the case of indirect experiential closeness, viewers showcase a willingness to place themselves in a character, or characters' shoes, and ponder how they would have behaved or what they would have done in a specific instance.

> *R: Yes … I would not worry about that, I feel like fine that is how I am and get over it. But maybe when you are a teenager and your boyfriend puts you at the bottom of a list, then I would probably also get really angry … well in that situation at that age …*
> *I: You would be mad at her?*
> *R: Yes, … I think so. Because you might see her as competition in a certain way. And then wonder, why does he pick her, maybe something happened between them. And then she might overthink it, in the sense who knows what else Alex thinks about her. So yes, I would get angry. Then, as a teen, … now I would not care.* […] *The anger is not justified … but I do understand …* (Interview 10, female, 19 years, conclusive moral rumination)

Alternative scenarios

Viewers also engage in moral rumination when they actively engage with the narrative and ponder, *what if explorations* and also engage in forms of *narrative reconstruction*. In their ruminations, viewers often contemplate how storylines would have turned out differently if some events did not happen or if characters would have behaved differently.

> *R: Yes, well even though it sounds logical that he says to Hannah that it might have worked out differently, so then well it is logical that he feels this way. And that makes it so sad because it probably would have worked out for the best for both of them, it could have helped her … but on the other hand, we also understand that if she yells at him that he then leaves. I think most people would have left if someone acts that way.* (Interview 9, female, 19 years, conclusive moral rumination)

Additionally, but very closely related to what-if scenarios, through a form of *narrative reconstruction,* participants also explore what they believe should have happened in some events and how this would have then unfolded. They then also reflect on why this scenario probably did not develop the way they believed it should have.

> *R: No that is probably true, but I also believe that when she is hiding in the closet and sees what Bryce is doing and she knows it's rape, and even though she might want to do something, she should do something, what can she do? To truly stop it she should have come out of the closet and said something or ripped the boy off her or whatever … But still Bryce is a big guy I think, and she might also think that she would not succeed […] So I also think she was really frightened, about what could also happen to her. […] it is the moment that she is stuck in the closet, she has two options, either go out and say something with the possibility that something might happen or stay put in the closet. And what truly the best choice is I find hard to say …* (Interview 5, male, 20 years, inconclusive moral rumination)

Schemas

Viewers also engaged in moral rumination *via* the use of schemas. Schemas are efficient mental clusters of prior knowledge participants hold based on experiences and

information the participants have gathered in real life or through media experiences. The schemas that led to rumination in the current study clustered around general ideas about *wellbeing* (e.g., mental health, emotions), general ideas about how one behaves in certain *relationships* (e.g., how one should behave as a parent, as a romantic partner, as a friend) as well as scripts that dealt with a variety of *socio-cultural constructs* (e.g., gender schema's, puberty, coming-out). Viewers use these schemas (clusters of knowledge surrounding specific topics) to make sense of storylines or assess a certain character's behavior, which sometimes leads to inner conflict.

> *R: Well, I get that he might think that she was under the influence, which you should never assume. Because if you don't know, or did not feel it, or whatever, it did not happen. And generally speaking, you know that people who are raped are scarred for life by this trauma. So I get that he means well, but I also get Jessica being really mad because it is her body and … On the one hand, I think why should you bring someone who doesn't remember all this mental stress by telling her, and on the other hand, you have a right to know because it is your body.…* (Interview 36, female, 19 years, conclusive moral rumination)

Retrospection

Finally, moral rumination *via* the intersection of text and viewer characteristics also came to the fore in a retrospective view that some participants applied. This was most prevalent for participants who had seen the show a while ago and had now re-entered this narrative world again. This made them reevaluate specific ideas they believed they had and reassess their stance.

> *R: Well if you have seen it a while ago, I think you start to distort things in your head a little. Because you sort of forget little things and think Clay did not have a tape. He was perfect. But actually, in rewatching it this sort of clashes with the little things that you are confronted with, and then realize oh but wait there was stuff going on. You sort of need to reassess what you thought you thought, and you realize that you may have painted a prettier picture in your head, of Clay being nice and kind and perfect, while maybe he wasn't all the time?* (Interview 14, female, 20 years, conclusive moral rumination)

Moral rumination prompted by viewer characteristics

Less prominent in this sample than rumination prompted by text characteristics or the interaction between text and viewer characteristics is moral rumination prompted by viewer characteristics (Figure 2C). If rumination arose *via* this path, it was either *via norms and values* that were prominent for the viewer or *via direct experiential closeness*.

Norms and values

In their ruminations about characters and storylines, viewers also relied on their own moral framework in which explicated rules in the form of *norms* and ideals they hold regarding life in the form of *values* play a role. The norms and values were used as a reference point or touchstone, which they used as a tool to assess how they felt about specific behaviors. These often centered around ideals and expectations they had surrounding *relations* (e.g., romantic, friendship, parental and professional), the values of *honesty*, *autonomy*, and *responsibility*. Additionally and unsurprisingly, the idea that *suicide is not the solution* to someone's problems is also present in the rumination by viewers.

> *R: Honesty. Trust I think. Well, I don't know, I think that is really important that you, even though it sucks at the moment but still it is better when you are honest about what happened, and the blow is though at that moment but if you don't say anything the blow will be that much harder later on.*
> *I: Do you understand why he said nothing?*
> *R: Yes, in some way I do understand because it is easier said than done being truthful. But also that he wants to protect her, I get that too. But the truth will always get out … so …. I don't know …* (Interview 32, female, 19 years, inconclusive moral rumination)

Experiential closeness

The participants also sometimes ruminated about the content based on their personal experiences and knowledge about topics that were prominent in the show, such as struggles with mental health, sexuality, bullying, and sexually transgressive behavior. One respondent even alluded to the fact that because of similar experiences, the show helped him find emotional closure due to watching it.

> *R: Uhm … well it obviously differs per person, how much you are able to take. But on the other hand, she* (Hannah) *really had a lot of shit happen to her throughout the series. And in the end she had no one left … well suicide is difficult in any case … but she had issues.*
> *I: Yes, is that a difficult subject?*
> *R: Yes, it is difficult for me. Because, I was in a similar situation, so I identified with the situation … I understood that if this would have happened to me in high school, I get why this is her conclusion […] as a result I didn't find it hard to watch, it helped me […] it gave me the idea this*

> *could have been me … this is difficult to explain, but maybe sort of closure?* (Interview 27, male, 20 years, conclusive moral rumination)

These experiences and knowledge led to recognition and an experiential form of closeness with characters and storylines. At the same time, sometimes, it also led to a more critical evaluation of the character, when the representation did not match their realities.

Discussion

The current study aimed to extend the knowledge around moral rumination as a concept and to explore a more positive, growth-oriented perspective on the meaning-making of morally conflicted television content. As such, our study focused on answering how young adult viewers come to morally ruminate about the content of *13 Reasons Why,* and what the grounds for their moral rumination are.

Based on an analysis of forty-five interviews with young adults, we can conclude that these viewers engaged with the series *13 Reasons Why* function as moral monitors (Zillmann, 2000), and the series prompted moral rumination in viewers. Interestingly, and similar to the study by Bartsch et al. (2016, p. 758), the presence of rumination by participants was contingent first and foremost upon them regarding the show, storylines, and characters as a serious and valid representation of social reality. When the content was seen as over-the-top, unrelatable, or not real, then moral evaluations would be simple, and rumination would not arise.

Based on the current work, we formulated two new dimensions for the concept of moral rumination (as formulated by Eden et al., 2017), namely that *morally conclusive* and *morally inconclusive rumination*, which adds to the body of knowledge about this concept and provides a more refined way of conceptualizing moral rumination. Within each form of rumination there were a wide variety of rationale that prompted ruminative reflection. Still, both forms of rumination were distinguishable from one another. In the former, the participant eventually formulated a moral conclusion or judgment to finalize their ruminations; in the latter case, participants were unable to reach such a conclusion or final state of judgment. Inconclusive moral ruminators remained stuck in a state of moral uncertainty, unable to convince themselves that one argument or sense of closeness was more morally sound or convincing than another. When considering these results from the theoretical perspective of moral growth or moral maturity sparked by interaction and simulation within narratives (Winston, 1999; Carroll, 2000; Mar and Oatley, 2008), one is left to wonder which of the two types of moral rumination is more beneficial for the viewer? Is it the struggle part of morally conclusive moral rumination culminating in a final judgment, or the prolonged state of uncertainty coupled with inconclusive moral rumination? Future work should focus on establishing the effects of these different types of moral rumination on the wellbeing and moral growth outcomes of viewers.

We can conclude that moral rumination—in both forms—mainly was prompted by text characteristics and the interaction of text and viewer characteristics and to a lesser extent by purely viewer characteristics. Text characteristics, in a variety of four forms (i.e., *mediated closeness*, *character evaluation*, *causal inference,* and a *meta-perspective*), all formed grounds from which participants engaged in moral rumination. In the case of *mediated closeness*, as an antecedent, it consisted of variations in a continuum of empathy to cognition prompting closeness ranging from identification with characters and situations to sympathy for characters and an understanding of characters and situations. All these variations existed in both the positive form, i.e., identification, sympathy, and understanding resulting in closeness felt with character, but also conversely a lack of identification, and failing to sympathize with or understand characters. While the positive forms of closeness often resulted in ruminations ending in consensus with characters, or storylines, in the case of mediated distance rumination often ended with a fiercely critical disavowal of characters or situations. These ruminations also were consistently prompted by the storylines that were ambivalent or lacked moral closure. In the case of storylines where there was no moral ambivalence, for example, Bryce's rape of Hannah, participants only formulated straightforward moral condemnation.

Interestingly, our results tied to *causal inferences* as a text characteristic based on the clarity of issues the characters faced, the necessity of actions taken, and the weighing of the impact of behavior as well as a certain element of character evaluations (i.e., nature, attitude, and consciousness), are in line with the results by Tamborini et al. (2018) relating to attribution theory. The degree to which external factors (i.e., stimulus or circumstances) in the storylines of *13RW* caused characters to behave immorally created a greater sense of leniency in the process of moral rumination and formulating a moral judgment than when the characters themselves were seen as the cause.

Furthermore, almost all the characters, who are central to a tape in the series, showcase that they are morally complex through, for example, the explication of circumstances for their behavior in a tape (i.e., Courtney, who wants to protect her dads, Justin, who has a terrible home situation and has been dependent on Bryce). Further, they also demonstrate character growth (i.e., both Alex and Justin owned up to their terrible behavior and wanted to make amends). If seen from this vantage point, the rumination prompted by the evaluation of the *role of the character* and the evaluation of the growth of the character is in line with earlier work by Kleemans et al. (2017) and Daalmans et al. (2018) on audience responses to character development in morally complex characters. These studies already proposed that the evaluation of characters—as they grow throughout a

film narrative—is crucial in how we respond to characters. In the present study, we add to the body of knowledge that character growth and their role in a series provide a basis for viewer rumination and their subsequent moral judgments. The difference between the films in the mentioned studies by Kleemans et al. (2017) and Daalmans et al. (2018) and the current research is the lack of moral closure in the series (compared to film), an ensemble of main characters (instead of a leading protagonist in the films) and the time spent with the characters (13 h compared to an average of two for a film). We speculate that specific characteristics, by themselves and in combination with one another might heighten viewer rumination to a greater degree.

The final text-driven ground that prompted participants to engage in moral rumination was by taking on a *meta-perspective* toward the series and particular storylines. Participants used information from the entirety of the series to create judgments, contextualize, understand and ruminate about a character's behavior unfolding in earlier episodes. They also came to ruminate about the series' content when they regarded the show as a creation, a product with certain production characteristics. This mode in which they regarded the series as a construction is similar to the critical decoding in syntactical form, as evidenced in the classical study on the TV show *Dallas* by Katz and Liebes (1990).

Our results also pointed to the interaction between text and viewer characteristics as grounds for moral rumination. For this interaction, we also found four ways in which this interaction led to moral rumination (i.e., *indirect experiential closeness, alternative scenarios, schemas,* and *retrospection*). Similar to studies exploring moral evaluation of television narratives (van Ommen et al., 2014, 2016, 2017), *indirect experiential closeness* led to moral rumination in viewers because the mental process of putting themselves in a character's shoes led the to debate the "right" choice in that situation among the various options at hand. And while the studies by van Ommen et al. primarily focused on narratives about professionals (in the workplace), the current study empirically validates the presence of *indirect experiential closeness* for young adults with themes relating to the private sphere.

Furthermore, in the creation of *alternative scenarios* and ruminating about what the best and most appealing storylines would be for (liked and disliked) characters and why those eventually would not work, participants showcased the variety of meaning-making processes outlined in Hall's central model of encoding and decoding (Hall, 1993) and empirically reveal the "active audience" in processes of meaning-making. Participants then actually engage in forms of "play" (Katz et al., 1992), in which they engage in contrasting what might be, what could be, and what should be scenarios with what happened and why.

The *schemas* that participants used in their rumination were generally schemas about the "real-world" rather than story schemas. For example, schemas surrounding scripts of gender, sexuality, and how to act in a variety of relationships. So these were less focused on, for example, schemas that were connected with the story world (i.e., archetypes, genre criteria). For example, we believed that schemas tied to character types such as the "bad boy," might play a role in the moral evaluation and rumination about the show, but this was not the case. It might be the case that instead of using archetypes as schemas, each morally ambiguous character throughout the series became a prototype of themselves (Sanders, 2010).

The final way moral rumination was grounded in the intersection of text and viewer characteristics was through a sort of *retrospective* mode of evaluation. This was primarily prompted for viewers whose initial viewing of the show was a while ago when the interview took place. They then sometimes engaged in a retrospective evaluation of what they remembered and contrasted that with what they "re-learned" through clips in the interview itself. Rumination then unfolded because what they remembered did not match the facts that were present in the clips they viewed in the interview.

Viewer characteristics were the final and least prominent ground on which moral rumination could be grounded. This could take on the form of the prominence of personal *norms and values* as well as *direct experiential closeness*. Compared with earlier studies on moral evaluation, the participants focused less on viewer characteristics as grounds for morally ruminating about the characters, storylines, or the show in general. This distinction might be because the real-life (professional) experiences in previous studies more closely matched the fictional (professional) lives on screen (van Ommen et al., 2014, 2016, 2017), while for this sample, we found that there were relatively few participants who had direct experiences with the topics of the show such as depression, sexual harassment, bullying, and suicide. Interestingly, when the rumination was prompted by similar experiences of participants in real life, the *direct experiential closeness* led both to ruminate about *overlap* in personal experiences and the representation in the show as well as a counter-argumentation due to a *mismatch* between personal experiences and the representation in the show. In some exceptional cases, the rumination even led to forms of reflection and feelings of emotional closure on traumatic life events the participants had encountered. This leads us to believe that this form of conflicted and popular media content dealing with controversial themes can serve as a (potential) tool to promote inner reflections, moral growth, and psychological wellbeing. The current study thereby adds to a wealth of previous research on eudaimonic entertainment which has consistently found that viewers reflected not only on the deeper meaning of the content but also on the meaning of autobiographical events, including negative experiences (Oliver and Hartmann, 2010; Knobloch-Westerwick et al., 2013; Bartsch and Mares, 2014; Bartsch et al., 2014).

Finally, we can conclude that regardless of the antecedents the moral rumination was anchored in, all moral ruminations

were tied to the main premise of the show, and dealt with either the portrayal of mental health issues (i.e., suicide, depression, victimhood, and bullying), the attributions of feelings of guilt and responsibility, and discussions of (healthy and consensual vs. non-consensual) sexual relations and identity. Furthermore, as mentioned before, both conclusive and inconclusive moral rumination were grounded in the greatest variety in textual characteristics, followed by the interaction between text and viewers, and in the least variety in viewer characteristics. These results seem to strengthen conclusions by Eden et al.(2017, p. 150), who stated that "… moral rumination may be tied specifically to the conflict presented in the storyline, the specific act featured, or the ambiguity of moral resolution provided by the narrative," maybe even more so than viewer characteristics.

As with all studies, this study also had its limitations which provide interesting avenues for future research. By focusing on *13 Reasons Why* as a series, the topics of moral rumination are inherently tied to themes of guilt and responsibility, issues with mental health, and sexually transgressive behaviors, whereas other morally controversial shows like, for example, the controversial *Euphoria* (2019, created and written by Sam Levinson) might introduce other topics for viewers to ruminate about. Additionally, one might wonder if encountering similar themes in a different genre might impact the extent to which moral rumination arises. *Sex Education* (2019, created by Laurie Nunn) deals with similar topics of, for example, sexual consent, responsibility, and harassment in a layered and complex way, but is presented as a dramedy rather than a drama series. Will the genre impact the possibility for moral rumination, or might the complex presentation of the themes be enough for the viewer to come to ruminate on these themes? To assess if the current findings are also transferable to other fictional content focusing on other (controversial) topics, future qualitative and quantitative research is needed to establish this.

Additionally, the age of the sample of participants should be diversified in future research to assess if older participants might be more capable of and willing to reflect on experiences they had in their teen years or if these ruminations might be most prevalent for teenagers themselves. Viewer characteristics connoting individual differences such as explication of experiences similar to the content need for closure, and levels of moral maturity could also be explicated as sampling strategies in future research.

Finally, since the development of moral rumination as a concept—even with the newly articulated variations of morally conclusive and morally inconclusive rumination—is still very much under development, new research is also needed to more clearly delineate what moral rumination is and how it might impact moral growth, moral maturity, and aspects of psychological wellbeing. Future research should therefore build on the current study and endeavor to take the variations of morally conclusive and morally inconclusive rumination into consideration as well.

In conclusion, the current study more fully explored moral rumination as a result of morally complex television content and thereby extends the study by Eden et al. (2017) on moral rumination. Our findings suggest that this type of popular, morally complex media content promotes moral rumination from a great variety of antecedents, causes reflection and meaningful thought in viewers, and, as such, might add to the psychological wellbeing of viewers. In line with the study conducted by Lauricella et al. (2018), the participants in this study found the content of the show very meaningful, used it for reflection on a difficult subject, and sometimes even reached a sense of closure on a complex part of their life story. Where in communication science, in general, controversial media is often seen as a gateway to negative effects, this study sheds a more positive, constructive, and contemplative outlook on this type of morally complex content, thereby adding to the growing body of literature which can be seen as positive media psychology or positive communication science (Raney et al., 2019, 2020).

Data availability statement

The datasets presented in this article are not readily available because the dataset is not available online. Due to the ethically sensitive nature of the interview (topics) the informed consent guaranteed full confidentiality of the interview transcripts for all participants. The researchers are available to answer specific questions regarding the data. Requests to access the datasets should be directed to serena.daalmans@ru.nl.

Ethics statement

The studies involving human participants were reviewed and approved by Ethics Committee Faculty of Social Sciences (ECSW2017-2306-525), Radboud University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

SD, AW, and MK contributed to conception and design of the study. SD and AW collected the data. SD and CV conducted the analyses. SD wrote the first draft of the manuscript. AW and MK provided feedback on the manuscript and rewrote sections. All authors contributed to manuscript revision, read, and approved the submitted version.

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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The longitudinal influence of hedonic and eudaimonic entertainment preferences on psychological resilience and wellbeing

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Narratives and media entertainment are central sources of meaningful experiences in everyday life and provide role models and learning opportunities for coping with adversity and life challenges. Though a growing body of research demonstrates beneficial short-term effects of entertainment use on recovery and stress coping, a test of longitudinal effects on positive adaptation to adversity is largely missing. The present study aims at providing a salutogenic perspective on the mental health effects of entertainment use by addressing the longitudinal relationship between hedonic and eudaimonic entertainment preferences (i.e., the individual entertainment diet) and three indicators of psychological resilience: hope, meaning in life, and trait resilience. Pre-registered hypotheses and research questions were tested based on data from a longitudinal panel study with two waves over a 6-month time period and $N = 2{,}561$ participants from Germany. The findings demonstrate that only meaning in life at T2 was significantly albeit weakly predicted by eudaimonic entertainment preferences at T1, providing limited support for prospective effects of entertainment use on resilience. In contrast, the data demonstrate selective exposure effects of hope and trait resilience at T1 on eudaimonic and hedonic entertainment preferences at T2. All three resilience indicators were significant predictors of mental health and psychological wellbeing. We discuss implications of our findings for future research on salutary mental health effects of narratives and media entertainment.

KEYWORDS

entertainment, resilience, mental health, wellbeing, eudaimonic experience, longitudinal effects, pre-registered study

Introduction

Media entertainment and mediated narratives are a vital part of our everyday experiences. With a steep rise in media use and a strong demand for entertaining content (Grady et al., 2022; Sigre-Leirós et al., 2022), the COVID-19 pandemic marks a culmination point emphasizing the centrality of entertainment in people's lives. For the majority of users, the large amount of time spent with media entertainment and

narratives provides much more than just a mundane past-time and distraction from daily hassles or adversity. Narratives and entertaining content are a central source of meaningful experiences and important life lessons (Greenwood and Long, 2015), allowing viewers to follow protagonists through critical life events and to vicariously experience their perseverance and coping in the face of adversity (Slater et al., 2018, 2019). At the same time, media entertainment can be uplifting, helping people to regulate their current moods (Zillmann, 1988) and may be a source of positive feelings and emotion-focused coping, both in everyday life and in times of crisis (Eden et al., 2020; Nabi et al., 2022).

Given these important psychological functions of stories and narratives and the ubiquity of entertaining media, their relationship with psychological health and wellbeing is of great interest (Prestin and Nabi, 2020; Khoo et al., 2021). In fact, considerable evidence points at beneficial *short-term* effects of entertainment, such as recovery or stress coping (Reinecke et al., 2011; Rieger et al., 2014; Nabi et al., 2017). In contrast, research addressing the *long-term* effects of narratives and media entertainment on psychological health and wellbeing is very limited (Reinecke and Rieger, 2021). It thus remains largely unclear whether the beneficial effects of entertaining media are short-lived, or transfer to more stable prospective gains in psychological health.

We thus propose that a *salutogenic* perspective on media entertainment provides an important extension of previous research on the effects of narratives and entertaining media content by systematically investigating the long-term potential of media use to promote and protect health and wellbeing (Schneider et al., 2018). The present study thus aims at extending previous research on the effects of media entertainment by exploring the prospective effects of hedonic and eudaimonic entertainment preferences (i.e., the repeated exposure to hedonic and eudaimonic media content)[1] on psychological resilience, that is, the individual ability to functionally adapt to adversity (Fletcher and Sarkar, 2013; Kalisch et al., 2017). Previous work suggests that various potential connections between the use of media entertainment and the development of resilience factors may exist (Reinecke and Rieger, 2021), however, a systematic theoretical integration of both strands of research is largely missing.

Consequently, the present paper aims at two central contributions: by providing theory synthesis (DeAndrea and Holbert, 2017) and bridging the theoretical gap between the hitherto largely unconnected fields of entertainment and resilience research, we aim at contributing to *theory development* in narrative and entertainment research. *Empirically and methodologically*, the present study extends the predominantly short-term perspective on the effects of narratives and media entertainment on psychological wellbeing with a test of the longitudinal effects of media entertainment on psychological resilience and mental health. In a longitudinal survey study with two measurement points over a 6-month period and a quota sample of the German population in the age range of 18–65 years, we explore the prospective relationships between the preference for hedonic and eudaimonic entertainment, different resilience factors, and psychological health. To the best of our knowledge, the present study is the first to test the prospective effects of media entertainment on psychological resilience in a longitudinal research design.

Salutogenesis and the concept of psychological resilience

Research on physiological and psychological health was long dominated by a pathogenic perspective, focussing on drivers of illness and risk-factors that increase the likelihood of physical and psychological pathology (Mittelmark and Bauer, 2017). This perspective was crucially extended in the 1970s by the theoretical movement of salutogenesis (Antonovsky, 1979, 1996). The salutogenic perspective focusses on "salutary factors" (Antonovsky, 1996, p. 14) that promote health and wellbeing and support the individual in persevering against life challenges. Closely connected to the advent of salutogenesis is the development of the concept of psychological resilience, referring to the individual ability to "bounce back" (Richardson, 2002, p. 308) after critical life events and to successfully overcome stressors or difficult life circumstances.

The development of the theoretical concept of resilience is based on the observation that individuals differ significantly in their reactions to adversity and potentially traumatic events and experiences (Bonanno, 2004). *Adversity* can take widely different forms and can occur chronically, as ongoing abuse or prolonged problematic life circumstances, or in the form of isolated incidents or acute stressors, such as the loss of a loved one or sudden changes in life conditions (e.g., the onset of a pandemic) (Pangallo et al., 2015). Furthermore, adversity can vary in severity and refers to both disruptive and traumatic events and more common and less severe stressors, such as daily hassles (Bonanno, 2004; Chmitorz et al., 2020).

Despite the fact that the concept of resilience has received considerable and growing attention in psychology and the health sciences over the past years (Fletcher and Sarkar, 2013), no clear consensus regarding a widely accepted definition of psychological resilience exists (Kalisch et al., 2017). However,

1 Please note that in other work (e.g., Oliver and Raney, 2011), the term entertainment preferences is sometimes used to refer to trait-like individual differences in entertainment motivations or entertainment gratifications sought by media users. In the present study, we use the term to refer to the individual entertainment diet, that is, repeated exposure to entertaining content and to the frequency of such entertaining experiences.

alongside adversity as a necessary condition for resilience to occur, one central factor common to most definitions is *positive adaptation*, referring to the idea that psychological resilience is characterized by the maintenance of or a quick return to baseline levels of psychological wellbeing in the face of adversity (Fletcher and Sarkar, 2013; Kalisch et al., 2017). Accordingly, coping with adversity can be conceptualized as a continuum of successful or functional adaptation vs. unsuccessful and dysfunctional adaptation (Niitsu et al., 2017). Positive adaptation to adversity in the form of a return back to or even beyond pre-stressor levels of functioning without loss or developing impaired psychological health is thus at the heart of the resilience concept (Richardson, 2002; Fletcher and Sarkar, 2013).

Positive adaptation to adversity is essential for most conceptualizations of resilience, but theoretical approaches differ widely with regard to their temporal perspective and main unit of analysis. A first group of theoretical conceptualizations focuses on *relatively stable* individual differences in *trait resilience* (Hu et al., 2015). Beyond different measures of trait resilience that address person-level differences in the *general* ability to "bounce back" from adversity (Chmitorz et al., 2018), this line of research has identified a number of protective and promotive *resilience factors*, such as social support or self-efficacy, that facilitate positive adaption to adversity (Windle, 2011; Pangallo et al., 2015). A second line of research emphasizes the *process-character* of resilience and proposes that, rather than being a stable trait, resilience may *fluctuate within-person* and between different situations and life contexts (Fletcher and Sarkar, 2013). Other approaches provide a conceptual bridge between the state and trait perspective on resilience by suggesting that resilience is a dynamic and context-specific process that is facilitated by person-level resilience factors (Niitsu et al., 2017). Importantly, according to this perspective, promotive and protective resilience factors are not static but can fluctuate and develop over the life-span as the result of individual experiences and learning processes (Kalisch et al., 2017).

In the present paper, we adopt this theoretical conceptualization of resilience as the interplay of situational adaptation processes and person-level resilience factors. We further propose that the person-level protective and promotive factors supporting successful adaption to adversity may be shaped and reinforced through exposure to media entertainment and narratives (Reinecke and Rieger, 2021). By doing so, we introduce a salutogenetic perspective into entertainment research that addresses entertaining media use as a potential source for salutary factors that may help media users build up, restore, or maintain psychological resilience over time. In the following sections, we will first briefly explicate hedonic and eudaimonic forms of entertainment experiences based on recent two-factor models of entertainment. We will then discuss how preferences for hedonic and eudaimonic entertainment may be longitudinally related to different person-level resilience factors, thus providing a theoretical integration of both literatures.

Hedonic and eudaimonic entertainment experiences

The past years have seen a marked shift in entertainment theory and research. For decades, entertainment research was dominated by a hedonic view on entertainment experiences (Vorderer and Reinecke, 2015). In this research tradition, the entertainment experience has primarily been conceptualized as pleasurable *enjoyment* and as "positive reactions toward the media and its contents" (Vorderer et al., 2004, p. 388), such as fun and suspense. Accordingly, the use of and selective exposure to entertaining content has predominantly been explained through hedonistic motivations, such as mood management (Zillmann, 1988) or the need to escape form real-world frustrations (Halfmann and Reinecke, 2021). This hedonistically oriented research tradition has produced a large body of empirical evidence that supports the notion that entertainment use is indeed linked to pleasurable experiences and resembles a highly effective tool for mood optimization (e.g., Reinecke, 2017). At the same time, the inability of an exclusively hedonic conceptualization of entertainment experiences to explain exposure to and appreciation of sad and poignant media content has been discussed as a central limitation of the field early on (Oliver, 1993). In reaction to this theoretical gap, the field of entertainment research has undergone a paradigmatic shift with the introduction of two-factor models of entertainment experiences that complement the traditional hedonic view on media enjoyment by introducing a second set of eudaimonic media experiences (Oliver and Raney, 2011; Vorderer and Reinecke, 2015; Janicke-Bowles et al., 2021). This second eudaimonic factor of entertainment refers to more complex forms of entertainment experiences induced by tragic or poignant media content that confronts viewers with cognitive and emotional challenges (Bartsch and Hartmann, 2017). Oliver and Bartsch (2010) refer to such eudaimonic entertainment experiences as *appreciation*, which they define as an "experiential state that is characterized by the perception of deeper meaning, the feeling of being moved, and the motivation to elaborate on thoughts and feelings inspired by the experience" (p. 76). Furthermore, eudaimonic entertainment experiences are frequently elicited by depictions of moral beauty and closely associated with moral emotions, such as elevation or awe (Oliver et al., 2012). More recent conceptualizations further differentiate eudaimonic entertainment experience into more inward-oriented and self-focused experience such as feelings of meaning, contemplation and mixed affect represented by the construct of appreciation vs. more outward-oriented and other-focused experience, such as interconnectedness and

altruism (Oliver et al., 2018; Janicke-Bowles et al., 2021). This latter group of experience is also referred to as self-transcendent emotions associated with a decreased salience of the self and an increased openness to others, a heightened sense of connectedness to humanity and increased motivation to better oneself or the world (Janicke-Bowles et al., 2021).

This empirical evidence clearly emphasizes the complexity of the entertainment experience and suggests that exposure to narratives and entertainment elicits a multitude of affective and cognitive processes in viewers that appear pivotal for individual wellbeing. In fact, both hedonic and eudaimonic forms of entertainment have been linked to short-term effects on different outcomes directly or indirectly related to wellbeing, such as vitality, intrinsic need satisfaction, or recovery from stress and strain (Reinecke and Rieger, 2021). It remains largely unclear, however, whether such hedonic and eudaimonic experiences also support viewers in cultivating resilience factors that in turn support their mental health and wellbeing over time. In the following section, we will review mechanisms that may connect long-term patterns of hedonic and eudaimonic entertainment exposure to the development of protective factors and discuss how both forms of entertainment may differentially contribute to psychological resilience.

Entertainment preferences as a source of resilience

Previous research has not yet established direct connections between media entertainment and psychological resilience, but initial evidence supports the general notion that narratives and entertaining content may have long-term effects on viewers' coping with adversity (Greenwood and Long, 2015; Slater et al., 2018). More specifically, previous research suggests that entertaining media may provide role models and learning opportunities for the development of long-term strategies for dealing with critical life events (Greenwood and Long, 2015; Nabi et al., 2017; Slater et al., 2018). Survivors of traumatic events and protagonist demonstrating perseverance in the face of adversity are a frequent theme in narratives and media entertainment (Greenwood and Long, 2015; Kim and Tsay-Vogel, 2016). By putting viewers in the shoes of protagonists confronted with adversity, narratives provide viewers with ego references, provoking a "cognitive switch" (p. 321) from the protagonist's perspective to one's own situation and life circumstances (Schramm and Wirth, 2010). Narratives thus provide important opportunities for vicariously experiencing the confrontation with and progression through personal crisis, loss, and critical life events (Slater et al., 2018) and provide "new templates" (p. 626) for dealing with adversity and life challenges (Greenwood and Long, 2015).

Overall, narratives may thus be an important context for the social learning (Bandura, 2001) of resilient coping with adversity. Furthermore, repeated exposure to portrayals of resilience in narratives and entertainment media may result in cultivation processes (Gerbner et al., 2002; Busselle and van den Bulck, 2020) that may impact viewers' perceptions of their own capacity to overcome such adversity. In fact, entertaining media content has been identified as a central source of inspiring portrayals of human virtue and altruism (Raney et al., 2018) and a high share of media users report inspiring media experiences (Janicke-Bowles et al., 2019). Repeated exposure to such content may instill a motivation for personal growth in many users and reinforce their perception that they possess the necessary coping resources to be resilient in the face of adversity.

The present study

As the resilience literature has identified a large number of resilience factors (Fletcher and Sarkar, 2013), covering all facets of psychological resilience is undoubtedly beyond the scope of a single study. Instead, we aim at addressing the longitudinal relationship between preference for hedonic and eudaimonic entertainment with *hope* and *meaning in life*—two central resilience factors particularly frequently discussed in the literature—as well as *trait resilience* as the general personal capability for positive adaptation to adversity.

One form of positive affective disposition that has received particular attention in the literature is hope (Gillespie et al., 2007). Hope is characterized by two underlying factors (Snyder, 2002): the perceived ability to find routes to realize personal goals and cope with challenges (i.e., pathways) as well as to show perseverance in following through with these routes to goal achievement (i.e., agency). Meta-analytic evidence consistently links hope to psychological health and wellbeing (Alarcon et al., 2013). Previous research demonstrates that personal levels of hope can be altered through training and interventions (Snyder, 2002), suggesting that higher levels of hope could indeed be cultivated by external influences such as exposure to narratives (Merolla et al., 2017).

Eudaimonic forms of entertainment show strong connections to the concept of hope. In a content analysis of eudaimonic and inspirational YouTube videos, Dale et al. (2017) found that eudaimonic content frequently features "hope elicitors" (p. 904) such as protagonists receiving encouragement and support or showing perseverance. Eudaimonic narratives thus provide role models and examples of finding strategies for successfully coping with critical life events and successfully following those to overcome adversity (Raney et al., 2018). Consequently, they should reinforce both the pathways and the agency component of hope. First empirical evidence suggests that eudaimonic content, such as underdog narratives, can have short-term effects and increase hope temporarily (Prestin, 2013; Prestin and Nabi, 2020). We thus propose that:

H1: Higher preference for eudaimonic entertainment at T1 is associated with higher levels of hope at T2.[2]

Compared to eudaimonic entertainment, the connection between hope and hedonic content and narratives appears less clear. Hedonic entertainment, such as comedy, is typically characterized by positive affective valence, depicting life in a positive and cheerful way (Zillmann, 1988). Other forms of hedonically positive narratives may feature suffering of protagonists or unpleasant and suspenseful scenes (e.g., action or crime movies), yet culminate in a hedonically positive happy ending or comic relief (Reinecke, 2017). Frequent exposure to such cheerful narratives may plausibly increase optimism and a generally positive view on life and its outcomes. Its capacity to provide problem-solving strategies or initiate social learning process that increase the perceived capability to overcome adversity appears less likely. Direct effects of a hedonic entertainment diet on the central pathways and agency dimensions of hope thus seem less likely and are also not supported by previous research on short-term effects of hedonic narratives on hope (Prestin and Nabi, 2020). Hedonic entertainment may, however, support the cultivation of hope indirectly through the reinforcement of optimism and generalized positive outcome expectations. In fact, hedonic entertainment preferences have been linked to optimism in previous research (Oliver and Raney, 2011). Even though optimism and hope are distinct theoretical concepts, both show substantial positive correlations (Alarcon et al., 2013). We thus pose the following research question:

RQ1a: Will higher preference for hedonic entertainment at T1 be associated with higher levels of hope at T2?

A second protective factor that has been consistently linked with psychological resilience and shows strong connections to media entertainment is the presence of meaning in life (Pangallo et al., 2015). Higher levels of meaning in life have been identified as a central protective factor and linked to mental health and positive adjustment to various forms of adversity or traumatic events (Park, 2017; Ward et al., 2022). Furthermore, meaning making, that is, restoring meaning after trauma and critical life events, is an important mechanism that strengthens resilience (Park, 2017), for example through the acceptance of change or the reappraisal of the situation as an opportunity for growth or a source of wisdom (Folkman and Moskowitz, 2007).

Eudaimonic narratives appear to have a strong potential for supporting processes of meaning making and for establishing higher levels of meaning in life. Themes related to meaningfulness and purpose in life are central to eudaimonic entertainment (Oliver and Bartsch, 2010) and frequent exposure to such content may increase the general salience of meaning in life. Furthermore, eudaimonic narratives should provide crucial learning opportunities for strategies of meaning making, as they frequently portray protagonists' attempts to find meaning in their own struggles with the human condition (Slater et al., 2018). Additionally, eudaimonic entertainment content is typically characterized by high levels of cognitive and emotional challenge (Bartsch and Hartmann, 2017) and the ability to trigger reflective thoughts (Clayton et al., 2019). When used as an ego-reference and applied to the viewer's own situation (Schramm and Wirth, 2010), this should invite media users to engage in and practice meaning making during and after exposure (Khoo and Oliver, 2013). Over time, repeated exposure to such forms of eudaimonic entertainment that provide opportunities for the vicarious experience of meaning or for active engagement in meaning making may result in increased presence of meaning in life for media users. We thus propose that:

H2: Higher preference for eudaimonic entertainment at T1 is associated with higher presence of meaning in life at T2.

Again, expectations are less clear for a potential longitudinal relationship between meaning in life and a hedonic entertainment diet. In contrast to eudaimonic entertainment, themes of meaning and meaning making are less prevalent in hedonic entertainment content (Oliver and Bartsch, 2010). Furthermore, rather than motivating viewers to cognitively reflect upon their own situation, exposure to hedonic forms of entertainment frequently represents an avoidance strategy (Knobloch-Westerwick et al., 2009) aiming at escapism and distraction from personal problems and frustrations (Halfmann and Reinecke, 2021). Frequent exposure to such content may thus have a negative longitudinal effect on meaning in life. On the other hand, positive affect has been identified as a central predictor of meaning in life in previous research (King et al., 2006). Repeated exposure to hedonic entertainment may thus exert an indirect effect on meaning in life via an increased prevalence of positive mood in daily life. We thus pose the following research question:

RQ1b: Will higher preference for hedonic entertainment at T1 be associated with higher levels of meaning in life at T2?

In addition to the two resilience factors of hope and meaning in life, the present study also aims at exploring the relationship between exposure to entertainment and trait resilience as a general measure of the individual ability to positively adapt to adversity. We propose that the same mechanisms connecting exposure to entertainment with hope

2 Hypotheses 1–4 and research questions 1a–1c were pre-registered prior to data analyses. The pre-registration can be found at https://osf.io/8n6eg. Please note that the sequence and numbering of hypotheses and research questions in the paper deviates from that in the pre-registration document.

and meaning in life should also be applicable to general trait resilience. Accordingly, the considerable potential of eudaimonic narratives to provide opportunities for vicarious learning of coping and resilience strategies (Greenwood and Long, 2015; Slater et al., 2018), their capacity of triggering reflective thought about life and life purpose (Oliver and Bartsch, 2010; Clayton et al., 2019), as well as their potential to inspire and instill believe in one's own resourcefulness (Raney et al., 2018; Janicke-Bowles et al., 2021), suggest that they may support viewers in cultivating trait resilience over time. Predominantly hedonic narratives, in contrast, likely provide fewer role models for resilient behavior and may be used as a means of distraction, rather than reflection and meaning-focused reappraisal. As such forms of avoidance coping are negatively associated with trait resilience (Chmitorz et al., 2018), chronic exposure to hedonic entertainment may hinder rather than reinforce resilience. Alternatively, hedonic entertainment may support resilience by increasing the prevalence of positive affect in daily life. Hedonic entertainment may also increase trait resilience by providing opportunities for recovery from stress and strain in daily life, thus replenishing taxed resources that may support media users' ability to positively adapt to adversity (Rieger et al., 2014, 2017). We thus formulate the following hypothesis and research question:

H3: Higher preference for eudaimonic entertainment experiences at T1 is associated with higher levels of trait resilience at T2.

RQ1c: Will higher preference for hedonic entertainment at T1 be associated with higher levels of trait resilience at T2?

In the preceding sections, we have proposed that both hedonic and eudaimonic entertainment experiences may be important sources of resilience. If longitudinal connections between entertainment diets and these resilience factors exist, psychological resilience would be a promising mechanism that could link exposure to narratives and entertainment to longitudinal effects on psychological health. Both trait resilience and the resilience factors hope and meaning in life have consistently been linked to increased psychological health and wellbeing in previous work (Alarcon et al., 2013; Pangallo et al., 2015; Chmitorz et al., 2018). To replicate these findings and to provide further evidence for the relevance of resilience factors in the context of media entertainment and psychological health, we also test the relationship between the three resilience variables and mental health outcomes in this study. Following the Extended Two-Continua Model of Mental Health (Meier and Reinecke, 2021), indicators of psychopathology (depression and anxiety) and of psychological wellbeing (life satisfaction) were included. Accordingly, we hypothesize that:

H4: Higher levels of (a) trait resilience, (b) hope, and (c) meaning in life at T2 are associated with higher levels of psychological health (i.e., lower depression/anxiety and higher life satisfaction) at T2.

The central focus of the present study lies on the potential long-term effects of entertainment use on resilience. Nevertheless, reverse or reciprocal relationship between those variables appear equally plausible. Selective exposure to entertainment is certainly driven by short-term fluctuations in needs or mood states (Zillmann, 1988), but entertainment preferences have also been linked to more stable person-level variables. In an experiment by Appel et al. (2019), participants with high levels in personality characteristics lacking empathy (e.g., narcissism), showed more negative evaluations of eudaimonic entertainment content than individuals low in these traits. Furthermore, cross-sectional survey data by Oliver and Raney (2011) suggest that selective exposure to entertainment could also be driven by person-level differences in resilience factors. In their study, preferences for hedonic entertainment were positively predicted by optimism and preferences for eudaimonic entertainment by meaning in life. Accordingly, it seems plausible to assume that pre-existing person-level differences in psychological resilience may influence individual entertainment diets and that media users gravitate toward narratives that resonate with their views on life and the human condition. We thus pose the following research question:

RQ2: Are hope, meaning in life, and trait resilience at T1 associated with preference for hedonic and eudaimonic entertainment at T2?[3]

Methods

Design and pre-registrations

We tested our hypotheses with a longitudinal survey with two waves and a 6-month lag. This study is part of a larger research project, for which we pre-registered design, sampling plan, and all measured variables prior to data collection: https://osf.io/6dwrz/?view_only=d0f0d0d1a1ef477d9aa7a06b58956997. Hypotheses and analyses were pre-registered prior to data analysis: https://osf.io/8n6eg.

Sample and procedure

An online quota-sample was recruited by Ipsos, a large market research company, in Germany. The panel was

3 Please note that RQ2 was not preregistered prior to data analyses but added post-hoc as an exploratory extension of H1–H4 and RQ1a–c.

representatively stratified for the general population in Germany in the age-range of 18 to 65 years regarding sex, age, education, and region. Participants were informed that the survey would ask them about their media use as well as potentially stressful situations in their own life. Afterwards, they were asked a number of questions about their general media use and entertainment preferences, resilience factors, stress and adversity, and mental health and wellbeing.[4] Lastly, participants were debriefed, thanked for their participation and kindly asked to participate in the subsequent wave of data collection 6 months later. Participants received compensation according to the market research company's compensation protocol.

We conducted an a-priori power analyses to determine sample size before data collection (see pre-registrations for details). In the first wave of data collection in October 2021, N_{T1} = 5,230 people completed the questionnaire. The second wave of data was collected in April 2022 with N_{T2} = 2,604 participants. In line with our pre-registration, we excluded participants that either failed an attention check item in T1 or T2, or completed <90% of the questionnaire. The final sample consists of N = 2,561 participants. Forty-nine percent of the sample were women, 51% men, with some people (<1%) identifying as gender-diverse or other. Mean age at T2 was 49.5 years (SD = 10.9), ranging from 18 to 65 years. About half of the sample had a university entrance degree or a university degree (51%). Most participants worked part- or full-time (66%). In both waves, TV was the medium that was used most on an average day. Twenty-four percent of participants reported watching TV for 1–2 h per day, 48% reported watching TV for 2–3 h or more. Movies were watched for 1–2 h on an average day by 35% and for 2–3 h or more by 20%. Series and shows were watched less frequently, with 26% watching shows and series for 0.5–1 hour daily, 25% for 1–2 h, and 15% for 2–3 h or more.

Measures

Entertainment preferences

To assess preferences for and general frequencies of eudaimonic and hedonic entertainment experiences, we adapted the 3-item appreciation and the 3-item fun subscales, respectively, by Oliver and Bartsch (2010) in their validated German translation (Schneider et al., 2019). In its original form, the scale aims at measuring entertainment experiences after watching a specific film. As it concisely captures the main aspects of hedonic and eudaimonic entertainment, we adapted the scale to measure entertainment experiences of general media use. To assess eudaimonic entertainment preferences, participants were asked how often they used media content that was moving, thought-provoking, or meaningful. For hedonic entertainment preferences, participants were asked how often they used media content that was fun, entertaining, and lets them have a good time. The scale ranged from 1= *never* to 7 = *very frequently*. Internal consistency was good for both scales in both waves (hedonic: $\omega_1 = 0.87$, $\omega_2 = 0.86$; eudaimonic: $\omega_1 = 0.86$; $\omega_2 = 0.84$).

Resilience factors

All resilience factors were measured on a 7-point scale ranging from 1= *strongly disagree* to 7 = *fully agree*. Reverse-coded items were recoded.

Trait resilience

We used the validated German translation (Chmitorz et al., 2018) of the 6-item Brief Resilience Scale (Smith et al., 2008) to assess trait resilience. The scale consists of a number of statements to evaluate how participants perceive their ability to bounce back from stress and adverse life events. The scale includes three positively-worded items (e.g., "I tend to bounce back quickly after hard times") and three negatively-worded items (e.g., "I have a hard time making it through stressful events"). The scale exhibited high internal consistency at T1 and T2 ($\omega_1 = 0.90$, $\omega_2 = 0.91$).

Hope

Dispositional hope was measured via the German translation (Maier and Surzykiewicz, 2015) of the Hope Scale (Snyder et al., 1991). Eight items represent both a pathways (e.g., "There are lots of ways around any problem") and an agency (e.g., "I energetically pursue my goals") subscale. Despite its two subscales, it has been suggested that a unidimensional structure is a better fit for this particular scale (Brouwer et al., 2008), which we used for our model. Internal consistency was excellent in both waves ($\omega_1 = 0.91$, $\omega_2 = 0.92$).

Meaning in life

The German translation (Steger, n.d.) of the presence of meaning in life subscale of the Meaning in Life Questionnaire (Steger et al., 2006) was used to assess meaning. A sample item is "I have a good sense of what makes my life meaningful." The scale showed high internal consistency in both waves ($\omega_1 = 0.92$, $\omega_2 = 0.91$).

Mental health and wellbeing

Covering for the most common psychological symptoms, we adopt the validated German items of the PHQ-4 (Kroenke et al., 2009), which combines two items measuring depressive symptoms (e.g., "Feeling down, depressed, or hopeless") and two items measuring anxiety (e.g., "Feeling nervous, anxious, or on edge"). Participants were asked how often they experienced the respective symptoms on a 4-point scale that ranged from 1=

4 The questionnaire featured more constructs than reported here. For details, see the preregistration of design and measures.

TABLE 1 Means, standard deviations, and zero order correlations of all constructs at T1 and T2.

		M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	T1 Eudaimonic entertainment	4.30	1.31														
2	T1 Hedonic entertainment	5.19	1.21	0.48***													
3	T1 Hope	4.89	1.10	0.31***	0.20***												
4	T1 Meaning in life	4.78	1.49	0.27***	0.15***	0.59***											
5	T1 Trait resilience	4.46	1.27	0.04*	0.03	0.56***	0.45***										
6	T1 Life satisfaction	4.44	1.48	0.16***	0.12***	0.61***	0.66***	0.50***									
7	T1 Depression/Anxiety	1.69	0.74	0.03	0.01	−0.4***	−0.47***	−0.59***	−0.53***								
8	T2 Eudaimonic entertainment	4.29	1.29	0.59***	0.26***	0.26***	0.19***	0.02	0.12***	0.06**							
9	T2 Hedonic entertainment	5.14	1.20	0.27***	0.52***	0.19***	0.12***	0.02	0.11***	0.01	0.44***						
10	T2 Hope	4.88	1.14	0.25***	0.15***	0.76***	0.54***	0.52***	0.56***	−0.36***	0.28***	0.23***					
11	T2 Meaning in life	4.77	1.49	0.23***	0.12***	0.56***	0.77***	0.42***	0.61***	−0.43***	0.21***	0.15***	0.62***				
12	T2 Trait resilience	4.46	1.29	0.03	0.03	0.51***	0.43***	0.77***	0.47***	−0.53***	0.02	0.06**	0.55***	0.45***			
13	T2 Life satisfaction	4.46	1.49	0.15***	0.10***	0.58***	0.60***	0.47***	0.82***	−0.48***	0.14***	0.12***	0.63***	0.67***	0.49***		
14	T2 Depression/Anxiety	1.71	0.74	0.05*	0.02	−0.38***	−0.44***	−0.55***	−0.49***	0.74***	0.10***	0.02	−0.41***	−0.47***	−0.59***	−0.51***	

N = 2,561. All constructs were measured on a scale from 1 to 7, except for depression/anxiety (1–4).
***p < 0.001, **p < 0.01, *p < 0.05.

never to 4 = *almost every day*. Internal consistency was high in both waves ($\omega_1 = 0.90$, $\omega_2 = 0.90$).

As a measure of subjective wellbeing, we assessed life satisfaction using the German translation (Schumacher, 2003) of the 5-item Satisfaction with Life Scale (Diener et al., 1985) on a scale ranging from 1= *strongly disagree* to 7 = *fully agree*. The scale showed excellent internal consistency in T1 and T2 ($\omega_1 = 0.93$, $\omega_2 = 0.93$).

Analytical strategy

Data and code are available on the OSF: https://osf.io/acr24/.

Before testing our hypotheses, we conducted confirmatory factor analyses and invariance testing for all measures. Measurement invariance was established for all measures (see R-Markdown for details).

We tested all hypotheses simultaneously in a structural equation model. All constructs were modeled as latent factors based on the items of the respective scales. Trait resilience and depression/anxiety were modeled as second-order factors. Factor loadings for all constructs were constrained to be equal over time and all exogenous variables were correlated. Analyses were conducted with lavaan (version 0.6.11; Rosseel, 2012) in R (version 4.0.2). We used maximum likelihood estimation with robust standard errors (MLR) and as per our pre-registration, we used full information maximum likelihood estimation to handle missing data (cf. Enders and Bandalos, 2001).

Results

Means, standard deviations, and correlations of all constructs are displayed in Table 1.

In a first step, we tested a model including all pre-registered hypotheses, where entertainment preferences at T1 predicted resilience factors at T2 and resilience factors at T2 predicted mental health and wellbeing at T2, while controlling for autoregression of the resilience factors and mental health. The model had acceptable fit, $\chi^2_{(1,772)} = 8{,}433.76$, $p < 0.001$, CFI = 0.95, RMSEA = 0.04, 90% CI [0.04, 0.04], SRMR = 0.06. All estimates, standard errors, and confidence intervals are displayed in Table 2. Our hypotheses stated that eudaimonic preferences at T1 would positively affect hope (H1), meaning in life (H2), and trait resilience (H3) at T2. We did not find a relationship between eudaimonic entertainment preferences at T1 and hope and trait resilience at T2, hence lending no support for H1 and H3. We did, however, find a significant, albeit very small, effect of eudaimonic preferences at T1 on meaning in life at T2. H2 was therefore supported. For hedonic entertainment preferences, RQ1 asked whether higher levels of hedonic preferences at T1 would be associated with higher hope (RQ1a), meaning in life (RQ1b), and trait resilience (RQ1c) at

TABLE 2 Results of the pre-registered structural equation model testing H1–4 and RQ1.

Effect	Estimate	*SE*	CI		*p*
			LL	UL	
Media effects on resilience					
Hedonic preferences T1 → Hope t2	−0.016	0.021	−0.058	0.025	0.440
Hedonic preferences T1 → Meaning in life T2	−0.029	0.028	−0.084	0.027	0.308
Hedonic preferences T1 → Trait resilience T2	0.002	0.024	−0.045	0.049	0.924
Eudaimonic preferences T1 → Hope T2	0.023	0.019	−0.014	0.060	0.223
Eudaimonic preferences T1 → Meaning T2	0.06*	0.026	0.009	0.11	0.021
Eudaimonic preferences T1 → Trait resilience T2	−0.001	0.022	−0.043	0.042	0.972
Resilience effects on mental health					
Hope T2 → Depression/anxiety T2	0.017	0.016	−0.015	0.048	0.297
Hope T2 → Life satisfaction T2	0.21***	0.032	0.147	0.273	<0.001
Meaning in life T2 → Depression/anxiety T2	−0.038***	0.009	−0.057	−0.020	<0.001
Meaning in life T2 → life satisfaction T2	0.216***	0.020	0.177	0.256	<0.001
Trait resilience T2 → Depression/anxiety T2	−0.117***	0.017	−0.150	−0.084	<0.001
Trait resilience T2 → Life satisfaction T2	0.032	0.025	−0.016	0.081	0.188
Autoregressive paths (T1 → T2)					
Hope	0.801***	0.021	0.759	0.842	<0.001
Meaning in life	0.758***	0.017	0.724	0.793	<0.001
Trait resilience	0.922***	0.022	0.879	0.965	<0.001
Depression/anxiety	0.664***	0.029	0.607	0.720	<0.001
Life satisfaction	0.608***	0.022	0.564	0.651	<0.001

N = 2,561. Estimate, unstandardized coefficients; CI, confidence interval; LL, lower limit; UL, upper limit. ***p < 0.001, **p < 0.01, *p < 0.05.

T2. We found no significant effects of hedonic preferences at T1 on either resilience factor at T2.

We further assumed that each resilience factor would positively relate to wellbeing and negatively relate to psychological symptoms (H4a–c). Meaning in life (H4c) indeed exhibited the expected significant positive association with life satisfaction and the significant negative association with depression/anxiety. Trait resilience showed no association with life satisfaction, but was significantly negatively related to depression/anxiety, yielding partial support for H4a. Hope showed the reverse pattern compared to trait resilience: there was no association with depression/anxiety but a significant positive relationship with life satisfaction, yielding partial support for H4b.

In a second step, we tested an extended cross-lagged model. Next to the *media effects* of entertainment preferences at T1 on resilience factors at T2, we also included *selection effects* of resilience factors at T1 on entertainment preferences at T2 (RQ2). Since the selection effects were not our primary research interest, these analyses were not featured in our pre-registration, and are therefore exploratory.

This model also showed acceptable fit, $\chi^2_{(2,138)} = 9{,}234.26$, $p < 0.001$, CFI = 0.95, RMSEA = 0.04, 90% CI [0.04, 0.04], SRMR = 0.06. The pattern of effects for T1 entertainment and T2 resilience factors was the same as in the first model. Additionally, the model revealed several selection effects linking resilience factors at T1 to entertainment preferences as T2. Interestingly, although we found a media effect of eudaimonic preferences at T1 on meaning in life at T2, we did not find a selection effect of meaning at T1 on eudaimonic or hedonic preferences at T2. Trait resilience at T1 negatively predicted both hedonic and eudaimonic entertainment preferences at T2. Hope at T1 positively predicted both hedonic and eudaimonic entertainment preferences at T2. The final model is visualized in Figure 1.

Discussion

The present study aimed at two central contributions. First, we provide important theoretical impulses to previous research on the effects of narratives and entertainment content by introducing a salutogenic perspective. This perspective emphasizes the role of entertainment as a potential source for salutary factors that promote psychological health and wellbeing over time. To do so, we have adopted the concept of psychological resilience and systematically identified theoretical connections between hedonic and eudaimonic entertainment

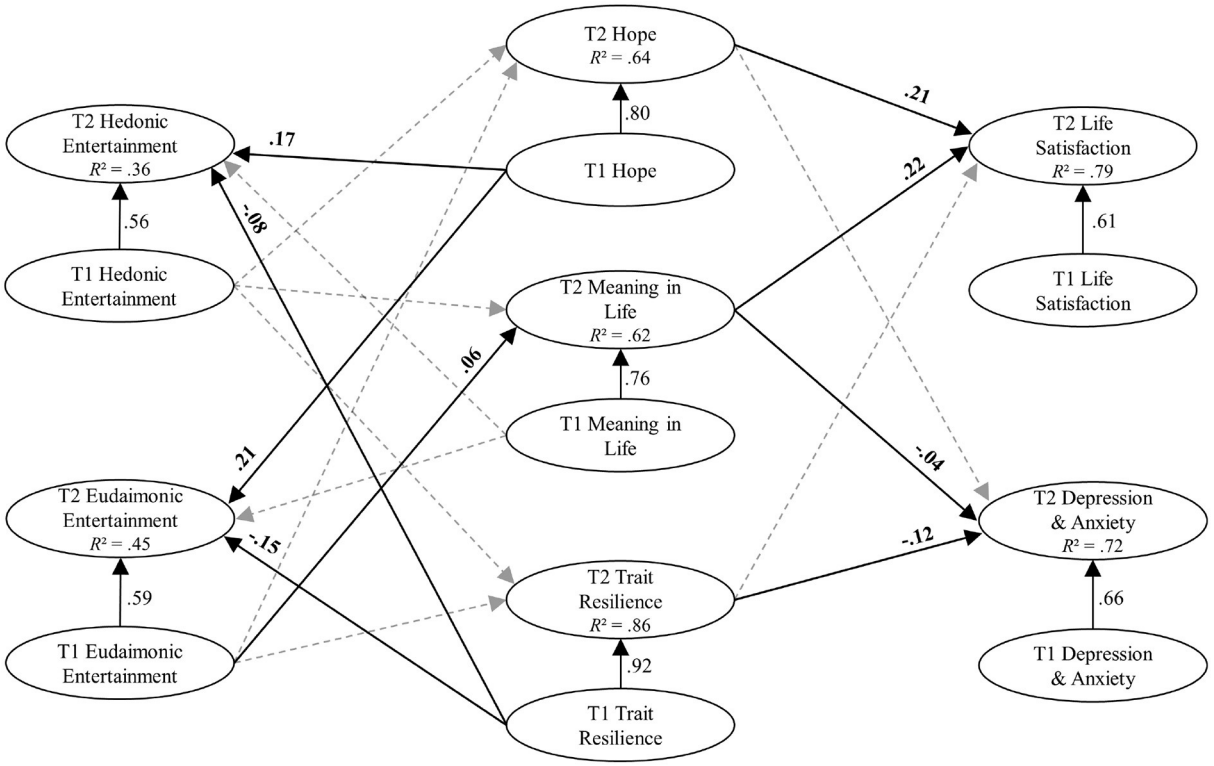

FIGURE 1
Visualization of the final model. $N = 2{,}561$. Dashed gray arrows represent non-significant relationships. Black arrows with numbers represent significant ($p < 0.05$) relationships. Depicted are unstandardized estimates of the structural equation model. Covariances, latent variables, and errors were omitted for readability.

and trait resilience as well as hope and the presence of meaning in life, two central resilience factors frequently discussed in literature on mental health. By providing a theoretical bridge between these two theoretical perspectives that have been largely disconnected in previous research (Reinecke and Rieger, 2021), we aim at making an important step toward theory synthesis (DeAndrea and Holbert, 2017). We believe that our theoretical argumentation provides convincing evidence for the theoretical potential of narratives and entertainment to have long-term salutary effects on psychological health and wellbeing and underlines the relevance of a salutogenic perspective in future entertainment research.

Second, empirically and methodologically, the present study provides an important extension of previous research on the effects of narratives and entertainment content by testing the longitudinal effects of media entertainment on mental health. Despite a growing number of studies that find evidence of beneficial short-term effects on psychological wellbeing (e.g., Reinecke et al., 2011; Rieger et al., 2014; Nabi et al., 2017), evidence for prospective effects is scarce. Very few studies have addressed the effects of repeated exposure to narratives and entertainment over a few days or weeks (Neubaum et al., 2019; Prestin and Nabi, 2020; Janicke-Bowles et al., 2022). To the best of our knowledge, however, the present study is the first to test potential effects of entertainment on resilience factors in a large sample of the general population over a 6-month period.

Despite the convincing theoretical connections between the use of narratives and entertaining content and the cultivation of resilience, the findings of our longitudinal study provide little evidence for any prospective effects of exposure to entertainment on the development of resilience factors. In the first part of our model, we investigated the longitudinal relationships of preferences for hedonic and eudaimonic entertainment with hope, the presence of meaning in life, and trait resilience, respectively. Contrary to our expectations (H1 and H3), exposure to eudaimonic entertainment did not show any significant longitudinal association with hope or trait resilience. Though we did find the expected positive prospective relationship between eudaimonic entertainment preferences and the presence of meaning in life (H2), this effect was statistically significant, yet negligibly small. With regard to hedonic entertainment preferences (RQ1a–c) we did not find any significant longitudinal effects on the three resilience variables.

In the second part of our model (H4), we tested the effects of trait resilience, hope, and presence of meaning in life on mental health. Our findings largely support our expectations and underline the important function of resilience for psychological health and wellbeing. The presence of meaning in life was significantly related to both mental health indicators in our study. Hope, on the other hand, was only related to increased levels of life satisfaction, and trait resilience was only related to decreased levels of depression and anxiety. Overall, these findings replicate the positive mental health effects of psychological resilience found in previous work (Fletcher and Sarkar, 2013; Hu et al., 2015).

In a final step, our model explored potential selective exposure effects emerging between the three resilience variables and entertainment diets over time. In fact, our data suggest that pre-existing levels of resilience have a longitudinal effect on entertainment preferences. Our findings revealed a positive longitudinal relationship between hope and exposure to both hedonic and eudaimonic entertainment content, whereas trait resilience showed negative longitudinal associations with both entertainment preferences. In contrast, meaning in life was not related to entertainment diets over time. The selection effects we found in our data were considerably stronger than the media effects associated with entertainment preferences. This may suggest that rather than being a resource supporting the development and cultivation of resilience factors, exposure to narratives and entertainment content may be coping tools that are selectively used by individuals depending on individual differences in coping strategies (Wolfers and Schneider, 2020). The longitudinal pattern of results found in the present study closely resemble cross-sectional findings of a study by Eden et al. (2020), exploring the use of entertainment content as a coping strategy during the first lockdown in the COVID-19 pandemic. In their study, hope was also a positive predictor for the use of hedonic and eudaimonic media content, whereas trait resilience negatively predicted hedonic entertainment use, yet was unrelated to eudaimonic entertainment use. Overall, these findings could suggest that different resilience factors may systematically correspond to the use of specific media-related coping strategies which may then result in selective exposure to media entertainment as a coping tool. However, as coping strategies were not addressed empirically in the present paper, this remains an open question for future research. Furthermore, the negative longitudinal relationship between trait resilience and entertainment use may also suggest that some forms of exposure to narratives and entertainment may represent dysfunctional forms of escapist or distraction-oriented coping (Knobloch-Westerwick et al., 2009) that are less frequently chosen by highly resilient individuals. Future research should thus explore the relationship between psychological resilience and different forms of media-related coping more systematically.

Moreover, although the evidence for selection effects is much stronger in the present study, the significant albeit very small longitudinal effect of meaningful entertainment content on the presence of meaning in life suggests that entertainment use and psychological resilience may have reciprocal effects. Future research should thus explore the possibility of mutual reinforcement of resilience and entertainment preferences more systematically. In any case, the present study clearly suggests that unidirectional longitudinal effects of narratives and entertainment content on psychological resilience are highly implausible.

We believe that our study provides important new empirical insights into the longitudinal dynamics between entertainment use and resilience. Still, the findings need to be discussed on the basis of further theoretical considerations and a number of limitations of the present study. This appears particularly relevant with regard to the lack of empirical support for longitudinal effects of entertainment use on resilience. Even if our findings may suggest that such effects do not exist or have a negligibly small effect size, other explanations appear equally plausible.

First, the present study tested the *direct* longitudinal effects of entertainment preferences on psychological resilience. We believe that this is an important first step in exploring salutogenic effects of narratives and entertainment content, however, *indirect* effects of media exposure on resilience may be a more likely scenario (Valkenburg and Peter, 2013). In fact, in one of the few studies testing the effects of repeated exposure to eudaimonic narratives, Neubaum et al. (2019) did not find direct effects of exposure on psychological wellbeing, yet indirect effects via daily levels of elevation. This reveals one of the major limitations of our study design: our measures of hedonic and eudaimonic entertainment preferences appear well-suited to provide an overall measure of the frequency of exposure to different forms of narratives and entertainment, but they do not convey any information on how these narratives are processed individually and what cognitive and emotional reactions they trigger. A large body of research documents the complexity of narrative engagement and viewer reactions to narratives (Dill-Shackleford et al., 2016). A multitude of potentially mediating processes appears highly relevant to better understand the potential role of narratives and entertainment content for the acquisition of resilience factors. These processes include narrative engagement and transportation into the mediated story world (Busselle and Bilandzic, 2008), as well as the identification with and emotional attachment to portrayed characters (Cohen and Klimmt, 2021), or the moral judgement of their actions (Raney, 2004; Eden et al., 2017). Furthermore, the cognitive reactions to narratives appear particularly relevant for the vicarious experiences and learning processes proposed as a central mechanism linking narratives to increased resilience in the present paper. Such learning processes should be more pronounced if viewers make a cognitive connection between the situation of the protagonists in a narrative and their own situation (Schramm and Wirth, 2010) or if they temporarily

extend the boundaries of the self to vicariously experience the characters fate and integrate the protagonist's characteristics into their own self-concept (Slater et al., 2014). Integrating these and similar processes of narrative engagement and narrative processing is a vital task for future research on media entertainment and resilience.

Second, the entertainment preferences measure used in the present study is limited in several ways. First, the items ask about the frequency of use very broadly and without providing any specification in terms of context or different situations of use. Also, the measure does not provide any specific time reference (e.g., "over the past week") but rather assesses the general tendency for prolonged and reoccurring use of hedonic and eudaimonic content. Although this "chronic" use of entertainment corresponds well with the mechanisms of repeated exposure described in our theoretical argumentation, our measure appears less able to account for any fluctuations of use between different contexts. Future research would benefit from implementing more situational measures of entertainment use.

Further, the present study provides only limited information on the role of the specific content and structure of narratives and entertainment for the development of resilience. As discussed in our theoretical argumentation, hedonic and eudaimonic entertainment content differs substantially in the role models, learning opportunities as well as emotional and cognitive challenges they provide to viewers (Oliver and Bartsch, 2010; Bartsch and Hartmann, 2017; Slater et al., 2018; Clayton et al., 2019). At the same time, the structure and content of narratives in hedonic and eudaimonic entertainment offerings is very heterogeneous (Raney et al., 2018; Janicke-Bowles et al., 2019). Our measures of hedonic and eudaimonic entertainment preferences cannot convey any nuance in terms of narrative content but rather provide a broad proxy of the general "entertainment menu" of our respondents. Additionally, as our entertainment preferences measures refer to media content in general, they also do not provide any information regarding the media technology or platform that was used as the source of the entertaining content by our participants. These limitations are central, as specific content within the hedonic and eudaimonic entertainment spectrum distributed via different channels and technologies is likely to vary substantially with regard to the content characteristics relevant to the reinforcement of psychological resilience. Not all eudaimonic content may be equally suitable to support processes of meaning making or contain the same amount of hope elicitors, and hedonic content may vary substantially in its potential to provide opportunities for escapism and distraction. Furthermore, the potential effects of entertainment on resilience may depend strongly on the fit between the themes and narrative content viewed by an individual media user and the adversity and life challenges experienced by that person. It is reasonable to assume that narratives may be a particular powerful source of resilience if their content resonates with the viewers' life experiences (Vorderer and Halfmann, 2019; Das and Peters, 2022) and thus provides particularly relevant impulses for positive adaption to adversity. It thus appears paramount for future research to systematically explore the narrative content of entertainment as well as the correspondence between content and individual life challenges as a central boundary condition of potential effects of entertainment use on resilience. Furthermore, with regard to the technical distribution of content, different platforms and contexts of use may demand for the differentiation of specific forms of usage practices. In the context of social media use, for example, it may be important to differentiate the effects of finding vs. sharing eudaimonic or inspiring content (Janicke-Bowles et al., 2022). Future research should thus explore the role of content platforms and context-specific forms of use for the relationship between entertainment use and resilience.

A further aspect that needs to be considered regarding the findings of the present study is the temporal resolution of our data and the temporal stability of our central variables. The longitudinal design clearly is a main methodological strength of our study. Finding the right time-lag between points of measurement, however, represents a main challenge for any longitudinal research design. As no previous research on media entertainment and resilience was available for reference, a 6-month interval for data collection was chosen for the present study based on prior research addressing longitudinal media effects on psychological trait variables and wellbeing outcomes (e.g., Reinecke and Trepte, 2014). This may have resulted in different problems. First, our data demonstrate that our three resilience variables show very high levels of temporal stability over the two points of measurement (see Figure 1). This may have several reasons: the time-lag may have either been too short to assess long-term developments in resilience, or too long to capture short-term fluctuations in the three variables. Importantly, our research design only allows for a test of group-level, *between person effects*, whereas more points of measurement would be needed to model *within-person effects*, that is, intraindividual changes in the respective variables over time (Thomas et al., 2021). Furthermore, the temporal resolution of our study does not allow us to account for the process character of resilience and positive adaption to adversity, that may have a shorter cadence and a higher temporal volatility. Overall, this strongly suggests that future research would benefit greatly from research designs with shorter and varying time-frames (e.g., daily or weekly reports) that provide a more nuanced perspective of the within-person processes and dynamics linking the use of narratives and entertainment to resilience and positive adaptation to situational adversity.

A last potential limitation refers to the time of data collection of the present study. Data were collected during the COVID-19 pandemic in October 2021 and April 2022. The individual, social, and professional repercussions of the pandemic have resulted in increased levels of strain and decreased levels of

mental health in large parts of the general population (Xiong et al., 2020). With regard to our resilience measures, this suggests that our participants were likely confronted with higher-than-usual levels of adversity. This may have increased the use of media as a coping tool (Eden et al., 2020) and thus intensified the relationship between media use and resilience. On the other hand, the higher global levels of adversity may have obscured the more nuanced relationship between individual media use patterns and resilience. Future research should thus test the replicability of the results of the present study in a post-pandemic environment.

Despite these limitations, we believe that our study constitutes an important first step toward a salutogenic perspective on the prospective effects of narratives and media entertainment on mental health. Though the present study provides limited support for *direct* effects of exposure to entertainment content at best, we are convinced that the field of entertainment research will benefit significantly from further exploring the relationship between exposure to narratives and resilience by addressing potential indirect and reciprocal effects of both constructs. It is our hope that addressing the numerous open questions and limitations identified above will help us to further increase our understanding of the salutogenic potentials of the ubiquity of narratives and entertainment experience in people's everyday lives.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://osf.io/acr24/.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

Author contributions

LR designed the study. LR and RK contributed to conception and design of the survey and wrote the first draft of the manuscript. RK performed statistical analyses. Both authors revised, read, and approved the submitted version.

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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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Exploring the impact of media use on wellbeing following a natural disaster

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Media use can be beneficial in many ways, but little is known about how it might improve wellbeing outcomes following a traumatic natural disaster. Survivors (n = 491) of deadly Hurricane Michael, which struck the Florida (USA) coastline in 2018, completed an online survey, reporting indicators of post-traumatic growth (PTG) and stress (PTSS). A serial mediation model explored how hurricane-related stressors were related to both outcomes, as mediated by approach, avoidant, and support-seeking coping strategies and post-hurricane hedonic, eudaimonic, and self-transcendent media use as coping tools. Factors contributing to each type of post-hurricane media use were also explored. Results indicate that hurricane-related stressors were associated with PTG, serially mediated through approach coping strategies and self-transcendent media use, thus providing some of the first empirical evidence of the longer-term, beneficial wellbeing effects of media use on survivors of trauma. Additionally, hurricane-related stressors were associated with avoidant coping strategies, which were associated with increased eudaimonic media use. However, hedonic and eudaimonic media use were not associated with PTSS or PTG. Finally, factors known to be associated with media use were not predictive of post-hurricane media use, perhaps suggesting that media play a different role in survivors' lives in the months following a traumatic event.

KEYWORDS

PTG, PTSS/PTSD, self-transcendent media, eudaimonic media, hedonic media, natural disaster, media use, coping

Introduction

Experiences with media narratives can be beneficial to personal wellbeing in many ways (for an overview, see Reinecke and Oliver, 2016). For instance, numerous studies provide empirical evidence for the role of fun and pleasure-inducing content in the satisfaction of needs related to subjective wellbeing, including mood regulation (e.g., Zillmann, 1988), relaxation (e.g., Rieger and Bente, 2018), and escape from unsatisfying circumstances (e.g., Henning and Vorderer, 2001). In recent years, scholars have also identified how challenging and meaning-inducing narratives can impact psychological wellbeing, such as buffering against anxiety arising from mortality salience (e.g., Rieger et al., 2015),

facilitating self-compassion and emotional self-efficacy (Khoo and Graham-Engeland, 2014), and promoting character development, spirituality, altruism, and human flourishing (e.g., Oliver et al., 2018). Public and scholarly attention to the crucial role that media use can play in the daily pursuit of wellbeing further intensified during the COVID-19 global pandemic (e.g., Eden et al., 2020; Vidas et al., 2021; Nabi et al., 2022). Despite these long-standing and intellectually rich traditions of scholarship, an important phenomenon remains underexamined: media use as a coping tool for wellbeing in the months following a traumatic life event.

In recent years, a few scholars have begun to conceptualize long(er)-term media effects (e.g., Schneider et al., 2019; Reinecke and Rieger, 2021) from a salutogenic perspective (i.e., wellness- rather than disease- or psychopathy-focused; Antonovsky, 1996). Nevertheless, to date, little empirical evidence exists with regard to how media experiences may relate to post-traumatic adjustments, especially among survivors in the months and years following a major trauma (for notable exceptions, see Nabi et al., 2017; Eden et al., 2020). This is not to suggest that scholars have completely ignored the role of media following disasters. In fact, a rich tradition of research has investigated various effects associated with the extensive coverage by and audience attention to news media following both natural and anthropogenic disasters (for a recent review, see Houston et al., 2018). For example, several studies have examined how (social) media have been (or could be better be) utilized to inform on-the-ground crisis responders, emergency management teams, and charitable relief efforts (e.g., Boulianne et al., 2018; Li et al., 2018; Alam et al., 2020). Several others have examined how news coverage might lead to negative mental health outcomes among those directly (and indirectly) experiencing the event (e.g., McLeish and Del Ben, 2008; Ben-Zur et al., 2012; Goodwin et al., 2013; Pfefferbaum et al., 2014); yet, many such studies focused on 9/11 and other terrorist incidents rather than on natural disasters. Though incredibly important in its own right, the extant research record provides little insight into the potential role of media narratives on wellbeing adjustments in the months following a traumatic event. Therefore, in this study, we explored media use in relation to two wellbeing outcomes—post-traumatic stress and post-traumatic growth—among survivors of a catastrophic hurricane.

Study context

On October 10, 2018, Category 5 Hurricane Michael made landfall as the largest tropical cyclone to ever strike the Gulf of Mexico coastal region in Florida (USA). A large portion of the area—which includes the popular tourist destination Panama City Beach and the city of Apalachicola, the center of Florida's oyster industry—was left decimated. Seventy people lost their lives in the storm, with more than 375,000 people forced to evacuate. Direct damages to property, businesses, and infrastructure topped US$25 billion (Bevan et al., 2019; Federal Emergency Management Agency, 2020). More than 3 years later, many communities have yet to complete some of the most visible (and dire) recovery tasks: home and store repairs, school and church re-openings, downed tree removal, and well-water service restoration (Mixon, 2021). Thus, many survivors of Hurricane Michael are reminded daily of the traumatic event. As a result, a principal part of the hurricane's legacy is the ongoing mental health crisis left in its wake (e.g., Travis, 2021; Michalik, 2022). Persons directly impacted by Hurricane Michael participated in this study.

Psychological trauma, post-traumatic stress, and post-traumatic growth

The scientific study of psychological trauma has grown tremendously in the four decades since post-traumatic stress disorder (PTSD) was recognized as a mental health condition (e.g., Brewin et al., 2000; Ozer et al., 2003). At the time, the newly defined condition helped clinicians treating seemingly disparate types of traumatic life events (e.g., physical assault, accidents, combat) to identify commonalities in symptoms, including re-experiencing the trauma (e.g., flashbacks, bad dreams), avoidance (e.g., staying away from places or situations that serve as reminders of the trauma), arousal and reactivity (e.g., being easily startled, feeling tense), and cognitions and mood (e.g., negative thoughts, feeling of guilt). Estimates of the proportion of individuals who have experienced or who will experience an event meeting the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013) criterion for trauma vary quite a bit in the clinical literature. The World Health Organization World Mental Health Survey ($n = 68{,}894$) estimated the global rate of trauma exposure at 70.4%, with an average of 3.2 traumas per person (Kessler et al., 2017). By way of comparison, in a study using a representative sample of U.S. adults, nearly nine out of 10 (89.7%) reported exposure to at least one DSM-5 criterion event, with the modal number of events experienced being three (Kilpatrick et al., 2013). Of particular importance to the current study, more than half of the U.S. sample (50.5%) reported exposure to a traumatic disaster (e.g., hurricane, fire, earthquake). The research record documents prevalent and persistent post-traumatic stress symptoms (PTSS) and other maladaptive wellbeing outcomes following natural disasters, the effects of which can last for years—even decades—after the event (e.g., Kessler et al., 1995; Ai et al., 2011a;

Tracy et al., 2011; Goldman and Galea, 2014; Tang et al., 2014)[1].

However, not all wellbeing trajectories following trauma are negative. Post-traumatic growth (PTG) is an adaptive outcome to trauma exposure characterized as a positive psychological change arising from one's struggle following adversity, resulting in a greater appreciation for life, an increase sense of one's own strengths, and/or closer personal relationships, among other outcomes (e.g., Tedeschi et al., 1998, 2018). For PTG to occur, one must endure and emerge from a struggle following a traumatic event that challenges core beliefs. Numerous studies have evidenced PTG among survivors of natural disasters (for a recent overview, see Riffle et al., 2020).

As consequences of traumatic events, PTSD and PTG are often conceptualized in relation to different scholarly traditions on what constitutes wellbeing. The hedonistic paradigm places emphasis on maximizing personal interests, including attaining happiness and avoiding pain. Subjective wellbeing (Diener, 1984) is the goal, reflected in the pursuit and satisfaction of primary human needs leading to what most people think of as "happiness:" increased life satisfaction, the presence of positive emotions, and the absence of pathological symptoms. Because PTSD reflects *dissatisfaction* across these domains, it has often been associated with decreased subjective wellbeing (e.g., Joseph and Linley, 2005), including following disasters (e.g., Bonanno et al., 2015; Brooks et al., 2020).

On the other hand, the eudaimonic paradigm conceptualizes wellbeing in relation to the pursuit of virtue, wisdom, and optimal experiences. Psychological (or eudaimonic) wellbeing (e.g., Ryff, 1989; Waterman, 1993) goes beyond subjective happiness and is characterized by self-realization, self-acceptance, personal expressiveness, and purpose in living. PTG is often associated with the eudaimonic tradition and psychological wellbeing, as the growth process underscores the centrality of struggling with challenges, positive gains after facing adversities, striving for meaning, and moving beyond the absence of pathology (Linley and Joseph, 2004).

Despite being related to differing notions of wellbeing, PTSD and PTG are not thought to be opposing processes. In fact, Linley and Joseph (2004) and Joseph and Linley (2005) highlighted five similar theories that underlie the two outcomes, arguing that both emerge in response to adversity. Further, a meta-analysis examining a variety of traumatic events revealed a significant positive relationship between PTSD symptoms and PTG ($r = 0.315$) across 42 studies ($N = 11{,}469$) (Shakespeare-Finch and Lurie-Beck, 2014). Indeed, a dichotomized view of PTSD and PTG is not supported by the empirical evidence following natural disasters either (e.g., Ai and Park, 2005; Ai et al., 2013). Furthermore, studies have consistently shown that both PTG (e.g., Dekel et al., 2012) and PTSS (given certain factors; e.g., O'Donnell et al., 2007) can intensify over the months following a traumatic event, a finding particularly important to the current study.

Coping with trauma-induced stress

Numerous theoretical perspectives have emerged to explain PTG (Schaefer and Moos, 1992, 1998; Tedeschi and Calhoun, 1995, 2004) and PTSD (for an overview, see Brewin and Holmes, 2003). One core component found in most theories of post-traumatic adjustment is the psychological process of coping with stress induced by the traumatic event.

According to the transactional stress model (Lazarus and Folkman, 1984), coping refers to the actions and cognitive adjustments used to manage and control stressful situations. That is, coping reflects a transaction between a person and the stress-inducing circumstances. As such, the pathways to post-traumatic outcomes for any one individual are highly influenced by *in situ*, subjective experiences during or in the immediate aftermath of the traumatic event. Within the disaster literature, several studies have linked specific, event-related stressors—death of loved ones, property or job loss, gas and food shortages, to name a few—with long-term mental health outcomes (Ai et al., 2013; Cerdá et al., 2013; Nillni et al., 2013). For instance, peritraumatic daily stressors predicted PTSS up to 18 months following Hurricane Ike (Cerdá et al., 2013). Similarly, hurricane-related stressors predicted greater PTSS and PTG ~3 years after Hurricane Katrina (Lowe et al., 2013).

In an attempt to cope with and manage trauma-related stress, individuals employ various strategies (e.g., Glass et al., 2009; Ai et al., 2011a, 2013; Bistricky et al., 2019). Those coping strategies are often characterized as either avoidance- (i.e., withdrawing from or denying the stressor) or approach-oriented (i.e., seeking to alleviate stress by actively engaging with the stressor), though such categorizations tend to oversimplify the complex nature and use of certain strategies (Skinner et al., 2003). Nevertheless, avoidant coping strategies (e.g., denial, substance use, self-blame) are generally thought to contribute to detrimental psychological outcomes (Krause et al., 2008; Cherry et al., 2015); for example, following natural disasters, avoidant coping has been positively associated with PTSS (Bistricky et al., 2019; Brooks et al., 2020) and depression (Appel et al., 2021). In contrast, approach coping strategies (e.g., positive reframing, acceptance, support seeking) can contribute to beneficial outcomes like PTG (e.g., Schaefer and Moos, 1998; Yeung et al., 2016).

Media use for coping

The use of media as a means for coping with (daily) stress has been studied for many decades (for a recent summary,

1 The data reported herein were not collected in a clinical setting; therefore, no inferences of PTSD diagnoses were or should be made. Because of this, focus is placed on PTSS throughout.

see Wolfers and Schneider, 2020). In fact, a few studies have explored coping with/through media following a trauma life event. For example, Nabi et al. (2017) found that media use was among the top four coping strategies used by adult women previously diagnosed with breast cancer. A few studies have even examined media use for coping following a natural disaster, with survivors reporting how they turned to news and social media as a coping mechanism during and in the days immediately following Hurricane Georges in Puerto Rico (Perez-Lugo, 2004) and Typhoon Haiyan in the Philippines (Tandoc and Takahashi, 2017), respectively.

In a study perhaps most similar to the current one, Eden et al. (2020) surveyed U.S. college students during the first 6 weeks of forced social distancing and stay-at-home orders during the COVID-19 pandemic, exploring how stress and anxiety might have led to strategic use of different types of media for coping, leading to impacts on psychological wellbeing. Of particular interest, greater stress was positively correlated with more use of pleasure-based, hedonic media and less use of meaning-based, eudaimonic media use (more on this distinction is provided below). Stress was also associated with greater use of avoidant coping through media, which in turn was associated with less psychological wellbeing.

In the current study, we similarly examined the use of different types of media content among hurricane survivors. However, our approach to measuring coping differed slightly. Eden et al. (2020) adapted the wording of an existing (general) coping scale to specifically measure the use of media for different coping purposes (e.g., media use for self-distraction, media use for positive reframing); we used a version of the same general coping scale without adaptation. In doing so, we adopted the position forwarded by Wolfers and Schneider (2020), who noted that media use can be related to many coping strategies, some considered avoidant and other approach. Because of this, the researchers argued that media use should not be considered a coping strategy *per se*, but rather a coping tool. Coping tools are "instruments through which (a) a coping goal can be achieved and (b) a coping behavior can be performed … Different tools can be used for different strategies" (p. 1,222). We too considered media as a coping tool in the current study. However, given the breadth of media motivations, uses, forms, and formats, it was important to acknowledge potential differences in the use of media as a coping tool across diverse media narrative experiences.

Differentiating media narrative experiences

Contemporary studies of the beneficial effects of media use—particularly, entertainment narratives—generally rely upon dual-process models (e.g., Bartsch and Schneider, 2014; Lewis et al., 2014) to differentiate between two broad types of experiences: those primarily associated with pleasure (i.e., hedonic media experiences) and those primarily associated with meaningfulness (i.e., eudaimonic media experiences). This distinction is reflected in the aforementioned Eden et al. (2020) study. For most people, hedonic experiences are more typical. Many individuals turn on a streaming service or a music playlist at the end of a long day to unwind; some scroll social media sites looking for a laugh; others play a casual game to pass the time. Such experiences—which are thought to demand relatively less overall (or more intuitive) cognitive processing—help us to temporarily satisfy a variety of situational needs (e.g., diversion, escape, mood regulation), while simultaneously addressing more foundational ones (e.g., play, belonging, social comparisons; for a recent overview, see Raney and Bryant, 2020). These outcomes can promote subjective wellbeing (e.g., Diener, 1984), particularly an increase in positive emotions and life satisfaction, in audience members. The majority of entertainment scholarship within media psychology has explored the enjoyment of and other benefits from hedonic entertainment experiences.

Of course, as this special-topic article series attests, people turn to media for more than pleasure and escape. Individuals routinely seek out content that makes them sad or uncomfortable, giving rise to opportunities for reflection upon their own struggles and the meaning of life. Such experiences can contribute to long-term emotional stability and wellbeing by satisfying basic intrinsic needs (see self-determination theory; e.g., Ryan and Deci, 2000) and strengthening one's ability to cope with and grow through adversity (Wirth et al., 2012; see also Raney et al., 2020 for a recent overview). As a result, they are thought to promote psychological (or eudaimonic) wellbeing, which is characterized by self-realization, self-acceptance, personal expressiveness, purpose in living, and personal growth (Ryff, 1989; Waterman, 1993).

Further, some eudaimonic media experiences—self-transcendent (Oliver et al., 2018; Janicke-Bowles et al., 2021a) ones—also kindle a sense of connectedness with others or nature, compassion and care, and a desire to be a better and more altruistic person. They are typified by the portrayal of, and promote reflection upon, the virtue of transcendence; that is, they depict and orient users to matters beyond themselves and their daily concerns. They are further typified by the experience of self-transcendent emotions (e.g., moral elevation, awe, gratitude, hope, admiration). As a result, they are considered a particular type of eudaimonic media experiences, ones that fall at the far end of a continuum ranging from self-related and inner-focused to others-related and outwardly focused (see Oliver et al., 2021).

To summarize to this point: Stress induced by a natural disaster leads survivors to pursue various coping strategies that impact PTG and PTSS. To date, though, the role of media in positive and negative psychological adjustments in the months following such a trauma has not been explored. Literature on

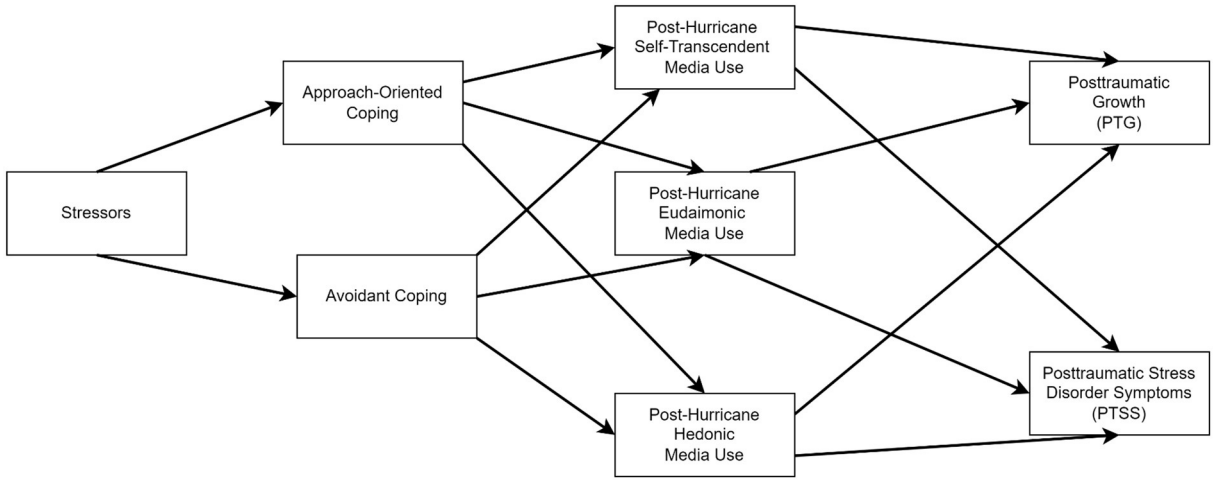

FIGURE 1
Conceptual model.

media coping in general suggests potential positive benefits, which are likely bound to the nature of those media experiences.

Exploring post-trauma media use

In light of the philosophical parallels between the hedonic paradigm/PTSS/subjective wellbeing/hedonic media experiences and the eudaimonic paradigm/PTG/eudaimonic wellbeing/eudaimonic and self-transcendent media experiences, one might expect corresponding effects: Hedonic media use might be associated with (and perhaps buffer against) PTSS, whereas eudaimonic and self-transcendent media use might be associated with (and perhaps amplify) PTG. However, such relationships are likely influenced by the stressors experienced following the hurricane and the coping strategies pursued in response. Those associations are graphically presented in the conceptual model that guided the study (see Figure 1). Based on PTG and PTSD theories, we broadly reasoned that hurricane-related stressors would be associated with coping strategies, and that coping strategies would predict media use as a coping tool. Media use, in turn, would then predict PTSS and PTG.

To our knowledge, no direct empirical evidence currently exists with regard to the specific role that hedonic, eudaimonic, and self-transcendent narrative experiences can play in these two particular wellbeing adjustments following a major life trauma. Therefore, offering directional hypotheses seemed a bit premature. Thus, in an initial attempt to explore these issues, we interrogated a broad research question:

RQ1: To what extent were hedonic, eudaimonic, and self-transcendent media narrative use associated with positive wellbeing adjustments (i.e., post-traumatic growth) and/or negative wellbeing adjustments (e.g., post-traumatic stress) among survivors of a natural disaster?

Furthermore, given the exploratory nature of this study, we thought it advisable to examine trauma-related factors that might be correlated with post-traumatic media use, primarily as a heuristic tool for future research. Specifically, we explored the extent to which hurricane-related stressors, peritraumatic emotional responses to the event, and time (i.e., days between hurricane landfall and data collection) predicted hedonic, eudaimonic, and self-transcendent media narrative use. When doing so, we controlled for factors previously identified in the entertainment literature as being related to media use: gender, age, trait hedonic and eudaimonic entertainment use motivations, and personality traits related to eudaimonic media use (i.e., hope, optimism, gratitude, spiritual support see Oliver et al., 2018; Raney et al., 2018; Eden et al., 2020; Janicke-Bowles et al., 2021b). Our goal was to identify:

RQ2: What factors were most associated with hedonic, eudaimonic, and self-transcendent media narrative use among survivors of a natural disaster?

Method

As a part of a larger research project, online survey data were collected from individuals living in the northern coastal region of the Gulf of Mexico in Florida (colloquially known as "the Florida Panhandle") who were directly affected by Hurricane Michael (n = 491). Data collection occurred between April and December 2019. Respondents received a $10 gift card for their participation. The majority of respondents self-reported to be women (80.0%) and White (82.7%; Black, 6.5%; Hispanic, 3.5%; Other 6.9%). The average age was 43.2 (range 16–78).

Of the sample, 92.9% reported losing electricity for more than 48 h following Hurricane Michael, 85.7% reported experiencing gas shortages, 80.0% reported losing personal property, 55.8% reported subsequent financial problems, and 54.0% reported food shortages. With regard to the mental toll of the storm, 74.5% reported guilt about not being able to do more to help others, whereas 72.3% reported compassion fatigue and emotional overload for caring for others.

A complete table of demographic information for the sample, correlation matrix, survey items, and dataset (with codebook) can be accessed at our Open Science Framework project page: https://osf.io/snwp2/?view_only=97d876ae7d294708b5ee6da718069768.

Primary measures

Hurricane-related stressors

An 18-item checklist developed by investigators for use after disasters (Plummer et al., 2008) measured event-specific stressors. Respondents indicated (0 = *No*; 1 = *Yes*) which stressors they experienced during the month immediately following the hurricane (e.g., being an evacuee, loss of personal property). Responses were summed, with higher scores reflecting more stressors experienced ($M = 8.19$, $SD = 2.41$, *range* = 1–15).

Coping strategies

Types of coping strategies used by the respondents were measured with the 30-item Brief COPE (Carver, 1997). Respondents indicated the frequency with which they relied on each specific coping strategy since Hurricane Michael on a 4-point scale (1 = *Not a lot*; 4 = *A lot*). The scale contains conceptually distinct approaches to coping with a stressful life event. As a result, many previous studies have presumed that certain items reflect avoidant-oriented coping behaviors, whereas other items reflect approach-oriented ones, leading to the computation of corresponding factors. However, this approach has been criticized as oversimplifying the complex nature and use of certain strategies (e.g., Skinner et al., 2003). Therefore, in the current study, a principle component analysis (with oblimin rotation) was conducted, with the expectation that a constellation of factors would emerge to represent avoidant- and approach-oriented coping strategies (as reflected in Figure 1).

The procedure yielded an initial solution of five factors with eigenvalues > 1.0. Upon inspection, two factors were found to consist of a small number of items, all of which significantly counterloaded (>0.40) on other factors. Therefore, a three-factor solution—collectively explaining 54.8% of the variance—was adopted, with items loading at >0.60 and counterloading at <0.40 retained. Twelve items measured strategies conceptually associated with avoidance coping ($M = 1.62$, $SD = 0.67$, $\alpha = 0.92$), including self-distraction (e.g., "turning to work or other activities to take my mind off things"), denial (e.g., "saying to myself, 'this isn't real'"), and behavioral disengagement (e.g., "giving up trying to deal with it") strategies. Eight items measured strategies conceptually associated with approach coping ($M = 2.65$, $SD = 0.74$, $\alpha = 0.88$), including the use of positive reframing (e.g., "looking for something good in what is happening"), planning (e.g., "trying to come up with a strategy about what to do"), and acceptance (e.g., "I've been learning to live with it") strategies. Four items measured coping strategies conceptually associated with support seeking ($M = 2.13$, $SD = 0.85$, $\alpha = 0.89$), including pursuing emotional (e.g., "getting emotional support from others") and informational (e.g., "getting help and advice from other people") support. As a result, the final model tested three coping strategies, rather than the initially anticipated two.

Post-hurricane media use

A 14-item scale was developed to explore how particular motivations for consuming two specific types of media—television and film—had changed since the hurricane. For each media form, respondents indicated on a 7-point scale (1 = *Decreased significantly*; 7 = *Increased significantly*) the extent to which their use of media for relaxation and for escape/to get my mind off things had changed (i.e., post-hurricane hedonic media use). They also rated how much their media use to feel more hopeful, feel better about their own life, feel thankful/grateful, meet their spiritual needs, and experience inspiration had changed since the hurricane (i.e., post-hurricane eudaimonic media use). A principle component analysis (with oblimin rotation) of the scale yielded two factors, with 69.8% of the variance explained. After two items that counterloaded at >0.40 were dropped, responses were averaged for each participant to yield the two factors: post-hurricane hedonic media use (4 total items; $M = 3.83$, $SD = 1.33$; $\alpha = 0.88$) and post-hurricane eudaimonic media use (8 total items; $M = 3.42$, $SD = 1.34$; $\alpha = 0.96$). Higher scores were associated with greater media use for the respective purposes.

The frequency of self-transcendent media use was measured with three items: how often respondents encountered inspiring content in television/streaming services, film, and social media/other internet outlets since the hurricane [The more colloquial term "inspiring" was used for these items for the sake of clarity among participants; scholars in this area routinely use the terms "self-transcendent" and "inspirational" interchangeably; e.g., Oliver et al., 2018, 2021]. Responses were recorded on a 5-point scale (1 = *Never*; 5 = *Always*) and summed to yield a single factor, with higher scores reflecting greater post-hurricane inspiring media use ($M = 6.83$, $SD = 2.86$; $\alpha = 0.73$).

Post-traumatic stress disorder symptoms

Current post-traumatic stress symptoms were measured with the 17-item Modified PTSD Symptom Scale (MPSS-SR; Falsetti et al., 1993). Respondents indicated how often during the previous month they had experienced symptoms on a 4-point scale (1 = *Not at all/Only one time*; 4 = *5 or more times a week/Almost always*). Sample items included "Feeling irritable or having fits of anger" and "Having bad dreams or nightmares about the hurricane." As is customary, responses were summed ($M = 30.21$, $SD = 12.30$; range = 4–68, $\alpha = 0.94$), with higher scores indicating more PTSS.

Post-traumatic growth

The 21-item Posttraumatic Growth Inventory (Tedeschi and Calhoun, 1996) was used to measure PTG. Each item noted a possible life change that had occurred as a result of the hurricane; sample items included "I can better appreciate each day" and "I discovered that I am stronger than I thought I was." Respondents rated the extent to which each change had occurred on a 6-point scale (0 = *I did not experience this change as a result of my crisis*; 5 = *I experienced this change to a very great degree as a result of my crisis*). As is customary, responses were summed for each item ($M = 77.64$, $SD = 26.74$, *range* = 9–126, $\alpha = 0.96$), with higher scores reflected greater PTG.

Additional measures

To interrogate RQ2, we explored the impact of various hurricane-related factors on hedonic, eudaimonic, and self-transcendent media narrative use, while controlling for factors identified in the previous literature as being associated with that use (see Oliver et al., 2018; Raney et al., 2018; Eden et al., 2020; Janicke-Bowles et al., 2021b).

Hurricane-related factors

In addition to the following factors, the number of hurricane-related stressors experienced (see above) was included in the RQ2 analysis.

Peritraumatic emotional responses

Negative emotions (e.g., fear, anger, sadness) during and in the immediate aftermath of trauma are risk factors for maladaptive outcomes (Ozer et al., 2003; Ai et al., 2005, 2011a; Craparo et al., 2014). However, positive emotions can also arise during trauma (e.g., gratitude toward relief workers, compassion for others), which may trigger an upward spiral of human flourishing and improved wellbeing (Fredrickson and Joiner, 2002). Immediate emotional reactions to the hurricanes were measured with the 12-item Types of Peritraumatic Emotional Responses checklist (Lemieux et al., 2010). Respondents indicated on a 4-point scale (1 = *Not a lot*; 4 = *A great deal*) the extent to which they experienced five negative (e.g., horror/shock, anger/hatred) and seven positive (e.g., admiration for the first responders, appreciation for the safety of myself) emotional reactions during the month following the storm. Responses were averaged for each participant, yielding two factors: negative (five items; $M = 2.76$, $SD = 0.81$, $\alpha = 0.84$) and positive (seven items; $M = 3.34$, $SD = 0.56$, $\alpha = 0.79$) emotional responses.

Days since hurricane

Studies show that PTG (e.g., Dekel et al., 2012) and PTSS (e.g., O'Donnell et al., 2007) can intensify over the months following a traumatic event. Furthermore, in order to reach a sufficient number of eligible respondents, data collection took a number of months to complete. Therefore, the number of days since the hurricane—that is, the difference between the date that Hurricane Michael made landfall (October 10, 2018) and the date of data collection—was calculated. The average days between the hurricane experienced and each survey response was 221.31 ($SD = 50.16$, range = 196–434).

Media-Related controls

Demographics

The demographic characteristics analyzed included gender (dichotomized for analyses, with responses from $n = 6$ non-binary respondents omitted from gender analyses due to insufficient sample size) and age.

Trait hedonic and eudaimonic media use motivations

To examine general inclinations for seeking out different type of media experiences, Oliver and Raney's (2011) 12-item motivations for entertainment consumption scale was utilized. Six items measured hedonic motivations (e.g., "It is important for me to have fun when watching a movie"), and six measured eudaimonic motivations (e.g., "I like movies that challenge my way of seeing the world"), using a 7-point Likert scale. Responses were averaged, with higher scores reflecting greater general motivation to seek out hedonic ($M = 5.47$, $SD = 1.12$; $\alpha = 0.88$) and eudaimonic ($M = 4.61$, $SD = 1.41$; $\alpha = 0.94$) media experiences.

Gratitude

The extent to which respondents were prone to feel and experience gratitude in their daily lives was measured using a 6-item scale, developed by McCullough et al. (2002); responses were indicated on a 7-point Likert scale. Sample items included "I have so much in life to be thankful for" and "I am grateful to a wide variety of people." As is customary, responses to the items were summed to create a single factor ($M = 37.33$, $SD = 5.69$; $\alpha = 0.83$), with higher scores indicating greater trait gratitude.

Hope

The 12-item Hope Scale (Snyder et al., 1996) was used to gauge dispositional hope. A sample item was "Even when others get discouraged, I know I can find a way to solve problems." The scale contained eight items; the four filler items were not included in the survey due to concerns over participant fatigue. Participants reported how they had felt about each statement during the past month on a 5-point scale (1 = *Definitely false*, 5 = *Definitely true*). Responses to the items were averaged to yield a single measure ($M = 3.94$, $SD = 0.67$; $\alpha = 0.89$), with higher scores reflecting greater trait hope.

Optimism

Optimism was assessed with the 12-item Life Orientation Test (Scheier and Carver, 1985). Sample items included "I always look on the bright side of things" and "In uncertain times, I usually expect the best." Using a 5-point Likert scale, respondents stated the extent to which they agreed with each statement ($M = 3.67$, $SD = 0.79$, $\alpha = 0.87$), with higher scores reflecting greater trait optimism.

Spiritual support

This factor was measured with the 12-item Perceived Spiritual Support Scale (Ai et al., 2005). A sample item was "My religious or spiritual faith has provided me with comfort in uncertainty." Respondents indicated their agreement with each item on a 4-point Likert scale. Responses to the items were averaged, with higher scores reflecting more perceived spiritual support following Hurricane Michael ($M = 4.55$, $SD = 1.16$; $\alpha = 0.99$).

Statistical analysis

Using SPSS version 25, we first conducted hierarchical regression procedures to judge the similarity in predictors of PTSS and PTG between Hurricane Michael and past research. In both analyses, the first step introduced demographic and psychographic factors; the second step introduced hurricane-related factors. We used a similar approach to examine predictors of post-hurricane hedonic, eudaimonic, and self-transcendent media use: three hierarchical regression procedures, introducing demographic and psychographic variables in Step 1 and hurricane-related factors in Step 2. We used IBM SPSS AMOS Version 28 to conduct a serial mediation analysis of our conceptual model. A power analysis of the conceptual model showed a power of 0.71 to test the RMSEA fit indicator using a null RMSEA = 0.05 and an alternate RMSEA = 0.08. The power was 0.98 when the alternate RMSEA = 0.10 was employed (Preacher and Coffman, 2006).

TABLE 1 Hierarchical regression on post-traumatic stress and post-traumatic growth.

	PTSS β	PTG β
Step 1		
Gender	−0.08^	−0.09*
Age	−0.04	−0.16***
Gratitude	−0.06	0.11*
Hope	0.04	0.08
Optimism	−0.33***	0.08
Perceived spiritual support	0.05	0.20***
R^2	0.12***	0.14***
Step 2		
Days since hurricane	−0.03	0.11*
Hurricane stressors	0.22***	0.18***
Peritraumatic negative emotions	0.46***	0.13**
Peritraumatic positive emotions	0.09*	0.25***
ΔR^2	0.45***	0.26***

For this analysis, Gender (Female = 0, Male = 1) was coded as binary. ^p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.

Results

Preliminary analysis

In an attempt to judge the similarity between Hurricane Michael outcomes and past research, we first sought to get a broader picture of the variables associated with PTSS and PTG. In addition to the event-related factors discussed above, several demographic and psychographic characteristics have been shown to predict one of or both post-traumatic outcomes. Specifically, identifying as a woman and being a younger age have routinely been positively correlated with increased PTSS. In contrast, personality traits associated with positive character strengths (e.g., hope, gratitude, optimism; see Peterson and Seligman, 2004), as well as social and spiritual support (Ai et al., 2005, 2011b, 2013), have been found to buffer against PTSS, while also promoting PTG following disasters. Thus, we employed hierarchical regression, with gender, age, and the trait variables of gratitude, hope, optimism, and perceived spiritual support entered on the first step. Step 2 included the number of days since the hurricane, hurricane-related stressors, and peritraumatic negative and positive emotions. The results of these analyses can be found in Table 1.

For PTSS, Step 1 of the analysis ($F_{6,446} = 10.19$, $p < 0.001$) revealed that higher scores were associated with significantly lower levels of optimism. There was also a tendency for women to report higher scores than men, though this only approached statistical significance. The second step showed that higher levels of PTSS was predicted by greater hurricane stressors and

with higher levels of both peritraumatic negative and positive emotions, though the association was substantially higher for negative than positive emotions ($F_{4,442} = 65.75$, $p < 0.001$).

The first step in the analysis of PTG showed that higher levels of gratitude and spirituality were positive predictors, whereas age was a negative predictor. Women reported greater PTG than did men ($F_{6,446} = 11.91$, $p < 0.001$). Step 2 showed that more days since the hurricane, higher levels of hurricane stressors, and both positive and negative peritraumatic emotions were positively associated with PTG. Furthermore, peritraumatic positive emotions were a substantially stronger predictor than were negative emotions ($F_{4,442} = 20.99$, $p < 0.001$). As anticipated, these findings mirror those reported in previous research examining PTSS and PTG following natural disasters (e.g., Brewin et al., 2000; Ozer et al., 2003; Prati and Pietrantoni, 2009).

Stress, coping, media use, and PTSS/PTG

Informed by existing theory and past research, our conceptual model (see Figure 1) proposed relationships between trauma-related stress and PTSS/PTG, mediated by coping strategies and media use as a coping tool. An analysis of the factor structures in the data indicated that one change to the conceptual model needed to be made before testing. As reported in the Methods section, principle component analysis of the coping strategy data suggested that a three-factor solution (i.e., avoidant, approach, and support seeking strategies) was superior to the anticipated two-factor solution (see Figure 1).

After making this adjustment to the model, we conducted a serial mediation analysis to explore RQ1. Prior to running the model, we first examined missing data and used expectation maximization imputation on missing values. This analysis of missing data indicated that the data were missing at random, Little's MCAR $\chi^2_{(44)} = 50.08$ $p = 0.245$. Additionally, to control for gender, age, and days since the hurricane, we regressed each variable on these controls, saving the unstandardized residuals for each one, with these residuals then employed as the variables in the model (see Gunther et al., 2006).

The initial model showed poor model fit $\chi^2_{(11)} = 476.88$, $p < 0.001$; RMSEA = 0.29[90% CI: 0.27, 0.32]; CFI = 0.60; SRMR = 0.15. Consequently, we referred to modification indices that were reasonably plausible, adding each suggested path one at a time. The resultant model showed strong fit, $\chi^2_{(6)} = 10.02$, $p = 0.12$; RMSEA = 0.04 [90% CI: 0.00, 0.08]; CFI = 1.00; SRMR = 0.02.

Figure 2 shows the final model, with non-significant paths illustrated *via* grayed, dotted paths. This figure shows that hurricane stressors were positively associated with all three types of coping. Stressors were also directly and positively associated with both PTSS and PTG. Approach coping and support-seeking coping were directly and positively associated with PTG, whereas avoidant coping was directly and positively associated with PTSS.

In terms of the media variables, avoidant coping was positively associated with both post-hurricane eudaimonic and hedonic media use. In contrast, approach coping was positively associated with self-transcendent media use, with this use, in turn, positively associated with PTG. Using bootstrapping with 2,000 samples and bias-corrected confidence intervals, we found that there was a significant, albeit weak, indirect positive association between stressors and PTG *via* approach coping and self-transcendent media use, $B = 0.002$, $SE = 0.001$, $p < 0.01$.

Post-hurricane media use

Finally, to examine how trauma-related variables were associated with post-hurricane media use (RQ2), we conducted a series of hierarchical regression analyses, using two predetermined steps. The first step included factors previously found to been associated with media use: demographic traits of gender and age, trait-level motivations for eudaimonic and hedonic media use, and the personality factors of gratitude, hope, optimism, and perceived spiritual support. The second step involved variables pertaining to the hurricane and post-hurricane responses. Table 2 provides the findings of these analyses.

For post-hurricane hedonic media, Step 1 ($F_{8,442} = 1.95$, $p = 0.05$) of the analysis showed that greater hedonic media use was positively associated with higher levels of trait hedonic motivations and, to a lesser extent, by younger ages. Step 2 ($F_{4,438} = 2.98$, $p < 0.05$) showed that hedonic media use was marginally negatively associated with hurricane-related stressors but was positively associated with peritraumatic negative emotions.

Post-hurricane eudaimonic media use was predicted by greater perceived spiritual support and trait eudaimonic motivations, and marginally so with trait hedonic motivations (Step 1: $F_{8,439} = 3.55$, $p < 0.001$). Eudaimonic media use was also positively associated with the number of days since the hurricane, though no other hurricane-related variables were significant (Step 2: $F_{4,435} = 1.87$, $p = 0.114$).

Finally, post-hurricane self-transcendent media use was positively associated with higher trait eudaimonic motivations and (marginally) with younger ages (Step 1: $F_{8,418} = 7.23$, $p < 0.001$). The only hurricane-related predictor post-hurricane self-transcendent media use was a longer number of days since the hurricane (Step 2: $F_{4,414} = 1.63$, $p = 0.166$).

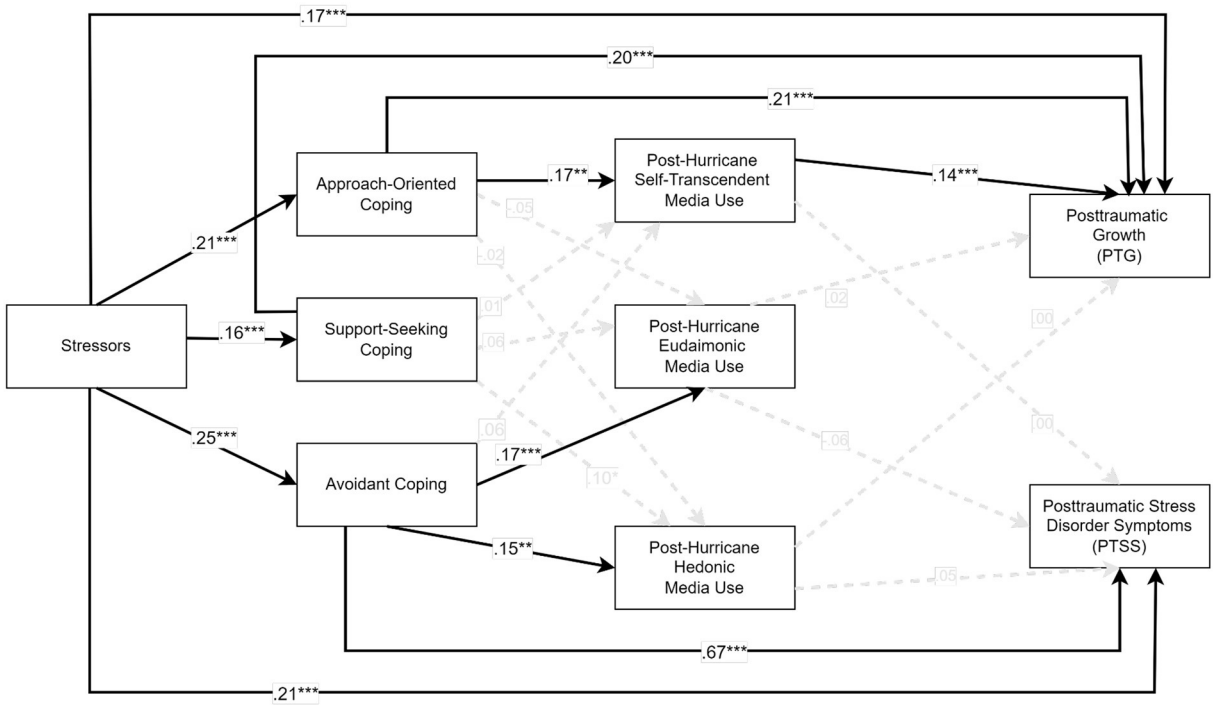

FIGURE 2
Final model. This model was associated with a model fit of $\chi^2_{(6)} = 10.02$, $p = 0.12$; RMSEA = 0.04 [90% CI: 0.00, 0.08]; CFI = 1.00; SRMR = 0.02. Path coefficients are standardized. $^{**}p < 0.01$, $^{***}p < 0.001$.

Discussion

The current project aimed to add to the growing evidence regarding the effects of media experiences on wellbeing. To our knowledge, this exploratory project is the first to investigate the effects of media use on post-traumatic stress symptoms (PTSS) and post-traumatic growth (PTG) in the months following a natural disaster. Survivors ($n = 491$) of deadly Hurricane Michael that struck the southeastern United States in October 2018 were interviewed via an online survey.

Numerous studies have previously explored PTG and PTSS following natural disasters (see Brewin et al., 2000; Ozer et al., 2003; Prati and Pietrantoni, 2009). The current findings echo past results. With regard to PTG, gender (being a woman), age (being younger), trait gratitude, perceived spiritual support, time since the hurricane, hurricane-related stressors, and both positive and negative peritraumatic emotions all predicted the outcome. In contrast, none of the demographic or other individual differences variables positively predicted PTSS (though women trended toward more symptoms); trait optimism negatively predicted PTSS. Hurricane-related stressors and peritraumatic emotions positively predicted stress symptomatology. Thus, as has been observed with previous natural disasters, evidence of both complex mental-health outcomes emerged in survivors of Hurricane Michael and did so based on similar factors as past traumatic events. As in previous studies, the two outcomes were significantly correlated as well ($r = 0.18$, $p < 0.01$). Furthermore, the similarity in contributory variables lends further credence to the position, discussed in the review of literature, that both PTSS and PTG are borne out of the struggle to overcome adversity (Linley and Joseph, 2004; Joseph and Linley, 2005). These findings contribute additional evidence to the understanding of these phenomena among clinical and trauma psychologists. Although important, these findings are secondary to the current study.

The primary question (RQ1) we sought to address was the extent to which hedonic, eudaimonic, and self-transcendent media narrative use was associated with negative (i.e., PTSS) and positive (i.e., PTG) wellbeing adjustments among survivors of Hurricane Michael. Based on existing theory and empirical findings, we proposed a model (see Figure 1) in which hedonic, eudaimonic, and self-transcendent media use were conceptualized as tools associated with various strategies used to cope with stress in the months following Hurricane Michael, with potential impacts on PTSS and PTG. To address RQ1, a test of the model revealed that hurricane-related stressors were positively associated with the use of avoidance-oriented coping strategies (e.g., denial, behavioral disengagement); such strategies reflect a withdrawal from or a denying of the trauma-induced stress. In turn, persons using avoidance coping were

TABLE 2 Hierarchical regression on post-hurricane media use.

	Post-hurricane hedonic media use	Post-hurricane eudaimonic media use	Post-hurricane self-transcendent media use
	β	β	β
Step 1			
Gender	0.05	0.08	−0.05
Age	−0.08^	−0.06	−0.08^
Gratitude	0.05	−0.04	0.06
Hope	−0.01	−0.03	0.04
Optimism	−0.04	−0.03	0.07
Perceived spiritual support	0.02	0.13**	0.02
Eudaimonic media motivations	0.08	0.18***	0.29***
Hedonic media motivations	0.12*	0.09^	−0.04
R^2	0.03^	0.06***	0.12***
Step 2			
Days since hurricane	0.06	0.11*	0.10*
Hurricane stressors	−0.09^	−0.08	0.04
Peritraumatic negative emotions	0.17**	0.04	−0.00
Peritraumatic positive emotions	−0.05	−0.02	0.04
Δ R^2	0.03*	0.02	0.01

For this analysis, Gender (Female = 0, Male = 1) was coded as binary. ^$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

more likely to use hedonic and eudaimonic media. This finding echoes the decades of media research on the use of media as an escape, diversion, or distraction in general (e.g., Blumler, 1979; Henning and Vorderer, 2001) and in specific response to stress (e.g., Zillmann, 1988), though admittedly most studies in that tradition have examined situational or short-term media use. These findings seem to point to a persistence to those effects, as an ongoing, months-long stressful situation appears to have chronically triggered media use for the sake of escape and diversion. The fact that hedonic media use became a tool for avoidant coping is quite understandable, as such experiences are more commonly associated with escapist media use motivations. The fact that more emotionally and cognitively taxing eudaimonic media use also increased with avoidance coping may seem odd at first glance. However, given Zillmann's (1988) arguments for and evidence of the mood-altering benefits of highly absorbing content, it stands to reason that the increased cognitive investment in eudaimonic fare may also serve as a way for one to avoid hurricane-related stress (so long as the content itself does not re-traumatize the audience member). Recent work on the benefits of eudaimonic media use for recovery and vitality also support these findings (e.g., Rieger et al., 2014, 2017).

The use of avoidance coping strategies was directly and positively associated with greater PTSS, similar to past studies (e.g., Pina et al., 2008; Sprang and LaJoie, 2009). However, media use was not the path through which this effect was observed. That is, increased hedonic and eudaimonic media use as a tool for coping with hurricane-related stress did not facilitate PTSS. We interpret this finding as underscoring and highlighting the beneficial (or, at a minimum, non-detrimental) strategic use of media to address (ongoing) situational needs.

Perhaps unsurprisingly, greater media use as a tool for avoiding stressors was unrelated to PTG. As a process of struggling through adversity, PTG requires and reflects psychological change with regard to an appreciation for life and new possibilities therein, spirituality, personal development, and relationships with others (Tedeschi and Calhoun, 1996). Avoiding or denying the struggle cannot lead to growth. This is not to suggest that using media as a tool for avoiding stress cannot be beneficial, especially in the short term (e.g., Zillmann, 1988). However, at least in the case of Hurricane Michael survivors, those benefits do not appear to lead to long-term psychological growth.

The model test further revealed that hurricane-related stressors led to support-seeking coping strategies (i.e., pursing emotional, social, informational support), which were directly related to increased PTG. Curiously, though, support-seeking coping was not related to any form of media use. In retrospect, the most likely explanation for this is the measurement of media use, which exclusively probed use for entertainment purposes. Of course, decades of research evidences how entertainment narrative worlds and the characters who inhabit them can serve as (para)social support for individuals (for a recent meta-analysis, see Tukachinsky et al., 2020), though such a media function—at least as a tool for support seeking—is not reflected in these data. On the other hand, previous studies have reported how survivors turn to news and social media as a coping mechanism during and in the days immediately following of natural disasters (e.g., Perez-Lugo, 2004; Tandoc and Takahashi, 2017). Whereas, post-disaster information seeking was not a focus of the current study, future projects should consider exploring the long-term effects of doing so on wellbeing.

Finally with regard to RQ1, hurricane-related stressors were positively associated with approach-oriented coping strategies (i.e., actively engaging with the stressors). This finding is similar to results from other studies of trauma survivors (e.g., Scrignaro et al., 2011; Akbar, 2014). In turn, persons using approach coping strategies were more likely to use self-transcendent media

(only). Given that some scholars consider self-transcendent media experiences to be a particular type of eudaimonic ones (e.g., Oliver et al., 2018), it is perhaps unexpected that the approach coping-eudaimonic media use path was not also significant. No explanation is readily available for this finding.

Further, increased use of self-transcendent media as a tool for approach coping was positively associated with increased PTG. We consider this finding to be of considerable importance. The observation is in line with experimental studies that have identified short-term benefits of self-transcendent media experiences (for a recent overview, see Janicke-Bowles et al., 2021a). But more importantly, it provides some of the first empirical evidence of the longer-term beneficial effects of those experiences. In so doing, the findings offer support for the relationships between media use and growth recently proposed in the recovery and resilience in entertainment use model (R^2EM; Reinecke and Rieger, 2021), which argues that individuals seek out entertainment for psychological growth (connected to eudaimonic experiences) that aid in short-term recovery (e.g., relaxation, mastery), ultimately leading to the development of resilience-related factors (see also Hartmann, 2013).

The specific relationship between increased self-transcendent media experiences and increased PTG makes strong conceptual sense. Oliver et al. (2018) differentiated self-transcendent media experiences from other eudaimonic ones as "involving one or more of the following elements: interconnectedness, human virtue and altruistic motivations, and spirituality" (p. 384). As noted above, PTG reflects psychological change with regard to spirituality, personal development, and relationships with others (Tedeschi and Calhoun, 1996). Thus, the use of the former as a tool to bring about the latter seems entirely reasonable. Of course, given the cross-sectional nature of our data, causation cannot be inferred. We acknowledge that selective exposure to self-transcendent media might be an outcome of (rather than a catalyst for) growth; in fact, the relationship may be reciprocal, as proposed by the reinforcing spirals model (Slater, 2007, 2015) and the broaden-and-build theory (Fredrickson and Joiner, 2002). Regardless, observing evidence of longer-term effects from such experiences on positive mental-health and wellbeing outcomes is promising for content providers, clinicians, and audience members alike.

In addition to these relationships, we also sought to identify the factors most associated with hedonic, eudaimonic, and self-transcendent media narrative use among survivors of Hurricane Michael (RQ2). Interestingly, many of the factors previously found to predict media use in general were not observed herein. As one would expect, post-hurricane hedonic media use was significantly predicted by hedonic media use motivations; similarly, post-hurricane eudaimonic and self-transcendent media use was predicted by eudaimonic media use motivations. However, none of the demographic variables or personality traits measured significantly predicted any sort of post-hurricane media use (save for spiritual support predicting eudaimonic use). We think that this may be an important finding, perhaps highlighting how trauma impacts individuals in previously unobserved ways. For example, what scholars may think of as consistent patterns of exposure, particularly for non-hedonic media (e.g., persons higher in optimism and gratitude are more likely to seek out eudaimonic fare, persons higher in spirituality are more likely to seek out self-transcendent media), may become less stable following a traumatic life event. Future studies are encouraged to explore this phenomenon.

Furthermore, hurricane-related factors also played little role in post-hurricane media use. After controlling for the influence of demographics and personality traits, we found that negative emotions experienced during and in the immediate aftermath of the storm predicted hedonic media use. Also, more time since the hurricane predicted greater eudaimonic and self-transcendent media use, though the added variance explained was quite minimal. In light of the results of the model testing, these findings are perhaps not so unexpected, as the impact of the event-specific factors appear to have the most direct effect on coping strategies, which then influence the use of specific types of media.

Taken as a whole, the results of this exploratory study offer initial evidence in support of the use of media narratives as a means toward post-traumatic growth but place doubt on its use as a buffer against post-traumatic stress, at least in the months following a traumatic natural disaster. Eden et al. (2020) offered a more hopeful—though still complicated—picture of the latter in a recent study of media use among college students during the COVID-19 pandemic. Such work further offers support to emerging theories and models of the salutary effects of media use (e.g., Oliver et al., 2021; Reinecke and Rieger, 2021), in particular over time and in response to life stressors.

Despite these contributions, the current study has its limitations. First, as a contribution to a special topic issue dedicated to narrative types, we admit that the current study offers limited insight into the role of specific narratives, narratives types, or narrative devices on post-traumatic outcomes. As previously discussed, the terms "hedonic," "eudaimonic," and "self-transcendent" refer to distinct media experiences. Narratives within each category, thus, share some similarities: hedonic narrative are light-hearted, fun, and easily processed; eudaimonic narratives are relatively more serious, complex, evoking mixed affect, promoting contemplation, and requiring more taxing cognitive effort; self-transcendent narrative feature moral beauty and human virtues, promote connectedness, and motivate altruistic and spiritual thoughts and actions. Thus, the findings paint with broad brushstrokes the impact of certain types of media use—which surely included related narratives—on post-traumatic outcomes. But, admittedly, the narratives within each category can also be highly varied in terms of content and structure;

the present findings cannot directly speak to that variability. Broadly speaking, hedonic and eudaimonic narratives may have provided survivors of Hurricane Michael a significant outlet to disengage or be distracted from the aftermath of the storm. Similarly, self-transcendent narratives may have provided survivors with a means to actively process the trauma, leading to psychological growth. Nevertheless, these data cannot speak to the specific narratives that served these purposes more or less effectively. Future studies are needed to explore these issues.

A second limitation relates to the media measures. Use of all three media types was gathered in terms of "frequency since the hurricane." However, self-transcendent use was expressed as "how often," whereas hedonic and eudaimonic use was expressed as a change in frequency (i.e., increase/decrease). The measure of self-transcendent media also captured social media use, whereas the measures of hedonic and eudaimonic use did not. Future studies should consider developing scales to measure all three types of media experiences in the same manner. On a related noted, we also acknowledge that the observed hedonic and eudaimonic media use average values indicated a slight decrease in both types of media use following the hurricane. Given the continuous nature of the variables, the relative importance of this fact in a between-subjects analysis was minimal. However, future studies should explore whether this finding is replicated following other natural disasters.

Third, as with any cross-sectional survey, the data are correlational in nature; causal inferences should be avoided. Further, PTG and PTSS—and in fact all the measures—were self-reported; drawing inferences about actual diagnoses should also be avoided. Fourth, despite strong support from local agencies, we were unable to recruit a representatively diverse sample, thus limiting our demographic analyses. Finally, despite measuring a host of factors previously found to be related to the two outcome variables, the final models (especially for PTG) explained less variance than anticipated; other unmeasured influences—perhaps related to media use—need examination.

In conclusion, mental health outcomes like PTG and PTSS are incredibly complex and multifaceted. Nevertheless, it should be taken as encouraging from a media-psychological and public-health perspective that self-transcendent media use might serve a community-wide, across-the-age-range benefit to trauma sufferers. For this reason, experiences with media that inspire and help us transcend our self must continue to receive scholarly attention. Admittedly, the amount of variance explained by media factors in the current study is relatively small. But, in truth, this is the case in most studies of media use and broad psychological and social phenomena (e.g., Valkenburg and Peter, 2013). Much more work is needed for these effects—and the psychological mechanisms and processes facilitating them—to be more fully understood. Our hope is that this study motivates others to join these efforts.

Data availability statement

The dataset presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://osf.io/snwp2/?view_only=97d876ae7d294708b5ee6da718069768.

Ethics statement

The studies involving human participants were reviewed and approved by Office for Human Subjects Protection, Florida State University. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

Author contributions

AR and AA designed the study and oversaw data collection. MO performed the statistical analysis. All authors contributed to writing the manuscript revision, read, and approved the submitted version.

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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.

Publisher's note

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On the need for narratives in patient information: Differentiating types and functions of narratives from pulmonary embolism patients' point of view

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The inclusion of narratives in evidence-based patient information is a heavily discussed topic in literature. Narratives elicit intense engagement and emotional insights, but may also cause unintended persuasion effects. There is mixed evidence that adding narratives to non-narrative factual patient information is valuable for patients. In addition, providing patients with narratives about the outcome of treatments has been found to bias treatment decisions, in line with the direction implied by the narratives. This may counteract informed decision making of patients. However, narratives about the process of a treatment and personal experiences with treatments may support the well-being of patients in tertiary prevention. In order to investigate patients' views on narratives and their function in patient information, we conducted 26 semi-structured qualitative interviews with pulmonary embolism patients. Answers were coded using thematic analysis. Results show that patients are especially interested in experience and process narratives when combined with evidence-based patient information. We identified four main functions of experience and process narratives that patients ascribe to these narratives: (1) motivating self-reflection and reflection on the recovery process, (2) reducing the feeling of loneliness, (3) reducing emotional distress, and (4) inspiring mindful mastery.

KEYWORDS

qualitative interviews, experience, types of narratives, evidence-based patient information, thematic analysis, well-being

Introduction

After stroke and myocardial infarction, pulmonary embolism is the third most frequent acute heart-related disease worldwide (Wendelboe and Raskob, 2016; Barco et al., 2021). About 50% of the patients surviving pulmonary embolism suffer from long-term physical limitations (6 months to 3 years), in particular from ongoing dyspnea,

difficulties in physical performance and an overall reduced health status (Klok et al., 2010a, 2014; Klok and Barco, 2018). Related to these physical limitations, pulmonary embolism also affects patients' psychological well-being considerably (Noble et al., 2014; Erickson et al., 2019; Tran et al., 2021). Even if the awareness about the relevance of well-being of pulmonary embolism patients has increased in the last years (Rolving et al., 2020), knowledge on how to support patients is still underdeveloped (Tran et al., 2021).

Given that patients express high informational deficits after the acute treatment, research agrees that providing evidence-based information would be a first relevant step for improving patient care after hospital release (Kirchberger et al., 2020). In addition to providing patients with information related to the illness in general, research indicates that information that addresses patients' psychological and emotional needs has promising effects (Feehan et al., 2017; Hunter et al., 2017; Kirchberger et al., 2020). It is argued that this information helps patients reflect on their existing anxieties and worries as well as creates a sense of positive mindfulness (Feehan et al., 2017; Hunter et al., 2017; Kirchberger et al., 2020). A combination of non-narrative factual information (that is typical for patient information) and narratives seems to be a good approach to both, address the information deficit and (*via* the narratives) "provide important emotional or social information which is typically lacking in routine health information resources" (Bennett et al., 2015, p. 2033).

Narratives are broadly defined as "the representation of an event or series of events" (Abbott, 2001, p. 13), and includes at least one character who is involved in the events (Bilandzic and Busselle, 2013). In addition to this plot-focused perspective, an experience-oriented perspective on narratives is important (Fludernik, 1996), in which the narratives provide insight into feelings, thoughts, and goals of characters. This corresponds to the patients' need for emotional information (Bennett et al., 2015). Overall, this definition includes a great variety of narratives, ranging from short patient testimonials about treatment procedures to complex book-length stories, written by patients about their health-related experiences (Green, 2006). In this paper, we focus on patient narratives that give insight into patient experiences with treatment procedures, a specific illness or the recovery process and that are used as examples in health brochures or other similar types of health information (Shaffer and Zikmund-Fisher, 2013).

However, guidelines for the development of patient information are rather skeptical about narratives and do not recommend their inclusion in evidence-based health information (Lühnen et al., 2017; Shaffer et al., 2021). Evidence-based patient information "intends to incorporate science and rigor of evidence-based medicine with the personal values of consumers and patients" (Bunge et al., 2010, p. 316). Therefore, evidence-based patient information should be easy to read and use as well as contain relevant, comprehensive, up-to-date factual information reflecting "the highest standards of scientific accuracy" (Coulter, 1998; see also Goldsmith et al., 2007; Bunge et al., 2010). Evidence-based patient information is usually non-narrative, but has an objective and factual form of presentation. Narratives often do not reach the high-quality requirements for evidence-based patient information, and they run the risk of biasing persuasion toward a single case. In addition, there is limited evidence for beneficial effects (Shaffer et al., 2021). However, this criticism insufficiently considers the multidimensionality of narratives, "varying systematically in their purpose, content, and evaluative valence" (Shaffer and Zikmund-Fisher, 2013, p. 10). Taking into account the diversity of narratives, different sub-dimensions of patient narratives need to be discussed separately (Shaffer and Zikmund-Fisher, 2013; Shaffer et al., 2021). Based on such a differentiation of narratives, the criticism mainly applies to "outcome narratives" (stories addressing the question whether treatments were successful or not, Shaffer et al., 2013a) in decision aids and their potential to bias patients' treatment decisions (Shaffer et al., 2021). While it is plausible that narrative biases are problematic for decision behavior since they may influence a decision in a specific direction, other subjective patient-centered outcomes that are unrelated to decisional behavior, such as patients' well-being, are not at risk to be negatively affected in this regard. Similarly, while narratives focusing on treatment outcomes are prone to influence decision behavior of patients, this is not the case for narratives that neither give information about treatment decisions nor its outcomes, but give insights into the diagnosis, experiences with an illness or the recovery process. Specifically, we suggest that two types of stories may serve relevant functions above and beyond outcome narratives: Stories that inform patients about the process of diagnosis and treatment ("process narratives") and stories that give an account of experiences of other patients, their thoughts and feelings ("experience narratives") (Shaffer and Zikmund-Fisher, 2013; Shaffer et al., 2013a). However, these effects are rarely investigated, and specific recommendations do not exist yet. The present study addresses this research gap and investigates (1) what types of narratives patients experience as helpful in evidence-based patient information and (2) what well-being related functions patients associate with narratives.

Given that evidence-based patient information is subject to strict quality standards, qualitative research offering insights into the types and their functions of narratives is the first step to develop and finally include patient narratives in patient information on pulmonary embolism (Shaffer et al., 2021). We therefore conducted a two-stage qualitative interview study. In the first stage, we interviewed patients about their own experiences and their expectations toward patient narratives in patient information; in the second stage, patients received a prototype of an evidence-based patient information including

12 patient narratives from the first stage and evaluated the prototype in general, and patient narratives in particular.

Psychological well-being of pulmonary embolism patients

In existing medical research on pulmonary embolism, well-being is mainly addressed from a pathological perspective (Ryff, 1989a; Huppert and So, 2013), focusing on anxieties and depression of patients (Tran et al., 2021) as well as a reduced quality of life (Klok et al., 2010a; van Es et al., 2013). This focus partly corresponds to a hedonic well-being perspective (also discussed under the term "subjective well-being;" Ryan and Deci, 2001). In this line of research, well-being is considered "in terms of pleasure vs. pain" (Ryan and Deci, 2001, p. 144), focusing on the potential to increase happiness and the cognitive evaluation of life while at the same time minimizing negative affective experiences (Diener and Lucas, 1999; Diener et al., 2011). Typically, three different facets of hedonic well-being are differentiated: life-satisfaction, the absence of negative affect and the presence of positive affect (Andrews and Withey, 1976; Diener and Lucas, 1999; Ryan and Deci, 2001; Diener et al., 2011). Even if positive mood is hardly regarded in research on pulmonary embolism, the two other dimensions of hedonic well-being are addressed. While perceived quality of life closely relates to life-satisfaction (Pavot and Diener, 2008), anxiety and depression include the presence of negative mood states and are both well-established indicators for subjective well-being (Reer et al., 2019).

Apart from this strong focus on negative aspects of hedonic well-being, qualitative studies on psychological consequences of pulmonary embolism (e.g., Noble et al., 2014; Kirchberger et al., 2020) also implicitly address aspects of eudaimonic well-being (also discussed as psychological well-being; Ryan and Deci, 2001). In contrast to hedonic well-being, eudaimonic well-being refers to well-being not as the presence of happiness (Ryan and Deci, 2001) but as the "realization of human potential" (Ryff, 2018, p. 375). Eudaimonic well-being often is divided into six different facets: self-acceptance, personal growth, autonomy, purpose in life, environmental mastery, and positive relatedness to others (Ryff, 1989a,b). Of these six, self-acceptance is conceptualized as one of the key facets of eudaimonic well-being, reflecting a persons' positive attitude toward the self, awareness about personal strength but also acceptance of existing weaknesses (Ryff, 1989a,b, 2018). This is also related to personal growth, the feeling that the self continues to grow and develop further (Ryff, 1989b, 2018). Autonomy covers to what extent people have an internal focus of self-evaluation and act in a self-determined way (Ryff, 2018). In contrast, environmental mastery focuses on processes outside of the self and asks how well people are able to adapt to changes in the surroundings (Ryff, 2018). Related to this, purpose in life refers to the feeling that life is relevant and appreciated (Ryff, 1989b). Finally, positive relationships to others refer to the ability to have warm relationships, including friendships as well as love (Ryff and Keyes, 1995; Ryff, 2018). While self-acceptance and environmental mastery have been shown to empirically correlate with indicators for hedonic well-being (for example depression and life satisfaction), the four other dimensions are only weakly related or not at all (Ryff and Keyes, 1995). Thus, literature calls for a distinct consideration of hedonic and eudaimonic aspects of well-being (Ryan and Deci, 2001; Reinecke and Oliver, 2016).

Hedonic well-being of pulmonary embolism patients

In qualitative studies about psychological effects of pulmonary embolism, patients frequently report anxiety and depression, which are markers of a reduced well-being of patients (Feehan et al., 2017; Hunter et al., 2017; Rolving et al., 2019; Kirchberger et al., 2020). Compared to population-based controls, pulmonary embolism patients show significantly higher levels of depression and anxiety (Liu et al., 2011; Chuang et al., 2019; Erickson et al., 2019). Studies also show that several mental health related dimensions of quality of life (for example emotional health limitations, mental health, social functioning) are substantially weaker for pulmonary embolism patients than for the overall population, especially immediately after diagnosis (Klok et al., 2010a; van Es et al., 2013; Kahn et al., 2017; Erickson et al., 2019). Some patients even develop posttraumatic stress disorder following the life-threatening experience (Noble et al., 2014; Hunter et al., 2017).

The diagnosis itself, the life-threatening experience, as well as limiting physical consequences are known to evoke negative mood responses and depression (Liu et al., 2011; Hunter et al., 2017; Tran et al., 2021). In addition, the ongoing symptoms and physical limitations cause fatigue in patients, which is related to depression (Rolving et al., 2019). As emergent stressors, patients report fears about recurring events, potential bleeding risks due to anticoagulant treatment, uncertainties about the cause of the pulmonary embolism as well as insecurities about the long-term health consequences (Noble et al., 2014; Feehan et al., 2017; Hunter et al., 2017; Kirchberger et al., 2020).

Eudaimonic well-being of pulmonary embolism patients

Eudaimonic well-being is not directly addressed in literature about psychological effects of pulmonary embolism, but various results of qualitative studies with patients relate to its sub-dimensions.

Pulmonary embolism patients describe the need to accept physical weaknesses and perceived vulnerability as an obstacle

(Rolving et al., 2019). Patients also struggle with their identity after experiencing pulmonary embolism (Noble et al., 2014; Hunter et al., 2017).

Related to life purpose, patients experience pulmonary embolism as a fundamentally life-changing event. Patients also tend to compare their current situation to their life before the pulmonary embolism as well as to other people in their age group, giving them the feeling that they are not able keep up with them (Noble et al., 2014). This upwards social comparison is related to a reduced autonomy (Ryff, 2018).

To some extent, patients also emphasize a decrease of positive relationships with others. In qualitative studies, they report feelings of social isolation (Hunter et al., 2017, 2019; Kirchberger et al., 2020) and identify the lack of emotional support. Other patients, however, also complained about feeling overprotected by their social environment (Rolving et al., 2019; Kirchberger et al., 2020).

Environmental mastery encompasses whether people are able to use their environment well and adapt it to their personal needs (Ryff, 1989b, 2018). Especially in the time following the acute pulmonary embolism event, this adaptation process is a barrier for patients (Noble et al., 2014). Instead of adapting and reorienting, highly anxious patients report avoiding adaptation efforts (Hunter et al., 2017).

Apart from these negative facets of eudaimonic well-being, most qualitative studies also describe that patients experience a positive re-evaluation of life (Hunter et al., 2017, 2019; Rolving et al., 2019). Specifically, the possibility of changing their life and setting new preferences are emphasized as positive consequences of the pulmonary embolism event (Noble et al., 2014; Feehan et al., 2017). This appreciation of a new orientation in life has parallels to personal growth as sixth subdimension of eudaimonic well-being (Ryff, 1989a).

Information deficit and patients' well-being

After the acute pulmonary embolism event, patients experience a general lack of information about various aspects of their illness, the treatment, the recovery process, as well as how the illness is going to impact their life, which decreases patients' well-being (Bennett et al., 2016; Kirchberger et al., 2020). Typically, patients are treated in hospital for the acute event and clinical guidelines recommend a follow-up check-up after 3–6 months (Konstantinides et al., 2020). This fits well to the medical-physiological needs. However, results from empirical studies show that patients perceive a lack of care precisely because they lack information after leaving the hospital (Hunter et al., 2017; Kirchberger et al., 2020). While results about patients' satisfaction with general information about symptoms, medication or risk factors are mixed (Bennett et al., 2016; Hunter et al., 2017; Kirchberger et al., 2020), empirical studies in particular show that patients lack information on emotional and psychological consequences as well as their long-term health prognosis (Bennett et al., 2016; Feehan et al., 2017).

Given that patients with a decreased well-being complain about a lack of information about psychological long-term consequences (Kirchberger et al., 2020), it is likely that reduced well-being and information deficits are related. Researchers recommend that patient information help patients accept their situation, deal with the ongoing risks, reflect on their situation and develop a sense of positive mindfulness (Bennett et al., 2016; Feehan et al., 2017). In other words, they seek to improve their well-being. At the same time, patient information should be high in quality and easily accessible (Erickson et al., 2019). While adding narratives to factual evidence-based patient information seems to be a promising strategy to satisfy these informational needs (Bennett et al., 2015) and to support patients' well-being, guidelines do not recommend narratives in patient information (Elwyn et al., 2006; Shaffer et al., 2021). In order to address this conflict, we consider the criticism of narratives in detail.

Critical arguments against using narratives in patient information

Guidelines and recommendations for the development of patient information are skeptical about including narratives (Elwyn et al., 2006; Lühnen et al., 2017; Shaffer et al., 2021). They either do not recommend narratives at all (Lühnen et al., 2017), question their usefulness (Elwyn et al., 2006) or do not consider them as a required element (Bekker et al., 2013; Shaffer et al., 2021). The reasons for this skepticism can be seen in (1) the risk of persuasion biases and potential harmful effects, (2) limited evidence for beneficial effects of adding narratives to health information, and (3) the strict quality requirements for narratives in patient information. We will discuss these points in the following sections.

Persuasion biases of narratives in patient information

The first critical point of using narratives in patient information relates to its persuasive potential and the risk to cause biases in decision making and behavior (Winterbottom et al., 2008; Betsch et al., 2015; Haase et al., 2015; Drewniak et al., 2020). While a neutral comparison of two treatment options based on medical facts may help patients to weigh pros and cons, an emotional and engaging patient story about a decision for a specific treatment and against the other treatment options may persuade patients and prevent a rational weighing up of the two treatment options. Such a bias is contrary to guidelines for the development of patient information, and their standard to provide neutral evidence-based information without decisional biases (Bekker et al., 2013; Lühnen et al., 2017; Shaffer et al., 2021). Patients should be supported in informed decision

making by high quality evidence-based health information and protected from harmful effects due to negative persuasion effects (Shaffer et al., 2021).

Theoretically, the high persuasive power of narratives is explained with the potential of narratives to intensely engage readers or viewers with the story and to reduce defensive processes (for an overview see Bilandzic and Busselle, 2013) as well as to facilitate affective modes of information processing and risk decisions (for an overview see Shaffer et al., 2014). There is indeed a great amount of research showing the persuasive potential of health messages empirically, particularly in the context of primary health prevention and detection behavior on different outcome variables. For example, a systematic review by de Graaf et al. (2016) shows that narrative health messages are more influential for health-related behavioral intentions (for example intentions for physical activity) than control conditions (either statistical messages, or other non-narrative conditions) when a healthy behavior is depicted in the narratives. Similarly, a meta-analysis by Shen et al. (2015), two systematic reviews (Perrier and Martin Ginis, 2017, 2018) and a meta-analysis focusing only on Afro-American women (Ballard et al., 2021) found small but robust persuasion effects of narratives on health behavior and intentions for different types of detection and prevention measures.

The persuasive power of narratives is seen as particularly problematic when treatment decisions are biased, especially when this bias contradicts medical treatment recommendations (Haase et al., 2020), or when decisional conflicts are present (Syrowatka et al., 2016). A systematic review on computer-based decision aids shows that decisional conflict increases and knowledge decreases when decision aids include patient narratives (Syrowatka et al., 2016).

Even if such a bias does not automatically occur (Shaffer et al., 2014), there is ample empirical evidence that narratives may have unwanted negative persuasive effects (Winterbottom et al., 2008; Ziebland and Wyke, 2012). Several studies show that narratives about adverse effects may override statistical information on vaccination risks and thus negatively affect vaccination intentions (Betsch et al., 2011, 2013, 2015; Haase et al., 2020). Similar biasing effects of narratives overriding statistical information were also shown in the context of hypothetical treatment choices against angina (Ubel et al., 2001). Apart from this narrative bias in comparison to statistical data, single narratives have also been shown to unintentionally influence patients' decisions. In this vein, a newspaper story about rare side-effects of over-the-counter medication (Shaffer et al., 2018b), decreased readers' medication use. Relating to the source of the narrative, patient stories about dialysis modalities also have been shown to influence other patients' decisions more than treatment information provided by a doctor (Winterbottom et al., 2012).

Given the interplay of beneficial as well as unwanted persuasion effects, narratives are perceived as a double-edged sword: "while a compelling, persuasive narrative can save lives (for example by increasing uptake of cancer screening), an equally compelling, but misinformed, narrative can cost lives (for example decrease vaccinations)" (Shaffer et al., 2018a, p. 438).

Limited evidence for beneficial effects of adding narrative information

The second criticism of including narratives in patient information concerns the limited evidence of beneficial effects of adding narratives to patient information (Bekker et al., 2013; Lühnen et al., 2017; Shaffer et al., 2021). In this line of reasoning, narratives are typically compared to statistical evidence. Indeed, empirical evidence about the comparison of narratives and statistical information is mixed and effects vary for example depending on the dependent variables in question (Zebregs et al., 2015). For example, a meta-analysis by Zebregs et al. (2015) shows that narratives have a stronger effect on intentions compared to statistical evidence (Zebregs et al., 2015), which again is in line with the persuasive potential and the risk for decision biases. However, the effect is reversed for attitudes and beliefs (Zebregs et al., 2015). In contrast to this, a systematic review by Perrier and Martin Ginis (2017) does not find evidence for a greater efficacy of narrative health messages over statistical messages on intentions for detection behavior. The studies included in the systematic review only show an effect of narratives over no message conditions (Perrier and Martin Ginis, 2017). Similarly, a second systematic review focusing on health promotion behavior (Perrier and Martin Ginis, 2018) did not find evidence for differential effects of narratives and statistical information on health related attitudes as well as knowledge and only mixed evidence for effects on intentions (Perrier and Martin Ginis, 2018).

Given this limited evidence for a potential advantage of narrative over statistical information, and the risk for decision biases or unwanted persuasion effects, guidelines do not issue a recommendation for using narratives as an integral part of patient information (Lühnen et al., 2017; Shaffer et al., 2021).

High quality requirements

Developing evidence-based patient information is a complex process that involves meeting high quality standards overall (Lühnen et al., 2017; Shaffer et al., 2021). Consequently, compiling and editing patient stories for information materials requires a process that corresponds with these high quality standards and considers ethical guidelines in particular (Shaffer et al., 2021). Otherwise, patient stories run the risk of causing a distorted and unbalanced impression and may lead to negative psychological outcomes like confusion and anxiety, and ultimately to worse decision making (Ziebland and Wyke, 2012). Patients themselves emphasize the need of narratives

to correspond with high quality standards and report on the danger of unreliable or misinformation through patient stories (Osaka and Nakayama, 2017). In this vein, patients emphasize the relevance that patient experiences be precise, reliable, and balanced (Newman et al., 2009). In order to reflect these quality requirements, the checklist to assess the quality of patient information from the international decision aids standard collaboration (IPDAS), lists three additional criteria for information material including patient stories (O'Connor et al., 2005). Following these requirements, patient information using stories should include a declaration of potential financial benefits patients received for sharing their stories, provide evidence that patients agreed to use their stories and use a range of positive as well as negative patient stories (O'Connor et al., 2005). Regarding the content of the stories used, Shaffer et al. (2021) also recommend clarifying which elements of the IPDAS checklist the patient story supports as well as how narrative dimensions (for example narrators point of view, resolution) are presented (see also Thompson and Kreuter, 2014). In order to develop patient information including narratives it is therefore recommended to base the development on qualitative research, that enables detailed insights into patients' experiences, their needs and expectations (Lühnen et al., 2017; Shaffer et al., 2021).

In sum, the practical implementation process may be challenging and the effort should be in a reasonable relation to the expected benefit (Shaffer et al., 2021). Given that the expected added value is questioned by guidelines and recommendations, it follows that the costs for the implementation and development process are also questioned. This is in particular the case, when narratives need to be extensively recorded and edited; statistical data, on the other hand, is more easily available. However, this comparison of narratives and statistical information implies that both types of evidence have the same function and therefore can be used interchangeably. While this may be the case for narratives focusing on treatment outcomes and statistics (Shaffer and Zikmund-Fisher, 2013), stories giving insight into the inner world of patients, their feelings, thoughts and experiences of the illness may not be adequately be replaced by statistical information, for example frequencies of depression and anxieties.

Beyond persuasion effects of outcome narratives in patient information

Most ongoing discussions about using narratives in patient information are limited to specific health decision situations. The focus is on situations where treatment decisions are made and on narratives that provide information about treatment outcomes. However, various different purposes and types of narrative effects in health communication have been identified beyond persuasion, including for example patient engagement, provision of information, modeling behavior or providing comfort (for an overview see Green, 2006; Shaffer et al., 2018a; Drewniak et al., 2020). In this vein, research suggests that pulmonary embolism patients do not primarily lack information about specific treatments or patient experiences with these treatments but search for information that helps to improve their well-being (Bennett et al., 2016; Feehan et al., 2017). In order to address such needs, it is necessary to have (1) a multi-faceted view on narrative content beyond outcome-related narratives as well as (2) a differentiated concept of narrative outcomes.

Differentiating types of patient narratives and their specific effects

Shaffer and Zikmund-Fisher (2013) provided a taxonomy of narratives, differentiating outcome narratives, experience narratives and process narratives to reflect the various effects of narratives, their content and purpose. While outcome narratives directly address physical and psychological consequences of treatment decisions, and run the risk of causing unwanted persuasion biases, this is not the case for experience and process narratives (Shaffer and Zikmund-Fisher, 2013; Shaffer et al., 2013a). On the one hand, process narratives offer insights into processes and strategies patients use during their illness and in particular give information about decisional steps as well as cognitive decision dimensions. They are described as means to model patient behavior as well as to inform and engage patients (Shaffer and Zikmund-Fisher, 2013; Shaffer et al., 2018a). On the other hand, experience narratives focus on patients' experiences with a disease and emphasize feelings and thoughts related to how patients deal with their illness. As such, they are perceived as useful to engage and inform patients as well as to satisfy patients' emotional needs (Shaffer et al., 2013a, 2018a). However, empirical evidence about this assumed effect is rather scarce. So far, only one experimental study by Shaffer et al. (2013a) empirically tested the effects of these different narratives by contrasting process and experience narratives about breast cancer treatments. While process narratives motivated a more intense information search behavior, experience narratives enabled healthy women to imagine how the treatment can be experienced. These women also evaluated their hypothetical treatment decision more positively (Shaffer et al., 2013a).

Although studies comparing effects of different narrative types are missing, there are some empirical results supporting the assumptions by Shaffer and Zikmund-Fisher (2013) that specific types of narratives are useful to increase specific patient outcomes. Regarding the effect of process narratives, a study on narrative effects in web-decision aids about breast cancer showed that video narratives including process descriptions increased information search times (Shaffer et al., 2013b).

In terms of experience narratives, studies show that insights into patients' feelings and experiences of medical procedures can

reduce affective forecasting errors as well as negative emotions related to these procedures and their consequences (Angott et al., 2013; Shaffer et al., 2016). This is also true for studies using a combination of process and experiential narratives (Woudstra and Suurmond, 2019). Similarly, beneficial effects of narratives providing emotional insights have also been shown for restorative narratives (Fitzgerald et al., 2019). In contrast to a narrative that includes negative experiences, a recovery narrative about a cancer patient focusing on hope and strength decreases negative emotions and increases positive emotional responses of unaffected readers as well as their willingness to help patients with rare diseases (Fitzgerald et al., 2019).

Similarly, related to the concept of experience narratives, Kalch (2019) compared the effect of narratives that give intense insights into emotions and cognitions of patients (narratives high in experientiality) to narratives where these insights were reduced (narratives low in experientiality). For different types of prevention behavior (for example physical activity), narratives high in experientiality increase perceived emotions, identification as well as narrative engagement with the narratives and as a consequence also positively influence readers' self-efficacy about performing the preventive behaviors and intentions. In addition, various results on emotional narratives (narratives including emotional arguments or making emotions explicit) support the assumption that emotions in narratives increase their effectiveness (de Graaf et al., 2016; Shaffer et al., 2021). In this regard, emotional narratives are for example shown to decrease negative affect about colorectal cancer screening and to increase screening intentions (Gavaruzzi et al., 2018) or to reduce binge drinking intentions (Keer et al., 2013). While the results of these studies referring to experientiality or emotional narratives also point in the same direction as studies using experience narratives, there is one important difference: In these narratives, an outcome of specific procedures is included (for example screening decision and the relief afterwards) and they have a persuasive intent, thus they are not singular experience narratives but a mixture of outcome narratives and experience narratives. Similar to outcome narratives, they may again be at risk to cause biases in decision making. As shown in a study by Betsch et al. (2011), narratives high in emotionality that address side-effects of vaccinations increase risk perceptions more than narratives low in emotionality.

Summing up, using process and experience narratives seems promising to support patients' well-being. However, we do not know at this stage whether these are also the kinds of narratives that pulmonary embolism patients would like to read in information materials. We therefore ask the following research question:

RQ1: What type of narratives are patients interested to read in evidence-based information materials?

Well-being related effects of narratives in patient information

Most systematic reviews and meta-analyses focusing on effects of narratives in health communication typically classify effects along decision-related dimensions (for example knowledge), behavior-related dimensions (for example attitudes) and behavior (Winterbottom et al., 2008; Zebregs et al., 2015; de Graaf et al., 2016; Perrier and Martin Ginis, 2017). Effects of narratives in patient information related to the psychological well-being of patients, in contrast, are hardly considered.

Only two systematic reviews have included aspects of hedonic well-being (Rennick-Egglestone et al., 2019b; Drewniak et al., 2020). Focusing on health recovery narratives, a systematic review by Rennick-Egglestone et al. (2019a) identified two qualitative studies showing that recovery narratives about eating disorder (Thomas et al., 2006) as well about psychosis (Williams et al., 2018) have the potential to increase hope and decrease psychological distress. Similar effects of patient narratives on optimistic feelings were also reported by another qualitative study on health recovery narratives for a broad variety of psychological disorders (Rennick-Egglestone et al., 2019b) as well as a qualitative study on the role of patient experiences in health-decision making (Entwistle et al., 2011). However, Osaka and Nakayama (2017) did not find differences between an information booklet including patient narratives and a booklet without patient experiences on early-breast cancer patients' anxieties. Also, a systematic review by Drewniak et al. (2020) shows more heterogeneous results for the effect of narratives to reduce psychological distress and anxiety.

Even if research on specific effects of patient narratives on hedonic well-being is relatively scarce and heterogeneous, it is overall well-documented in literature that narratives have a great potential to evoke emotions consistent with the story (Green et al., 2004; Green, 2006; Dunlop et al., 2010; Volkman and Parrott, 2012). For example, narratives aimed at breast cancer awareness and screening behavior are shown to increase breast cancer-related fears, risk perceptions and mammography intentions (Kreuter et al., 2010; McQueen et al., 2011). Similarly, a study by Volkman and Parrott (2012) on osteoporosis narratives shows that expressed emotions (either positive or negative) in narratives result in an even more intense perception of the same expressed emotions by recipients. In addition, the potential of narratives for emotional coping was investigated in the context of self-effects, using narratives in different medical contexts, such as cancer care therapy (Carlick and Biley, 2004) or trauma therapy (Kaminer, 2006). Writing about one's own experiences has been shown to decrease patients' fears and anxieties and to increase positive emotions (Carlick and Biley, 2004).

Apart from such effects of narratives on hedonic aspects of well-being, a few studies also describe narrative effects on dimensions of eudaimonic well-being, especially regarding positive relationships with others. Different studies on mental health recovery narratives show that stories how other patients managed their illness creates a positive feeling of connectedness to other people and decrease feelings of loneliness in patients (Rennick-Egglestone et al., 2019a,b). Similar results were also obtained using qualitative focus groups on treatment decisions for different focal health issues (Entwistle et al., 2011). These results parallel research on online-support groups for patients that also emphasizes the role of other users' experiences to feel connected and supported (Ziebland and Wyke, 2012). However, at the same time, patients that are still experiencing mental problems may be disconnected from patients that already recovered (Rennick-Egglestone et al., 2019b).

Summing up, research on well-being related effects of adding narratives to health information material is relatively scarce and results are mixed. This may be traced back to the great variation of health domains and research designs. In particular, narratives are presented in very different settings and formats, but hardly any study exists that uses narratives as additional content to evidence-based patient information and investigates how these are related to the well-being of patients. We therefore ask the following research question:

RQ2: What functions related to well-being do pulmonary embolism patients expect from narratives in evidence-based patient information?

Methods

Design and participants

In this research, we collected data in a two-stage process conducting 26 semi-structured interviews with 20 different people (6 people participated in both rounds of interviews[1]). Participants were recruited *via* a PE-patient database (PE = pulmonary embolism) at a university hospital ($n = 16$) and social media ($n = 4$). We used reflexive thematic analysis (Braun and Clarke, 2006, 2022) to analyze all data. In stage one, we conducted 15 interviews from September to December 2020. We interviewed six female and nine male patients, 19–79 years of age. Participants had several different educational qualifications, ranging from "Hauptschulabschluss" (completion of junior high school) to baccalaureate (or similar). Patients suffered from PE between June 2012 and September 2020, three patients had two PEs, one patient had three PEs, 12 are still on anticoagulation drugs, and 11 have comorbidities, such as hypertension, coagulation disorder, psychological disease, diabetes mellitus or cancer. In stage two, we were able to interview 11 PE patients (of which six participants already participated in stage one) from June 2021 to August 2021. We interviewed six female and five male patients, 20–71 years of age where nine have a baccalaureate (or similar). Patients suffered from PE between July 2013 and September 2020, two patients had two PEs, eight are still on anticoagulation drugs, four have comorbidities, such as hypertension, coagulation disorder, psychological disease, or cancer. The first part of the interview dealt with general views of the patients on health literacy regarding PE, and the second part dealt with expectation toward information materials. For this paper, the second portion of the interview was used. Twenty-four interviews were conducted by teams of two–one researcher from the communication group and one from the epidemiology group (two interviews were only carried out by one interviewer). In all, four researchers were involved in conducting the interviews.

Procedure

The data were collected using an existing database of PE patients at a large hospital in Germany[2]. Patients in this sample had consented to be contacted for study purposes. For the first stage of interviews, we contacted the 100 most recently added patients in the database by mail. The PE patient database was only accessible through authorized personnel to ensure a confidential handling of all personal data. After agreeing to participate, a researcher contacted them to arrange the interview. We aimed for a sample of participants with diverse backgrounds and socio-demographic data. The theoretical sampling included variation in age groups, gender, formal education, presence of comorbidities, passage of time since their last PE as well as number of PEs suffered. Since PE patients are older on average, our sample was not as diverse as intended after the database recruiting process. Consequently, we recruited younger people through other channels. We posted a call for study participation on the Instagram page of the chair of epidemiology. We further contacted the administrators of

1 The study was part of a larger research project in which communication scientists and epidemiologists collaborated. Within this project we accompanied the process of creating and evaluating a patient information brochure. This process involved several stages of interviews. We collaborated with a large university hospital in Germany that maintains a database of PE-patients. Registered patients agreed to be invited to participate in different studies and self-select in case they want to participate. If participants met our inclusion criteria, we decided to allow multi-participation. In stage one of the interviews patients expressed their informational needs and wishes for the brochure. In stage two patients were exposed to a prototype of the brochure and their evaluation was captured.

2 Interviews were conducted in German. All citations from the interviews were translated with deepl.com and revised by the authors. For better readability, we mended linguistic irregularities.

a Facebook group and asked them to post our call for study participants. Additionally, a German influencer sharing her life with thrombosis posted our call on Instagram without any financial compensation.

If patients were not chosen for the first stage of interviews, we informed them that they were added to a waiting list for the next stage. Patients were offered the choice to carry out the interview in person ($n = 9$), *via* Zoom ($n = 4$), or *via* telephone ($n = 2$). If interviews were carried out in person, they were done at an office at the university hospital while complying to COVID-19 contact restrictions. After agreeing on a date and time, patients received information on the study and its goal as well as data privacy documents *via* mail. For stage two, we were able to contact patients of our waiting list who could not participate in stage one. Due to COVID-19 regulations we carried out $n = 7$ interviews *via* Zoom and $n = 4$ in person. All interviewees received 20 Euros compensation for participating in the interviews.

Interview material and data analysis

In our study, we asked PE-patients about their own experiences and the helpfulness of narratives to overcome psychological or physical barriers after leaving the hospital. In the first stage, patients were encouraged to express their own experiences and needs. They were asked whether patient narratives are interesting or considered helpful, and which of their own experiences they would share with future patients when dealing with post-illness life changes. We also asked patients about their ideas for a brochure and their informational needs that should be covered in a potential brochure. In the second stage, we provided patients with a prototype of a brochure (24 pages) that we developed in between the two rounds of interviews (example page see Supplementary Figure 1). The brochure summarized information on topics that patients have to deal with throughout their illness journey, for example diagnosis, emotional and psychological challenges, CTEPH and recidivism risk. Every chapter provided factual, evidence-based information as well as one ($n = 4$ chapters) or two ($n = 4$ chapters) patient narratives matching the topic of the chapter. All in all, $n = 12$ patient narratives were extracted from the first round of interviews, according to their fit to the respective chapter topic. All patient narratives used in the brochure are a mixture of experience and process narratives but not outcome narratives. While all experiences used are real-life experiences, we sometimes combined patient narratives from different patients into one (if they had similar experiences) to enrich the narratives. This is also declared in the brochure. Patients received the brochure before attending the interview and were asked to read the brochure carefully before the interview appointment. During the interview, we then asked again about the implemented patient narratives' helpfulness to deal with patients' challenges after suffering from PE. Interviews were transcribed by a professional transcription agency or student research assistants. Interview duration ranged between 20 and 75 min in stage one, and 40 and 100 min in stage two.

Data analysis was carried out by three researchers in collaboration following reflexive thematic analysis (Braun and Clarke, 2006, 2022) using MaxQDA software. Two researchers began with data familiarization. Since both authors attended the interviews themselves, inductive codes as well as notes were already assigned while re-familiarizing with the data. After discussing their impressions of the data and codes, the two researchers engaged in inductive and deductive coding of a set of interviews each. They discussed codes and problems throughout the process. Three authors then collaboratively generated initial themes by clustering codes after the first round of coding. The second round of coding was carried out a few months later by the same researchers who coded the first round. Again, they engaged in inductive coding, re-analyzing the existing codes, developing the existing themes, and adding new ones. Three authors then discussed the revised themes. Coding was done iteratively and repeatedly. Throughout the whole process, we revised the coding scheme, respectively. We worked with all interviews from stages one and two and analyzed them simultaneously. While in the first round we spoke hypothetically about a brochure for PE patients leaving the hospital which included patient narratives, participants in the second round worked with such a brochure, we developed in between the two rounds of interviews. During data analysis, we found that the themes were congruent between the first and the second round of interviews; they even complemented each other[3].

Results

Types of patient narratives

Throughout the interviews, we found that it is important to patients that a variety of patient narratives is presented: "Simply everything, positive, negative, neutral, simply everything. Because it is always so different. While I was in a hell of a lot of pain, my dad didn't feel anything. … There are different variations on how it can happen and if you only read about one variation, but you don't have it yourself, then you can't imagine how it is. So actually the more the better. That is definitely very helpful." (R1-P13). One patient described the diversity of patient narratives as a form of introduction round where the whole range of symptoms is presented showing the extent of an illness: "You are sitting in such a round, if I remember, at the

3 In the results section, we mark all quotes with R# - P#, which is a shortcut we use to anonymize our interviewees. At the same time these abbreviations help us to identify the person who stated the quote. R# marks the round of interviews, P# is the number we assigned to the respective participant.

round of introductions, you always have this comparison with your illness. So, with your disease, with one gentleman it was so similar, so he described how it developed, with the others it was completely different. But you can get a different picture, you can just skim this whole range of symptoms. Or you also store it [*note*: the information]." (R1-P2). This is extremely valuable to patients, because of the general lack of information they face after leaving the hospital.

Patients find it helpful to be provided with socio-demographic information of other patients, for example age, gender and how much time has passed since the PE, because it helps to compare themselves to them (see next section).

Regarding the content of patient narratives, patients are, on the one hand, interested in other patients' feelings after the PE: "How it happened and how you felt about it. Or above all, how you felt after the pulmonary embolism. I think that is perhaps always one of those things where many people who are discharged from the hospital are initially uncertain: What will happen next? And how will I feel, I don't know, 5, 6, 7, 8 months after the embolism?" (R1-P15).

On the other hand, they are also interested in the different milestones a patient reaches during recovery, especially when they struggle with certain things: "How the patient fared after all that stuff, after treatment or after rehab and so on. How he continued or how things improved." (R1-P5). Or, "Yes, my God, how does it go on now for the time being? And can I go back to work normally at all? And also go to work at all with the anticoagulation and so on and immediately. No? Those were the first points where it was a bit difficult for me. Where I thought: Yes, and who will answer all this for me now?" (R1-P15).

Patients find narratives that give insight into other patients' emotions and treatment experiences as helpful to get a sense of manifold illness experiences: "I don't know anyone who has more severe limitations due to a pulmonary embolism. It would be very interesting to find out how it is with people who were saved just before they died and what limitations they have. Be it physical, mental, psychological or whatever, how they are treated with medication. So, I have to say, I would be interested if you could read about that somewhere." (R1-P2).

While most patients would agree that it is important to represent several courses of illness in patient narratives and that successes as well as setbacks should be reported, it is important that the general message of patient narratives is positive and shows that setbacks or problems can be addressed: "The setbacks are very important. Because, as I said, not every day is like the other. And if I only read reports where it goes, oh great, after 3 weeks this worked, after five this and today everything is like before, that's not helpful. So, a healthy mixture would be good. … I mean, a brochure like this shouldn't just talk things up. It should really inform and also show what can still happen." (R1-P10).

This interest in process and experience narratives is also reflected in the narratives patients like to share. When searching for narratives to include in the brochure for the prototype that should be used, no outcome narratives were shared by patients but instead a great amount was a combination of process and experience narratives. Referring to a variety of topics (including diagnosis, symptoms, treatment procedures, rehabilitation, physical and psychological limitations, daily living), most patients consequently tended to describe how they experienced and managed existing challenges, made progress and give insights into their feelings during that process: "For me, this sounds a bit strange, but for me it was actually a relatively pleasant disease. Because once you have it, once it has occurred, then the therapy is actually relatively clear. … it doesn't need any intervention, so you don't need a surgery or anything like that. That was my first concern, because that was my first hospital stay at that time. I thought, oh God, if I go to the hospital now, will they open my lungs or what are they going to do? So, there is, I have to say, no panic at first. If the diagnosis is there and if you have survived the first moment, then it is actually a disease that is relatively easy to live with, compared to many others. And yes, otherwise the only tip is really not to go crazy, so don't think about it any further." (R1-P3) Or: "And I think that's also very important, that even if you don't feel like doing something, you say to yourself: 'I just want to put my feet up and do nothing'. … Be lazy. So, after this was actually a near-death experience / I take a lot of things no longer so important. I think to myself: 'In the past I would have been upset about it. No. I don't get upset about it at all now.' … Be a little more calm. Appreciate life a bit more." (R1-P7).

This mixture of experience and process narratives often refers to the time after hospital release: "I was discharged immediately after the diagnosis, heparin injection in, catheter out, intravenous line out and then sent home. And the next day then to the general practitioner, so from there it was already very strange to be sent home again with this diagnosis and it occupied my head quite a bit. Not that evening, but afterwards, because you become so aware that you have just jumped from the brink of death, because pulmonary embolism is also a fairly common cause of death. So for me it was in any case psychologically difficult. I struggled with it quite a long time or even still struggle with it now." (R1-P1).

In addition, a few narratives had a clear focus on the process only. In particular, some male patients had a stronger focus on different steps in the treatment process and their recovery without giving much insights into their feelings: "I would just say that you go to a lung specialist once a year or once every 2 years. So you go to a specialist and just have it checked again. And what would be important is that you pay attention to any symptoms. The simplest example is, you can't get up a flight of stairs anymore. That stays in everybody's mind when you walk up one floor and stand at the top and pump for 2 min. So these have to be warning signals that everyone should have in mind. That's what I would pass on." (R1-P2) Some patients just list steps to follow: "Stay positive, stay active, get out, get in

TABLE 1 Themes and definitions.

Theme	Definition
Motivating self-reflection and reflection on the recovery process	Patient narratives stimulate thoughts about their own experiences with the disease and show possible future scenarios during their recovery process. They motivate patients to engage in self-reflection processes.
Reducing the feeling of loneliness	Patient narratives reduce the feeling of loneliness and give a feeling of connectedness to other patients. They show patients that they are not the only person with PE.
Reducing emotional distress	Patient narratives elaborating on other patients' experiences support patients in coping with negative self-oriented emotions and gaining a positive view.
Inspiring mindful mastery	Patient narratives give a feeling of purpose in life, motivate mindfulness and inspire patients to live a healthy life.

nature, get general information, like I said, check blood levels, watch your diet more, maybe reduce weight a little bit and that's it." (R1-P6).

Only when directly asked about psychological consequences, some of the patient stories have a clear focus on emotional insights, for example "Before I suffered from PE, I was 20 years old, I was athletic, I was fit, and now I felt like an 80-year-old woman and that's because you can't get up and you have to take breaks every few steps… you just don't feel like yourself anymore." (R2-P4).

Functions of patient narratives

Based on thematic analysis, we identified four functions related to well-being that patients ascribe to narratives in evidence-based patient information: (1) motivating self-reflection and reflection on the recovery process, (2) reducing the feeling of loneliness, (3) reducing emotional distress, and (4) inspiring mindful mastery (see Table 1, see Supplementary Table 1 for codes and themes).

Motivating self-reflection and reflection on the recovery process

A truly recurrent theme within the interviews is that patient narratives provide references so that patients can compare others' situations to their own: "I can imagine that when I read such a report [*note*: patient narrative] from someone else, I could imagine, oh yes, that sounds almost like me. I can imagine that it is helpful for a patient. If it says, oh, I dealt with it this way, and the other person describes how he or she dealt with it that way, then I, as the person affected, can somehow say, yes, that's how it was for me too. … Yes, I can imagine that some people can get help from that, yes." (R1-P8). As consequence of these comparisons, a reflection on personal well-being becomes possible: "And then you can also assess your own, your own well-being. Because that is exactly the problem. You can't always assess it. And then I see 'ah yes, that's quite normal,' 'ah yes, that's actually quite normal for this phase"' (R2-P8).

Comparisons with other patients through patient narratives are perceived as helpful to reflect their own recovery progress: "So I had a very severe embolism, I could no longer do anything, neither walk and talk, have had to learn everything again, but then you see already, it's okay. Some [people] need longer, with others it goes faster. They [the narratives] already describe how it is at the beginning, how you feel." (R2-P3). In this vein, patient narratives give a feeling of development and self-assurance of what is possible: "They are highly interesting. So, I found personal examples highly interesting that show how to deal with it, what you can achieve and how far you can get as well." (R2-P6). In this vein, patients emphasize the motivational potential: "And as I said, hearing how others cope sometimes gives a bit of a push." (R1-P10) or "Hey look, they did this; look, they are doing this; look, there is a field report, they did this. Well, some of them have died, which is not so nice, of course. But you can also see that the brochure motivates. Because you have these reports from people who have managed to get back on their feet to some extent." (R2-P3).

These insights into other patients achievements and their development are in particular perceived as helpful for the time following hospitalization: "who is just now being discharged from the hospital with a pulmonary embolism" I think it's more important for him to rather see 2, 3 years [from now], …, because if he has achieved that, then the other things are also, is nice to have, …, but for him it's more important to know, it takes time, but I can, …, in a year's time, if everything goes well, also climb the stairs normally again to the fourth floor or so." (R1-P1). But long-term experiences too are perceived as useful in this regard: "What I also found interesting was to see how long ago these people had the pulmonary embolism. And to see once again how long-term consequences can actually play out, so, yes, I think it's a very good thing in itself." (R2-P10).

However, for references to be helpful they must include socio-demographic as well as meta-data (for example severity of PE, time of PE). This helps patients to categorize the impressions and predict how long it might take to be able to get back to their everyday life, for example hobbies: "It has to be backed up a little bit with data, especially if it's such a severe course and it's, let's say, after half a year he was able to climb stairs again wonderfully,

for example. After 2 years he is doing five-kilometer runs, for example." (R1-P1).

Reducing the feeling of loneliness

A second recurrent function of patient narratives is their potential to reduce the feeling of loneliness: "What I found totally great … is that you included the experiences of pulmonary embolism patients. That still gives you the feeling that you are not the only one who has been around with this disease at some point, so I found that very appealing. I enjoyed reading these. I then took the brochure again at some point and went through all the green boxes again [authors' note: patient narratives were presented in green boxes in the brochure]." (R2-P2). In order to reduce the feeling of loneliness, it does not matter, whether the other patients have the same type of PE: "I think that it conveys that there are other people who have had the same symptoms, but with different manifestations or a different degree of severity." (R2-P5). This is supported by another patients' statement: "Yes, I would definitely like that, especially because it means that you don't feel alone. You see, it hits different people, especially when people of different genders, different ages are presented. Then you see: 'I'm just one of many and there are many others who struggle with this."' (R1-P12).

The potential of patient narratives to provide references to other patients and thus reduce the feeling of loneliness is experienced as support by patients: "Exactly, so I also think it's important because when you read a brochure like this, you immediately think to yourself 'okay, there's also someone else who had to go through something like this and … I'm not the only person in the world who now has to take medication for life'. It's nice when you get a bit of support like this" (R2-P9). In this vein, patients indicate that the patient stories provide a psychological benefit: "For me, the personal burden was simply because I couldn't categorize this illness at all. And because there was nothing, I think a brochure like that, you really shouldn't underestimate it, is something that gives you a certain support. And if I get that kind of support, then it doesn't become as much of a burden psychologically as if I feel left alone." (R1-P14). One patient even went so far as to say that he considered patient narratives in patient information material as a substitute for a support group: "I don't go to a support group. I don't need to. I've been alone all my life, in charge of a huge engine room, with no one to ask, …. That's what I have your brochure for." (R2-P11).

Reducing emotional distress

The third theme is the potential of narratives to reduce emotional distress. Patients expect that the brochure with patient narratives reduces fear and anxiety by providing a first-hand account of living a life with PE: "Because you often have no idea what's going on. And if you can read a little bit about it, it often takes the fear out of it. Because often people are afraid: 'What now? What happens next?' If you can already read something, then it simplifies the whole thing a bit." (R1-P13).

This aspect of reducing fear was also emphasized when patients were asked what experiences they would like to share with other patients: "that they should not worry so much in this respect." (R1-P15) or "But do not ascribe too much [authors' note: attention or meaning] to the experience of a pulmonary embolism, otherwise you will of course also go crazy in everyday life. Because, then you pay attention yes at every step, if you cough or take a deep breath once and that does not work out so properly, then you can panic." (R1-P9).

Patient narratives giving insight into other patients' emotions are also described as source of positive feelings in readers: "If someone else says, I feel the same way, then that gives me a good feeling and then I don't need to spend my energy on something like that, because it's quite normal that I have this emotion." (R1-P14).

In addition, patient narratives are also described as source for self-confidence that enables patients to regain trust in the self and the body: "That gives you security again, because I just lack a bit of security. You've lost trust in your body at the moment and now you have to get security again and create trust again. And that's where I think this brochure absolutely contributes." (R2-P8).

Inspiring mindful mastery

We identified the fourth theme, inspiring mindful mastery, when patients were asked about their most relevant patient experience they would like to share. Several patients emphasized the need to communicate in patient stories that life goes on and the disease should not take over: "And that giving up is simply not a solution, yes, definitely. That's the worst thing you can do, to give up, yes, that would actually be the most important thing I would say to him (laughs)." (R1-P13) or "Yes. Go on living your life as it was before. Get through the disease … and then continue to live your life simply. Don't let it get the upper hand. It must never get the upper hand, it must simply run with you. And you can't lose yourself, you have to look in any case that you continue." (R1-P7) or "Maybe that you should already notice the signals of your body, but that you should nevertheless quickly try to resume your old active life." (R1-P15).

In this vein, it is also perceived as important to communicate a positive mindset about life in patient stories: "So when I'm in a good mood, I try to pull the positive out of the whole thing in terms of the psyche. Then I say to myself: 'Okay, I'm going to live with this or I'm going to have to live with this and I'm going to make the best of it."' (R1-P2).

Others emphasize the relevance of mindfulness and relaxation: "Be a little more relaxed. Appreciate life a little more." (R1-P7) or "Above all, that this was good, that you have discovered this [the PE] now and that you could help and that

this is now again a beginning to look back at yourself and practically, life goes on, but with a little more attentiveness to yourself." (R1-P11).

Discussion

This study is the first to investigate patients' perceptions of narratives in evidence-based patient information material for tertiary prevention of pulmonary embolism patients.

Promoting the well-being of pulmonary embolism patients is important after hospital release. Therefore, providing evidence-based patient information that include patient stories may be a first step in order to support post-hospital care. However, given the risk to bias patients' decisions as well as limited evidence for beneficial effects, their inclusion is contested (Shaffer et al., 2021). Two shortcomings of this critical view are identified: (1) the focus on persuasive effects of outcome narratives in decision situations as well as (2) the dominance of classical persuasive outcomes, such as intentions, attitudes and knowledge. Adding on this ongoing discussion, this paper argues that process and experience narratives (Shaffer and Zikmund-Fisher, 2013; Shaffer et al., 2013a) may be in particular influential to support patients' well-being. In order to explore this assumption, our aim was to identify what types of narratives patients find helpful in patient information and what well-being-related functions these narratives fullfill from patients' point of view. We therefore interviewed 20 patients who informed us about their own struggles with pulmonary embolism and the role of narratives in patient information.

Overall, patients were grateful for the narratives provided within the prototype of patient information material. A broad integration of very different narratives that reflect the heterogenous sociodemographical background of patients but also their various disease processes was perceived as important. In this vein, patients were not so much looking for one exemplar that best represented their own experiences, but appreciated the full bandwith of possible illness phases and progresses. Given that former research on the role of similarity and character-related engagement processes (for example self-referencing, identification) in patient information (de Graaf, 2014; Ooms et al., 2019) typically focuses on only one character or exemplar, research is needed that investigates such processes when multiple characters are present.

Regarding the type of narratives, we find evidence that patients appreciate insights into the recovery process, which steps other patients had to take and whether they succeded or not, as well as their feelings and emotions. This corresponds well with the understanding of process and experience narratives (Shaffer and Zikmund-Fisher, 2013). These narrative types also mirror the stories patients would like to pass on to other patients. However, both types of narratives are usually mixed in our patients' stories. This raises the question if sole descriptions of a treatment process without a description of experiences during that process or descriptions of experiential insights without any process elements are typical for real patient stories.

For some specific types of content, it seems plausible that patients have a more profound focus on one of the two types (for example when decribing their treatment procedure, a focus on process was recognizable). However, for most topcis patients addressed themselves, these facets were intertwined. Thus, research is needed investigating the relationship of those narrative types in more detail and disentangling their combined effects from their distinct effects.

While we are not able to answer the question of negative or positive effects of such narratives on patients' well-being directly, we are able to illustrate different functions that patients expect from narratives in patient information. By using thematic analysis, we identified four main functions of patient narratives patients emphasized: (1) motivating self-reflection and reflection on the recovery process, (2) reducing the feeling of loneliness, (3) reducing emotional distress, and (4) inspiring mindful mastery.

Comparing the four functions to aspects of hedonic and eudaimonic well-being, we detect parallels. Motivating self-reflection and reflection on the recovery process was the most overarching topic patients associate with narratives. In particular, insights into the progress of other patients were perceived as important for patients, as these were evaluated as motivational cues and supported a positive evaluation of future developments. The focus on the developmental perspective has parallels with personal growth as sub-dimension of eudaimonic well-being and its emphasis on openness, new experiences and continuous growing in contrast to stagnation (Ryff and Keyes, 1995). Given that medical research so far has predominantly focused on negative aspects of hedonic well-being of pulmonary embolism patients (Klok et al., 2010b; van Es et al., 2013; Tran et al., 2021), it is remarkable that the most relevant aspect detected in the interviews relates to dimensions of eudaimonic well-being.

Reduction of loneliness, the second function identified, covers patients' perceptions that narratives from other patients help to feel less alone with the illness but as part of a community. In some cases, this need was so strong that patients stated that they read the stories several times for this reason. The relevance of narratives for connectedness and feeling less lonely is in line with prior research on mental health (Rennick-Egglestone et al., 2019a,b) as well as treatment decisions (Entwistle et al., 2011). However, less is known about how connectedness is established. Further research therefore should investigate whether the connectedness patients experience is based on processes of parasocial interaction (Horton and Wohl, 1956) that are hardly investigated for health contexts. In addition, it is a worthwhile goal to seek for connections between parasocial interaction and eudaimonic well-being. While the patients in our study could not feel a real sense of connectedness, because there is hardly any PE-community they could feel connected to, our results

stress the potential of narratives as a substitute for in-person interaction. Even if such parasocial interaction processes are different to intense social interactions, they may help patients with their loneliness.

The theme reducing emotional distress has a clear reference to hedonic well-being. It includes the potential of narratives to reduce negative affective states, such as anxiety and illness-related fears, but also to induce more positive feelings about the illness and the recovery process, in particular hope. This finding is in line with existing research in other health domains showing that narratives may decrease negative illness-related emotions and increase hope (Entwistle et al., 2011; Rennick-Egglestone et al., 2019a,b). Related to these positive feelings, patients also referred to the potential of narratives to regain trust and increase self-confidence in their own body. This may add on patients self-acceptance as aspect of eudaimonic well-being (Ryff and Keyes, 1995; Ryff, 2018).

Giving the high levels of depression and anxiety in pulmonary embolism patients (Liu et al., 2011; Chuang et al., 2019; Erickson et al., 2019), this reduction of emotional distress function seems promising to help patients suffering from a reduced mental health related quality of life (Klok et al., 2010b; van Es et al., 2013; Kahn et al., 2017; Erickson et al., 2019). Further research should also elaborate on the potential of patient stories for patients still suffering from post-traumatic stress-disorder due to pulmonary embolism. Interestingly, assumed relationships with hedonic and eudaimonic aspects of well-being are strongly intertwined in patients' descriptions, which questions a strict dichotomy of hedonic and eudaimonic well-being (Disabato et al., 2016). This relationship of both aspects is also in line with empirical results showing that eudaimonic and hedonic well-being are highly correlated and do not have a high discriminant validity but rather relate to well-being as a single overarching construct (Disabato et al., 2016).

Inspiring mindful mastery, the fourth function, includes the assumption that narratives can transport a positive message and support the appreciation of life even in the face of illness-related barriers. This may be related to purpose in life as part of eudaimonic well-being (Ryff and Keyes, 1995; Ryff, 2018). Given that research about well-being related aspects of pulmonary embolism patients already shows that patients tend to positively re-evaluate life as the recovery process is progressing (Hunter et al., 2017, 2019; Rolving et al., 2019), it is interesting for further research whether patient narratives have the potential to speed up this process. Particularly patients having difficulties to keep up with their daily lives and to accept their situation (Noble et al., 2014) are assumed to benefit from this function of patient narratives.

Even if we focused our research on pulmonary embolism, it seems plausible to assume that similar results are observable for other life-threatening diseases, where first-hand experiences are scarce. In particular directly after hospital release patient narratives may benefit from first-hand insights into a patient community to which patients may connect to and the potential to provide emotional release. Furthermore, we assume that they play a key-role in starting the self-management process of various diseases by motivating reflection and by providing inspiration about how barriers could be mastered.

In sum, all four identified topics show references to well-being related dimensions and thus may be helpful as elements in patient information. However, patient interviews cannot provide evidence for causal effects of patient narratives on well-being related dimensions, and this is the most relevant limitation of our research. In order to explore effects of narratives, future research should use experimental designs and test the effects of narratives for the four functions we identified. A second limitation refers to the cross-sectional character of both interview waves.

Overall, patients appreciate process and experience narratives. Using such narratives in evidence based-patient information that do not refer to treatment decisions but tertiary prevention and illness self-management, seems to provide an additional benefit for patients that is not covered by traditional persuasive outcomes.

Data availability statement

The datasets used in the analysis for this article are only available with restrictions. Participants of the studies did not agree to publicly share all their data. Requests to access the datasets should be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the Ethics Committee of the Augsburg University Hospital. The patients/participants provided their written informed consent to participate in this study.

Author contributions

AK: conceptualization, writing-original draft preparation, funding acquisition, and investigation. CK: methodology and results, investigation, and writing-original draft preparation. AA: writing-original draft preparation, investigation, and methodology. HB: conceptualization, writing-original draft preparation, funding acquisition, and supervision. SF: methodology and investigation. IK: conceptualization, funding acquisition, and project administration. All authors contributed to the article and approved the submitted version.

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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.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcomm.2022.990819/full#supplementary-material

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Testing the TEBOTS model in self-threatening situations: The role of narratives in the face of ostracism and mortality

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The TEBOTS model predicts that narratives are sought after more often in times of depletion. The present study aimed at expanding this idea by testing whether engagement with narratives is also intensified under self-threatening conditions. Further, we examined whether narratives can serve coping functions. In a 3(Threat: mortality salience vs. ostracism vs. control condition) × 2(Review of the narrative: positive vs. negative) online experiment (N = 228), we tested whether self-threats and the expectation towards the narrative increase entertainment experiences and facilitate self-serving attributions. The results demonstrated that self-threats and a positive review indeed increased the entertainment experience. Narratives could support coping with an *existential* threat through enhancing self-serving attributions. The findings are discussed in light of the TEBOTS model and its application in the context of self-threats.

KEYWORDS

self-threats, mortality salience, ostracism, narrative engagement, appreciation, transportation, identification, self-serving attributions

Introduction

Stories can influence many aspects of human communication—such as education, persuasion, entertainment, sense-making as well as attitudes and behaviors (Dodell-Feder and Tamir, 2018; Oatley and Djikic, 2018). Recent approaches have therefore attempted to theoretically embed the role of narratives in humans' identity work. Slater et al. (2014) argued that narratives can help the audience "temporarily expand the boundaries of the self" (TEBOTS). The TEBOTS model outlines that narratives provide their audiences with the potential to leave their boundaries behind and experience something beyond the daily constraints of the self. It refers to self-determination theory (Ryan and Deci, 2000) and argues that in real life, basic needs (i.e., the needs for autonomy competence, and relatedness) can only be satisfied to a limited extent. Media offer a way to expand these boundaries and satisfy these needs beyond the "usual" extent. Accordingly, the model suggests that narratives are sought after more frequently in challenging situations.

Whereas, the basic assumptions of the model mainly focus on the *frequency* of engagement with a narrative (= narratives are sought out more), it is also mentioned that certain situations can increase narrative engagement. For instance, the TEBOTS model found increased levels of both enjoyment as well as appreciation in response to narratives when self-control resources of the individual were depleted (Johnson et al., 2015). Further, transportation into the narrative was found to be a mediator for an increased entertainment experience (Johnson et al., 2015, 2016). That is, processes happening during exposure to a narrative (e.g., transportation) can then subsequently increase the overall entertainment experience (see also, Johnson et al., 2016).

Although the empirical work on TEBOTS focused on ego-depletion and self-affirmation so far, the original theoretical groundwork more broadly speaks about "identity threats" which concern personal threats as well as threats to one's social identity (Shedlosky-Shoemaker et al., 2011; Slater et al., 2014, p. 441). Thus, a narrative's potential to cope with a threat should only be fully exploited when engagement with it is facilitated (through raising positive expectations, i.e. a positive review). Facilitating the engagement with a narrative could thus especially serve the idea of TEBOTS, that is, narratives as a means to escape the boundaries of the self, thereby providing restoration from life's challenges and identity threats.

The present study thus aimed at adding to the growing body of research testing the TEBOTS model and more generally the beneficial effects of narratives by investigating whether narratives can serve as a coping tool (Wolfers and Schneider, 2021) in self-threatening situations. In the present research, to compare the effects of narratives for distinct threatening contexts, two examples of self-threats were studied: relational (here: ostracism) and existential (here: mortality salience) threats (Case and Williams, 2004). Whereas, relational threats predominantly and primarily attack one's need for relatedness, existential threats predominantly and primarily tackle one's need for control and autonomy. This study thus reports the results of an experiment that tested whether self-threats (independent variable 1, IV1) and expectations toward the narrative through a positive vs. negative review prior to exposure (independent variable 2, IV2) influence entertainment experiences and subsequent dealing with the self-threats.

Self-threats and media coping

Media use and ostracism

One of the worst threats to the self is perhaps a social or relational threat: Ostracism—"ignoring and excluding individuals or groups by individuals or groups" (Williams, 2007, p. 427)—was found to thwart four fundamental human needs (i.e., belonging, self-esteem, control, and meaningful existence; e.g., Williams, 2007, 2009). According to the temporal need-threat model (Williams, 2007, 2009), responses to ostracism occur in three stages: For human organisms, minimal signals of being ignored or socially excluded suffice to detect such a threat quickly, thereby leading to a universal evolutionarily evolved, and hard-wired initial reflex of social pain. Accompanied by negative affect and thwarted fundamental needs—belongingness, self-esteem, meaningful existence, and control—, this characterizes the *reflexive stage*. At the *reflective stage*, individuals think about their ostracism episode, try to interpret it, and find reasons for being treated that way. During this stage, people also form attributions about the reasons for being excluded.

Moreover, they apply coping strategies to increase need fortification (e.g., prosocial behavior aiming at re-inclusion). Prolonged exposure to episodes of ostracism causes feelings of alienation, helplessness, unworthiness, and depression (*resignation stage*). Whereas, the needs for self-esteem, control, and meaningful existence are more self-related, the belongingness need represents the need more linked to interpersonal relations among those four fundamental needs. As a threat to belongingness also reflects the core of the ostracism experience and thus conceptually differs from other need threats, in the present research, we concentrate on a threat to belongingness only.

Media use has been suggested and empirically tested to be a tool to cope with and restore the thwarted belongingness need in the reflective phase (Lutz et al., 2022). Not only can this be achieved directly (e.g., *via* social media to seek affiliation and find social support; for an overview, see e.g., Vorderer and Schneider, 2016) but also indirectly (e.g., *via* reaffirmed social representations or using social surrogates, e.g., Gardner et al., 2005; Derrick et al., 2009; Derrick, 2013; Gabriel et al., 2016). For instance, previous research has demonstrated that thinking or writing about favored television programs helps cope with belongingness threats (e.g., Derrick et al., 2009; Gabriel et al., 2017). More specifically, social surrogates like immersion into fictional social worlds (Mar and Oatley, 2008; Gabriel and Young, 2011) or parasocial relationships with media figures (for an overview, see Hartmann, 2017) as presented in novels or on TV help cope with threatened belongingness (for overviews, see Gabriel and Valenti, 2016; Gabriel et al., 2016). These mechanisms are in line with general theoretical assumptions about how fictional narratives impact the boundaries of the self (e.g., Green, 2005; Mar and Oatley, 2008; Slater et al., 2014), for instance, by creating links to past experiences (Green, 2005) or prompting simulations of various selves (Mar and Oatley, 2008). If such self-related processes are connected to social experiences, they may serve to fulfill the need to belong and recover from an exclusionary state. However, little research has paid closer attention to how feeling ostracized influences the engagement with and evaluations of fictional narratives. We are only aware of one study in the field of video games that

found no differences in enjoyment of playing a video game after being ostracized or not (Bowman et al., 2015). From a theoretical perspective, however, the TEBOTS model explicitly includes social threats and assumes that in time of social threats, people will use narratives more often (Slater et al., 2014, H3; Ewoldsen, 2021). It also suggests that stories can be more absorbing under self-threatening circumstances and that such an absorption into a story and identification with characters may provide postnarrative recovery from social pain and need threats (Slater et al., 2014, RQ1). These assumptions resonate well with those ideas about fortifying threatened belongingness needs that particularly focus on fictional social entities (e.g., parasocial relationships or fictional social worlds, see Mar and Oatley, 2008; Gabriel et al., 2016). Moreover, Slater et al. (2014, p. 443) argued that one way to restore threatened relatedness needs "is through the social relationships—with friends, lovers, spouses, family members, companions—vicariously experienced while identifying with characters."

However, it should be noted in this context, that threatened needs are not mutually exclusive and that self-threats do also threaten individual needs holistically and on several dimensions. Ostracism, for instance, not only thwarts the need to belong but also frustrates the needs of self-esteem, control, and meaningful existence, which all represent threats to the self. This makes it even more likely that narratives can also function as tools for coping with a social threat to restore threatened needs and elicit self-serving attributions.

Media use and mortality salience

Another ultimate threat to the self and a particular threat to one's existence is the salience of one's mortality. One prominent theory that explicitly deals with the issue of one's mortality is terror management theory (TMT; Greenberg et al., 1986).

The theory's basic assumption is that humans are threatened by thinking about life's finitude and try to cope with these disturbing thoughts through distraction or symbolic validation or defense of themselves (boosting their self-esteem), their close friends or partners, and/or their cultural worldview. According to TMT, people's central response to death-related thoughts is self-reassurance by making them a "valuable contributor to a meaningful, eternal universe" (Pyszczynski et al., 1999, p. 839).

The theory is empirically based on two main hypotheses that address the interplay of death and defense: (1) The mortality salience hypothesis and (2) the anxiety buffer hypothesis (Burke et al., 2010). The mortality salience hypothesis claims that after death reminders individuals have an enhanced desire to defend their cultural worldview, self-esteem, and close relationships (Greenberg et al., 1986). For instance, activating self-esteem is invoked to an increased extent after thinking about one's death (Mikulincer and Florian, 2002; Pyszczynski et al., 2004). Individuals completed more words as self-esteem-related in a word-stem task (Kosloff et al., 2010) and they evaluated positive adjectives faster than neutral adjectives when they should imagine these adjectives applied to themselves (Paulhus and Levitt, 1987).

The salience of one's own mortality also promoted a drive to increase self-esteem by promoting self-esteem-relevant behavior (Routledge et al., 2004; Goldenberg et al., 2005), more striving for self-esteem (Pyszczynski et al., 2004) and engaging in more self-serving biases (Mikulincer and Florian, 2002). Self-serving biases become apparent through how people explain the causes of success and failure (Fiske and Taylor, 1991). These causes may vary along three dimensions: locus (from internal to external attributions), stability (stable vs. unstable causes), and globality (global, that is across different situations vs. specific causes) (Abramson et al., 1978). A successful defense mechanism taking place should lead to more self-serving attributions, that is, taking credit for success (internally, stable, and globally) and denying responsibility for failure (Pyszczynski and Greenberg, 1987). This way of maintaining self-esteem has produced positive effects on emotions, cognitions, and behavioral functioning (Mezulis et al., 2004).

The anxiety buffer hypothesis reverses the logic of the mortality salience hypothesis by claiming that buffering structures shielding against the threat of death (i.e., cultural worldview, self-esteem, or close relationships) decreases the necessity to engage in further defenses in response to death-related thoughts (Greenberg et al., 1994). As an example, dispositional high self-esteem has been shown to reduce the necessity to defend one's worldview after triggering mortality salience (Harmon-Jones et al., 1997).

Research has already focused on linking existential threats to media use. Theoretically, Klimmt (2011) subsumed how issues of death and the own mortality portrayed in the mass media may influence situations in everyday life. According to his view, the awareness of one's mortality can increase the interest in media content that validates one's culture, one's self-esteem, or one's beloved ones (close relationships).

In a first experimental approach to study the effects of mortality salience on the response to (entertaining) media offerings, Goldenberg et al. (1999) compared an excerpt of a tragic story from a novel with a non-tragic one. As a result, participants in the experimental condition that elicited mortality salience reported being more touched by the tragic excerpt and reported less enjoyment after the non-tragic excerpt than participants in the control condition. The authors concluded that tragic media content could serve terror management needs by allowing recipients to confront themselves with life's finitude in a safe, fictional environment.

Based on these considerations, several authors hypothesized that media content may help people cope with the salience of their mortality by reminding them of deeper life meaning, or of the values and virtues that persist even after an individual's death (Klimmt, 2011; Hofer, 2013; Rieger, 2017). For instance,

Hofer (2013) showed that participants who were reminded of their mortality appreciated the meaningful movie more when they scored high on search for meaning in life. For enjoyment, the opposite pattern emerged in Hofer's study: Participants high in search for meaning in life reported less enjoyment of the movie after mortality salience. Relatedly, Rieger et al. (2015) demonstrated that people not only appreciated a meaningful movie more than other movie stimuli when confronted with death-related thoughts but that these individuals no longer exhibited the defense mechanisms proposed by TMT. After having watched a meaningful movie excerpt (as compared to a pleasurable or informative excerpt), participants no longer showed an increase in self-esteem activation (Rieger et al., 2015). One potential mechanism could be the vicarious meaning that eudaimonic content can convey: Das and te Hennepe (2022) found increased mixed affect only for movies with meaningful endings (compared to open endings). In this study, mixed affect was further associated with identification with the protagonist and boundary expansion. From a self-threat perspective, providing meaningfulness (e.g., through meaningful endings instead of open ones) could contribute to the restoration of a thwarted need for control (when confronted with death issues).

As a further indicator of the importance of the struggle between life and death in meaningful entertainment, Rieger and Hofer (2017) could show that when mortality was salient, appreciation and liking of the protagonist were highest, when the story informed about the survival of a protagonist after a severe disease. When the same story informed about the protagonist's death, appreciation and liking of this protagonist were decreased. Further, only the positive (survival) version of the movie stimulus could help in coping with death anxieties so that participants no longer showed increased self-esteem activation. In all of these examples, engaging in meaningful interactions or relationships—even with mediated characters—serves terror management needs and helps in coping with the thought of one's inevitable death. Narratives can therefore be regarded as a fruitful source of relief when self-threatening states become salient in everyday life.

Experiencing narratives in self-threatening situations

The idea that media content can help in challenging situations is mirrored in the TEBOTS model (Slater et al., 2014; Johnson et al., 2021). The model aims at explaining why people seek out narratives. It states that maintenance, defense, and regulation of the self in daily life are emotionally and cognitively demanding. In this context, narratives are supposed to serve as support and provide temporary relief from the task of self-regulation. The mechanisms through which narratives can unfold their beneficial effects are based on their capability to engage people's attention (Graesser, 1981) and their sympathies (Cohen, 2006). Consequently, TEBOTS postulates transportation (Green and Brock, 2002) and identification (Cohen, 2006) to be the main mechanisms driving a narrative's effect—in particular with regard to self-regulation:

> When we become absorbed or transported into a narrative, when we become emotionally and imaginatively identified with a character or characters, we are momentarily relieved of the task of maintenance of our personal and social identity. We are no longer confined to the roles, unrealized potentials, or limitations of that identity. We have temporarily expanded the boundaries of the personal and social self (Slater et al., 2014, p. 444).

Accordingly, TEBOTS predicts that narratives will generate greater transportation, identification, enjoyment, and appreciation when self-control resources are depleted (H4 within the TEBOTS model, Slater et al., 2014; see also H1–H4 in Johnson et al., 2015). Further, transportation and identification are defined as potential moderators or mediators for postnarrative restoration (H5 within the TEBOTS model, Slater et al., 2014). Empirical tests of the TEBOTS model supported the assumption that entertainment experiences (enjoyment, appreciation, and transportation) were more pronounced for individuals whose self-control resources were depleted compared to participants in a control condition (Johnson et al., 2015). Taking the reverse logic, a second study tested whether self-affirmed individuals would not show stronger entertainment experiences compared to individuals who were not self-affirmed. Self-affirmation theory (Steele, 1988) posits that affirming oneself with values that are personal relevant to the individual helps them to cope with threat or stress (Cohen and Sherman, 2014). The results demonstrate thatthose who were self-affirmed experienced less narrative engagement in terms of enjoyment, appreciation, and transportation—in line with the previous study. In both studies, identification did not yield significant results (Johnson et al., 2016).

Although identification did not serve as significant mediator in previous TEBOTS studies, there are additional theoretical arguments to assume that identification plays a role in the context of a narrative's potential to serve the management and restoration of self-threats. While Ott and Moyer-Gusé (2022) also state that narratives can serve as buffers against self-threats, they rely on self-affirmation theory and suggest self-integrity to be important for narratives to help in bolstering against self-threats. According to their study, vicarious self-affirmation can be achieved through identification with the protagonist.

Based on these initial findings, the current study aimed at expanding the findings to the context of self-threatening

situations. Therefore, it explicitly tackled the first research question stated in the theoretical TEBOTS paper: "Does the experience of absorption into a story and identification with narrative characters in fact provide a postnarrative restoration of self-control resources and relief of self-related anxieties and tensions (*Research question 1*)?" (Slater et al., 2014 p. 448).

Within this realm, storytelling was found to help people suffering from social isolation (Nyatanga, 2022). Relatedly, research on meaningful narratives also point towards the idea that stories can increase the feeling of connectedness with others (Janicke and Oliver, 2017; Oliver et al., 2018). Further, the TEBOTS model would predict greater narrative engagement in response to a narrative after having experienced a self-threatening situation (mortality salience or ostracism) compared to a non-threatening control context (H1). That is, we predicted increased transportation (H1a), identification (H1b), enjoyment (H1c), and appreciation (H1d) after experiencing a self-threat. Relatedly, we asked about the difference between existential threats (mortality salience) and relational threats (ostracism) in their influence on entertainment experiences (RQ1).

In light of TEBOTS suggesting temporary relief from the boundaries of the self through engagement with a story, facilitating such engagement might serve the potential for relief. A "facile" engagement would be visible in higher levels of transportation (see e.g., a meta-analysis by Tukachinsky, 2014). Previous research found positive vs. negative reviews to influence transportation and enjoyment (Bilandzic and Busselle, 2008; Shedlosky-Shoemaker et al., 2011; Tiede and Appel, 2020). This is explained by the fact that reviews shape viewers/readers expectations towards the narrative (Tiede and Appel, 2020), for instance in form of confirmation bias or the activation of genre-consistent schemata that facilitate processing of the narrative (Bilandzic and Busselle, 2008). We therefore asked whether providing a positive review prior to exposure enhances the chance of a narrative to serve restoration from a self-threat.

We hypothesized that encountering a positive review before reading a narrative will increase transportation (manipulation check; H2a), identification (H2b), enjoyment (H2c), and appreciation (H2d) concerning the narrative. We additionally wanted to know whether there are any interactions between experiencing self-threats and the nature of the review on entertainment experience (RQ2).

Additionally, to test whether narratives can be regarded as a coping tool (cf. RQ1 in the TEBOTS model), we aimed at examining whether the engagement with a narrative would restore individuals' selves after having been threatened. One defense mechanism that has been discussed in the literature as self-protective is self-serving attributions, which means, to attribute positive things to oneself as a person and negative things to external factors (Mikulincer and Florian, 2002). Hence, we asked whether narratives can serve as facilitators of self-serving attributions, and thus be regarded as "helpful" to cope with self-threatening situations (RQ3).

Materials and methods

Design and procedure

The study followed a 3(Threat: mortality salience vs. ostracism vs. control condition) × 2(Review of the narrative: positive vs. negative) between-subject experimental design (online experiment).

After giving informed consent, participants were asked to answer some questions regarding their self-esteem and their current state of threatened needs (Time 1, T1). Then they were randomly assigned to one of the three threat conditions. Threat was induced with the standard procedure (i.e., writing an essay) taken from mortality salience research (Rosenblatt et al., 1989) but also common in ostracism research (e.g., Pickett et al., 2004, Study 2; Greitemeyer et al., 2012, Study 1). Participants were either asked to write an essay describing the emotions that are elicited when they think about dying (mortality salience induction), about being ostracized (ostracism induction), or about going to the supermarket (control condition). Afterward, they randomly received either a positive or a negative review sheet about a short story and were then asked to read the story. As a narrative, we used the short story *The Three Questions* by Leo Tolstoy.[1] Following this, we asked the participants about their entertainment experiences (transportation, identification, enjoyment, and appreciation), and their current state of threatened needs (Time 2, T2)[2] and presented them with four situation scenarios to measure self-serving attributions. Afterward, they were asked to answer some questions regarding sociodemographics and were debriefed and thanked. In this last part of the questionnaire, we also integrated a suspicion check about the goal of the study.

Sample

A priori sample size was assessed with G*Power 3.1 (Faul et al., 2007). Our analyses involved different tests, thus we used the most conservative test (i.e., the biggest sample size needed; ANOVA with between-subject factor interactions) to

1 In Tolstoy's parable, a king wants to get answers to the three most important questions in life from a wise hermit. During their talk, a wounded man arrived and the king helps him to survive. Free text available at https://en.wikipedia.org/wiki/The_Three_Questions.

2 For the sake of brevity, the results (not significant) for threatened (restored) needs at T2 are not reported in this paper. They are available upon request.

calculate the sample size. As previous research has provided evidence for medium effect sizes (Johnson et al., 2015, 2016), we used $f = 0.25$ as the a priori effect size. Results of this analysis indicated that we would need $N = 251$ participants, given a power of 0.95 and an alpha level of 0.05.

Our final sample[3] consisted of $N = 228$ participants[4] (80.3% female, $M_{age} = 25.44$, $SD_{age} = 7.75$). On average, they had spent $M = 16.11$ ($SD = 3.56$) years in schooling.

Measures

Trait self-esteem

According to previous research, trait self-esteem can influence the experience of being ignored or excluded and subsequent coping strategies not only concerning self-esteem threats but to self-threats in general (e.g., Leary et al., 1995; Van Dellen et al., 2011). As potential covariate, trait self-esteem was measured with the German version of the 10-item Rosenberg scale (Von Collani and Herzberg, 2003) on a 7-point Likert scale ($\alpha = 0.90$, $M = 5.39$, $SD = 1.08$; 1 = *strongly disagree*, 7 = *strongly agree*).

Need threats

The four subscales of the need threat scale (Van Beest and Williams, 2006) were assessed. Since mortality salience should predominantly threaten the need for *control* (t1: $\alpha = 0.70$, $M = 2.57$, $SD = 0.76$) and ostracism should predominantly threat the need for *belonging* (t1: $\alpha = 0.68$, $M = 2.11$, $SD = 0.82$), these two subdimensions were analyzed for the purpose of this study as manipulation checks.[5] The need for *self-esteem* (t1: $\alpha = 0.75$, $M = 3.32$, $SD = 0.77$) and the need for *meaningful existence* (t1: $\alpha = 0.72$, $M = 1.74$, $SD = 0.76$) were additionally included in the manipulation check.

Transportation and identification

Transportation ($\alpha = 0.82$, $M = 4.51$, $SD = 1.09$) was assessed with seven items with 7-point response options from 1 (*not at all*) to 7 (*very much*), using the Transportation Scale–Short Form (TS–SF, Appel et al., 2015).[6] To measure participants' *identification* ($\alpha = 0.92$, $M = 3.80$, $SD = 1.21$), we used the 10-item scale by Cohen (2001) with 7-point response options from 1 (*totally disagree*) to 7 (*totally agree*). Transportation and identification were positively correlated, $r = 0.44$, $p < 0.001$.

Entertainment experiences

Enjoyment ($\alpha = 0.92$, $M = 4.29$, $SD = 1.46$) and appreciation ($\alpha = 0.90$, $M = 4.58$, $SD = 1.49$) were assessed with the Fun and Appreciation scales, respectively, with three items each (Oliver and Bartsch, 2010; Schneider et al., 2019). Participants responded to the items on a 7-point scale (1 = *totally disagree,* 7 = *totally agree*).

Self-serving attributions

Participants were asked to make their causal attributions of positive and negative events in a shortened version of the Attributional Style Questionnaire (ASQ; Peterson et al., 1982). To keep the length of the online experiment reasonable, this version of the scale consisted of four hypothetical events, two of which had a positive outcome (e.g., "You succeed in an important exam") and two of which had a negative outcome (e.g., "You fail to prepare a paper in the scheduled time"). Two events were interpersonal/affiliative in nature, two were achievement-related. Participants read each event, wrote down what they thought was the major cause of the event in an open-ended format, and then rated the extent to which this cause was internal, stable over time, global across situations, and of importance to the person. These ratings were made using a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). The ASQ has been found to differ regarding the reported reliability (see Peterson et al., 1982; Sweeney et al., 1986, for reviews). To test self-serving attributions in this study, means for self-serving attributions in positive situations ($\alpha = 0.61$, $M = 5.22$, $SD = 0.65$) and in negative situations were aggregated ($\alpha = 0.62$, $M = 4.31$, $SD = 0.78$).

Results

Manipulation checks

In order to test the success of our experimental manipulation (threat induction), we calculated a multivariate analysis of

3 $N = 292$ completed the questionnaire, $n = 22$ were excluded due no variability in the answers (see Meade and Craig, 2012 for discussion about careless answers in surveys), $n = 6$ were further excluded after inspection of the comments section.

4 The study was administered in an international course at the University of [name of University]. Students were asked to distribute the survey link among friends, peer students (who were not part of the course) and via social media. To acknowledge this international setting, we prepared three different language versions of the questionnaire. $n = 292$ filled out the survey in German, $n = 16$ in English and $n = 20$ in Spanish. Due to the inequality in sample size for different languages, this paper relies solely on the German sample.

5 The wording of the items in these two subscales are formulated in misleading/opposite ways: In the belonging subscale, higher values mean *more* threatened belongingness; in the control subscale, higher values mean *less* threatened control.

6 The scale usually consists of six items. Two items ask for having a vivid image of the characters. As there were three characters in our short story, we included the exact copy of Items 5 and 6 for this third character as well.

variance (MANOVA) with the four need threat subscales at T1. There was a significant multivariate effect, Multivariate $F_{(8,444)} = 2.90$, Wilks-Lambda = 0.90, $p = 0.004$, $\eta_p^2 = 0.05$. Follow-up univariate tests demonstrated that belonging [$F_{(2,225)} = 3.48$, $p = 0.032$, $\eta_p^2 = 0.03$] and control [$F_{(2,225)} = 3.48$, $p = 0.017$, $\eta_p^2 = 0.04$] were significantly different between conditions. Self-esteem [$F_{(2,225)} = 0.258$, $p = 0.773$, $\eta_p^2 = 0.002$] and meaningful existence [$F_{(2,225)} = 0.801$, $p = 0.450$, $\eta_p^2 = 0.007$] did not differ between conditions.

Pairwise comparisons (LSD) showed the direction of these differences: Participants in the ostracism condition ($M = 2.33$, $SD = 0.93$) had more threatened belongingness than those in the mortality salience condition ($M = 1.99$, $SD = 0.81$; $p = 0.012$) and the control condition ($M = 2.06$; $SD = 0.69$; $p = 0.046$).

Further, participants in the mortality salience condition ($M = 2.39$; $SD = 0.74$) reported more threatened control than participants in the ostracism condition ($M = 2.65$, $SD = 0.74$; $p = 0.035$) and those in the control condition ($M = 2.71$, $SD = 0.76$; $p = 0.007$). For threatened self-esteem, there were no significant differences between the three conditions (mortality salience: $M = 3.28$, $SD = 0.77$; ostracism: $M = 3.37$, $SD = 0.84$; control: $M = 3.33$, $SD = 0.71$, $ps \geq 0.48$). For meaningful existence, there were also no significant differences between all three conditions (mortality salience: $M = 1.79$, $SD = 0.75$; ostracism: $M = 1.78$, $SD = 0.83$, control: $M = 1.65$, $SD = 0.70$; $ps \geq 0.25$).

Based on these results, we deemed our manipulations successful. The ostracism induction (= relational threat) threatened participants' need to belong whereas the mortality salience induction (= existential threat) threatened participants' need for control. The manipulation check for review conditions (positive vs. negative) is checked through H2a.[7]

Hypotheses testing

Table 1 subsumes the correlations among all variables (zero-order correlations as well as partial correlations, controlled for trait self-esteem as this is a relevant variable for RQ2). To test Hypotheses 1 and 2, as well as RQ1 and RQ2, we conducted a MANOVA with threat and review serving as factors and the four scales measuring entertainment experiences as dependent variables.

The analysis yielded a significant multivariate effect for threat, Wilks-Lambda = 0.93, multivariate $F_{(8,438)} = 2.29$, $p = 0.021$, $\eta_p^2 = 0.04$ and a significant multivariate main effect for review, Wilks-Lambda = 0.95, multivariate $F_{(4,219)} = 2.72$, $p = 0.030$, $\eta_p^2 = 0.05$. The interaction was not significant, Wilks-Lambda = 0.99, multivariate $F_{(8,438)} = 0.22$, $p = 0.988$, $\eta_p^2 = 0.004$.

We calculated separate univariate ANOVAs in order to test the hypotheses. The results for all four dependent variables expressed the same pattern: Concerning transportation, there was a significant main effect for threat, $F_{(2,222)} = 6.66$, $p = 0.002$, $\eta_p^2 = 0.06$ and a main effect for review, $F_{(1,222)} = 5.63$, $p = 0.019$, $\eta_p^2 = 0.03$. The interaction was not significant, $F < 1$. A positive review ($M = 4.66$, $SE = 0.10$) resulted in higher levels of transportation than a negative review ($M = 4.32$, $SE = 0.10$). Pairwise comparisons (LSD) add to the picture that participants in the mortality salience condition reported higher transportation ($M = 4.83$, $SE = 0.12$) than those in the ostracism condition ($M = 4.40$, $SE = 0.13$; $p = 0.016$) and those in the control condition ($M = 4.24$, $SE = 0.12$; $p < 0.001$). Participants who received an ostracism induction did not report higher levels of transportation than those in the control condition ($p = 0.349$). The main effect for threat is depicted in Figure 1.

Regarding the reported identification, the data did not have a significant main effect for threat, $F_{(2,222)} = 2.29$, $p = 0.104$, $\eta_p^2 = 0.02$ but a main effect for review, $F_{(1,222)} = 9.37$, $p = 002$, $\eta_p^2 = 0.04$. The interaction was not significant, $F < 1$. Again, participants who read a positive review beforehand ($M = 4.02$, $SE = 0.11$) reported higher levels of identification than those who read a negative review ($M = 3.53$, $SE = 0.12$). Although the main effect for threat was not significant, we noticed a significant pairwise comparison (LSD) between the mortality salience condition ($M = 3.99$, $SE = 0.13$) and the control condition ($M = 3.60$, $SE = 0.14$, $p = 0.037$) which will be taken up in the discussion section (see Figure 1).

For enjoyment, there was a significant main effect for threat, $F_{(2,222)} = 3.18$, $p = 0.044$, $\eta_p^2 = 0.03$, but no significant main effect for review, $F_{(1,222)} = 3.73$, $p = 0.055$, $\eta_p^2 = 0.02$. The interaction again was not significant, $F < 1$. Upon inspection (although not significant), a positive review resulted in descriptively slightly higher levels of enjoyment ($M = 4.46$, $SE = 0.13$) than a negative review ($M = 4.01$, $SE = 0.14$). As far as the differences in enjoyment among threat conditions are concerned, only participants in the mortality salience condition ($M = 4.53$, $SE = 0.16$) reported higher levels of enjoyment than those in the control condition ($M = 3.96$, $SE = 0.17$, $p = 0.013$). There were no further significant pairwise comparisons between threat conditions, as the mean for participants in the ostracism

7 We chose to manipulate the "ease" of engaging with the narrative through providing positive vs. negative reviews about the narrative prior to exposure. As is argued in the paper, this manipulation is found to shape the expectation towards the narrative and increases (or decreases) narrative engagement, such as transportation. Further, in a meta-analysis, Tukachinsky (2014) found that manipulating narrative engagement (in this case: transportation) through meta-narrative information (such as positive vs. negative reviews) to provide small-to-medium effect sizes. In our study, transportation is also considered one of the main variables measuring narrative engagement as part of the tenets in the TEBOTS framework. We therefore mention that it is used to check whether our manipulation is successful but is mainly important to test our Hypothesis 2a.

TABLE 1 Zero-order and partial correlations among variables.

Control variable		1	2	3	4	5	6	7	8
None	1. Belongingness	–	−0.15*	0.00	−0.02	−0.07	0.02	−0.13^{+}	0.22**
	2. Control		–	−0.04	0.03	0.01	0.09	0.16*	−0.18**
	3. Transportation			–	0.44***	0.53***	0.49***	0.08	0.10
	4. Identification				–	0.47***	0.41***	0.18**	−0.04
	5. Enjoyment					–	0.67***	0.00	−0.07
	6. Appreciation							0.09	−0.03
	7. Self-serving attributions (positive)							–	0.02
	8. Self-serving attributions (negative)								–
	9. Trait self-esteem	−0.49***	0.39***	−0.03	−0.06	0.03	0.02	0.20**	−0.42***
Trait self-esteem	1. Belongingness	–	0.06	−0.02	−0.06	−0.06	0.03	−0.03	0.02
	2. Control		–	−0.03	0.06	0.00	0.09	0.09	−0.01
	3. Transportation			–	0.44***	0.53***	0.49***	0.09	0.10
	4. Identification				–	0.47***	0.41***	0.20**	−0.08
	5. Enjoyment					–	0.67***	−0.01	−0.07
	6. Appreciation						–	0.08	−0.03
	7. Self-serving attributions (positive)							–	0.12
	8. Self-serving attributions (negative)								–

$^{+}$p = 0.05, *p < 0.05, **p < 0.01, ***p < 0.001.

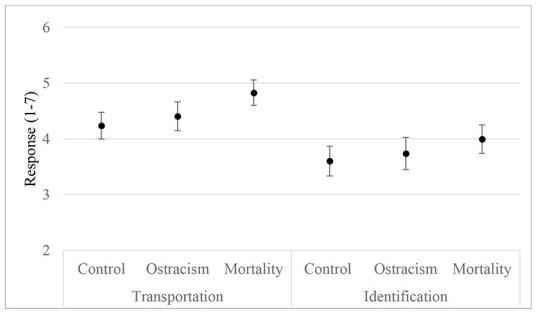

FIGURE 1
Differences between threat conditions for transportation and identification. Error bars represent 95%-CIs. The original scale ranged from 1 to 7.

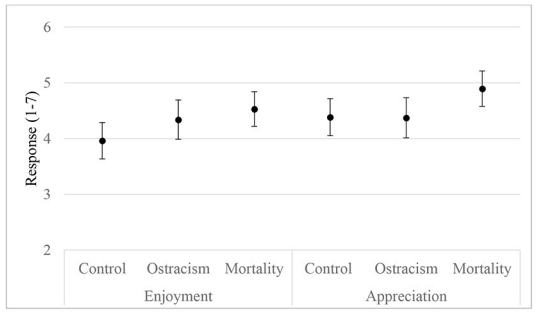

FIGURE 2
Differences between threats conditions for enjoyment and appreciation. Error bars represent 95%-CIs. The original scale ranged from 1 to 7.

condition ranged in between ($M = 4.34$, $SE = 0.18$). The main effect for threat is depicted in Figure 2.

As regards the reported appreciation, the data showed a significant main effect for threat, $F_{(2,222)} = 3.23$, $p = 0.041$, $\eta_p^2 = 0.03$ but not significant main effect for review, $F_{(1,222)} = 3.57$, $p = 0.060$, $\eta_p^2 = 0.02$ and no interaction effect, $F < 1$. Again, the descriptive picture (non-significant) demonstrated slightly higher levels for appreciation among those who read a positive review ($M = 4.74$, $SE = 0.14$) than those who read a negative review ($M = 4.36$, $SE = 0.14$). To understand the main effect for threat, we again inspected pairwise comparisons (see Figure 2). Participants in the mortality salience condition reported higher levels of appreciation ($M = 4.89$, $SE = 0.16$) than the ones in the ostracism condition ($M = 4.37$, $SE = 0.18$, $p = 0.033$) and the ones in the control condition ($M = 4.38$, $SE = 0.17$, $p = 0.030$). The other pairwise comparisons were not significant.

At this point, regarding Hypothesis 1, it can be stated that our data lend support for self-threats leading to (a) enhanced transportation, (c) enhanced enjoyment, and (d) enhanced appreciation. H1b (enhanced identification) was not supported by the data. As far as Hypothesis 2 is concerned, the data supports the assumption that a positive review facilitates (a) transportation and (b) identification. H2c and H2d regarding enjoyment and appreciation, respectively, are not supported by the data.

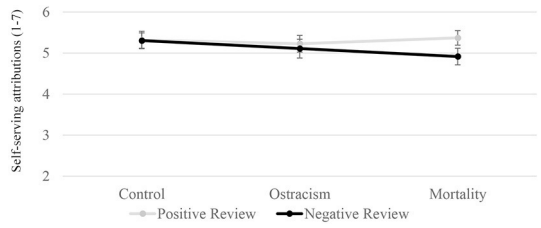

FIGURE 3
Interaction effect between self-threats × review on self-serving attributions. Error bars represent 95%-CIs. Covariate (trait self-esteem) across conditions M = 5.39.

To answer RQ3, we conducted a 3(Threat) × 2(Review) ANCOVA on self-serving attributions in positive situations, controlling for trait self-esteem. There was no main effect for threat, $F_{(2,221)} = 1.64$, $p = 0.196$, $\eta_p^2 = 0.02$. However, there was a main effect for review, $F_{(1,221)} = 5.50$, $p = 0.020$, $\eta_p^2 = 0.02$: Participants who read a negative review reported less self-serving attributions ($M = 5.11$, $SE = 0.06$) than those who read a positive review about the narrative ($M = 5.31$, $SE = 0.06$). The interaction between threat and review was not significant, $F_{(2,221)} = 2.71$, $p = 0.069$, $\eta_p^2 = 0.02$. Although not significant, we inspected the pairwise comparisons; these demonstrate that in the control condition there was no difference between both review conditions ($p = 0.917$). There was neither a difference in the ostracism condition ($p = 0.444$). However, in the mortality salience condition, there was a significant difference in self-serving biases between the positive ($M = 5.37$, $SE = 0.10$) and the negative review ($M = 4.92$, $SE = 0.09$) conditions ($p = 0.001$). The effect of the covariate (trait self-esteem) was also significant, $F_{(1,221)} = 10.55$, $p = 0.001$, $\eta_p^2 = 0.046$ (see Figure 3).

The same analysis was conducted with self-serving attributions in negative situations as dependent variable. The results speak for the same pattern, however less pronounced: There was neither a main effect for threat, $F_{(2,221)} = 1.82$, $p = 0.165$, $\eta_p^2 = 0.016$, nor an interaction effect between threat and review, $F_{(2,221)} = 0.27$, $p = 0.762$, $\eta_p^2 = 0.002$. The main effect for review was significant, $F_{(1,221)} = 5.39$, $p = 0.021$, $\eta_p^2 = 0.024$. Again, participants who read a positive review reported more self-serving attributions in negative situations ($M = 4.43$, $SE = 0.07$) than those who read a negative review about the narrative beforehand ($M = 4.21$, $SE = 0.07$). We again exploratively inspected the pairwise comparisons: A significant difference between positive and negative review was only found in the mortality salience condition ($p = 0.042$).

Discussion

The present findings suggest that the TEBOTS model can be applied to challenging phases in life, including self-threats: These enhance the entertainment experiences in response to a narrative in such a way that when experiencing a relational (ostracism) or an existential threat (mortality), individuals reported more transportation, enjoyment, and appreciation, thus supporting H1a, c, and d. The analysis for identification (H1b) was not significant. However, in answering RQ1, the data depicts the same clear trend for all four hypotheses: Entertainment experiences were especially pronounced for participants who had to deal with mortality salience as a self-threat. The findings support the original hypotheses from the TEBOTS model and thus replicate past research (Johnson et al., 2015, 2016) that also found enhanced entertainment experiences when engaging in narratives during "challenging" states. Further, our results also extend the idea of motivations for "entering the story world" (Slater et al., 2014, p. 439) (beyond self-control as hypothesized in the original model) by successfully applying it to self-threatening situations. It should be noted that our data fully support the assumptions made by TEBOTS only for mortality salience as self-threat. We will discuss later on what implications can be drawn from this differential look.

As far as the impact of a positive/negative review is concerned, a positive review could indeed facilitate transportation (manipulation check, H2a). Further, also identification with the protagonist was intensified after reading a positive review compared to a negative review. However, enjoyment and appreciation of the story did not differ. In sum, this supports H2a and b, but not c and d. Answering RQ2, there were no interactions between the type of self-threat and the expectations towards the narrative (through reading a positive vs. negative review prior to exposure). This lends support to the idea that self-threatening situations and expectations of a narrative work independently. Threats alone might be sufficient motivators for engagement with a narrative with no further need to raise expectations in order to increase narrative engagement. Nevertheless, it should be mentioned here that facilitating engagement (vs. hampering it) might be more important during longer exposures or when the surroundings make it harder to engage. The context of reading a short story should not be generalized to longer narratives and situations in which cognitive load could hamper the engagement (Das et al., 2017; Sukalla et al., 2020) or in which the narrative itself poses challenges (Bartsch and Hartmann, 2017; Hartmann, 2017; Rieger et al., 2022). Such challenges could include affective (including negative emotions like horror or gore or moral decisions and dilemmas) as well as cognitive (including complex content or structure).

Moreover, and thereby answering RQ3, it was demonstrated that managing a self-threatening state can be successfully coped with through a narrative. However, this was dependent on the expectation towards the narrative: Only after having read a positive review beforehand, did individuals engage in more self-serving attributions. It is—again—noteworthy at this point

that this effect especially occurred for individuals who were reminded of their mortality. For mortality salience though, it is in line with research testing the basic assumptions of TMT (Mikulincer and Florian, 2002) and with its application in the context of meaningful entertainment (Rieger et al., 2015; Rieger and Hofer, 2017).

However, more research is needed in this context: Our data lend only weak support for the idea that narratives can restore threatened needs and therefore facilitate self-esteem protection (and thus emotional well-being). First, our results slightly speak for the fact that not all threats are coped with equally. In our study, the results were more pronounced for mortality played a role in this process: For mortality salience as self-threat, our data demonstrate that narratives provide the potential to cope with this threat when the expectation towards the narrative is high (and thereby, transportation is facilitated).

For ostracism as self-threat, more research is needed. Even though this is only one small study, these first notions are in line with Ott and Moyer-Gusé (2022) who claim that narratives help in buffering against self-threats by facilitating self-integrity. In turn, self-integrity is only bolstered when the narrative provides the means for it: In their study, this was achieved through high identification with the main character.

Relatedly, research in the context of TEBOTS suggested boundary expansion as mechanism through which stories alleviate readers or viewers from the restrictions of the self (Johnson et al., 2016). On the one hand, insecurely attached individuals report higher boundary expansion through narratives (Silver and Slater, 2019). On the other hand, self-affirmation decreases boundary expansion through storylines. Boundary expansion, in turn, is associated with higher levels of enjoyment (Johnson et al., 2016). Thus, it seems that boundary expansion could also serve as coping mechanism in narratives for people experiencing self-threats and should thus be integrated in future studies in this context.

There is also the necessity to consider story characteristics more closely. In our study (and with our chosen short story), self-threats increased transportation, enjoyment, and appreciation. For identification, the results were less pronounced. This might reflect the nature of the story more than it does the nature of engagement after self-threat inductions. Ott and Moyer-Gusé (2022) for instance report a strong identification with the protagonist to be important for vicarious self-affirmation. As Table 1 suggests, identification could play a role in the context of engaging in self-serving attributions. In our study, the results for identification might be less pronounced because (1) we used a manipulation (IV2) tackling predominantly transportation and (2) the story is maybe not well-suited to create strong levels of identification. At this point, our study mainly corroborates that more research should focus on the role of identification in coping with self-threats (see also Rieger and Hofer, 2017).

Relatedly, the topics within our short story (death, being alone) reflect the challenges of mortality and ostracism as self-threats, thereby fostering "topic-consistent" engagement (see also Klimmt and Rieger, 2021). However, these topics might be less suited to cope with the threats and do not take the structural differences of both threats into account. Topics such as death and being an eremite fit into the realm of mortality salience and similar narratives were already used in previous studies (e.g., Das and te Hennepe, 2022). A story offering little social interaction or vicarious inclusion might be less suited in the context of ostracism.

Concerning the differences between a relational and an existential threat, effects seemed stronger for the existential threat (mortality salience) than for the relational threat (ostracism). This finding sheds some light on the idea that self-threats from different domains (belonging vs. control) require different buffers, respectively. For mortality salience, this study is in line with previous research that found narratives to be helpful when facing mortality (Goldenberg et al., 1999; Hofer, 2013; Rieger et al., 2015; Rieger and Hofer, 2017; Das and te Hennepe, 2022). Thereby, it supports the tenets of the TEBOTS framework. One pathway that can be taken from these studies is that thwarted need for control might find relief in narratives, especially when they provide room for control, for instance, through meaningful (Das and te Hennepe, 2022) or positive endings (Rieger and Hofer, 2017).

In contrast, research examining ostracism and media use has often focused on social media use (e.g., Vorderer and Schneider, 2016; Lutz et al., 2022). Thus, future studies should look at need fortification after being excluded and potential coping mechanisms that are available when engaging with narratives that more closely resemble (vicarious) social contact. Processes tackling interpersonal contact should work best against threats where belongingness is at risk or even thwarted and increase the restoration after ostracism as well, for instance, through higher levels of identification (Cohen, 2001; Frischlich et al., 2014; Ott and Moyer-Gusé, 2022) or parasocial relationships (Horton and Wohl, 1956; Hartmann and Goldhoorn, 2011).

Limitations

First, our sample was mainly composed of students (and being a convenience sample). Thus, the participants represent a rather young part of the general population. Research on TMT found the fear of death to increase with age (Martens et al., 2005; Taubman-Ben-Ari and Findler, 2005), and so did research on meaningful media content (Bartsch, 2012; Hofer et al., 2014). That is, the effectiveness of narratives in self-threatening situations should be expanded to (a) other (older) samples and (b) to real-life scenarios in which self-threats are not induced

through writing an essay but in more realistic situations in which relief (through narratives) might be helpful. One application could for instance be in-patient stays in hospitals in which often media consumption is the only option to distract from an illness or situations in which uncertainty (as another self-threat) could be high. While we do not assume that our results would be different with other age groups, they might yield stronger effects when the necessity to expand the boundaries of the self is higher (see e.g., Carstensen, 1992).

Another limitation is the way we induced the two self-threats. We induced both self-threats *via* an essay writing task, adapted from the original mortality salience induction. Typically, however, ostracism is induced using the Cyberball paradigm (Williams, 2009), which puts participants in an actual ostracism situation (i.e., playing a simple ball game with two other persons). This induction might be stronger and therefore also yield stronger effects than the ostracism induction we used (writing an essay about an ostracism event). Additionally, mortality is something future-oriented; therefore the classic induction also encompasses a future-oriented description of "what *will* happen when you physically die" (see Rosenblatt et al., 1989). Typically, ostracism is something past-oriented, that is, someone should write about a *past* ostracism episode. The difference here might lie in the amount that coping can already take place: Remembering a past ostracism episode means that the person has successfully passed that episode whereas the fear of mortality (and the moment itself) cannot be coped with. Future research could adapt the so-called future-alone paradigm, in which individuals in the social exclusion group receive a bogus personality feedback that they will spent their future life alone (e.g., DeWall and Baumeister, 2006) and which might be more comparable to the mortality salience induction.

Related to our discussion point that the chosen short story (and its plot) might be accountable for some of the effects, this speaks to a bigger issue of single-stimulus designs in communication studies. Using one single stimulus comes along with idiosyncratic effects (Slater et al., 2015; Reeves et al., 2016). That is, our results offer limited generalizability for other narratives and thus provide only initial first evidence for the use of narratives in coping with self-threats. This finding should be replicated with different narratives in order to rule out idiosyncratic story effects and potential matches or mismatches between the nature of a self-threat and the features of the story.

It should also be noted here concerning the explanation of our second IV that we did not measure the expectation towards the narrative directly and only refer to it because previous studies found the mechanism behind providing positive vs. negative reviews prior to exposure with the narrative to be the influence on expectations (Carstensen, 1992; Tiede and Appel, 2020). Our attempt was to manipulate the ease of narrative engagement. Based on a meta-analysis by Tukachinsky (2014), manipulating transportation *via* meta-narrative information (such as reviews about the narrative) provide small-to-medium effect sizes. Future studies should include items directly tackling whether expectations towards the narrative were affected.

As a last point, as regards the power of our online experiment, the results demonstrate rather small effect sizes and we did not fully achieve the sample size which would have been desired based on our a priori power analysis. That is, the first (weak) evidence should only be considered a fruitful starting point for further research on self-threats and narratives.

Conclusion

Taken together, the findings of our study elucidate that stories can serve as buffers against self-threats: In self-threatening situations (e.g., mortality salience or ostracism), reading a story increases narrative engagement. Further, when facing one's own mortality, reading a (positively evaluated) story facilitates the potential for self-serving attributions in order to cope with the threat. Thus, the results provide evidence for the power of stories in dealing with existential situations and support the assumptions of the TEBOTS framework.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation, in this location-https://osf.io/nc2qt/.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

Author contributions

DR and FS conceptualized and conducted the study together. DR performed the data analysis and wrote the initial version of the manuscript. FS contributed by providing feedback, suggested literature, wrote part of the theory, and re-checked the analyses. Both authors contributed to the article and approved the submitted version.

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.

Publisher's note

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Humor and poignancy: Exploring narrative pathways to face death and bereavement

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Themes of death and grief emerge in media entertainment in ways that are both poignant and humorous. In this experimental study, we extend research on eudaimonic narratives about death to consider those that are hedonic. Participants read a story about a woman giving a eulogy for her friend that was manipulated to be either poignant-focused or humor-focused, and answered questions about their responses to the story, feelings of connectedness with others, and death acceptance. The narrative conditions elicited similar levels of narrative engagement and appreciation, but the humor-focused narrative elicited more enjoyment than the poignant-focused narrative. Connectedness did not differ between conditions. However, the humor-focused narrative elicited more death acceptance when controlling for participants' personal loss acceptance and grief severity, and individual differences in the dark tetrad personality traits, trait depression, and religious upbringing. We tested these effects in an integrated path model and found that the model fit the data well and the narrative pathways explained variance in both death acceptance and connectedness. Our findings have implications for how death and grief are depicted in media entertainment: namely, that death is an inherently poignant topic and the addition of humorous elements in bereavement narratives may be especially effective in increasing death acceptance.

KEYWORDS

narrative, humor, poignancy, death acceptance, grief/loss, enjoyment, appreciation

Introduction

> *"Life is only worth a damn because it's short. It's designed to be used, consumed, spent, lived, felt. We're supposed to fill it with every mistake and miracle we can manage.*
>
> *And then, we're supposed to let go."*
>
> – Pierce's mom, *Community*

In the episode, "The Psychology of Letting Go" of *Community*, character Pierce copes with the passing of his mother by insisting that in fact she is not dead but vaporized and being stored in an "energon pod" (a lava lamp) until she returns in a couple of years. His friends are unable to convince him that his mother is really gone, but he later finds a recording that his mother made for him before she died. In it, she insists that she is

dead, not vaporized, and "that's how I like it." She asks Pierce to accept that, tells him she loves him, and says goodbye.

Communication scholars have long proposed that stories can provide safe and consequence-free realms for audiences to approach real-world topics, including those that are emotionally taxing (Mar and Oatley, 2008; Slater et al., 2014; Green and Fitzgerald, 2017; Menninghaus et al., 2017; Fitzgerald et al., 2019). A growing body of research has explored how narratives can offer opportunities for audiences to cope with the topics of death and grief (Cox et al., 2005; Rieger et al., 2015; Rieger and Hofer, 2017; Slater et al., 2018; Fitzgerald et al., 2020; Das and Peters, 2022). This research has primarily focused on eudaimonic media experiences such as self-transcendent narratives and how these experiences can help reduce the fear of death (Rieger et al., 2015), foster loss acceptance (Hofer, 2013; Slater et al., 2018), and increase feelings of connectedness with others (Janicke-Bowles and Oliver, 2017; Das and Peters, 2022). This work has clear implications for the well-being of narrative audiences, particularly among those who have experienced personal loss. Yet, it remains unclear whether these findings are specific to narrative experiences that are eudaimonic in nature (i.e., those that focus on poignancy) or if another type of narrative experience (i.e., hedonic, or those that focus on light humor and pleasure) can also help individuals cope with death and grief.

In this study, we extend the body of research on what we refer to as *bereavement narratives*, or stories about death and grief, to compare a version of a story about death that has a focus on poignancy to a version that has a focus on humor, and assess their effect on death acceptance and connectedness in individuals who have experienced personal loss. We propose that both poignant-focused and humor-focused bereavement narratives can provide pathways to death acceptance and connectedness through narrative processes. We further propose that the effect of the narrative may depend on individual differences in personality, including the dark tetrad personality traits, trait depression, and religious upbringing, as well as the characteristics of one's grief, including acceptance of personal loss and severity of grief, in line with previous research (Das and Peters, 2022). To examine these questions, we test a path model of the effects of narrative condition on death acceptance and connectedness through narrative engagement and appraisal. Prior to reporting the current study, we provide a theoretical backdrop to our hypotheses and review the state of the literature related to bereavement narratives.

Coping with death and grief through narratives

The thought of death can evoke anxiety and existential dread (e.g., see Terror Management Theory; TMT; Pyszczynski et al., 1997; see also Greenberg et al., 1986), and bereavement of a close personal loss can be an especially difficult life event (Ott, 2003). Individuals turn to cultural and psychological defenses to manage the anxiety of death, but these coping mechanisms can lead to a variety of negative outcomes such as favoritism toward ingroup members and derogation of outgroup members (See and Petty, 2006). As such, it is important to promote constructive coping strategies for processing death and grief. Narrative entertainment may be an especially effective approach to promoting new and adaptive ways of coping because stories involve a unique combination of elements in which they can be both psychologically distant and highly engaging. This combination has been referred to as a "distancing-embracing" function (Menninghaus et al., 2017; see also Mar et al., 2006).

The distancing-embracing function of narratives

The Distancing-Embracing model (Menninghaus et al., 2017) was initially proposed to explain how negative emotions in art can be positively experienced. *Distancing* factors like fiction and art schema in mediated content help to keep negative emotions at a psychological distance, thereby providing a sense of safety for individuals to emotionally approach sad or tragic content. Distancing factors interact with *embracing* factors such as the interplay of positive and negative emotions and audiences' ability to construct meaning from the content to influence subsequent enjoyment. Thus, fictional stories may be particularly useful in instances where the events of real life are too distressing and have the potential to overwhelm individuals (Green and Fitzgerald, 2017).

Current theorizing in narrative and media entertainment, particularly the Temporarily Expanding the Boundaries of The Self (TEBOTS) model (Slater et al., 2014), is consistent with this proposition. The TEBOTS model suggests that narratives can provide an instrument through which audiences can alleviate life's psychological demands and burdens (Slater et al., 2014). This model helps to explain why we feel gratified and psychologically rewarded by narratives. It connects self-expansion—a fundamental human response to the constraints on one's agency, autonomy, and affiliation (Johnson et al., 2016, p. 387)—with the world of narrative, which can fulfill self-expansion needs. Stories allow audiences to encounter experiences that extend beyond the constraints of their normal life, such as forming new and complicated relationships, simulating social situations, experiencing events in different times and places, or imagining what it is like to have different personal characteristics from their real self (Mar et al., 2006; Slater et al., 2014; Johnson et al., 2016).

In addition to their distancing-embracing and self-expansion functions, narratives are especially effective tools for influencing attitudes and perspectives because they can be highly engaging and often elicit positive appraisal.

Processes of narrative reception

Narrative engagement

Three mechanisms of narrative engagement consistently emerge in the literature as playing a key role in narrative influence and persuasion. First, *transportation* describes the experience of immersion into the world of story, in which audiences become mentally and emotionally invested in the narrative's characters and events (Green and Brock, 2000). When transported, individuals become more likely to be persuaded by a story because their attention is focused more on understanding and enjoying the unfolding plot than on scrutinizing persuasive claims of the narrative.

A second mechanism of narrative engagement is *identification* (Cohen, 2001; Sestir and Green, 2010), in which narratives are engaging to the extent that audiences identify with story characters. The more individuals identify with characters, the more their attitudes and behavioral intentions align with those advocated by the characters in the story. Audiences who also closely identify with story characters become more likely to adopt the beliefs and perspectives advocated because they are more capable of envisioning the world of the story through the eyes of that character. For instance, if a story character promotes a worldview that involves a higher degree of connectedness, the audience may also adopt a more connected worldview (Das and Peters, 2022).

The third mechanism of narrative engagement that has emerged in the narrative and media literature is *emotional flow*, or the emotional shifts individuals experience over the course of a narrative (Nabi and Green, 2015). For instance, these shifts can be experienced as changes in the intensity or valence of emotions as the plot unfolds, or changes between discrete emotions as story characters suffer and overcome hardship (Nabi, 2015; Nabi and Green, 2015). Emotional flow aids in the sustained attention and elaboration of the story, and thus also enhances the influence of a narrative on post-message attitudes (Nabi and Green, 2015).

In addition to narrative engagement, the extent to which audiences positively evaluate the content may also have ramifications for the story's impact.

Narrative appraisal

How a narrative is mentally and emotionally processed during story reception plays an important role in determining the story's impact on audiences, but so too does the appraisal of the narrative experience. At its earliest conception in media entertainment research, enjoyment was described as audiences' feelings of delight or enlightenment (Vorderer et al., 2004). More recently, *enjoyment* has come to describe mostly hedonic experiences with media, whereas more eudaimonic experiences have been differentiated as *appreciation* (Oliver et al., 2014). While both responses involve a positive appraisal of the narrative, enjoyment is characterized by predominantly positive emotions (e.g., light humor) whereas appreciation is characterized by mixed emotions (e.g., poignancy; Oliver and Bartsch, 2010).

Through engagement and appraisal processes, narratives may prove useful tools in promoting positive coping mechanisms in response to death and bereavement. Some research has begun to examine this potential.

Past research on narratives, death, and bereavement

Research on death in narrative media entertainment and its use for coping with death anxiety and grief has centered around how eudaimonic or meaningful media[1] experiences can help ease existential fears and encourage more accepting views of death.

In a first experimental study in this area, Hofer (2013) found that inducing mortality salience, or increasing one's awareness of their own death, was positively associated with appreciation of a meaningful film for those more inclined to search for meaning in life.

Other studies have similarly found that eudaimonic media can serve as an inspiration for generating meaning (Rieger and Hofer, 2017) and an anxiety buffer against the fear of death (Rieger et al., 2015; Slater et al., 2018). In a study particularly relevant to the current research, Das and Peters (2022) expanded the proponents of TEBOTS to describe how self-transcendence in stories (i.e., experiences in which audiences transcend themselves as individuals to view life in a way that is more elevated and connected to others and a larger "whole"; Janicke-Bowles and Oliver, 2017) can be "safe havens" for those who have/are experiencing a personal loss (Das and Peters, 2022, p. 323). The authors proposed that bereaved audiences may seek refuge from their grief in narratives. As a result, the narrative helps them vicariously experience loss acceptance and develop new perspectives of death and grief through the experiences of the narrative characters. Indeed, the results of the study suggested that transcendent narratives resonate with grieving individuals. Participants experienced increased engagement with and appreciation of the story, especially when their grief was severe, as well as increased elevation and connectedness, especially when grief was less severe.

Thus, certain narrative experiences seem to help individuals cope with death and loss, but this research has not been extended to narratives outside of eudaimonic media. Although we tend

1 We note that the terms "meaningful," "eudaimonic," and "poignancy" are theoretically distinct and should not be used interchangeably. This is especially important to note in relation to the current study, as some narrative experiences that are hedonically enjoyed may also be meaningful to some viewers (e.g., parodies may use humor appeals that also evoke reflection of, or search for meaning in the content).

to think of death as a serious topic, it is often depicted in media entertainment in ways that are light, humorous, and hedonically enjoyed. In an exploratory study of death depictions in entertainment media, Fitzgerald et al. (2020) found that death scenes can elicit both eudaimonic responses—characterized by poignancy—and hedonic responses—characterized by fun and pleasure. Participants were asked to think about a death scene in a narrative that they found particularly meaningful, pleasurable, or memorable (an added control condition; see footnote 1 regarding the use of the term "meaningful"). Although death in narratives was generally remembered as a poignant experience, death scenes that were considered as "fun" or "a good time" were also easily recalled. Thus, bereavement narratives that use humor may also be effective in promoting adaptive coping of death and grief.

Humor as a coping mechanism

Humor has been identified as an adaptive way to cope with life's stressful events, particularly because it can suppress the effects of anxiety on mental health (e.g., Merz et al., 2009; Demjén, 2016; Eden et al., 2020). In a recent study, Morgan et al. (2019) found that humor may even buffer existential anxiety: when one's mortality was made salient to them, individual differences in the use of humor to cope with stress appeared to buffer against death-thought accessibility. This was particularly true for individuals low in trait coping humor, suggesting that humor could be an effective avenue for facing existential fears even among those who do not tend to use humor to cope. Moreover, humor can be used as a persuasive tool within narrative media messages. For example, a recent study found that humor appeals can influence beliefs and perceived risk in a media message about climate change (Skurka et al., 2022). Because humor is more closely associated with hedonic enjoyment, we would expect that the pathways through which hedonic narrative influence outcomes differ from those of eudaimonic narratives.

Proposing eudaimonic and hedonic pathways in bereavement narratives

In Fitzgerald et al. (2020), responses to narrative death scenes were found to be associated with distinct processes of narrative engagement and appraisal: meaningful death scenes were rated as being more engaging (i.e., through narrative transportation, Green and Brock, 2000; and character identification, Cohen, 2001; see supplemental analyses in Fitzgerald et al., 2020) compared to pleasurable death scenes. With regard to bereavement narratives, we would similarly expect that individuals transported in a story about death would be more open to accepting the notion that death is an inevitable part of life, if the story presents this perspective. Bereaved individuals may also connect to characters in a story who have also recently lost a loved one and vicariously process their grief through the bereavement of that character. Moreover, experiencing greater emotional flow in bereavement narratives may prolong the impact of the story on their emotions after the fact, which may contribute more to agreement with perspectives about death and grief that were advocated in the story. Taken together, the overall engagement in a story about loss should affect attitudes about death and grief in line with how they are depicted in the story. In particular, we propose the following hypothesis regarding narrative engagement:

> H1: A poignant-focused bereavement narrative will elicit more narrative engagement overall compared to a humor-focused bereavement narrative.

Fitzgerald et al. (2020) further found that meaningful death scenes were associated more with narrative appreciation (being rated as meaningful, moving, and thought-provoking; Oliver and Bartsch, 2010) whereas pleasurable death scenes were more associated with narrative enjoyment (being rated as fun, entertaining, and a good time; Oliver and Bartsch, 2010). Regarding narrative appraisal, we would expect that appraisal responses to bereavement narrative would depend on the themes or focus of that narrative. In particular, we propose the following hypothesis regarding enjoyment and appreciation responses:

> H2: A humor-focused narrative will elicit more enjoyment than a poignant-focused narrative (H2a); whereas a poignant-focused narrative will elicit more appreciation than a humor-focused narrative (H2b).

Through these engagement and appraisal processes, both poignant-focused and humor-focused bereavement narratives may influence narrative-based outcomes related to the well-being of those who have experienced personal loss. We propose that connectedness—the sense of being connected with humanity and part of a bigger whole (Janicke-Bowles and Oliver, 2017; Oliver et al., 2018; Das and Peters, 2022)—and a peaceful acceptance of death (Prigerson and Maciejewski, 2008) may be especially relevant outcomes for the emotional well-being of those processing death and grief.

Death acceptance and connectedness

First, difficulty accepting death can have negative consequences for the well-being of the bereaved (Neimeyer and Currier, 2009). Some research has found that those with prolonged grief or an inability to accept loss are at a heightened risk for stress and depression, post-traumatic stress disorder, suicidal ideation, functional disability and diminished quality of life (Lichtenthal et al., 2004; Prigerson et al., 2008). By contrast, peaceful acceptance of loss in which an individual confronts

death with peace and equanimity (Prigerson and Maciejewski, 2008, p. 435), may help to alleviate the emotional pain associated with loss (Maciejewski et al., 2007). In a longitudinal study on the emotional pain and acceptance of loss in bereaved individuals, Maciejewski et al. (2007) found that an increase in peaceful acceptance of loss was associated with a decline in grief-related distress. The researchers concluded that "research that determines ways to promote peaceful acceptance offers the promise of offsetting the pain and misery frequently associated with dying and death" (Prigerson and Maciejewski, 2008, p. 437).

In addition to death acceptance, feeling connected with others and something greater (Janicke-Bowles and Oliver, 2017) may be another outcome of bereavement narratives that has implications for individuals' well-being. Das and Peters (2022) proposed that a connected, transcendent view of life may be relevant for the cognitive adjustment process of the bereaved (p. 321), and their findings suggested that a connected worldview seems to be a part of the grief experience (p. 338). Feeling connected with others may reduce the potential for the bereaved to feel alone or isolated in their grief because it encourages a sense of belonging and wholeness (Kelly, 1995). Connectedness may also contribute to eudaimonic well-being. For instance, some research has found that media which evokes connectedness also tends to evoke feelings of transcendence and an increased salience of spiritual beliefs related to self-actualization (Janicke-Bowles and Ramasubramanian, 2017).

Thus, we propose the following research questions regarding death acceptance and connectedness:

> RQ1: Will a poignant-focused narrative or a humor-focused narrative have a stronger effect on death acceptance?
> RQ2: Will a poignant-focused narrative or a humor-focused narrative have a stronger effect on connectedness?

Finally, outcomes of bereavement narratives may depend on certain individuating characteristics of the audience.

Individual differences regarding bereavement narratives

The influence of eudaimonic vs. hedonic depictions of death in narratives may differ between individuals. For example, eudaimonic media may resonate more with some individuals than others (Janicke-Bowles et al., 2021). Individual differences in the "dark tetrad" anti-social personality traits (e.g., narcissism, Machiavellianism, psychopathy, and sadism; Jonason and Webster, 2010; Appel et al., 2019) have been linked with more negative evaluations of eudaimonic media. Those high in these traits may view the media as being corny and inauthentic, and therefore are less likely to be moved by eudaimonic depictions of death in narratives. Other research suggests that individual differences in trait depression and religious upbringing affect the likelihood that eudaimonic or meaningful media will be appreciated (Das and Peters, 2022). These individual differences also have close ties with perspectives of death and grieving (Wortmann and Park, 2008). Thus, considering these differences, we propose the following research question regarding individual differences:

> RQ3: Will the effectiveness of poignant-focused and humor-focused bereavement narratives depend on individual differences in the dark tetrad (RQ3a), trait depression (RQ3b), or religious upbringing (RQ3c)?

Finally, to account for any indirect effects of humor-focused and poignant-focused narratives on outcomes of death acceptance and connectedness through narrative engagement and appraisal processes, we propose a path model (Figure 1). The model accounts for pathways on narrative engagement (transportation, identification, emotional flow), narrative enjoyment and appreciation, and well-being outcomes, and, assesses how those effects differ when controlling for loss-related and individual trait difference. Moreover, we propose the final research question:

> RQ4: Do narrative engagement and appraisal processes mediate the effect of humor-focused and poignant-focused narratives on death acceptance and connectedness?

Method

To test our hypotheses and research questions, we compared a poignant-focused and humor-focused version of a narrative about death and grief.

Participants and procedure

A total of 330 participants were collected via Amazon's Mechanical Turk. After providing consent, participants were randomly assigned to read a narrative about a woman giving a eulogy for the passing of her close friend at her funeral. We manipulated the story to be either poignant-focused or humor-focused (both narrative versions are available to read in our online supplement: https://bit.ly/3b9Nuwe)[2]. After the narrative, participants completed a series of measures which assessed (a) their narrative engagement and narrative appraisal;

2 The conditions are not orthogonal such that the humor-focused condition has no poignancy and the poignancy-focused condition has no humor. Rather, we use these condition labels to denote that the humor-focused narrative has more of a focus that appeals to, or intends to evoke humor, and the poignant-focused narrative has more of a focus that appeals to, or intends to evoke poignancy.

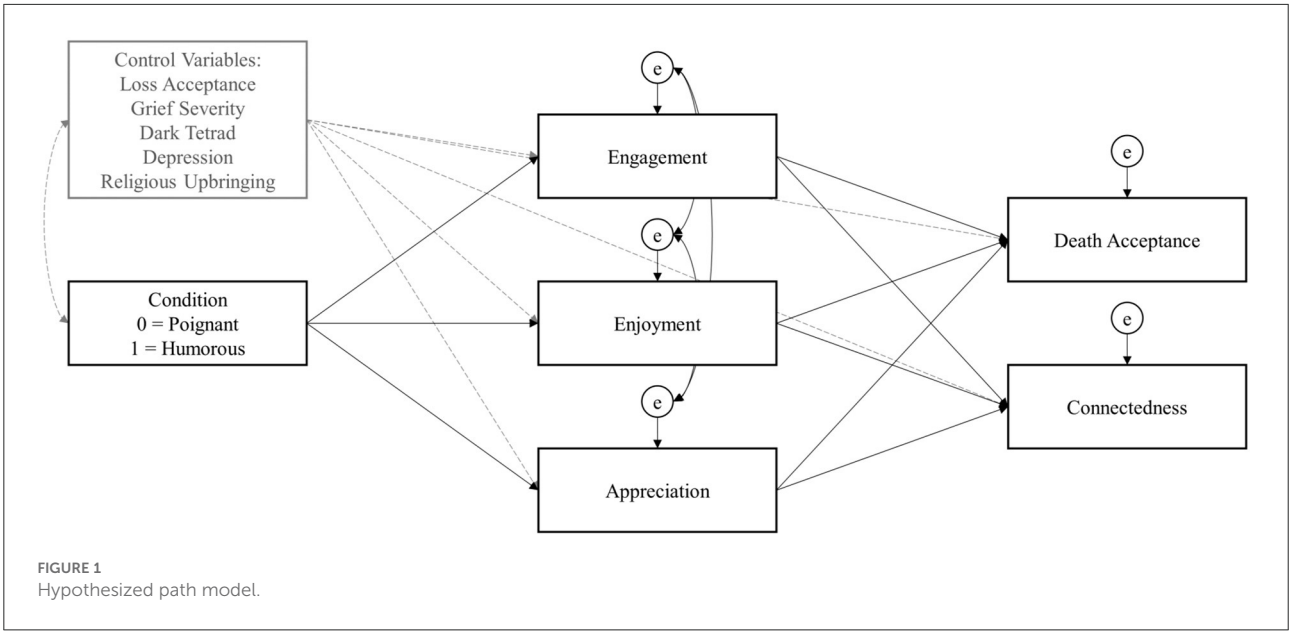

FIGURE 1
Hypothesized path model.

(b) death acceptance and connectedness; (c) loss-related and trait covariates; and (d) demographics.

We utilized three criteria for participant exclusion. First, we excluded participants if they did not have complete data across the main variables. Thus, 30 participants were dropped due to incomplete data. Second, we excluded participants based on two manipulation check items. These items asked about specific details of the narrative (e.g., "Where did [main characters] get married?"). Participants were excluded if they incorrectly answered either one of these checks. Consequently, 35 participants were excluded due to incorrect responses. Finally, we excluded participants if they had not experienced the loss of a loved one. Among our sample, 24 participants reported they hadn't experienced the loss of a loved one and were thus excluded. Our final sample consisted of 241 participants ($n_{\text{Poignant-focused}} = 120$, $n_{\text{Humor-focused}} = 121$), and a chi-square analysis indicated that these exclusion criteria did not systematically alter random assignment to either condition, $\chi^2 = 0.015$, $p = 0.90$.

Measures

Narrative variables

Narrative engagement

To assess overall narrative engagement, we measured the three narrative engagement processes. Transportation was measured with the 5-item transportation scale short form (TS-SF; Appel et al., 2015), including items such as "I could picture myself in the scene of the events described in the narrative" rated on a scale from 1 (*not at all*) to 7 (*very much*). To measure identification, we utilized the 3-item measure of character identification used in Sestir and Green (2010), adapted from Cohen (2001), with items such as "When reading the story, I wanted the character to succeed in achieving her goals" rated on a scale from 1 (*not at all*) to 7 (*very much*). Lastly, to measure emotional flow, we used a 4-item emotional flow scale, including items such as "I experienced a lot of different emotions" rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

To assess the validity of these constructs, we conducted a confirmatory factor analysis (CFA) using a first-order, multidimensional factor structure. The measurement model demonstrated good fit and each scale had good reliability, $\chi^2(df) = 171.55(51)$, CFI = 0.94, SRMR = 0.05, $\alpha_{\text{Transportation}} = 0.82$, $\alpha_{\text{Identification}} = 0.81$, $\alpha_{\text{EmotionalFlow}} = 0.95$. Given the high positive correlations between the scales ($r = 0.79$–0.88), the theoretical similarity of the processes, and to reduce the potential for collinearity of the scales when testing them within the hypothesized path model, we combined the three scales into a single composite that represented participants' overall narrative engagement ($\alpha_{\text{Engagement}} = 0.88$).

Enjoyment and appreciation

To measure narrative appraisal, we utilized Oliver and Bartsch's (2010) 3-item enjoyment scale and 3-item appreciation scale. Participants read the prompt, "The story was..." followed by enjoyment items ("fun," "a good time," "entertaining") and appreciation items ("meaningful," "moving," "thought-provoking") which they rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Using a first-order, multidimensional factor structure, the measurement model demonstrated adequate fit, $\chi^2(df) = 47.35(8)$, $p < 0.001$, CFI = 0.95, SRMR = 0.09, and the

reliabilities for each scale were good ($\alpha_{Enjoyment} = 0.87$; $\alpha_{Appreciation} = 0.85$).

Outcome variables

Death acceptance

We used Slater et al.'s (2018) 11-item scale of death acceptance as our first well-being outcome. Example items include "Some people are frightened of death, but I am not" and "I am more afraid of death than old age" (reverse-scored). The measurement model using all 11 scale items did not fit well, $\chi^2(df) = 313.41(44)$, $p < 0.001$, CFI = 0.83, SRMR = 0.09. Therefore, we engaged in selective item retention to achieve satisfactory model fit. After removing items 9, 10, and 11, the measurement model demonstrated good fit and the scale had excellent reliability, $\chi^2(df) = 74.65(20)$, $p < 0.001$, CFI = 0.95, SRMR = 0.04 ($\alpha = 0.92$).

Connectedness

For our second well-being outcome, we used Janicke-Bowles and Oliver's (2017) connectedness scale. The connectedness scale is a 26-item scale used to measure connectedness to close others, connectedness to a higher power, and connectedness to one's family. We used the first nine items of the scale to measure one's connectedness toward close others. Example items included "[The story] made me think about the power of love" and "[The story] made me cherish the people in my life." The measurement model demonstrated adequate fit, $\chi^2(df) = 227.01(27)$, $p < 0.001$, CFI = 0.92, SRMR = 0.04, and the scale had excellent reliability ($\alpha = 0.96$).

Loss-related covariates

Loss acceptance and grief severity

Similar to Das and Peters (2022), we sought to control for the impact of one's experienced loss on our manipulation. The first measure we used was a 6-item scale of loss acceptance. Example items included "At this moment, I am able to think about my deceased loved one with positive thoughts" and "I find it difficult to be happy without the person I lost" (reverse-scored). The second measure was a 3-item scale of grief severity. Example items included "There were times that I thought I would never be able to bear the loss" and "There were times that I lost my sense of meaning in life due to the loss". Using a first-order, multidimensional factor structure, the measurement model demonstrated inadequate fit, $\chi^2(df) = 252.20(26)$, $p < 0.001$, CFI = 0.83, SRMR = 0.19, so we engaged in selective item retention. By removing items 2 and 4 from the loss acceptance scale, the measurement model fit well and both scales demonstrated good reliability, $\chi^2(df) = 37.89(13)$, $p < 0.001$, CFI = 0.98, SRMR = 0.06 ($\alpha_{LossAcceptance} = 0.83$; $\alpha_{GriefSeverity} = 0.94$).

Trait covariates

We measured three trait variables that might impact the effect of our manipulation.

Dark tetrad

We utilized a 19-item scale to measure the dark tetrad. This scale was a combination of the 12-item Dirty Dozen dark triad scale (DDS; Jonason and Webster, 2010; Appel et al., 2019), which measures one's trait Machiavellianism, psychopathy, and narcissism (Appel et al., 2019) and the 7-item Variety of Sadistic Tendencies scale (VAST; Paulhus and Jones, 2015), which measures one's trait sadism in close relationships. After assessing the model fit of each subscale, we tested a measurement model where we loaded the composite subscales onto a single latent variable. The measurement model fit well, and the scale had good reliability, $\chi^2(df) = 19.82(2)$, $p < 0.001$, CFI = 0.95, SRMR = 0.04 ($\alpha = 80$).

Depression

We measured trait depression using a 6-item scale (Das and Peters, 2022). Example items include "In my life, I have experienced episodes of at least 2 consecutive weeks when I experienced little pleasure in activities" and "In my life, I have experienced episodes of at least 2 consecutive weeks when I had recurring thoughts about death and suicide." The measurement model fit adequately, and the scale had excellent reliability, $\chi^2(df) = 91.68(9)$, $p < 0.001$, CFI = 0.94, SRMR = 0.06 ($\alpha = 0.93$).

Religious upbringing

We assessed religious upbringing using a 6-item scale (Das and Peters, 2022). Example items include "I was raised religiously/spiritually" and "My parents strongly believe that there is life after death." The measurement model fit well, and the scale demonstrated good reliability, $\chi^2(df) = 106.74(9)$, $p < 0.001$, CFI = 0.93, SRMR = 0.04 ($\alpha = 0.94$).

Results

Bivariate relationships

We first examined the bivariate associations between our variables (see Table 1 for a correlation matrix of measured variables). A handful of notable patterns emerged. First, our manipulation had a strong positive correlation with enjoyment indicating that participants who read humor-focused version of our stimuli experienced more enjoyment than those who read the poignant-focused version. This association is in line with Fitzgerald et al. (2020) and the predicted effect of our manipulation. Second, we found a cluster of positive correlations between our narrative engagement, enjoyment, and appreciation variables. Specifically, we found that both narrative engagement and appreciation correlated significantly stronger with each

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TABLE 1 Bivariate correlation matrix of measured variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Condition	–									
Narrative variables										
2. Engagement	0.03	–								
3. Enjoyment	0.51***	0.30**	–							
4. Appreciation	−0.05	0.68***	0.15*	–						
Outcomes										
5. Death acceptance	0.12	−0.18**	0.25***	−0.08	–					
6. Connectedness	0.03	0.71***	0.27***	0.65***	−0.08	–				
Covariates										
7. Loss acceptance	−0.03	0.19**	0.00	0.24***	0.09	0.19**	–			
8. Grief severity	0.14*	0.36***	0.16*	0.26***	−0.24***	0.28***	−0.01	–		
9. Dark tetrad	0.11	−0.09	0.18**	−0.19**	0.02	−0.11	−0.18**	0.01	–	
10. Depression	0.11	0.02	0.14*	0.00	−0.15*	−0.07	−0.18**	0.35***	0.25***	–
11. Religious upbringing	0.09	0.23***	0.14*	0.13*	0.01	0.23***	0.20**	−0.18***	0.02	0.12

*p < 0.05; **p < 0.01; ***p < 0.001. Condition is coded such that 0 represents the poignant condition and 1 represents the humor condition.

other than with enjoyment ($r = 0.68$ to $r = 0.30$, Fisher's r-to-z transformation = 5.67, $p < 0.001$).

We also found distinct patterns between our narrative variables and each outcome. For death acceptance, we saw a positive correlation with enjoyment and a non-significant correlation with appreciation. We also saw a negative correlation with narrative engagement. For connectedness, we found positive correlations across all three narrative variables, with the engagement and appreciation correlations being significantly stronger than the enjoyment correlation ($r = 0.65$ to $r = 0.27$, Fisher's r-to-z transformation = 5.44, $p < 0.001$). Taken together, these correlations support the notion that different narrative pathways can be used to impact one's well-being. One's death acceptance seems to be primarily derived from the hedonic pathway (i.e., enjoyment), and one's feeling of connectedness seems to be derived from the eudaimonic pathway (i.e., appreciation). Finally, our covariates had a number of significant relationships with both the narrative and outcome variables, which indicates the necessity of controlling for these variables when testing our hypotheses.

Effects of narrative condition

We tested our hypotheses using a multivariate analysis of covariance (MANCOVA). We examined whether our manipulation impacted both our narrative variables and our outcome variables, while controlling for covariates. Narrative condition was entered as the fixed factor, narrative variables (engagement, enjoyment, appreciation) and outcome variables (death acceptance, connectedness) were entered as the dependent variables, and loss-related variables (personal loss, grief severity) and individual difference variables (dark tetrad, depression, religious upbringing) were entered as covariates. Results indicated a significant multivariate effect of condition [Wilks' Lambda = 0.74, $F_{(5,230)} = 16.61$, $p < 0.001$, $\eta_p^2 = 0.27$]. Table 2 includes the between-subject effects of each predictor on the dependent variables, and Figure 2 provides a visual representation of the estimated marginal means of each dependent variable by condition.

First, H1 predicted that the narrative conditions would differ in terms of narrative engagement, such that the poignant-focused narrative would elicit greater overall engagement than the humor-focused narrative. Results showed that engagement did not differ between the poignant-focused ($EMM = 5.17$, $SE = 0.10$) and humor-focused ($EMM = 5.20$, $SE = 0.10$) narratives. Thus, H1 was not supported, and we can conclude that participants processed the stories similarly regardless of whether it was intended to be more humorous or more poignant. H2a predicted that enjoyment would be higher in the humor-focused condition than in the poignant-focused condition. Enjoyment was significantly higher in the humor-focused narrative ($EMM = 4.35$, $SE = 0.13$) when compared to the poignant-focused version ($EMM = 2.82$, $SE = 0.13$). Thus, H2a was supported. H2b predicted that appreciation would be higher in the poignant-focused condition than in the humor-focused condition. Results indicated no significant difference between the poignant-focused ($EMM = 5.95$, $SE = 0.10$) and humor-focused conditions ($EMM = 5.80$, $SE = 0.10$). Thus, H2b was not supported. To this point, we note that appreciation was high in both conditions. This result may be due to the fact that stories about loss tend to be appreciated even when specifically intended to be humorous.

TABLE 2 Between-subject MANCOVA effects of condition and covariates on mediators and outcome variables.

	F	*p*	η^2	*F*	*p*	η^2	*F*	*p*	η^2
	Engagement			**Enjoyment**			**Appreciation**		
Condition	0.04	0.84	0.00	72.36	<0.001	0.22	1.34	0.25	0.00
Loss acceptance	4.76	0.03	0.02	0.25	0.62	0.00	10.16	0.002	0.04
Grief severity	32.75	<0.001	0.11	1.63	0.20	0.00	17.69	<0.001	0.06
Dark tetrad	0.67	0.41	0.00	5.32	0.02	0.02	4.94	0.03	0.02
Depression	1.93	0.17	0.01	0.10	0.76	0.00	0.19	0.67	0.00
Religious upbringing	6.25	0.01	0.02	1.73	0.19	0.01	0.75	0.39	0.00
	Death acceptance			**Connectedness**					
Condition	6.24	0.01	0.02	0.00	0.97	0.00	–	–	–
Loss acceptance	1.36	0.24	0.01	3.43	0.07	0.01	–	–	–
Grief severity	12.51	<0.001	0.05	22.93	<0.001	0.08	–	–	–
Dark tetrad	0.40	0.53	0.00	0.80	0.37	0.00	–	–	–
Depression	1.52	0.22	0.01	6.05	0.02	0.02	–	–	–
Religious upbringing	0.23	0.63	0.00	7.74	0.006	0.03	–	–	–

The df for each F-test = 1, 234.

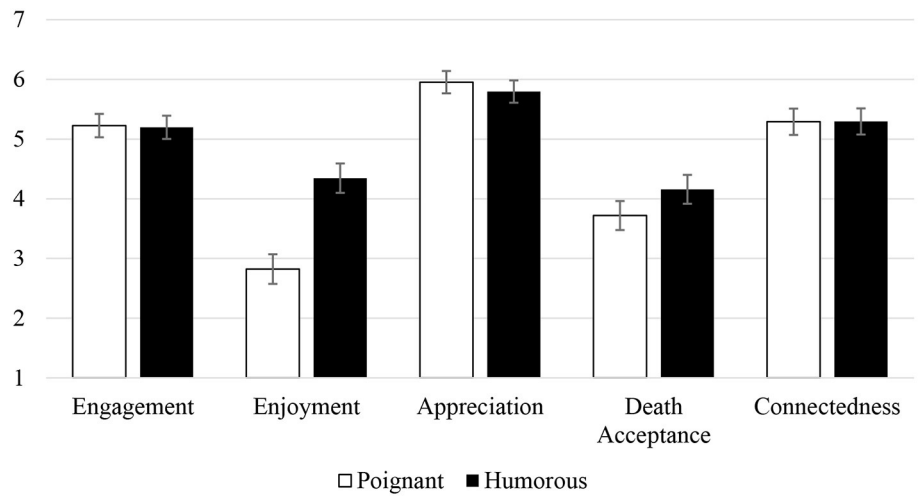

FIGURE 2
Estimated marginal means of narrative and outcome variables by condition.

We additionally asked whether the poignant-focused or humor-focused narrative would elicit more death acceptance (RQ1) and connectedness (RQ2). Results indicated that death acceptance was significantly higher in the humor-focused condition ($EMM = 4.16$, $SE = 0.12$) than the poignant-focused condition ($EMM = 3.72$, $SE = 0.12$), suggesting that the more humorous narrative had an advantage over the more poignant narrative on affecting this outcome. Connectedness did not significantly differ between the poignant-focused ($EMM = 5.29$, $SE = 0.11$) and humor-focused conditions ($EMM = 5.30$, $SE = 0.11$). The connectedness results are consistent with Das and Peters (2022) and echo our findings regarding appreciation. Given the fact that connectedness was high in both conditions, it seems that participants may feel more connected to their loved ones when experiencing a narrative about death regardless of whether humor is intended or not.

We also asked whether any of the specified covariates would significantly impact our narrative and outcome variables (RQ3). Our multivariate effects indicated a significant effect of each covariate across the dependent variables featured in our model: loss acceptance [Wilks' Lambda = 0.95, $F_{(5,230)} = 2.46$, $p = 0.03$, $\eta_p^2 = 0.05$], grief severity [Wilks' Lambda = 0.84, $F_{(5,230)} =$

TABLE 3 Estimates, covariances, and model fit for hypothesized path model.

	Est.	SE	*p*	Est.	SE	*p*	Est.	SE	*p*
IV/Covariates → Mediator	**Engagement**			**Enjoyment**			**Appreciation**		
Condition	−0.03	0.14	0.84	1.52	0.18	<0.001	−0.16	0.13	0.24
R^2	0.20	–	–	0.29	–	–	0.16	–	–
Mediator → Outcomes	**Death acceptance**			**Connectedness**					
Engagement	−0.38	0.10	<0.001	0.47	0.07	<0.001	–	–	–
Enjoyment	0.32	0.05	<0.001	0.07	0.04	0.04	–	–	–
Appreciation	0.12	0.10	0.23	0.39	0.07	<0.001	–	–	–
R^2	0.21	–	–	0.58	–	–	–	–	–
Indirect effects	**Death acceptance**			**Connectedness**					
Condition	0.48	0.11	<0.001	0.04	0.13	0.76	–	–	–
Covariances	**Engagement**			**Enjoyment**					
Enjoyment	0.46	0.10	<0.001	–	–	–	–	–	–
Appreciation	0.68	0.08	<0.001	0.29	0.09	0.001	–	–	–
	$\chi^2(df)$	*p*	**CFI**	**SRMR**					
Model fit	0.24(3)	0.97	1.00	0.00	–	–	–	–	–

Est, unstandardized estimate; SE, standard error of estimate; IV, independent variable; CFI, comparative fit index; SRMR, standardized root mean square residual. The path coefficients for the control variables (e.g., loss acceptance, grief severity, dark tetrad, depression, and religious upbringing) are reported in our online supplement (https://bit.ly/3b9Nuwe).

8.48, $p < 0.001$, $\eta_p^2 = 0.16$], dark tetrad [Wilks' Lambda = 0.95, $F_{(5,230)} = 2.57$, $p = 0.03$, $\eta_p^2 = 0.05$], depression [Wilks' Lambda = 0.95, $F_{(5,230)} = 2.46$, $p = 0.03$, $\eta_p^2 = 0.05$], and religious upbringing [Wilks' Lambda = 0.95, $F_{(5,230)} = 2.26$, $p = 0.05$, $\eta_p^2 = 0.05$]. Thus, differences related to the characteristics of one's loss and the individual play a role in the engagement, appraisal, and effectiveness of bereavement narratives on one's well-being.

Hypothesized path model

Finally, RQ4 asked whether there would be indirect effects of the narrative condition on our outcomes through the narrative processes. We tested our model using maximum likelihood estimation in IBM Amos (Version 28). Indirect effects were estimated using 10,000 bootstrap samples and 95% bias-corrected CIs. Results of our model are included in Table 3 and Figure 3.

We found the model fit the data well and explained 21% of the variance in death acceptance and 58% of the variance in connectedness (see Table 3). For death acceptance, we found a significant indirect effect of our narrative manipulation. This result seems primarily driven by the positive direct effect of our condition on enjoyment and the positive direct effect of enjoyment on death acceptance. In other words, participants in the humor-focused condition experienced more narrative enjoyment which led to higher levels of general death acceptance. We note, additionally, that this indirect effect persisted even with the suppressing effect elicited by narrative engagement on death acceptance.

For connectedness, we found no indirect effect of our manipulation. When examining the direct effects of our mediators, it seems that changes in one's perceived connectedness were largely driven by their engagement and appreciation of the story. Thus, regardless of condition, participants who were more immersed and moved felt more connected to their loved ones. This finding again may be explained by the inherent meaningfulness of death. Experiencing death in a story leads audiences to be grateful for their loved ones, regardless of whether the story is meant to elicit humor or poignancy.

Discussion

In an experimental study, we examined how a poignant-focused vs. humor-focused story about loss affected general acceptance of death and feelings of connectedness among bereaved individuals. We found that audiences engaged with the narratives in a similar way regarding transportation,

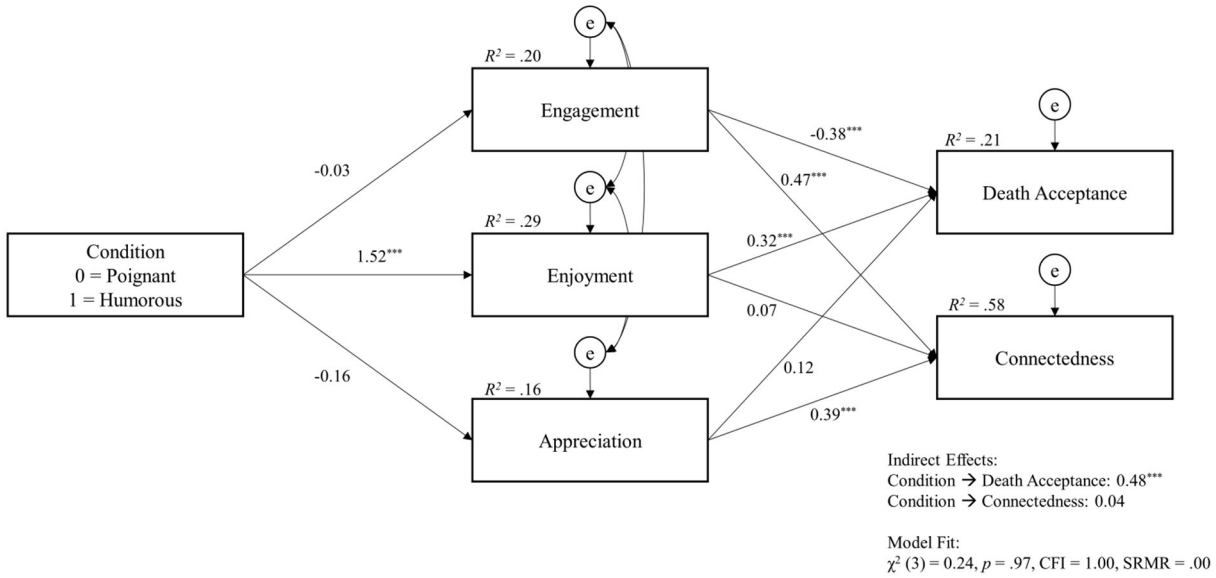

FIGURE 3
Path model results. ***$p < 0.001$.

identification with characters, emotional flow, and appreciation, but the humor-focused narrative elicited greater enjoyment than the poignant-focused narrative. Moreover, the humor-focused narrative led to more death acceptance than the poignant-focused narrative. The results of our model test demonstrated that condition affected death acceptance indirectly, such that participants in the humor-focused condition experienced more narrative enjoyment which subsequently led to higher levels of general death acceptance. This finding suggests that our proposed hedonic narrative pathway through humor is worth exploring in addition to a eudaimonic one. We therefore recommend researchers continue to use this model in future studies examining bereavement narratives.

We found no differences between narrative versions for connectedness, consistent with Das and Peters (2022). However, our path model explained a high percent of the variance in connectedness, suggesting that bereavement narratives in general may promote self-transcendent feelings of being connected to others, given the inherent meaningfulness and phenomenological characteristics related to the topic of death. Further, it seemed from our model test that perceived connectedness was driven by narrative engagement and appreciation, and thus the experience of immersion and the perception of the narrative as poignant foster these feelings.

Our findings also underly the importance of considering individual differences in how bereavement narratives are processed. Each of the proposed individual difference variables emerged as a significant covariate of the effect of the story. First, the extent to which participants felt they had accepted the loss they had personally experienced, and the severity of their personal grief impacted how they experienced the story. This finding is consistent with past research (Das and Peters, 2022). It seems that grief is a highly individual experience, and that individualism extends to the realm of narratives. Personality traits (the dark tetrad and depression) and life experiences (religious upbringing) also played a role in how bereavement narratives were experienced. It may be interesting for future studies to directly assess the interplay of individual differences and narrative mechanisms, such as similarity to characters in the narrative, to explore whether marked similarities between the bereaved character and audience member impact how effectively the story influences perceptions and acceptance of death. For example, would a bereavement narrative about a character who lost a parent resonate more with an individual who was also grieving a parent? Such studies could help further identify how bereavement in narratives (and the characteristics of the bereaved) resonate with audiences differently, and how stories could be more effectively tailored to audiences.

The combination of humor and poignancy

Our current findings point to the idea that poignancy and humor in bereavement narratives do not appear to be orthogonal, but rather, they seem to complement one another in their effect on audiences. We note that our current stimuli, despite their ability to elicit significant differences in enjoyment, were unable to differentiate appreciation clearly. We attribute this result to the challenge of separating poignancy from the

topic of death in general. A story about someone giving a eulogy is likely to evoke some poignancy even if the narrative is focused more on making audiences laugh or experience enjoyment. However, we also recognize that this finding may be due to our particular stimuli, and that perhaps other researchers would be more successful at crafting humorous stories about death that are not also experienced poignantly. Future research should continue to examine whether bereavement narratives can be made to elicit humor without also eliciting poignancy. If successful, such studies would be able to identify the potential benefits and downsides of humor vs. poignancy when used alone.

For instance, humor in media entertainment can be used to address serious topics in a way that is light-hearted (De Ridder et al., 2022), but humor alone might not be taken seriously. On the other hand, poignancy may be too serious and break down the distancing-embracing function of narratives that make them so effective at allowing audiences to approach negative topics. We encourage researchers to continue to assess whether a combination of humor and poignancy is best for bereavement narratives—and narratives about difficult topics in general. Some recent research suggests this is the case (De Ridder et al., 2022).

Limitations

There were some limitations in our current study that are worth noting. First, we only examined narrative effects in participants who expressed having experienced a personal loss. This included the large majority of our sample; however, it would be worthwhile to explore how our findings might differ for individuals who are less familiar with death and grief. For example, bereaved individuals may generally appreciate bereavement narratives more than those who have not experienced personal loss, and it may be possible to disentangle enjoyment and appreciation in humorous vs. poignant stories for these individuals. Similarly, narrative engagement may not play as key a role in death perceptions for individuals who are not bereaved.

Second, our findings suggest that grief is a very personal experience and although we tapped into some of the individual differences that influence the effect of bereavement narratives, there may be others that we did not consider. For instance, we asked participants to think of a single personal loss, or the person they were closest to, but we did not assess whether they had lost multiple loved ones. There may be individual differences related to familiarity with grief which may be considered in future studies. Other conditions of personal grief, such as whether the grief is disenfranchised, where the relationship, loss, or griever is not socially recognized (Doka, 1999) may be important to consider as well. Future research should also consider the time since the personal loss to explore how the temporal stages of grief might impact the effectiveness of narrative interventions[3].

Conclusion

Death anxiety and bereavement can have lasting effects on well-being, yet both are an inevitable facet of life. In this study, we found that narratives are a good approach to increasing positive perspectives of death among the bereaved, and that humorous and poignant-centered approaches appear to complement each other. These findings help clarify the specific mechanisms that underlie how narratives can foster more acceptance of death: stories about loss and grief do not need to be heavy-handed with poignancy, as death is already inherently poignant. Instead, adding some humorous moments might make the content more consumable and more effective overall. For instance, returning to the episode of *Community* which opened this paper: after the heartfelt goodbye that Pierce's mother gave to him in her farewell recording, she "plays herself out" to a song akin to Top Gun's "Danger Zone."

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://bit.ly/3b9Nuwe.

Ethics statement

The studies involving human participants were reviewed and approved by the Ohio State University. The Ethics Committee waived the requirement of written informed consent for participation.

Author contributions

KF, CF, and MG contributed to conception and design of the study and wrote sections of the manuscript. MG and CF organized the database. KF and CF performed the statistical analyses. KF wrote the first draft of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

3 As a supplemental measure, we asked participants in the current study how long it had been since their personal loss. We excluded this variable based on some concerns we had regarding the measurement and because we felt that grief severity would account for this individual difference. We note that there is no direct effect of this variable on any of our main variables, and no substantial changes to the significance, direction, or strength of our effects of interest (condition, narrative variables, death acceptance, and connectedness) when controlling for it.

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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.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcomm.2022.973239/full#supplementary-material

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The writing processes underpinning wellbeing: Insight and emotional clarity in poetic autoethnography and freewriting

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Investigations of the expressive writing paradigm have shown that writing about one's experiences have positive effects on wellbeing. Understanding the writing processes facilitating self-discovery which underpin these positive outcomes is currently lacking. Prior research has suggested two writing processes that can lead to discovery: (1) *Knowledge Constituting* involving the fast synthesis of verbal and non-verbal memory traces into text; and (2) *Knowledge Transforming* involving controlled engagement with written text for revision. Here, two genres—autoethnographic poetry and freewriting—were studied as they manifest a different pattern design for *Knowledge Constituting* and *Knowledge Transforming*. One hundred and seventeen, L1 English speaking participants from 3 northwestern universities in the US completed a two-stage, genre specific writing process. Participants were randomly assigned to a writing condition. Poetry writers first did a *Knowledge Constituting* writing task followed by a *Knowledge Transforming* task. Freewriters repeated a *Knowledge Constituting* task. Participants completed insight and emotional clarity scales after stage one and stage two. Data was analyzed using a two-way repeated measures ANOVA with one between (writing condition) and one within subject (time of prompt) variables. Descriptive results show that it is the *Knowledge Constituting* process which elicits high levels of insight and emotional clarity for both genres at the first time point. *Knowledge Transforming* at time-point 2 significantly reduced insight. While *Knowledge Constituting* at time-point 2 significantly increased emotional clarity. The results provide initial support for the position that it is the *Knowledge Constituting* writing process which facilitates self-discovery and underpins writing-for-wellbeing outcomes.

KEYWORDS

poetry, writing, expressive writing, wellbeing, insight, discovery, emotional clarity, autoethnography

Introduction

Writing about one's experiences has been shown to have positive effects on one's psychological wellbeing (Lepore et al., 2002; Frattaroli, 2006; Pennebaker and Chung, 2007; Lepore and Kliewer, 2013; Kállay, 2015). The majority of this research has been conducted in relation to the expressive writing paradigm developed by Pennebaker (Pennebaker and Beall, 1986). Research into this writing genre has been useful in helping to elucidate the role self-writing might play in alleviating a range of psychological and physiological situations. However, while the therapeutic intervention is writing, the actual processes of this writing which lead to these positive outcomes have not been investigated. Moreover, it has been pointed out that expressive writing might not be the only writing intervention that facilitates wellbeing and that additional genres of writing should be considered for this function (Deveney and Lawson, 2021). The current paper has two central aims in relation to the scholarship on writing for wellbeing. First, the current study provides initial information on the writing processes underpinning writing-for-wellbeing by addressing the timed development of insight and emotional clarity in two authentic genres. Second, the current study widens the types of genres to be considered in relation to writing-for-wellbeing research by investigating autoethnographic poetry writing and freewriting.

Expressive writing and its explanations

Expressive writing as an approach for addressing traumatic and upsetting experiences was developed by Pennebaker and Beall (1986). In their initial study, college students were asked to write about difficult experiences they have had for 15 min a day for four consecutive days. The writing itself was characterized by the request that the participants write about their "deepest thoughts and feelings" without paying too much attention to issues of form and grammar. Interestingly, data that was collected 4-months after this four-day writing experience showed that participants had a significantly decreased number of health center visits and self-reported health problems when compared to a control group (Pennebaker and Beall, 1986). This intriguing outcome in terms of physical wellbeing facilitated by a simple writing intervention led to a large number of studies using a similar paradigm with a range of populations. The results of these studies support positive health and psychological outcomes. For example, in relation to physical outcomes, expressive writing studies have shown decreased hospitalization, physical complaints, respiratory difficulties, cardiovascular issues, fatigue, and chronic pain (Hockemeyer and Smyth, 2002; Rosenberg et al., 2002; Norman et al., 2004; McGuire et al., 2005; Danoff-Burg et al., 2006). On the psychological side, expressive writing studies have shown decreased levels of distress, anxiety, depression, suicidal ideation, and grief (Nishith et al., 2002; Antal and Range, 2005; Graf et al., 2008; Range and Jenkins, 2010). While not all applications of the expressive writing paradigm have produced such impressive results, overall, there is a body of data from large scale meta-analyses that this writing practice does have positive physiological and psychological effects (Frattaroli, 2006; Kállay, 2015).

In light of these outcomes, it is worth considering what the explanations of these effects are. How does expressive writing interact with an individual's health and psychological state? Frattaroli (2006) in a meta-analysis of expressive writing outcomes proposes three theoretical explanations of how this type of writing functions:

a) *Inhibition Theory*: Based on the Freudian concept of catharsis, the core explanatory aspect of this theory is that expressive writing has positive effects on wellbeing because the writer can disclose thoughts and feelings about the experience that they have internally inhibited. This self-imposed constraint on expression causes feelings of stress and anxiety which in turn negatively impact health and psychological wellbeing. Once, these thoughts and feelings are disclosed, there is a reduction in the levels of anxiety and an associated increase in a sense of wellbeing (Lepore and Smyth, 2002).
b) *Cognitive-Processing Theory*: The core explanatory aspect of this theory is that through expressive writing participants gain insight into their experiences. Pennebaker (1993) found that expressive writers who had increased wellbeing also tended to use more insight and causation words in their writing. These same participants explained that the value of expressive writing was in its ability to help them explain to themselves what had happened.
c) *Self-Regulation Theory*: The core aspect of this theory is that through expressive writing which channels both emotions and thoughts concerning one's own experience, the writer develops a sense of control over those emotions and thoughts. Basically, writing about an experience allows participants to observe, understand and regulate their thoughts and emotions (Lepore et al., 2002). Once writers know and understand their experiences and emotions, they can develop a sense of mastery over their experiences which reduces anxiety and stress and enhances a sense of wellbeing (Lepore et al., 2002).

These explanations of the wellbeing effect of expressive writing start at the point that some level of new insight or emotional understanding has already emerged. But it should be remembered that actual intervention is writing and as such we can assume that there is some aspect in the writing process itself that facilitates and underpins the emergence of insight and emotional clarity. As such the question is what are these writing processes and how are they manifest? In the next

section, scholarship on the way writing facilitates processes of self-discovery will be presented.

Writing processes of discovery

Within the cognitive scholarship on writing, there is agreement that writing not only involves communicating ideas but also a process of self-discovery (Flower and Hayes, 1980; Bereiter and Scardamalia, 1987; Galbraith, 2009). While there is agreement that discovery is part of the process of writing, there is disagreement over how this is achieved. Early approaches to this question situated discovery as an aspect of more expert writing related to active problem solving (Flower and Hayes, 1980; Bereiter and Scardamalia, 1987). The basic idea of this approach is that when expert writers are required to solve a rhetorical problem in their writing this leads to insight. As writers try to make the text match the rhetorical aspects of an assigned writing task, they need to reformulate and revise their ideas as well as their written text which leads to the development and emergence of alternative set of ideas, a greater sense of clarity concerning the content of the writing, new thoughts and feelings (Flower and Hayes, 1980; Bereiter and Scardamalia, 1987).

In the Flower and Hayes (1980) cognitive model of writing, there are three basic writing processes: (1) *Planning*—including content generation, organization and goal-setting; (2) *Translating*—the technical movement of ideas and memories into text; and (3) *Revising*—the editing of written text that has already been produced. For Flower and Hayes (1980) the process of discovery is situated within the Planning and Revising processes and as a result of the task requirements of a rhetorical situation. Bereiter and Scardamalia (1987) are more specific in where they situated the problem solving, discovery process. They propose that there are two different models of writing: *Knowledge-Telling* and *Knowledge-Transforming*. In this formulation, Knowledge-Telling (like the Translation process in Flower and Hayes, 1980) does not involve a process of discovery. Knowledge-Telling is a set of processes by which knowledge is retrieved from long-term memory and transferred into written text. Discovery is solely situated in the Knowledge-Transforming model. In the Knowledge-Transforming model expert writers try a range of different solutions the rhetorical writing problem they are facing. This finding of different options involves the reformation of ideas, evaluation of content and revision of the text (Bereiter and Scardamalia, 1987).

A later model which directly addresses discovery in writing proposes an additional process by which discovery emerges. The dual-process model of discovery (Galbraith, 1999, 2009; Galbraith and Baaijen, 2015) proposes that in addition to the process of discovery found in problem-solving, revision processes, that the text generation process also involves self-discovery. Thus, there are two modes or mechanisms by which discovery emerges during writing—text production from episodic and autobiographic memory (termed the *Knowledge Constituting* discovery process) and revision of produced text in relation to specified rhetorical goals (termed the *Knowledge Transforming* discovery process).

As elaborated by Galbraith (1999, 2009), text production involves discovery because the original memories that are stored in episodic and autobiographical memory are not necessarily coherent or organized. They can be sensory and non-verbal (Galbraith, 1999, 2009; Galbraith and Baaijen, 2015). According, text production is not a simple and direct process but rather involves the dynamic reconstitution in words or sensory information in episodic memory. This verbal reconstruction in short bursts of language and writing creates the event or memory anew (Galbraith, 1999, 2009; Galbraith and Baaijen, 2015). The key aspect in this process is that the production of writing forces the explication in words of an experience that was not fully verbal before and self-discovery emerges as a result of this process of writing.

The second process for discovery in writing is similar to those already proposed by Flower and Hayes (1980) and Bereiter and Scardamalia (1987). The core assumption is that rhetorical problem-solving involving evaluation, revision, and rewriting reformulates the text that emerged through the text production stage. Baaijen and Galbraith (2018) specify that during this stage it is not so much that new ideas are generated but rather that the existing text is reorganized and more coherently presented. This reorganization and evaluation lead to increased understanding of what has been said and what the experience being described means. For the dual-process model, this revision process is aligned with semantic memory in which there is far greater coherence in relation to what one knows and can state in language explicitly (Baaijen and Galbraith, 2018).

This discussion involves different initial positions over the timing and ways in which discovery emerges in writing. If Flower and Hayes (1980) and Bereiter and Scardamalia (1987) are correct, discovery only emerges from the revision (Knowledge Transforming) processes directed at the solution of a rhetorical problem. Text production (Translation and Knowledge Constituting) would not involve any increase in discovery. If the dual-process model (Galbraith, 1999, 2009; Galbraith and Baaijen, 2015) is correct, discovery would emerge in both the text-production and text-revision processes of writing. Furthermore, as Baaijen and Galbraith (2018) specify that if both Knowledge Constituting and Knowledge Transforming were present it should elicit the highest levels of discovery possible. Thus, we have a set of hypotheses concerning the type of writing process which might elicit insight and emotional clarity (Knowledge Constituting and Knowledge Transforming) and the degree and timing at which this would occur. Succinctly stated, we can hypothesize that:

1) Both the Knowledge Constituting and Knowledge Transforming writing processes have the potential to elicit high levels of insight and emotional clarity;
2) That repeating the Knowledge Constituting writing process will further heighten levels of insight and emotional clarity;
3) And that a Knowledge Transforming writing process following a Knowledge Constituting process will further heighten levels of insight and emotional clarity.

In addition to this set of hypotheses concerning the relationship of the two writing processes, we can further hypothesize about the relationship of these underpinning writing processes and the theoretical explanations of how expressive writing facilitates wellbeing. Central to the inhibition explanation of expressive writing is the idea of overcoming the self-imposed constraints on the expression of traumatic experiences (Lepore and Smyth, 2002). The Knowledge Constituting writing process involves the fast transition of sensory and non-verbal information into text (Galbraith, 1999, 2009; Galbraith and Baaijen, 2015). This writing process includes both a technical writing method and psychological process for overcoming the self-imposed constraint on knowing more fully the content of an autobiographical traumatic experience. The Knowledge Constitution process generates text that is not particularly controlled at the point of its initial constitution (Galbraith and Baaijen, 2015). The focus of attention is on verbalizing what has been remembered in sensory and non-verbal ways and not on the monitoring of this information. Once it is written, it is in the purview of the writer and has by definition been discovered or disclosed to that writer. As such there would seem to be an explanatory overlap between the Knowledge Constituting writing process and Inhibition Theory in that a surprising disclosure takes place that has therapeutic value.

The Knowledge Constituting writing can also be seen to be related to the Cognitive Processing explanation of expressive writing. Key to this explanatory theory of expressive writing is the idea that the writer develops an increased cognitive ability to explain to themselves the events that they experienced (Pennebaker, 1993). The Knowledge Constituting process provides increased verbalized information about the writer's undisclosed, non-verbal memories of the expressed experience. This increased degree of verbalized description could facilitate more insight into one's own experience as the writer has more information to work with.

Knowledge Transforming writing process could also have a role in relation to Cognitive Processing explanation of expressive writing. Knowledge Transforming is a writing process which evaluates and reorganize generated text (Flower and Hayes, 1980; Bereiter and Scardamalia, 1987; Galbraith, 1999, 2009; Galbraith and Baaijen, 2015). These processes of evaluation and reorganization may allow new ways of conceptualizing one's own experience to emerge. Taken together, the processes Knowledge Constituting and Knowledge Transforming would seem aligned with a Cognitive Processing explanation of expressive writing with the former process providing additional information to work with and the later process involving evaluating and reconceptualizing one's experience leading to enhanced insight and understanding.

The Self-Regulation explanation of expressive writing is primarily aligned with the Knowledge Transforming writing process. Self-Regulation involves an increased sense of control and mastery over an experience (Lepore et al., 2002). A sense of mastery over the experience should psychologically reduce anxiety, stress and depression associated with prior traumatic experiences (Lepore et al., 2002). Knowledge Transforming is a writing process designed to construct coherence in writing through monitoring, editing and restructuring generated text (Flower and Hayes, 1980; Bereiter and Scardamalia, 1987; Galbraith, 1999, 2009; Galbraith and Baaijen, 2015). In this writing process the writer is actively engaged in modifying and reorganizing the text that has been generated by a prior stage of writing. A sense of control over the experience itself could emerge as the writer is actively engaged in evaluating and presenting in a coherent way their description of the experience. The overlap between the Self-Regulation explanation of the wellbeing effects of expressive writing and the Knowledge Transforming process resides in the rewriting/reorganization of the experience itself. The writer is actively changing, deleting and moving text around so as to create a description that the writer feels is more coherent. Theoretically this writing process could lead to the feeling of having mastered and understood the experience being described thus facilitating the type of outcomes described in relation to expressive writing.

Freewriting and autoethnographic poetry writing

In order to explore the hypotheses concerning the writing processes of discovery, two specific genres of writing were chosen for investigation—freewriting and autoethnographic poetry writing. These genres were chosen because of the way they interact with processes of discovery. Freewriting, initially developed by Elbow (1973) within the context of the freshman Composition classroom, is defined as a timed, quick writing exercise focused on the spontaneous production of language without the inhibiting processes of correct grammar, word choice, and text organization (Elbow and Belanoff, 2000). It is a prevalent pedagogical writing practice within Composition classrooms utilized for initial text production.

The pedagogy of freewriting involves instructing students to keep writing for 15 min any ideas or thoughts that come into their mind at that moment time and most importantly to just keep writing without bothering about concerns with accuracy or linguistic correctness (Elbow, 2000; Elbow and Belanoff, 2000).

It is a form of written stream of consciousness without editing. Focused or directed freewriting, a later version of this pedagogy, involves the specification of a topic, question or experience for freewriting (Fishman, 1997; Somerville and Crème, 2005). The focused freewrite is designed to provide a free-flowing set of thoughts on a specific topic and thus generate insight into that topic (Li, 2007).

The genre of autoethnographic poetry writing as implemented within the Composition classroom setting was developed by Hanauer (2010, 2021). Building upon prior work into the uses of poetic form for research purposes (Richardson, 1990, 1997, 2003; Furman, 2004, 2006; Langer and Furman, 2004; Prendergast, 2009; Hanauer, 2020). Hanauer (2010) proposed and then studied a systematic protocol for the writing of autoethnographic poetry for people who have not necessarily been exposed to poetry writing previously and are not training to be poets. This process of writing a poetic autoethnography (Hanauer, 2010, 2021) involves two basic stages:

a) *Significant Memory Elicitation*: In the initial stage the writer is asked to relive a significant memory from their life in a sensory-rich, detailed manner. The prompt requests sensory information concerning the experience and the writer is asked to write as many notes as they can on the memories they have. The writer is told that these notes do not need to be coherent.
b) *Imagistic Poetry Writing and Revision*: In the second stage, the writer chooses a specific image from the notes they have written which captures, in their mind, the central meaning and feeling present within their experience. They are then asked to carefully describe that sensory image and to revise it until it matches as closely as possible their relived memory of the experience.

As seen in Hanauer's (2010) monograph, this protocol was used with over 100 students over 6 years and produced more than 1,000 poems dealing with meaningful personal experiences.

The aim of poetic autoethnography is similar to that of phenomenology (Hanauer, 2021) in that the writer (or thinker) is directed through a process which explicates an individual's consciousness of their own experience (Giorgi et al., 2017). According to Hanauer (2010) this poetry writing process produces an "individual, subjective, emotional, linguistically-negotiated understanding of personal experience" involving "multisensory, emotional information that reconstructs for the reader the experience of the writer" (p. 137). Discovery emerges through this process as a result of the surprise that the writer has in reliving and then reflecting (and selecting) on their own experience. This genre is based on the empirical models of poetry which specify that poetry writing involves two basic sets of processes: a creative-associative stage of poetry writing and a stage of controlled revision (Schwartz, 1983; Armstrong, 1984, 1985, 1986; Gerrish, 2004; Hanauer, 2010; Liu et al., 2015; Peskin and Ellenbogen, 2019).

Empirical design, hypotheses, and research questions

The current study investigates the writing processes which underpin wellbeing outcomes by considering discovery outcomes in the two genres of freewriting and autoethnographic poetry writing. While not presenting a full empirical design, the two genres investigated here offer two different manifestations of self-discovery through writing processes. Freewriting, similar to expressive writing, consists of a repeated *Knowledge Constituting* (free text generation) writing process; while autoethnographic poetry writing involves a *Knowledge Constituting* process followed by a *Knowledge Transforming* (text evaluation and revision) process. As such, these genres map neatly with the hypotheses which emerged in the discussion of the current state of understanding of writing processes and discovery. Firstly, we can investigate whether these writing processes elicit high levels of discovery (defined here as insight and emotional clarity). The following research questions specify this aspect of the study:

1. To what extent does the *Knowledge Constituting* writing process elicit high levels insight and emotional clarity?
2. To what extent does the *Knowledge Transforming* writing process elicit high levels of insight and emotional clarity?

Secondly, as a result of the nature of the way the specific genres of freewriting and autoethnographic poetry are implemented as writing practices we can also address the issue of timing and writing process. Accordingly, we can also ask the following questions:

3. Do insight and emotional clarity increase at the *Knowledge Transformating* stage following *Knowledge Constituting* (as manifest in poetic autoethnographic writing)?
4. Do insight and emotional clarity increase with the repetition of two stages of *Knowledge Constituting* (as manifest in freewriting)?

These four questions which emerge from the connections between current scholarship on discovery in writing and the specific genres of freewriting and autoethnographic poetry will direct the current study.

Methods

Participants

One hundred and seventeen first-language English speaking students were participants in this study. The students were drawn from freshman Composition classes from three different Northwestern universities in the US. The students were

randomly assigned to either the poetry writing ($n = 60$) or the freewriting ($n = 57$) conditions. There were 49 women, 65 men and 3 who gender identified as Other. The age range was from 18 to 25. Randomization was evaluated and the proportion of participants by age and gender was found to be non-significant for the randomly selected groups [*Gender* X^2 (2, $n = 117$) = 0.42, $p = 0.81$; *Age* X^2 (5, $n = 117$) = 2.82, $p = 0.73$]. All data was collected in accordance with the ethical requirements of the Indiana University of Pennsylvania IRB (#19-194).

Measurement instruments

The current study collected data by modifying two existing rating scales: insight and emotional clarity scales. In this study, the process of self-discovery was conceptualized as involving an understanding or insight about prior experience and as having enhanced emotional clarity in relation to one's own experience. The insight scales were adapted from Grant et al. (2002) and consisted of the following items:

1. I have a clear idea about why I behaved the way I did in this experience
2. I understand this experience
3. I can make sense of this experience

The emotional clarity scales were adapted from Gratz and Roemer (2004) and consisted of the following items:

1. I know exactly how I am feeling about this event
2. I am clear about my feelings about this event
3. I have difficulty making sense out of my feelings about this event
4. I have no idea how I am feeling about this event
5. I am confused about how I feel about this event

Both sets of scales were implemented with a 7-point (1 = Strongly Disagree−7 = Strongly Agree) matrix style question using the Qualtrics web-based survey tool.

Prior to usage of these scales in the research setting, the underpinning dimensionality and reliability of the scales was psychometrically evaluated. Since these items were adapted from existing and psychometrically validated scales, a factor analysis rather than a principal component approach was utilized. One hundred and sixty-eight first language composition students, drawn from a similar sample as the core study, completed the insight and emotional clarity scales following a short memory elicitation writing task. A maximum likelihood factor analysis with direct Oblimin rotation with an unspecified factor solution was conducted. Participant to variable ratio was 24:1 and sampling adequacy was evaluated using a Kaiser-Meyer-Olkin (KMO) analysis; the KMO value of 0.75 supports a suitable sample size for factor analysis. Descriptive statistics for each of the rating items used in the factor analysis were calculated to make sure that the assumption of normality was not violated.

TABLE 1 Pattern matrix and factor loadings for insight and emotional clarity scales.

	Factor	
	1	2
Insight		
I understand this experience	0.953	
I can make sense of this experience	0.938	
I have a clear idea about why I behaved the way I did in this experience	0.623	
Emotional clarity		
I am confused about how I feel about this event		0.958
I have no idea how I am feeling about this event		0.900
I have difficulty making sense out of my feelings about this event		0.557
I am clear about my feelings about this event		−0.553
I know exactly how I am feeling about this event		−0.517

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.
Rotation converged in 5 iterations.

Bartlett's test indicated that the data was suitable for a factor analysis (x^2 [28] = 606.7, $p < 0.001$). Observation of the scree plot and usage of the Kaiser criterion suggested a two-factor solution with items aligned with the original structure of the scales for insight and emotional clarity. The first factor accounted for 52.5% of the variance and the second factor accounted for 16.7% of the variance. Table 1 presents the obtained pattern matrix for the set of items and each of the factor loadings. As can be seen in Table 1, the emergent factors and their associated items correspond to the original insight and emotional clarity scales. The internal consistency of the two scales was evaluated using Cronbach's alpha. Each of the scales had an acceptable level of consistency (Insight Cronbach's Alpha = 0.88; Emotional clarity Cronbach's Alpha = 0.83). Based on this data the insight and emotional clarity scales were considered psychometrically valid for the current study.

Writing process materials

This study utilized two different writing processes—autoethnographic poetry writing and freewriting—each of which was directed by two writing prompts. The autoethnographic poetry writing process was conducted in two stages and followed the prompts from Hanauer (2010). The

initial stage consisted of a text-production prompt concerning a significant moment of life and the second stage of imagistic poetry writing and text-revision. The specific prompts were as follows:

- *Autoethnographic Poetry Text-Production Prompt*

"Please think of a significant moment from your life. Choose a moment that you still remember vividly and a moment that in some way changed your life. Close your eyes and relive that moment. Make sure you feel it, see it, smell it, hear, it and taste it. Slowly relive in your mind the whole of the experience. In the space below, write out as many notes as you can about this life changing memory. If necessary close your eyes again and write out more notes. Your notes do not have to be coherent"

- *Poetry Writing and Text-Revision Prompt*

"Think very carefully about the significant experience you have just chosen. What do you think is the central moment of this experience? Try to pinpoint the central feeling that accompanies this significant moment. Try to find a scene, object or action that summarizes the meaning of this event for you. In the space below, write a succinct, focused, sensory poetic description. Describe just one thing—the most important image of that whole experience. Look at the image you wrote. Think carefully about the words you chose for this description. Ask yourself about the associations of each word and the meanings that it creates. Revise your poem and write it again as a poem."

The second writing process consisted of freewriting and was based on Elbow's (1973) development of this writing approach. This process was conducted in two stages with an initial freewriting text production prompt relating to an everyday experience followed by a second freewriting text-production prompt relating the same experience. The specific prompts were as follows.

- *Initial Freewriting Text-Production Prompt*

"In the space below, I would like you to write about the event that happened to you today. Write whatever you think about this event. Don't worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, continue to do so until your time is up. You will be writing for 3 min."

- *Second Freewriting Text-Production Prompt*

"In the space below, I would like you to write some more about the event that happened to you today. Write whatever you think about this event. Don't worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, continue to do so until your time is up. You will be writing for another 3 min."

Procedure

The data for this study was collected using the online survey tool Qualtrics. The survey was designed to both collect quantitative responses as well as model the two different writing processes: autoethnographic poetry writing and freewriting. On signing into the survey, participants were randomly assigned to one or the other of the writing processes. The survey directed each participant through either an autoethnographic poetry or freewriting process. Following the informed consent process, each participant was given the first writing prompt (either for freewriting or poetry writing—see Section Writing process materials above) and 3 min to complete the task. Immediately following the first prompt each participant completed the first set of insight and emotional clarity scales. On completion of these ratings, each participant was given the second writing prompt according to their assigned writing process. The second writing process was also allotted 3 min for completion. At the end of the second writing period, each participant immediately completed the second set of ratings for both insight and emotional clarity. The final sections of the survey collected relevant demographic information. Figure 1 offers a schematic representation of the overall data collection design.

Analytical approach

The design of the current study involves the comparison of two different writing processes and the development of insight and emotional clarity over two data collection points. As such the design involves one within-subjects (2 data collection time points) and one between-subjects (2 writing processes) variable. The appropriate analysis for this type of design is a two-way repeated measures ANOVA with one-between and one-within subjects factor. This analysis was conducted independently for each of the measurement variables: insight and emotional clarity. To simplify the interpretation of the descriptive data, the three negatively worded emotional clarity scales were reversed coded so that higher levels of this scale translated into higher levels of emotional clarity. All analyses were conducted using SPSS V.28.

Results

Table 2 summarizes the descriptive statistics for poetry and freewriting on the insight and emotional clarity scales at two time points. For both the insight and emotional clarity scales the mid-point of 4 represents a neutral position (Neither agree nor disagree) concerning the participants self-evaluation of the emergence of self-discovery. As can be seen in Table 2, for the insight scales, at the 1st prompt (Knowledge Constituting) the average response is in positive territory for both poetry writing and the freewriting. The average response for poetry

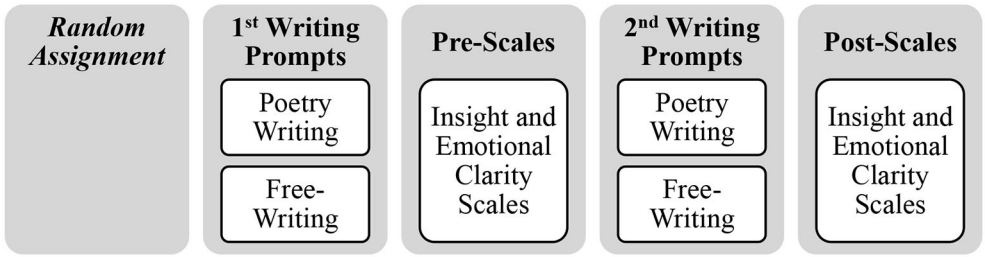

FIGURE 1
Schematic presentation of data collection and directed writing process design.

TABLE 2 Mean and standard deviation for insight and emotional clarity scales for poetic and freewiting processes at two points.

Writing process	1st Rating	2nd Rating
Insight scales		
Poetry writing ($n = 60$)	6.04 (0.89)	5.8 (1.23)
Freewriting ($n = 57$)	5.19 (0.1.37)	5.39 (1.06)
Emotional clarity scales		
Poetry writing ($n = 59$)	5.33 (1.66)	5.28 (1.45)
Freewriting ($n = 56$)	4.67 (1.64)	5.13 (1.17)

writing is 2.04 points (29.1%) above the central point of the scale and for freewriting it is 1.19 points (17%) above. For the emotional clarity scales at the 1st prompt Knowledge Constituting stage, the poetry writing process is 1.33 points (19%) and the freewriting process 0.67 points (9.6%) above the central point of the scale. At the 1st prompt Knowledge Constituting stage, the poetry writing prompt elicits higher ratings than the freewriting with an average 0.85 points (12.1%) higher ratings on the insight scale and 0.66 points (9.4%) on the emotional clarity scales.

For the 2nd prompt, the question of interest is the relationship to the ratings after the first prompt. The poetry writing process involved a move from a Knowledge Constituting to a Knowledge Transforming writing process. As can be seen in Table 2, at the 2nd prompt for the insight scales we find an average 0.24 points (3.4%) decrease in average ratings when compared to the 1st prompt outcomes. This rating is still above the central point of the scale by 1.8 points (25.7%). For the emotional clarity scales the transition to the 2nd prompt Knowledge Transforming poetry writing/revision process, there is a slight decrease of 0.05 points (0.7%) at the second stage. This average rating is 1.28 points (18.3%) above the central point of the scale. As can be seen in Table 2 and Figures 2, 3, for the poetry writing process the transition from Knowledge Constituting to Knowledge Transforming involved a decrease in the overall average rating for both the insight and the emotional clarity scales.

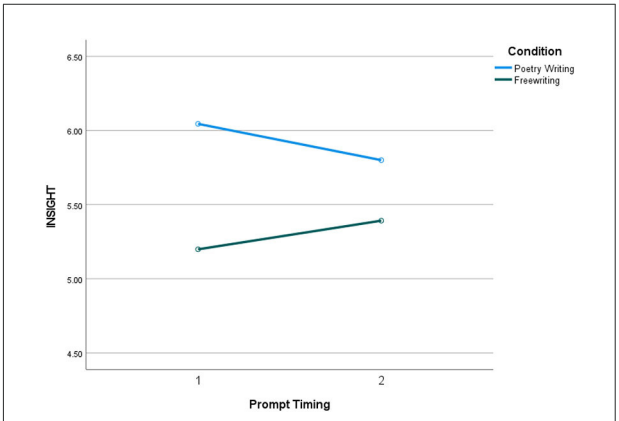

FIGURE 2
Line chart comparing 2 writing conditions for levels of insight at two time points.

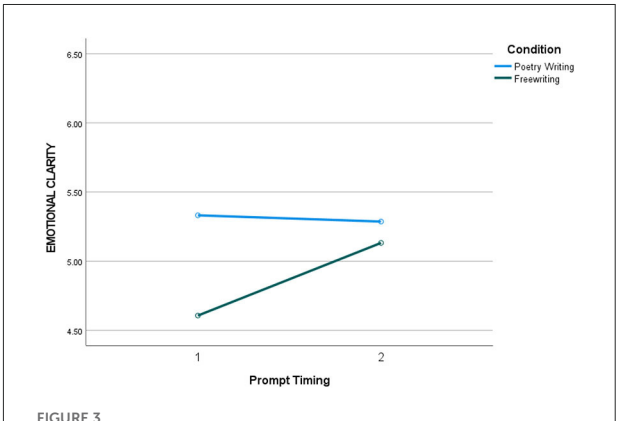

FIGURE 3
Line chart comparing 2 writing conditions for levels of emotional clarity at two time points.

The freewriting process involved a repetition of the Knowledge Constituting process. As can be seen in Table 2, for the insight scales the second prompt elicited a 0.2 point (2.8%) increase in average rating over the 1st prompt ratings. This average rating is 1.28 points (18.3%) above the central

point of the scale. For the emotional clarity scales the second prompt elicited a 0.46 point (6.6%) increase over the first prompt. This average rating is 1.13 points (16.1%) above the central point of the scale. As can be seen in Table 2 and Figures 2, 3, for the freewriting process the repetition of the Knowledge Constituting process involved an increase in the overall average rating for both the insight and emotional clarity scales.

In order to evaluate the trends seen in the descriptive data, a two-way repeated measures ANOVA with one-between and one-within subjects factor was calculated for each of the outcome measures of insight and emotional clarity. The between-subjects categorical variable consisted of two levels of writing process (poetry or freewriting) and the within-subjects variable consisted of the two timings (1st and 2nd prompts). For the insight data, as an initial stage of the analysis, the analysis of the equality variance-covariance matrices of difference scores between groups (Weinfurt, 2000) was evaluated. Box's M-value was 24.55 with a significance level of 0.001. This test result suggests evidence of a violation of homogeneity of covariance matrices. However, multivariate tests are relatively robust with groups sizes that do not diverge from a 1.5 ratio of largest n divided by smallest n (Pituch and Stevens, 2016). For this study, the ratio of largest n to smallest n was 60/57 = 1.05 suggesting the analysis can be reported.

For the multivariate tests, there is a significant insight-prompt time x writing condition interaction, Wilk's lambda = 0.94, $F_{(1,115)} = 7.28$, $p = 0.008$. This significant interaction for the insight measure suggests that the two writing processes elicited different patterns of insight elicitation. There was no main effect for the timing of the prompts, Wilk's lambda = 0.99, $F_{(1,115)} = 0.1$, $p = 0.75$. Tests of within-subjects effects have the same results with a significant interaction (with a small effect size of $\eta^2 = 0.06$) and a non-significant main effect for the timing of the writing prompt.

Levene's test of equality of error variances was calculated as part of the assumptions for the Test of Between-Subjects Effects. Levene's test was significant for the initial writing prompt ($F = 6.81$, $p = 0.01$) but not for the second writing prompt ($F = 1.18$, $p = 0.28$). This suggests a violation of this assumption at the first time point. However, when groups are of an equivalent group size this violation is less of inhibiting issue and as such the analysis was continued. Tests of Between-Subjects Effects found a significant main effect for the writing process condition, $F_{(1,115)} = 10.08$, $p = 0.002$ with a small effect size of $\eta^2 = 0.08$.

In order to further understand the nature of the significant interaction between the timing of the prompt and writing process condition, pairwise comparisons using Least Significant Differences were calculated. There was a significant difference ($p = 0.001$) between the two writing conditions at the first time point but not at the second time point ($p = 0.06$). There was also a significant decrease for insight ratings for the poetry writing task from the first to the second prompt ($p = 0.03$). But the pairwise comparison for the freewriting task did not find a significant increase between the first and second prompt.

Figure 2 presents the line chart for the insight data. The findings of the insight scale section of this study can be summarized in relation to Figure 2. First there is a difference between the two writing conditions. This is substantiated both by the significant interaction and the significant between-subjects main effect for condition. The trajectory of insight development between the two writing processes is different. As clearly seen in Figure 2, poetry writing has higher initial average ratings for the Knowledge Constituting writing process (prompt 1) which is significantly reduced with the Knowledge Transforming revision task (prompt 2). Reversely, for the freewriting task we have an initial level of insight which increases at the second repetition of the Knowledge Constituting prompt but is not significantly different. While with the first prompt there is a significant difference between poetry and freewriting processes, there is no significant difference after the second writing prompt. This seems to suggest a different trajectory of response for insight in the two writing conditions.

A two-way repeated measures ANOVA with one-between and one-within subjects factor was also calculated for the emotional clarity data. Box's M-value was 2.94 with a significance level of 0.41 suggesting that there was no violation of the assumption of homogeneity of covariance matrices. The multivariate tests revealed a significant emotional clarity-prompt time x writing condition interaction, Wilk's lambda = 0.95, $F_{(1,113)} = 6.21$, $p = 0.01$. There was also a main effect for the timing of the prompts, Wilk's lambda = 0.96, $F_{(1,113)} = 4.41$, $p = 0.04$. Tests of within-subjects effects have the same results with a significant interaction (with a small effect size of $\eta^2 = 0.04$) and a significant main effect for the timing of the writing prompt (with a small effect size of $\eta^2 = 0.05$).

Levene's test of equality of error variances was calculated as part of the assumptions for the Test of Between-Subjects Effects. Levene's test was not significant for the initial writing prompt ($F = 0.01$, $p = 0.91$) or the second writing prompt ($F = 2.93$, $p = 0.09$). This suggests we do not have a violation of this assumption. Tests of Between-Subjects Effects did not find a significant main effect for the writing process condition, $F_{(1,113)} = 2.98$, $p = 0.09$.

In order to further understand the nature of the significant interaction between the timing of the prompt and writing process condition, pairwise comparisons using Least Significant Differences were calculated. As with the insight data, for the emotional clarity scales there was a significant difference ($p = 0.02$) between the two writing conditions at the first time point but not at the second time point ($p = 0.53$). There was not a significant decrease for emotional clarity ratings for the poetry writing task from the first to the second prompt ($p = 0.78$). But the pairwise comparison for the freewriting task found a significant increase between the first and second prompt ($p = 0.002$).

Figure 3 presents the line chart for the emotional clarity data. As seen in Figure 3, the direction of the two writing conditions is different. This is supported by the significant interaction between prompt time and writing condition. The slope for the poetry writing process is flat and without a significant difference for emotional clarity ratings. The slope for freewriting involves an increase with significantly higher ratings at the second prompt. At the first time point, the poetry writing process has a significantly higher rating than the freewriting prompt. But this difference disappears at the second time point. This suggests a different trajectory of response for the development of emotional clarity for the two writing processes.

Discussion

The central aim of the current study is to provide initial information on the writing processes underpinning writing-for-wellbeing by addressing the timed development of insight and emotional clarity in freewriting and autoethnographic poetry writing. The analyzed data reveals a complex pattern of responses which requires a degree of explication in order to address the current question of how self-discovery emerges.

In relation to the questions about whether self-discovery is situated in the Knowledge Constituting (text generating), the Knowledge Transforming (text revision) stages of writing or a combination of the two processes, the current results provide preliminary evidence that it is the Knowledge Constituting process which produces self-discovery. In autoethnographic poetry writing, Knowledge Constituting (text generating) produced higher levels of insight than Knowledge Transforming (text revision) and in freewriting repeated Knowledge Constituting produced higher levels of emotional clarity at the second time point. While these two results were situated in different writing processes, they both demonstrate that Knowledge Constituting (text generating) increases aspects of self-discovery. The current results do not support the hypothesis that either insight or emotional clarity is increased through the Knowledge Transforming (text revision) process. For poetry writing, there was a significant decrease in insight following a limited Knowledge Transforming (revision) process while emotional clarity stayed at the same level. Thus overall, the results presented here support the preliminary claim that Knowledge Constituting has a positive effect on self-discovery and Knowledge Transforming does not. These results explicate and support the position on text generation proposed in the dual model theory of discovery but do not support the role specified for the text revision process (Galbraith, 1999, Galbraith, 2009; Galbraith and Baaijen, 2015; Baaijen and Galbraith, 2018).

The second set of questions in this study address the development of insight and emotional clarity in two different progressions: (1) Knowledge Constituting => Knowledge Transforming (poetry writing); and (2) Knowledge Constituting => Knowledge Constituting (freewriting). The hypothesis from Baaijen and Galbraith (2018) is that Knowledge Transforming following Knowledge Constituting would produce increases in self-discovery. The data from the current study of autoethnographic poetry writing does not support this outcome. For the insight measure there was a significant decrease following Knowledge Transforming and for emotional clarity the outcomes basically stayed the same without a significant difference. For the repetition of the Knowledge Constituting process (freewriting) there was a non-significant increase for insight and a significant increase for emotional clarity concerning personal experience at the second prompt. The significant interaction found for writing condition and prompt timing on the insight and emotional clarity measures results from the difference in the trajectories of these different writing process progressions. Based on current data, the repetition of Knowledge Constituting would seem to be more conducive to self-discovery.

One effect was the significant difference between poetry writing and freewriting following the 1st Knowledge Constituting (text generation) prompt. For both insight and emotional clarity after the first prompt, poetry writing elicited significantly higher ratings than freewriting. It should be noted that there are two core differences between the prompts used for each writing process and each difference could have contributed to this significant result. The poetry writing prompt directs the participant to relive in sensory terms the experience they are thinking of and requests that the participant focus on a highly significant event. The freewriting prompt only has the requirement that the writer continue to write for 3 min without stopping and focuses on an everyday event. The data shows that the focusing on sensory information concerning a significant event elicits high levels of insight and emotional clarity. Since the current study did not have a baseline with which to compare the two genres, it is unclear if it is the significance of the event or the reliving through sensory information that directs this increase in ratings. While this result is interesting, it needs to treated with some caution because of both the potential confounding and lack of baseline data. However, it is possible that an increased focus on significant events and sensory data increases the self-discovery effects of this Knowledge Constituting prompt. Theoretically this would be in line with Galbraith and Baaijen (2015) claims for Knowledge Constituting.

There are limitations to the current study that should be addressed in the evaluation of the results presented here. First, the writing process explored here was exceedingly short and consisted of only 6 min of writing. The usual format of both freewriting and poetry writing involves a much longer time line. This might be especially important for the Knowledge Transforming (text revision) stage of the poetry writing process. Just 3 min for evaluation, revision and rewriting might not be enough to really complete this type of writing. Hence, the results that show detrimental effects for Knowledge Transforming on

insight should be considered preliminary. A longer timeline might produce higher levels of insight and indeed the results presented involving decreases in insight might just be an initial stage before new insight evolve and part of a process by which initial insights are dislodged so that new insights can emerge. Second since the writing processes used in the current study were modeled on existing genres, the design is not perfectly symmetrical. This leads to some open questions about what led to the current results. A more complete design would have had conditions for focusing on significant and everyday events, direct elicitation of sensory data, and would have had a repeated text production process for poetry and a text revision condition for freewriting. This asymmetrical design based on existing writing practices for autoethnographic poetry and freewriting does include some confounding that will require additional research to resolve. Thirdly, the current design did not include any baseline evaluations. Thus, any comparisons between the two genres are not really possible as we do not know if this a random group effect or the result of the intervention type. Finally, this is a relatively small-scale study with only 50± participants in each writing condition. Larger scale data would be helpful in providing a more solid basis for the results presented here.

To date, we only have one type of writing that has been extensively studied in terms of its effect on wellbeing. Expressive writing has been shown to produce positive effects on wellbeing (Lepore et al., 2002; Frattaroli, 2006; Pennebaker and Chung, 2007; Lepore and Kliewer, 2013; Kállay, 2015). In terms of the results of the current study, certain writing processes seem to underpin these effects. First, expressive writing is similar to freewriting in that it involves repeated writing on the same experience. Secondly it involves the instruction of not focusing on linguistic form or accuracy. As such, expressive writing is basically a repeated Knowledge Constituting writing process. Expressive writing also shares an aspect of the poetry writing process in that the request is to write about a significant event. Overall, based on the current results expressive writing repeated over several iterations focusing on significant and traumatic personal events should elicit increases in both insight and emotional clarity. The theoretical explanation for this would seem to reside in the increased amount of information that is disclosed through the movement of non-verbal and sensory information into written text which provides more detail relating to the experience itself. Thus, the Knowledge Constitution writing process facilitates a process of conscious psychological disclosure concerning the experience. The current study points to the ways in which the actual writing process involved in expressive writing might function in facilitating wellbeing.

The aim of the current study was to provide some initial data on the writing processes of self-discovery which may underpin the development of wellbeing. The main finding of the current study is that Knowledge Constituting elicits high levels of insight and may increase emotional clarity following a repetition. Autoethnographic poetry writing and freewriting involved different trajectories to achieve self-discovery. For poetry writing, it was the writing prompt which asked for sensory information and a significant event that produced high levels of insight and emotional clarity. For freewriting, it was the repetition of the text production process that increased emotional clarity. Both of these processes could be easily replicated in a variety of educational, research and clinical settings for both investigating and improving wellbeing.

The study also offers two new genres that can be used in future research on the ways in which writing can enhance wellbeing. Far more research, with a wider set of genres needs to be conducted in order to understand the ways in which writing can offer relief to writers and enhance their wellbeing. The hope is that this study which provides initial results in this direction will encourage others to further investigate these issues.

Data availability statement

The datasets presented in this article are not readily available because protected by IRB statement that this should not be shared with anyone beyond the researcher. Requests to access the datasets should be directed to hanauer@iup.edu.

Ethics statement

The studies involving human participants were reviewed and approved by IRB Indiana University of Pennsylvania. The patients/participants provided their written informed consent to participate in this study.

Author contributions

The design, data collection, analysis, and writing were all conducted by DH.

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Conflict of interest

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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Existential reflection and morality

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This paper presents a series of three studies describing how reading literature promotes empathy and moral outcomes. We add three contrasts to this field of empirical study: (a) an explanatory and interpretative form of narrative reading engagement (Integrative Comprehension) is contrasted with an expressive and explicative form of aesthetic reading engagement (Expressive Enactment); (b) an explanatory and interpretive form of cognitive perspective-taking (a component of Integrative Comprehension) is distinguished from an expressive and explicative form of empathy (a component of Expressive Enactment); and (c) a local form of moral outcome (involving changes in attitude toward a specific group or outgroup) is distinguished from a global form of moral outcome (involving an inclusive respect for human subjectivity). These contrasts are clarified and contextualized within existential-phenomenological discussions of sense-giving lived experience, agency, and morality. In conclusion, we offer a framework that specifies the potential impact on wellbeing of a form of literary reading that involves existential reflection, especially as conceived within the emerging field of existential positive psychology.

KEYWORDS

literary reading, empathy, prejudice, existential reflection, phenomenology, morality, agency, expression

Introduction

That reading literature can promote empathy and related prosocial attitudes is not a new claim. Aristotle's *Poetics* often is referred to as the first record of such a claim, although more recent versions are abundant. Authors and poets (e.g., Victor Hugo, Harper Lee, Rabindranath Tagore, Leo Tolstoy), philosophers (e.g., Jürgen Habermas, Martha C. Nussbaum, Jenefer Robinson, Richard Rorty, Robert Solomon), historians (e.g., Robert Darnton, Lynn Hunt), literary scholars (e.g., Susan Keen, Lisa Zunshine), psychologists (e.g., Emanuele Castano, Raymond Mar, Keith Oatley), and interdisciplinary scholars (e.g., Mark Bracher, Frank Hakemulder, Emy Koopman) seem to agree that literature has a positive effect on our capacity to empathize with people different from ourselves and to contribute to our moral growth.

Indeed, there is robust evidence that lifetime exposure to fiction is positively correlated with social cognitive and empathic abilities, although the correlation is rather small (Mumper and Gerrig, 2017). There is also evidence that reading fictional texts at least briefly boosts social cognition and empathy more than does reading non-fiction or no text at all, but, here too, the effect sizes are marginal (Dodell-Feder and Tamir, 2018).

As Mar (2018) points out, it is also possible that a third variable, such as transportation or absorption, is responsible for the correlation between social cognition and empathy.

Some scholars have begun to examine how individual differences affect the relation between literary reading and social cognition. The tendency to become absorbed—or transported into—the world of a narrative text has been given particular attention (see Kuijpers et al., 2021 for a review). In their seminal accounts, Nell (1988) referred to the impact of becoming "lost in a book," Gerrig (1993) described the effects of "transportation" into the world of the text, and Busselle and Bilandzic (2009) examined how "narrative engagement" affects story-related attitudes. In empirical studies based on Gerrig's discussion of transportation, Green and Brock (2000) and Green (2002) provide evidence that readers who are transported into a narrative (i.e., attentionally focused on and emotionally invested in the vividly imagined world of the text) are more likely to be persuaded by the narrative (i.e., to report story-congruent beliefs) than are those who are not transported. van Laer et al. (2014) provide a "transportation-imagery" version of this hypothesis (involving identifiable characters and story verisimilitude) and suggest that the effects of transportation are mediated by an increase in story-consistent affective responses (identifiable characters) and (b) a decrease in critical thoughts (counterarguments).

In an attempt to clarify the reader characteristics that mediate attitude change, Johnson (2012) found that participants reporting transportation also scored higher on affective empathy. In a follow-up study, Johnson (2013) investigated the effect of fiction reading on the reduction of prejudice against Muslims. In line with the transportation-persuasion model, he employed a text with a female Muslim protagonist who defied negative Muslim prejudices. Johnson found that transportation into the narrative, as measured by Green and Brock (2000) transportation scale, correlated positively with prejudice reduction. Moreover, he reported regression analyses indicating that affective empathy, as measured by Batson et al. (1997), mediated the effects of transportation on prejudice reduction.

Bal and Veltkamp (2013) similarly found that high levels of transportation into a fictional narrative were associated with higher levels of affective empathy, as measured by the empathic concern subscale of Davis (1983) Interpersonal Reactivity Index (IRI). Moreover, levels of empathy remained elevated 1 week after initial post-reading measurement. In contrast, reading a non-fiction text did not lead to higher levels of affective empathy, presumably because non-fiction does not provide the same opportunities as narrative fiction to generate vivid imagery and identify with a character (Green, 2005).

Efforts to explain *how* reading evokes empathy and shapes social cognition point either to the transmission of social knowledge or to the social value of the processes that readers *rehearse* while reading, including empathizing with characters. Regarding the latter hypothesis, Mar (2018) argues that social processes such as mental inferencing, affective empathy, etc., may be enhanced by stories that evoke and rehearse the social cognitive mechanisms through which we understand our social world.

In this paper, we use distinctions grounded in existential-phenomenological philosophy to add conceptual nuance to this discussion of absorption, empathy, and changes in social cognition. Specifically, we adopt Kuiken and Douglas (2017) contrast between two forms of absorbed reading engagement, as measured by the Absorption-Like States Questionnaire (ASQ): Expressive Enactment (ASQ-EE) and Integrative Comprehension (ASQ-IC). Each of these forms of absorption involves empathy-like social cognition—but in a rather different form than was addressed in previous studies. Briefly, Expressive Enactment subsumes an expressive, meaning-explicating form of empathy-like social cognition, whereas Integrative Comprehension subsumes an interpretive, explanation-seeking form of empathy-like social cognition. The distinction between these two forms of empathy-like response differs from the distinction between affective and cognitive empathy that was invoked to explain the results of the Johnson (2012, 2013) and Bal and Veltkamp (2013) research (see also Melchers et al., 2015; Healey and Grossman, 2018). Moreover, Kuiken and Douglas (2017, 2018) and Kuiken et al. (2021) have repeatedly found that Expressive Enactment and Integrative Comprehension—and the contrasting forms of empathy-like social cognition that they subsume—differentially predict aesthetic, explanatory, and pragmatic reading outcomes. For example, Expressive Enactment mediates the relationship between Open Reflection and self-altering aesthetic outcomes, such as inexpressible realizations, self-perceptual depth, and sublime feeling, while Integrative Comprehension mediates the relationship between Open Reflection and narrator intelligibility, causal explanation, and explanatory cohesion.

We emphasize and elaborate here how the "self-perceptual depth" that is reliably an outcome of Expressive Enactment involves a global (or existential) sense of self (Kuiken and Sopcak, 2021: 310). As measured in the present research (Kuiken et al., 2012), our conception of "self-perceptual depth" was derived from studies of self-perceptual change reported after (a) intensive therapeutic reflection (Kuiken et al., 1987); (b) impactful dreams (Kuiken and Sikora, 1993); and (c) self-altering reading (Kuiken et al., 2004; Sikora et al., 2011). Items on this instrument reflect existential feelings, especially convictions about aspects of a person's orientation toward broadly inclusive states of affairs (e.g., "I felt sensitive to aspects of my life that I usually ignore"; "I felt that my understanding of life had been deepened"; "I felt like changing the way I live").

In the present paper, we supplement this global (and existential) sense of self with a similarly global (and existential) sense of others. In a series of three studies, we examine the contrast between global and local forms of moral outcome. *Local*

forms of moral outcome include changes in racist and anti-immigrant attitudes toward a specific group or outgroup, that is, what Zick et al. (2011) refer to as Group-Focused Enmity. *Global forms* of moral outcome, in contrast, involve an inclusive, other-directed respect for the complexities of human subjectivity—or what we have called "non-utilitarian respect" (Kuiken et al., 2012). Items used to assess non-utilitarian respect include "It seemed wrong to treat people like objects"; "I was keenly aware of people's inherent dignity"; "I felt deep respect for humanity."

Study 1

The first study, a classroom study, explored whether empathy-like engagement with excerpts from a novel depicting the traumatic experience and aftermath of attending a Residential School would reduce prejudice toward the Canadian Indigenous population. We employed a well-established measure of empathy (Davis, 1983, the IRI), which distinguishes affective from cognitive empathy, and we also employed the ASQ, which contrasts an expressive and explicative form of empathy with an interpretive and explanatory form of cognitive perspective-taking.

Study 2

In Study 2, we examined whether global and local moral outcomes are differentially predicted by the ASQ-EE and ASQ-IC, respectively. Although excerpts from the same novel as used in Study 1 were used again, the measures of moral outcome no longer focused narrowly on prejudiced attitudes toward the Canadian Indigenous population. Rather we distinguished between decreases in prejudice toward outgroups (a local moral outcome) and increases in non-utilitarian respect (a global moral outcome).

Study 3

In Study 3, we conceptually replicated Study 2, but shifted from presentation of a text in which the explicit themes involved prejudice to presentation of a text in which the explicit themes involved honesty and integrity in intimate interpersonal relations. Our goal was to examine whether the effects of reading on pro-social attitudes are due to a generic reading process or to the narrative content of a specific text.

Discussion

Finally, in the discussion, we provide theoretical elaboration of a form of reading engagement that involves the expressive and explicative form of reading engagement captured by the ASQ-EE (Expressive Enactment). Our elaboration relies especially upon Husserl (2001) description of expressive and explicative sense-giving within lived experience. We argue further that this form of engagement is at the heart of existentialists' discussions of agency and freedom, especially how this form of expressive and meaning-explicating engagement affects the global moral outcomes emphasized in their philosophy.

Study 1

To explore the role that empathy-like social cognition plays in moral judgment, we examined changes in prejudice toward the Canadian Indigenous population after participants read a novel depicting the traumatic experience and aftermath of attending a Residential School. The classroom research setting enabled participants to engage a text that explicitly addresses prejudice within a research situation that supported close reading of the text. We also asked participants to complete questionnaires that assess several forms of empathy-like social cognition.

Materials and methods

Participants

The convenience sample of students participating in Study 1 consisted of 68 undergraduate students at MacEwan University, Canada, who were enrolled in one of two of the first author's introductory-level English courses and received partial course credit for participation. Forty-seven were women and twenty-one were men (M_{age} = 21.9, age range: 18–41 years). Participants in one course formed Group A (23 women, 12 men, 1 "it's complicated," M_{age} = 23.9, age range: 18–41 years) and those in the other course formed Group B (24 women, 9 men, M_{age} = 19.8, age range: 18–31 years).

Materials

Davis' interpersonal reactivity index

Davis (1983) Interpersonal Reactivity Index (IRI) is a multi-dimensional measure of trait empathy. It contains 28 items, distributed across four subscales of seven items each: (a) Perspective Taking (PT) – the tendency to spontaneously adopt the psychological point of view of others; (b) Fantasy (FS)—the tendency to project oneself imaginatively into the feelings and actions of fictitious characters in books, movies, and plays; (c) Empathic Concern (EC)—"other-oriented" feelings of sympathy and concern for unfortunate others; and (d) Personal Distress (PD)—"self-oriented" feelings of personal anxiety and unease in tense interpersonal settings (Davis, 1983). Our objective was to determine whether any of these aspects of trait empathy

predict reading-induced changes in prejudiced attitudes toward the Canadian Indigenous population. We were particularly interested in the Fantasy subscale because it captures a form of absorption into narrative media; also, the Fantasy and Perspective Taking scales reflect the two forms of empathy that are prominent in contemporary scholarly literature: affective and cognitive empathy (Melchers et al., 2015).

Morrison's measure of prejudiced attitudes toward aboriginals in Canada

Morrison et al. (2008) developed the Prejudiced Attitudes Toward Aboriginals in Canada Scale (PATAS), which contains two subscales: the Old-Fashioned Attitudes Toward Aboriginals in Canada Subscale (O-PATAS) and the Modern Attitudes Toward Aboriginals in Canada Subscale (M-PATAS). The O-PATAS consists of 11 items and is grounded in the theory of and research on old-fashioned prejudice (e.g., Madon et al., 2001). It measures attitudes toward the perceived inferiority of the Canadian Indigenous population[1], based on genetic race differences. The M-PATAS consists of 14 items based on the theory of and research on modern prejudice (e.g., Tougas et al., 1995). It measures modern prejudices such as that Indigenous people are no longer discriminated against, that they are too demanding and too proud of their cultural heritage, and that they receive special treatment. The O-PATAS and M-PATAS were used to assess text-congruent changes in prejudice, i.e., local moral outcomes.

Kuiken and Douglas's absorption-like states questionnaire

Kuiken and Douglas (2017) Absorption-Like States Questionnaire (ASQ) is a 37-item instrument that assesses (1) Open Reflection (ASQ-OR; with item parcels for sustained concentration and attentional flexibility); (2) Expressive Enactment (ASQ-EE; with item parcels for *pre-enactive empathy*, peri-personal space, and self-implicating "givenness"); and (3) Integrative Comprehension (ASQ-IC; with item parcels for *cognitive perspective-taking*, extra-personal space, affective realism, and realistic conduct). Previous studies indicate that, when these measures of absorption-like states are included within an appropriate SEM model (Kuiken and Douglas, 2017, 2018; Kuiken et al., 2021), openness to experience (Open Reflection) is the substrate of (a) an expressive and explicative form of reading engagement (Expressive Enactment; ASQ-EE) and, separately, an interpretative and explanatory form of reading engagement (Integrative Comprehension; ASQ-IC). In general, Expressive Enactment predicts aesthetic (but not narrative explanatory) reading outcomes, while Integrative Comprehension predicts narrative explanatory (but not aesthetic) reading outcomes (Kuiken and Douglas, 2017, 2018; Kuiken et al., 2021). The present project is the first to examine this model in relation to reading outcomes that involve text-related moral outcomes. Also, rather than differentiating affective from cognitive empathy, the contrasting forms of social cognition that are subsumed by the ASQ-EE (Pre-Enactive Empathy) and ASQ-IC (Cognitive Perspective-Taking) separately contribute, on the one hand, to an expressive, explication-oriented form of reading engagement (ASQ-EE) and, on the other hand, to an explanatory, narrative-oriented form of reading engagement (ASQ-IC), respectively.

The process of expressive, explication-oriented reading (reflected by the ASQ-EE) involves a form of "egoic activity" (Husserl, 2001) through which new "categories" of lived experience are created in the dynamic back and forth and actively reflective explication (lifting out) of self-directed, pre-reflective sensed meanings, on the one hand, and pre-reflectively sensed textual meanings, on the other. In the general discussion, we will elaborate how this "egoic activity" is at the heart of existential reflection. In contrast, the process of absorbed reading that is reflected by the ASQ-IC lacks this kind of "egoic" expressive activity.

Form C of the Marlowe-Crown social desirability scale

Form C of the Marlowe-Crown Social Desirability Scale (SDS, Reynolds, 1982) involves 13-items and uses a true-false response format. This scale measures the degree to which participants provide socially desired rather than sincere responses.

Experimental and comparison texts

The experimental text in this study consisted of three selected passages from Richard Wagamese's novel *Indian Horse* (Wagamese, 2012). The novel presents a fictionalized, but realistic, portrayal of how the Residential Schools System has impacted and continues to impact the lives of Canadian Indigenous people. The first passage (53–54) powerfully describes the protagonist's and fellow Residential School children's feeling of being robbed of their freedom, as well as their feeling of suffocation from having their identity and culture taken away. In the second passage (167–169), the protagonist recalls the tragic story of two sisters, the younger of whom died after being repeatedly placed in solitary confinement by the nuns running the school, after which the older sister committed suicide at her sister's funeral. The third passage (198–199) portrays the painful memory of the protagonist's extended sexual abuse by one of the catholic Fathers running the school, who was also the protagonist's ice hockey coach. Besides potentially contributing to increased empathy for and understanding of some of the current struggles of the Indigenous population in Canada, the research materials also required participants to

1 The term "Aboriginal" to refer to the Canadian Indigenous population is no longer in use. We retain it when referring to the Prejudiced Attitudes Toward Aboriginals Scale, but use "Indigenous" when referring to the population.

reflect on their own prejudices toward Indigenous people and out-groups in general.

As a comparison text we used the poem "The Red Wheelbarrow" by Williams (1966). Since the presumed effects of literary reading on social cognition, empathy, and prejudice are thought to hinge on absorption (transportation) into *narratives*, we chose a comparison text that completely lacks narrative structure and, moreover, does not make moral conduct thematic.

Procedure

We used a quasi-experimental design, namely, a crossover design in which interventions are performed sequentially (Handley et al., 2011). That is, participants in both groups read the comparison text and the experimental text but at different times and in a different order. This ensured that both groups received the benefits of the treatment.

Study session 1

All participants (Groups A & B) were given an oral briefing and invited to participate in the study. Since participants received partial course credit for participation (3 ^{TM} 2% of their final grade, for a total of 6%) and since participation involved class specific educational benefits, 1 h and 15 min of class time were allocated to each study session. All study materials were presented on screen through a learning management system.

Participants who did not give consent were directed toward an alternative exercise, which required approximately the same amount of time to complete for the same partial course credit. Participants who gave consent were presented Davis's (1983) Interpersonal Reactivity Index (IRI), Morrison et al.'s (2008) Prejudiced Attitudes Toward Aboriginals Scales (O-PATAS, M-PATAS), and Kuiken and Douglas's (2017) Absorption-Like-States Questionnaire (ASQ). The response format for these scales required a 5-point rating (1 = *strongly disagree,* 2 = *disagree, 3 = do not know*, 4 = *agree*, 5 = *strongly agree*). Lastly, the first session also included Form C of the Marlowe-Crown Social Desirability Scale (Reynolds, 1982).

Study session 2

By the second session, which occurred 1 month after Session 1, Group B had finished reading Wagamese's (2012) *Indian Horse* (the experimental text) while Group A had not, and Group A had read the comparison text while Group B had not. Both groups completed Morrison et al.'s (2008) PATAS again and, in addition, Kuiken and Douglas's (2017) ASQ (in response to the presented text).

Study session 3

In the third session, which occurred 1 month after Session 2, Group A had finished reading the excerpts from *Indian Horse* and Group B had read the comparison text. Both groups then completed Morrison et al. (2008) O-PATAS and M-PATAS, as well as the ASQ. A written and oral debriefing were provided at the completion of Session 3.

Results

PATAS change scores

The research design involved (a) an initial baseline session (Session 1) during which both groups completed the M-PATAS and O-PATAS; (b) a second session (Session 2) in which Group A read the comparison text and Group B read the experimental text before completing the M-PATAS and O-PATAS; and (c) a third (cross-over) session (Session 3) in which Group B read the comparison text and Group A read the experimental text before completing the M-PATAS and O-PATAS. Thus, in this crossover design, both groups were exposed to the comparison text and to the experimental text shortly before completing the dependent measures.

We conducted two ANCOVAs in which (a) exposure to the comparison text vs. exposure to the experimental text was a between subjects variable; (b) order of exposure to the comparison and experimental texts was a between subjects variable; (c) baseline measures of the M-PATAS (or O-PATAS) was a covariate; and (d) post-intervention assessment of the M-PATAS (or O-PATAS) was a dependent variable. Using baseline minus post-treatment item averages, we found a significant text (comparison vs. experimental) by order (comparison text first vs. experimental text first) interaction for the M-PATAS, $F_{(1, 54)}$, $= 8.889$, $p = 0.004$. As expected, when statistically controlling for baseline M-PATAS scores, presentation of the experimental text was followed by significantly larger M-PATAS change scores ($M = 3.038$) than after presentation of the comparison text ($M = 2.927$). The analogous interaction for the O-PATAS change scores was not significant.

IRI and PATAS

We found no significant correlations between any of the dimensions of Davis's (1983) IRI and either of Morrison et al.'s (2008) PATAS change scores. This means that trait empathy, as measured by the IRI, did not affect changes in prejudiced attitudes toward the Canadian Indigenous population, as measured by the PATAS.

ASQ and PATAS

We also examined whether Pre-Enactive Empathy (a component of the ASQ-EE) or Cognitive Perspective-taking (a component of the ASQ-IC) would predict Morrison et al. (2008) PATAS change scores. We found a significant correlation between ASQ Pre-Enactive Empathy and the M-PATAS change scores, $r_{(58)} = 0.289$; $p = 0.028$, but no

relationship between ASQ Cognitive Perspective-Taking and M-PATAS change scores.

In an exploratory analysis, we also found that Pre-Enactive Empathy predicted a measure of Non-Utilitarian Respect: $r_{(58)} = 0.548$; $p < 0.001$. However, Non-Utilitarian Respect and the M-PATAS change scores were not significantly correlated.

Discussion—Study 1

Results from Study 1 confirm previous evidence that reading narrative fiction can reduce prejudice. We also found a suggestive correlation between an expressive form of empathy (ASQ Pre-Enactive Empathy) and two forms of moral outcome: (a) reduction in the PATAS measure of old-fashioned prejudice and (b) an index of Non-Utilitarian Respect. These results motivated more careful examination of two issues.

First, it seems useful to examine more thoroughly the type of reading engagement that is required to capture the social cognitive nuances of literary reading. In particular, it seems useful to distinguish between (a) a form of engaged reading that involves Pre-Enactive Empathy *as a single dimension* among the three dimensions that constitute ASQ Expressive Enactment) and (b) a form of engaged reading that involves Cognitive Perspective-taking *as a single dimension* among the four dimensions that constitute ASQ Integrative Comprehension.

Second, it seems useful to reconsider the type of moral outcome that might follow engaged literary reading. Although Pre-Enactive Empathy (a component of the ASQ-EE) predicted *both* M-PATAS prejudice reduction and Non-Utilitarian Respect, these measures of moral outcome were not significantly correlated with each other. Moreover, given the previously demonstrated contrast between the expressive, aesthetic outcomes of the ASQ-EE and the explanatory, narrative outcomes of the ASQ-IC (Kuiken and Douglas, 2017, 2018; Kuiken et al., 2021), we thought it would be useful to determine whether these two forms of moral outcome are differentially related to ASQ-EE and ASQ-IC.

While well-suited to the pedagogical demands and restrictions of an in-class study, the outcome measure used in Study 1 (PATAS)—and the study design in general—may not be optimal. Although the classroom setting does provide a level of external validity that an experimental design does not, a more carefully constructed experimental setting might preclude the potential confounds (e.g., demand characteristics) that are difficult to control in the classroom. Also, while there may have been educational benefits to classroom opportunities for discussion, a more precise grasp of the processes involved in how contrasting forms of empathy mediate different forms of moral outcome may be possible within a controlled, experimental setting of the kind we employed in Studies 2 and 3.

Study 2

Building on the findings of Study 1, in Study 2, rather than comparing responses to different texts, we compared two forms of reading engagement, one that reflects an expressive and meaning-explicating form of engagement and another that reflects a resistance to expressive and explicative activity and an acquiescence to sedimented meaning categories, focusing instead on interpretation and explanation. Specifically, we examined the possibility that ASQ Expressive Enactment (ASQ-EE) and ASQ Integrative Comprehension (ASQ-IC) would differentially predict local and global moral outcomes. To that end, in this study we also examined two forms of moral change: (1) reduced racist attitudes (local moral change) and (2) non-utilitarian respect for others (global moral change). Racist attitudes, as measured in this study, are local in the sense that they involve prejudices grounded in a form of nativism, whereas non-utilitarian respect is global in the sense that it involves respect for human subjectivity in general. Our design enabled determination of whether the expressive, meaning explicating orientation of the ASQ-EE and the explanatory, narrative interpretive orientation of the ASQ-IC would differentially predict these global and local moral outcomes, respectively.

Materials and methods

Participants

Four hundred and fourteen undergraduate psychology students at MacEwan University, Canada, participated in this study for partial course credit. 16.5% were male (68 participants), 45.2% were female (187 participants), and 38.3% chose not to declare their gender (159 participants). Participants were 17–45 years old, with an average age of 21 years.

Materials

As in Study 1, participants completed Kuiken and Douglas's (2017) ASQ and Form C of the Marlowe-Crown Social Desirability Scale (SDS, Reynolds, 1982). The following measures were also included.

Zick's group-focused enmity index

Strong reactions to the racist wording of Morrison's PATAS in Study 1 and the fact that prejudiced attitudes toward one outgroup are strongly correlated with prejudices toward other outgroups (Allport, 1954; Adorno et al., 1993) prompted replacement of the PATAS with a more generalized measure of racist attitudes, namely Zick et al.'s (2011) eleven-item Group-Focused Enmity Index (GFE). Five of its 11 items target racist attitudes directly (e.g., "Some cultures are clearly superior to others;" GFE Racism subscale), and six of the items target tacitly racist anti-immigrant attitudes (e.g., "There are too many

immigrants in Canada;" GFE AIA subscale). We obtained pre- and post-test measures of these two forms of prejudice. Like Morrison's PATAS, Zick et al.'s GFE distinguishes between old-fashioned prejudice and modern prejudice (Tougas et al., 1995; Madon et al., 2001). That is, it measures attitudes toward the perceived inferiority of outgroups based on genetic race differences (old-fashioned prejudice), as well as more subtle (but also more widespread) convictions that certain out-groups are no longer discriminated against, that they are too demanding and too proud of their cultural heritage, or that they receive special treatment (modern prejudice).

Kuiken's experiencing questionnaire

Whereas, the ASQ reliably distinguishes two forms of reading engagement, Kuiken et al.'s (2012) Experiencing Questionnaire (EQ) assesses several aesthetic reading outcomes. Of particular relevance here, the EQ includes a scale that assesses a global form of moral understanding called Non-Utilitarian Respect. The EQ was administered as a post-test only.

Response text

Participants in Study 2 read and responded to the same three passages from Richard Wagamese's novel *Indian Horse* (Wagamese, 2012) that were employed in Study 1.

Procedure

To establish baseline measures of prejudiced attitudes toward outgroups, Zick et al.'s (2011) GFE was administered during mass testing to all introductory-level psychology students at MacEwan University, Canada. Participants subsequently registered for the present study through the university's research pool administration portal. Participants read the three excerpts from the novel *Indian Horse* and then completed questionnaires that assessed prejudicial attitudes, reading engagement, and global moral judgement. Specifically, they first completed Kuiken and Douglas's (2017) ASQ, followed by Kuiken et al.'s (2012) EQ, and finally Zick et al.'s (2011) GFE.

Results

Using Structural Equation Modeling (SEM), we examined two paths that have been identified in prior research (Kuiken and Douglas, 2017, 2018; Kuiken et al., 2021): (1) one leading from Open Reflection to Integrative Comprehension and from there to explanatory narrative outcomes (including narratively induced changes in local prejudicial attitudes, i.e., GFE Racism scores), and (2) another leading from Open Reflection to Expressive Enactment and from there to expressive aesthetic outcomes (including an expressively induced shift toward global non-utilitarian respect for others).

As in the model presented in Figure 1, the path leading from Open Reflection to Integrative Comprehension *positively* predicted GFE Racism change scores ($\beta = 0.38$, $p < 0.007$). In contrast, the path leading from Open Reflection to Expressive Enactment *negatively* predicted GFE Racism change scores ($\beta = -0.46$, $p = 0.002$). In sum, the full ASQ model including Open Reflection to Integrative Comprehension *positively* predicted local changes in prejudice, while the path leading from Open Reflection to Expressive Enactment *negatively* predicted local prejudice reduction. This asymmetry was evident for GFE Racism change scores but not for GFE AIA change scores.

On the other hand, when the outcome measure was Non-Utilitarian Respect, *both* the path leading from Open Reflection to Integrative Comprehension and the path leading from Open Reflection to Expressive Enactment *positively* predicted that global moral outcome (Integrative Comprehension: $\beta = 0.24$, $p = 0.015$; Expressive Enactment: $\beta = 0.32$, $p = 0.002$, respectively). In sum, while the path leading from Open Reflection to Integrative Comprehension *positively* predicted *local* changes in prejudicial attitudes, both the path leading from Open Reflection to Integrative Comprehension and the path leading from Open Reflection to Expressive Enactment positively predicted *global* changes in non-utilitarian respect.

Results for the path leading from Open Reflection to Integrative Comprehension are consistent with the relation between ASQ Pre-Enactive Empathy and changes in local prejudicial attitudes observed in Study 1. However, results for the path leading from Open Reflection to Expressive Enactment suggest that, in this study, expressive explication actually *impeded* local attitude change, while results for the path leading from Open Reflection to Expressive Enactment suggest that expressive explication *facilitated* global changes in non-utilitarian respect.

Discussion

Our results suggest that local moral attitude change (e.g., GFE Racism) is facilitated by an interpretive form of narrative reading engagement (Integrative Comprehension; ASQ-IC) and that local moral attitude change may actually be *impeded* by an expressive form of meaning-explicating reading engagement (Expressive Enactment; ASQ-EE). Also, these results suggest that a global form of moral understanding (e.g., Non-Utilitarian Respect) is facilitated by Expressive Enactment (ASQ-EE), although that form of global moral understanding is also predicted by Integrative Comprehension (ASQ-IC). These relations are complicated also by the fact that we only used a post-test measure of Non-Utilitarian Respect. Nonetheless, the present results suggest that differentiation between an interpretive, explanatory form of narrative reading

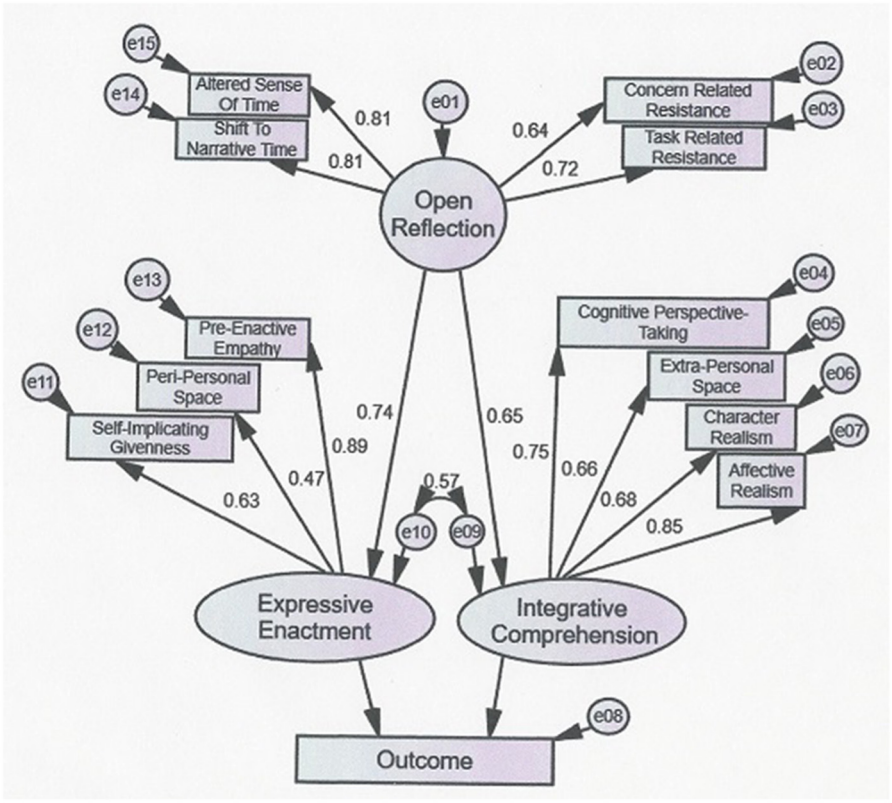

FIGURE 1
The basic SEM model.

engagement and an expressive, meaning-explicating form of reading engagement may clarify how literary reading influences moral change. Clearly, however, these results required replication.

Study 3

In Study 2, we found that when (a) an expressive form of empathy-like cognition is included within an overall model of Expressive Enactment and (b) an explanatory form of cognitive perspective-taking is included within an overall model of Integrative Comprehension, these two forms of reading engagement *differentially* predict local text-congruent attitude change and global non-utilitarian respect. To examine whether this pattern is replicable and generalizable, we conducted a third study in which we applied the methods and procedures from Study 2 to a *different* literary text. Besides replication, our goal was to determine whether local prejudice reduction and global non-utilitarian respect are differentially mediated by these two forms of reading engagement when racial prejudice is not thematic in the text.

Materials and methods

Participants

Two hundred and forty-four undergraduate psychology students at MacEwan University, Canada, participated in this study for partial course credit. Due to a technical error during mass testing, we have demographic statistics for only a subset of 74 participants and, also, we were not able to calculate change scores (using pre- and post-test measures of moral change). However, based on the similarity of this subset to participants in Study 2 (same average age of 21 years, similar age range and gender distribution), we have determined that our sample is roughly comparable to that of Study 2.

Materials

Questionnaires

As in Study 2, we employed Zick et al.'s (2011) eleven-item Group-Focused Enmity Index (GFE), Kuiken and Douglas (2017) thirty-seven-item ASQ, and Kuiken et al. forty-one-item EQ.

Response text

Participants read a 2,713-word excerpt from *On Chesil Beach*, the short novel by McEwan (2007) that thematizes, among other things, the inter- and intrapersonal consequences of the unwillingness or inability to humbly work toward meaningful marital relationships. This text was chosen for several reasons. First, it shares with the text used in Studies 1 and 2 (*Indian Horse*) a concern with moral conduct and with the complex subjectivity of narrative personae. Second, in contrast to *Indian Horse*, *On Chesil Beach* does not specifically thematize prejudice toward outgroups. Thus, employment of this text—and comparison with results from Study 2—enabled us to analyse whether ASQ-EE and ASQ-IC differentially predict the moral outcomes we observed in that study.

Procedure

As in Study 2, participants registered for the present study through MacEwan University's research pool administration portal. They read the excerpt from the short novel *On Chesil Beach* and then completed the task and questionnaires that assessed prejudicial attitudes, reading engagement, and global moral judgement. Specifically, they first completed Kuiken and Douglas's (2017) ASQ, followed by Kuiken et al.'s (2012) EQ, and finally Zick et al.'s (2011) GFE. No GFE pre-test scores were collected in this study.

Results

As in Study 2, we examined two SEM causal paths: (1) one leading from Open Reflection to Integrative Comprehension and from there to explanatory narrative outcomes (including narratively induced changes in local prejudicial attitudes, i.e., GFC Racism scores), and (2) another leading from Open Reflection to Expressive Enactment and from there to expressive aesthetic outcomes (including an expressively induced shift toward global non-utilitarian respect).

As in Study 2, the path leading from Open Reflection to Integrative Comprehension *positively* predicted GFE Racism change scores ($\beta = 0.41$, $p = 0.006$). Also as in Study 2, the path leading from Open Reflection to Expressive Enactment *negatively* predicted GFE Racism change scores ($\beta = -0.43$, $p = 0.004$). In sum, the full ASQ model including the path from Open Reflection to Integrative Comprehension *positively* predicted local changes in prejudice, while the path leading from Open Reflection to Expressive Enactment *negatively* predicted local prejudice reduction. As in Study 2, this asymmetry was evident for GFE Racism change scores but not for GFE AIA change scores.

On the other hand, when the outcome measure was Non-Utilitarian Respect, the path leading from Open Reflection to Expressive Enactment *positively* predicted that global moral outcome ($\beta = 0.53$, $p < 0.001$). However, unlike in Study 2, the path leading from Open Reflection to Integrative Comprehension did not reliably predict Non-Utilitarian Respect ($\beta = 0.09$, *ns*). In short, while the path leading from Open Reflection to Expressive Enactment indicated *facilitation of* global changes in non-utilitarian respect, the path leading from Open Reflection to Integrative Comprehension did not significantly influence non-utilitarian respect.

Discussion

As in Study 2, these results indicate that local moral attitudes, particularly racist ones, are reduced by a form of reading engagement that is interpretive and oriented toward narrative explanation (Integrative Comprehension; ASQ-IC). In addition, we replicated evidence that, perhaps ironically, this same local form of moral change is impeded by openly reflective Expressive Enactment.

In addition, we replicated evidence that openly reflective Expressive Enactment (but perhaps not Integrative Comprehension) facilitates global respect for human subjectivity. In sum, the present results substantiate not only the distinction between Expressive Enactment and Integrative Comprehension but also the distinction between the local and global forms of moral change that may be outcomes of deeply engaged literary reading.

General discussion

The results replicated across Studies 2 and 3 are 2-fold. First, in both studies, ASQ-EE, but not ASQ-IC, impeded text-related reductions in prejudice. One possibility is that ASQ-IC is marked by acquiescence to sedimented understandings of prejudice (or of the lack of prejudice). Another possibility is that the ASQ-IC is marked by the predisposition to turn quickly to causal explanation of narrative events and, in doing so, bypass the process of expressive explication (Kuiken and Douglas, 2017).

Second, in both studies, Expressive Enactment facilitated (global) non-utilitarian respect. It is our contention that, consistent with results from studies by Kuiken and Douglas (2018) and Kuiken et al. (2021), ASQ-EE distinctively predicts the kind of expressive explication that deepens this global form of human understanding.

The phenomenology of literary reading

To understand how Expressive Enactment overcomes resistance to expressive explication and supports non-utilitarian respect may require elaboration of the phenomenology of

expressive, meaning-explicating literary reading. Further, elaboration of the phenomenology of expressive—and almost certainly aesthetic—literary reading may clarify relations between the moral import of literary reading and existential philosophy.

As indicated in the introduction, there is a tradition in literary studies and more recently in the empirical study of literature that situates literariness in the interaction of reader and text. The overarching proposal is that defamiliarizing linguistic structures elicit perceptual, physiological, or behavioral effects. While support for some of these effects is available (e.g., Hakemulder, 2004, 2020; van Peer, 2007; Jacobs, 2015), we have distinguished these from a distinctly *aesthetic engagement* with literature, which is characterized by what the phenomenologist Edmund Husserl has termed "egoic acts" and "awakenings" (Husserl, 2001) and expressive explication of affective resonances (i.e., lifting out the felt sense of *metaphoric resonances*; Kuiken and Sopcak, 2021; Sopcak and Kuiken, 2022). Husserl, in turn, is part of a tradition in philosophy that dates back to Heraclitus and more recently Descartes[2] within which emphasis is placed on the importance of reflection that goes beyond passive recognition of reified (sedimented) categorial objects, and instead toward expression of lived experience.

The proposal, in brief, follows Husserl (2001) in his suggestion that our default engagement in the world occurs in a mode of habituality ("natural attitude") involving abstract recognition of sedimented meaning categories and passivity of the self (Husserl's "ego"). In this habitual process of perception and cognition "the ego … is 'in a stupor' in the broadest sense, and … no lived-experience in the specific sense of wakefulness is there at all and no present ego is there at all as its subject" (17). He refers to this passivity as a kind of "self-forgetfulness" (28) that undermines our freedom and stands in the way of our seeing "the true, the genuine," (Husserl, 2001: 28). In Husserl translator Steinbock's (2001) words: "If we were to live only in passivity, contends Husserl, and if it were not possible for us to carry out free activity, we would be blind to the sphere of true being" (lviii).

Free activity and thinking "in the true sense" occur when affective resonances exert a strong enough pull to elicit an egoic turning toward and tending to these resonances and when the intentional object thus becomes thematic. This "sense-constituting lived-experience" (Husserl, 2001: 13) and "sense-giving thinking" (27) involves an active ego expressively explicating the lived experience. Important to note here is the connection Husserl makes between an expressively active ego and freedom.

Gallagher's (2012) discussion of *sense of agency* will help clarify and provide context for the notoriously ambiguous terms *ego* and *freedom*. At a first level, he distinguishes the sense of ownership (I am the one undergoing an action, whether voluntarily or not) from the sense of agency ("I am the one who is causing or generating the action;" 18). The sense of ownership, he contends, is experienced pre- or non-reflectively, "which means they [experiences of sense of ownership] neither are equivalent to nor depend on the subject taking an introspective reflective attitude, nor that the subject engages in an explicit perceptual monitoring of bodily movements" (18). The sense of agency, in contrast, involves the experience of being the author or cause of a certain action (including the action of reflecting on something). However, this can be a first-order, embodied, pre-reflective sense of agency, which Gallagher (2012) refers to as "SA(1)," or it can be of a second-order, adding "prior deliberation or occurrent metacognitive monitoring," which he refers to as "SA2" (26). Finally, as a special case of a reflective sense of agency, he adds the "long-term sense of one's capacity for action over time" (29), which involves sense of one's past, present, and future actions "are given a general coherence and unified through a set of overarching goals, motivations, projects and general lines of conduct" (Pacherie, 2007, as quoted in Gallagher, 2012: 29).

Husserl (2001) "egoic acts" and "egoic awakenings" involve precisely the kind of higher-order, reflective sense of agency that Gallagher refers to as SA(2) (and which involve actively reflective explication of pre-reflective senses of ownership and agency). Moreover, we argue that this type of sense of agency vis a vis one's actions in/over time is at the heart of Husserl's notion of *freedom* as well as that of existentialists influenced by him, such as Sartre and de Beauvoir.

Building on Mukarovsky (1964), Shklovsky and Berlina (2017), and others, we have proposed that (and how) literature can, for some, set in motion the distinctly aesthetic form of reading engagement that Expressive Enactment (ASQ-EE) captures and that brings Husserl's (2001) active ego and Gallagher (2012) higher-order sense of agency onto the scene (Kuiken and Sopcak, 2021; Sopcak and Kuiken, 2022). In fact, the actively expressive explication characteristic of Expressive Enactment (ASQ-EE) has this reflective sense of agency at its core and is related to the existential-phenomenological notion of freedom as the ability and responsibility to actively and expressively explicate and act upon "sense-constituting lived-experience" (Husserl, 2001: 13).

The contrasting "self-forgetfulness" that Husserl refers to in his discussion of the natural attitude and passivity in perception and consciousness is characterized by the lack of a higher-order, explicitly expressive and reflective sense of agency (Gallagher, 2012) and closely related to existentialists' proposals that human existence requires an ongoing and persistent resistance against this "inner negation" (Sartre, 1966: 48). Existentialists, beginning with Kierkegaard (2004), considered

2 Wheeler (2005) has pointed out that the widespread anti-Cartesianism in some corners of cognitive science often operates on "received interpretations of Descartes' view that, when examined closely, reveal themselves to be caricatures of the position that Descartes himself actually occupied" (15).

the human self to be an accomplishment that needs to be constantly willed and won by the active ego [Gallagher, 2012 higher-order sense of agency, SA(2)] expressively explicating its lived experience. For instance, the "father of existentialism" Kierkegaard (2004), has precisely this active and expressive egoic sense-constituting thinking in mind when he defines a self as a "relation relating itself to itself" (43). And he describes in detail how human existence may ignore and deny this self by unnoticeably sliding into passivity, or by actively resisting the perpetual task of becoming a self, that is by resisting the sense of higher-order reflective agency Gallagher (2012) termed SA(2). Kierkegaard writes: "The biggest danger, that of losing oneself, can pass off in the world as quietly as if it were nothing" (62–63). Following in the footsteps of Socrates as the "midwife of truth," Kierkegaard considered his texts to be *maieutic* in the sense that they helped birth the self [Kierkegaard et al.'s (1998): 495], by evoking Gallagher (2012) higher-order, reflective sense of agency and Husserl's (2001) active ego.

Similarly, Sartre (1966) describes this form of self-denial/denial of agency as "bad faith" (*mauvaise fois*) and argues that it involves fleeing one's freedom and the responsibility it entails: "Thus the refusal of freedom can be conceived only as an attempt to apprehend oneself as being-in-itself [static, passive, being without agency] … Human reality may be defined as a being such that in its being its freedom is at stake because human reality perpetually tries to refuse to recognize its freedom" (440). That is, bad faith is characterized by the denial of agency and the absence of an active ego expressively explicating its lived experience. Conversely, according to Sartre (1966), human existence is "identical with" (443) and founded by the freedom (and the curse of having) to "choose oneself" (441) through what Husserl termed "sense-constituting lived-experience" (Husserl, 2001: 13): "And this thrust is an *existence;* it has nothing to do with an essence or with a property of being which would be engendered conjointly with an idea. Thus, since *freedom is identical with my existence*, it is the foundation of ends which I shall attempt to attain" (Sartre, 1966: 444; our italics). In sum, from this existential-phenomenological perspective the "sense-giving thinking" (Husserl, 2001: 27) that involves an active ego (higher-order sense of agency) expressively explicating its lived experience (as captured by Expressive Enactment) is existential reflection in the sense that it is at the heart of "choosing oneself" and exercising the freedom that Sartre equates with human Being. It brings existence into experience.

In literary theory, this relationship between existential reflection and Expressive Enactment was aptly captured by Shklovsky and Berlina (2017): "What do we do in art? We resuscitate life. Man is so busy with life that he forgets to live it. He always says: tomorrow, tomorrow. And that's the real death. So what is art's great achievement? Life. A life that can be seen, felt, lived tangibly" (62).

Expressive enactment, existential reflection, and morality

Although seeds of an existentialist ethics can be found in earlier existentialist's writings such as Kierkegaard's and Nietzsche's, it is Sartre's partner, Simone de Beauvoir who sets out to explicitly develop this connection in her book *The Ethics of Ambiguity* (De Beauvoir, 1976). She writes:

> "However, it must not be forgotten that there is a concrete bond between freedom and existence; to will man free is to will there to be being, it is to will the disclosure of being in the joy of existence; in order for the idea of liberation to have a concrete meaning, the joy of existence must be asserted in each one, at every instant; the movement toward freedom assumes its real, flesh and blood figure in the world by thickening into pleasure, into happiness… If we do not love life on our own account and through others, it is futile to seek to justify it in any way" (135–136).

Important to remember in this context is the existential-phenomenological notion of freedom as involving a higher-order, reflective sense of agency and the ability and responsibility to actively and expressively explicate and act upon "sense-constituting lived-experience" (Husserl, 2001: 13). Like other existentialists and phenomenologists before her, de Beauvoir considers the pursuit of this particular kind of freedom to be a *moral* imperative, the foundation of any other moral considerations, and an end in itself. She also makes it clear that this imperative applies not only to oneself (as Nietzsche might have it) but to all human beings. To de Beauvoir our "freedom wills itself genuinely only by willing itself as an indefinite movement through the freedom of others" (90).

This willing of the freedom of others is captured by our non-utilitarian human respect scale from the Experiencing Questionnaire (EQ-NUR; item example: "While reading this story, it seemed wrong to treat people like objects"), which we have used as a measure of a form of *global moral reflection*, as opposed to one that is local and narrow.

In contrast, we saw that moral attitude changes that were local in nature were associated with a form of absorbed reading engagement involving a resistance to expressive and explicative activity and an acquiescence to sedimented meaning categories, focusing instead on interpretation and explanation (Integrative Comprehension; ASQ-IC). These outcomes and this kind of reflection are what scholars have been referring to in studies of the persuasive effects of literary reading. To de Beauvoir, this is a bad faith ethics, not worthy of its name: "What must be done, practically? Which action is good? Which is bad? To ask such a question is also to fall into a naïve abstraction… Ethics does not furnish recipes any more than science and art. One can merely propose methods…" (De Beauvoir, 1976: 134). And she argues that "the finished rationalization of the real," which is the

mode of encountering the world in the natural attitude (passive, abstract recognition of pre-established meanings and patterns of causal inference) "would leave no room for ethics" (129).

The fact that the form of reading engagement that is actively expressive and explicative (Expressive Enactment; ASQ-EE) repeatedly impeded changes in local prejudiced attitudes may find an explanation within the framework of such an existentialist ethics. As discussed, this form of reading engagement involves a form of agency and existential outcomes that run counter to the denial of agency and absence of an active ego expressively explicating its lived experience that is characteristic of what Sartre (1966) terms *bad faith*. It also resists what De Beauvoir (1976) refers to as "the finished realization of the real" (129), which undermines a sincere ethics as a method. In fact, the type of reflective activity it involves is more akin to Nussbaum's (2001) description of Sophoclean reflection. Referring to *Antigone*, she writes:

> The lyrics both show us and engender in us a process of reflection and (self)-discovery that works through a persistent attention to and a (re)-interpretation of concrete words, images, incidents. We reflect on an incident not by subsuming it under a general rule, not by assimilating its features to the terms of an elegant scientific procedure, but by burrowing down into the depths of the particular …The Sophoclean soul is more like Heraclitus's image of *psuche*: a spider sitting in the middle of its web…It advances its understanding of life and of itself not by a Platonic movement from the particular to the universal, from the perceived world to a simpler, clearer world, but by hovering in thought and imagination around the enigmatic complexities of the seen particular … (Nussbaum, 2001, p. 69).

These complexities involve paradox and ambiguity, perhaps even unwelcome and socially unacceptable views. In the context of our findings, the reliable prediction of impeded change in local prejudiced attitudes by Expressive Enactment may be attributed to the fact that a sincere expression of one's "enigmatic complexities," must necessarily involve reflection on and explication of one's contradictory and perhaps at times unsavory attitudes.

In sum, the findings of our studies support the existential-phenomenological view that (global) moral reflection is a *method* that involves an active ego (higher-order [sense of] agency) expressively explicating its lived experience, rather than passive reflection on abstract moral laws, causal laws, or acquiescence to sedimented meaning categories. It is precisely this kind of reflection, we believe, that Hannah Arendt had in mind in her following observation on the "banality of evil:" "Could the activity of [sense-giving] thinking as such, the habit of examining and reflecting upon whatever happens to come to pass, regardless of specific content and quite independent of results, could this activity be of such a nature that it 'conditions' men against evildoing?" (Arendt, 1977: 5).

Existential reading and psychological wellbeing

In this final section, we will show that the awakening of Husserl's (2001) active ego (Gallagher, 2012 higher-order sense of agency) that expressively explicates its lived experience, and which we have shown to be involved during the distinctly aesthetic form of reading engagement captured by Expressive Enactment (ASQ-EE), as well as its existential and moral outcomes, have been associated with beneficial health effects within existential psychotherapy (e.g., Yalom, 1980) and the burgeoning field of existential positive psychology (Wong, 2012; Bretherton, 2015; Robbins, 2021; Wong et al., 2021). What on the surface may seem like an unlikely union between existentialism (existential psychotherapies) and positive psychology, which Wong et al. (2021) refer to as positive psychology 2.0 (PP2.0), places emphasis on the importance of grappling with existential issues and anxiety for human flourishing. Rather than considering, say, a sense of meaninglessness in an indifferent universe or the struggle with existence or difficulty in locating a sense of self, by default as psychological disorders, PP2.0 considers them foremost as spiritual or philosophical ailments that can serve as catalysts for human flourishing.

Robbins (2021) differentiates PP2.0 from what he perceives as traditional positive psychology's view of human flourishing that overemphasizes hedonic happiness as follows: "In contrast, existential and spiritual traditions have stressed a vision of the good life as a refusal to avoid negative experiences, since the suppression of life's tragic dimensions, or "anesthetic consciousness," can itself foster varieties of pathologies and dampen the vitality of life" (2). He further criticizes the relative absence of "the moral or ethical dimensions of human flourishing" in traditional positive psychology and proposes the concept of the "joyful life" [as a] potential bridge between positive psychology and conceptions of the good life found in existential, humanistic, and spiritual perspectives on the good life" (2).

In the passage from De Beauvoir's (1976) *Ambiguity of Ethics*, quoted above, we found the intertwining between freedom and existence in "the will to disclose being in joyful existence" (135) and that "freedom wills itself genuinely only by willing itself as an indefinite movement through the freedom of others" (90). By drawing on Husserl (2001) we argued that at the core of this freedom, joyful existence, and disclosing of being lies an active ego (higher-order, reflective sense of agency) that expressively explicates its lived experience.

Studies of joy in the PP2 community have also found that this form of joy, among other things, has a "tendency to emerge as a response to a solicitation from something larger than ourselves—into communion with others and a deeper, more engaged life" (Robbins, 2021: 2). This is reminiscent of the global moral outcomes that were consistently associated with the form of reading engagement captured by Expressive Enactment and that we measured with the non-utilitarian respect subscale of the Experiencing Questionnaire (e.g., While reading this story, it seemed wrong to treat people like objects; . . . I felt deep respect for humanity).

This aligns with existential-phenomenological and existential positive psychology's conceptions of the good life as involving mainly eudaimonic and chaironic "happiness," and a "meaning orientation" to human flourishing (Wong, 2012; Robbins, 2021). More specifically, Robbins (2021) cites extensive empirical research associating this form of existential joy to indicators of wellbeing, such as psychological wellbeing, psychological need satisfaction and self-actualization, resilience and hardiness, and mindfulness (Robbins, 2021: 6–10).

Clearly, although the series of studies we presented in this paper and the existential-phenomenological orientation of the measures we employed enabled us to draw intriguing parallels to existential positive psychology, more targeted studies are necessary to substantiate these connections. However, a key takeaway in the context of this special issue "Existential Narratives: Increasing Psychological Wellbeing Through Story" may be not to overlook differences in reading engagement, since we found existential reflection and outcomes consistently associated with the distinctly aesthetic form of reading engagement captured by Expressive Enactment.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by MacEwan University's Research Ethics Board. The patients/participants provided their active informed consent to participate in this study.

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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Eudaimonic entertainment as new Enlightenment: Critical thinking as a mind-set effect of narratives

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We propose to extend the theoretical concept of eudaimonia as a media effect with critical thinking as a mind-set effect. Critical thinking as a mind-set effect means that media narratives can stimulate viewers and readers to think critically in any situation, even outside of the exposure situation and applied to other topics. It denotes a generally heightened critical attitude or "mind-set" to approach issues and situations by taking different pieces of information into account, weighing and analyzing them, developing one's own arguments and drawing conclusions. People with this mind-set try to be well-informed, use credible sources and observations, are alert for alternatives, open-minded, maintain and change views according to evidence, and are motivated to hold accurate beliefs. In this article, we provide a theoretical elaboration of the idea of critical thinking as a mind-set effect, and connect it to traditions of Enlightenment literature as well as theoretical approaches on narrative effects. We also present data from a qualitative pilot study using the film "Don't look up" to explore the potential of such an extension of eudaimonic entertainment. Finally, we discuss implications of introducing critical thinking as a mind-set effect for narrative persuasion.

KEYWORDS

media narratives, narrative persuasion, critical thinking, eudaimonic entertainment, Enlightenment

Introduction

Stories are tightly connected to human existence and thinking. Being able to represent events and characters symbolically—to tell a story—is a unique and deeply human feature (Gottschall, 2012). For societies and individuals, stories serve the function to simulate social situations, relationships, and emotions, rehearse empathy and social actions, thus providing valuable experiences outside of one's own range of reality (Hutto, 2008; Mar and Oatley, 2008; Boyd, 2009). Stories are generally defined as representations of events and characters contextualized in space and time (Abbott, 2008).

As a natural mode of thinking, stories are particularly close to everyday life and direct experience (Bruner, 1986, p. 259). Often, the narrative mode is contrasted with a logic, abstract, scientific mode of thinking ("paradigmatic"), which seeks to provide descriptions and explanations, generalizations and abstractions (Bruner, 1986).

While the two modes—narrative and paradigmatic mode of thinking—can be constructed as oppositional, there are some connections and intersections. Stories can show how characters themselves think in a rational mode, and, doing so, succeed or fail in their goals, just as Sherlock Holmes, the detective mastering in logic reasoning created by Arthur Conan Doyle solves his mysteries by ingeniously figuring out crime puzzles. Stories can show the consequences of non-rational thinking or conflicts between rational and non-rational actors. One of the most famous films in this category is the immensely successful "Day After Tomorrow" (Emmerich, 2004), in which scientists warn about an impending climate catastrophe, and, unheard by politicians, must witness the beginnings of a new ice age. In this situation, readers or viewers do not process a text written in paradigmatic mode, but they process a narrative text containing plots and characters that use the paradigmatic mode.

Media use is both motivated by seeking "pleasure and amusement (hedonic motivation)" and by seeking "life's meaning, truths, and purposes"—a eudaimonic motivation (Oliver and Raney, 2011, p. 985). In terms of gratifications obtained, these motivations correspond to enjoying and appreciating media content, respectively (Bartsch and Oliver, 2017). Enjoyment as a media outcome may feed into hedonic happiness that is geared toward creating pleasure, enjoyment, satisfaction and reducing pain and effort (Huta, 2015). Appreciation as a media outcome contributes to eudaimonic happiness that is built on aspects such as finding meaning and considering values, personal growth, self-realization and maturity, achieving excellence and living in line with ethics and living an autonomous and authentic life (Huta and Waterman, 2014; Huta, 2015). Eudaimonic happiness in particular improves several aspects of health and wellbeing, including longevity, risk for diseases, and mental health (Ryff, 2018); eudaimonic media experiences similarly improve wellbeing, connectedness with others and prosocial behaviors (Raney et al., 2019).

We propose to extend the theoretical concept of eudaimonia as a media effect (Raney et al., 2019) to go beyond media's direct contributions to eudaimonic happiness (e.g., to stimulate meaningful affect or contribute to meaning making). Instead, we suggest that critical thinking as a mind-set effect is another facet of eudaimonic entertainment experience. Critical thinking describes the "mental activities of thinking and the various representations of the thinking that include action, speech, writing and so on" and reflects the "capacity to work with complex ideas" (Moon, 2008, p. 126). Activities of critical thinking include reviewing someone else's argument, evaluating an object or situation, drawing one's own conclusions or thinking critically about oneself (Moon, 2008, p. 31ff). We propose that critical thinking can be observed in narratives (as any other symbolically represented activity) and can stimulate critical thinking in the viewer or reader—even outside of the exposure situation. While very different pathways to eudaimonic happiness exist (e.g., through meaning-making, or affect like awe or hope) critical thinking supports several facets of eudaimonic media experiences: For example, it can lead to a greater sense of autonomy by enabling a person to evaluate situations by their own standards and come to their own conclusions. Or it can add to personal growth by increasing one's horizon and shaping well deliberated views.

We suggest that media narratives can stimulate viewers and readers to be more sensitive and mindful to think critically in any situation. This effect is not tied to exposure nor is it restricted to the topic in the narrative. It should be considered a generally heightened critical attitude or "mind-set" of being critical. We assume that narratives specifically have the ability to generate eudaimonic entertainment experiences generally and critical thinking specifically. We emphasize that no fixed set of properties can identify narrative content as being "eudaimonic narratives". Although some properties make eudaimonic entertainment experiences more likely, it is still the viewer or reader whose perception as meaningful makes an experience eudaimonic. Thus, we do not seek to identify "eudaimonic narratives", but investigate eudaimonic entertainment experiences that originate from narratives.

While not part of contemporary media effects or theorizing on eudaimonic effects, our concept of critical thinking as a mind-set effect builds on the usage of literature in the era of Enlightenment, where philosophers did not only write treatises, but made use of novels and drama to spread ideas of rationalism, freedom, tolerance, science, and morality (Munck, 2000).

In this article, we will elaborate critical thinking as a mind-set effect, and connect it to traditions of Enlightenment literature as well as theorizing on narrative effects. We also present data from a qualitative pilot study using the film "Don't look up" (McKay, 2021) to explore the potential of such an extension of eudaimonic entertainment. Finally, we discuss implications of introducing critical thinking as a mind-set effect for narrative persuasion.

Critical thinking as a mind-set effect

Critical thinking is mostly discussed in the context of education; especially at higher levels of education, it is considered as a central objective of learning and essential groundwork for any academic qualification (Moon, 2008). It is often discussed as relevant for different professional contexts such as health professions (Mann et al., 2009) or social work (Brown and Rutter, 2008), and also regarded as foundational for digital literacy and democratic functioning (Gainer, 2012). In the age of postmodern science (Funtowicz and Ravetz, 1993), critical thinking is essential to understand and participate in modern, science-based decisions.

Ennis (2015) defines critical thinking as "reasonable reflective thinking focused on deciding what to believe or do" (p.

32) and lists typical dispositions of critical thinkers such as trying to be well informed, using credible sources and observations, being alert for alternatives, being open-minded, maintaining and changing views according to evidence, and being motivated to hold accurate beliefs. Moon (2008) describes critical thinking as a process that includes the ability to take different pieces of information into account, weigh and analyze them and develop own arguments and draw own conclusions. She contends that critical thinking also includes a (self-)evaluative component: "Critical thinking is looking at one's work or situation with value judgement—what did I do right or wrong? It is like criticizing oneself. It can also be applied to other people's work—thinking where they are coming from; whether they are biased—do they have a vested interest?" (p. 31). Moon (2008) states that individuals, rather than aiming for objectivity, need to be aware of the inevitable presence of subjectivity in all knowledge processes. She presents a typology of representational activities that are based on critical thinking and that can count as expressions of critical thinking:

(1) Reviewing someone else's argument encompasses scrutinizing the line of reasoning and evaluating the validity of the conclusion.

(2) Evaluating an object, e.g., a work of art, book or product, means that an observer considers properties of the object and eventually arrives at a judgment about it.

(3) Developing an argument signifies that the observer uses a specific selection of evidence, puts it into a reasonable order, draws their own conclusions and finally constructs an argument from this process.

(4) Thinking critically about the self involves a consideration and evaluation of one's own thinking and behavior.

(5) Reviewing an incident, event or fictitious scenario entails that the observer rethinks the event and deliberates different courses of action and outcome.

(6) Engaging in constructive responses to the arguments of others means that thinkers revisit the argument of others and rehearse or put together a response to what others have proposed.

(7) Habitually engaging with the world departs from a single activity and rather constitutes a disposition. It stands for a vigilant, careful attitude toward incoming information, for perceiving and processing new information and reflecting on them as a routine, everyday practice.

Applying these representational activities of critical thinking to media content and effects, we can find relevant instances for each of these activities. Let us take the novel "State of Fear" by Crichton (2004) as an example to apply these critical activities. The book tells the story of eco-terrorists who plan attacks to raise awareness about climate change. It was heavily criticized for containing inaccurate and biased information on climate change and propagating conspiracy narratives. Whether readers process the book in a critical thinking mode or not, might make all the difference in this example: Reading in an uncritical way implies that the climate skeptic position of the book is accepted; reading in a critical way implies that the climate skeptic position of the book is in some way countered. We will now present examples for each of the activities of critical thinking using "State of Fear" as an example.

Reviewing someone else's argument could happen when a person reads the book, gets acquainted with conspiratorial climate skeptic thinking and makes up their mind about climate skepticism. *Evaluating an object* could arise when a person makes a judgment about the book, for example, concludes that the usage of footnotes in a novel is a tool to feign a scientific style or that the extensive elaboration of climate skeptic arguments in dialogues seems to serve an ideological bias rather than narrative requirements. A reader could then *develop an argument of their own* when thinking about and seeking evidence on climate change and reaching the conclusion that a climate conspiracy does not exist. The book can also encourage readers to *think about themselves*, for example, their own carbon footprint and ways in which to reduce it. Then, the book can be understood as a fictitious scenario (activity: *reviewing an incident*) that describes how a large amount of money is spent on acting against climate change, when in fact it does not exist. Critical thinking may then involve weighing different options of action, for example, seeking more information or seeking expert advice. Readers may also engage in *constructive responses to the arguments* of the climate skeptics and formulating a line of reasoning that effectively counters this position. Finally, *habitual engagement with the world* may be realized when readers approach any communication about climate change with more caution and scrutiny.

Apart from the actual activities, critical thinking is also regarded as a disposition or trait that drives a thinker toward "open-mindedness, fair-mindedness, independent-mindedness, intellectual modesty and humility, an inquiring attitude, and respect for others in group inquiry and deliberation" (Siegel, 2010, p. 141). Activities and dispositions are closely related and influence each other.

We assume that media narratives, especially such that are suitable to evoke eudaimonic experiences, can stimulate both singular activities of critical thinking and a more stable mind-set of being critical. In the latter case, similar media narratives could cumulate into small, long-term effects similar to cultivation (Busselle and Van den Bulck, 2019). They could have a small impact or none at all right after exposure and then increase over time similar to a sleeper effect (Pratkanis et al., 1988) or they could have a large effect right after exposure by providing sudden insight similar to the drench effect (Greenberg, 1988). In any case, we assume that all ways can lead to changing the mind-set with which we approach issues, select and process information.

Critical thinking and wellbeing

In research on eudaimonic media experiences and effects, reflection is central. First, media content can be perceived as thought-provoking and reflective thoughts in turn can contribute to a positive evaluation of media content in the form of appreciation (Oliver and Bartsch, 2010). Second, eudaimonic entertainment can evoke media experiences that strongly engage a reader's or viewer's cognitive faculties, a process similar to a slow, elaborate or systematic mode of processing information (Bartsch and Schneider, 2014; Lewis et al., 2014).

We suggested above that critical thinking can contribute to wellbeing in several ways. We will now use the six components of wellbeing by Ryff (2018) and demonstrate for each how critical thinking can contribute to wellbeing.

The first component is *environmental mastery*, which refers to the ability to "choose or create environments suitable to one's psychic needs" (Ryff, 2018, p. 378), for example to avoid noxious persons or detrimental media content. Here, critical thinking can help becoming aware of what is conducive to the psychic needs and what is not. While the process described here is geared toward conscious critical analysis and action, the idea is the same as pursued in approaches to mood management and adjustment (Knobloch-Westerwick, 2006).

The second component is *personal growth*. It describes one's own development over time, and entails self-realization and advancing one's personal potential. Critical thinking, as elaborated above, can involve critical thoughts about oneself, which in turn can contribute to personal growth by recognizing one's deficiencies or rooms for improvement.

The third component refers to *positive relationships with others* and includes being able to feel empathy with others and the ability to maintain friendships and love for others. Critical thinking can help to evaluate existing friendships and determine how to proceed with them.

The fourth component is purpose in life that encompasses entertaining a *sense of meaning and purpose in life*, as well as an *orientation toward general goals*. Critical thinking can, again through processes of evaluation and self-reflection, help with this task.

The fifth component is *self-acceptance*, which describes a positive attitude toward oneself, and making peace with one's past as well as negative sides. This component too benefits from evaluation and self-reflection, as well as reviewing someone else's argument when one receives negative feedback from others.

Finally, the last component is *autonomy* which foregrounds the "independent, self-determining, and self-regulating qualities of the person" (Ryff, 2018, p. 376) and which implies a certain emancipation of other people's judgments as well as norms and conventions. This is certainly the aspect that is most clearly and explicitly connected to critical thinking as it includes conscious deliberation of complying or not complying common rules and developing a position of one's own.

The tradition of using narratives to create and support critical thinking

Well before empirical research was concerned with determining the effects of stories and even well before the disciplines existed that are concerned with narratives effects, stories were used to convey values, norms, and morality, for example, in religious books or tales, or inform about history and personalities important to a specific time and society. Today we have empirical evidence that stories are effective (Zebregs et al., 2015; Braddock and Dillard, 2016) and that engaged modes of processing the narratives such as transportation and narrative engagement enhance that effect (Tukachinsky and Tokunaga, 2012; van Laer et al., 2014).

While critical thinking is not part of the traditional range of narrative effects (Green et al., 2019), there is a historic literary tradition that makes use of the narrative format to convey messages about critical thinking. It is the Enlightenment, a philosophical era in Europe in the 18th century that advocated progressive ideas such as "religious toleration, liberty, individual rights, and intellectual, social and political progress" (de Bruyn, 2021, p. 8). Considering the many different strands of Enlightenment, with more radical variations from Parisian philosophers who put all traditional values to critical scrutiny to the more moderate German thinkers who reconciled religion, tradition and authority with practical modern ideas, Enlightenment is better understood as "an attitude of mind, rather than a coherent system of beliefs" (Munck, 2000, p. 7). Similarly, de Bruyn (2021) argues that the label Enlightenment does not stand for a unified position (e.g., anti-religion); if any generalizations can be made, it is about a similar stance toward the world: "A skeptical cast of mind supplanted superstition, and thinkers committed themselves to a scientific, empirical approach to intellectual inquiry [...]. The world has to be understood through the use of reason, rather than accepted on faith or traditional authority" (de Bruyn, 2021, p. 8). With an open mind and a sense of curiosity, reason served to examine traditional ideas and to gain insight by empirical study (Munck, 2000, p. 5).

Philosopher Immanuel Kant published a programmatic essay in 1784 to answer the question "What is Enlightenment?" and devised the often-cited principle of Enlightenment "Thinking for yourself":

> "Enlightenment is man's leaving his self-caused immaturity. Immaturity is the incapacity to use one's intelligence without the guidance of another. Such

> immaturity is self-caused if it is not caused by lack of intelligence, but by lack of determination and courage to use one's intelligence without being guided by another. *Sapere Aude!* [Dare to know!] Have the courage to use your own intelligence is therefore the motto of the Enlightenment.
> Through laziness and cowardice, a large part of mankind, even after nature has freed them from alien guidance, gladly remains immature. [. . .] It is so comfortable to be a minor! If I have a book which provides meaning for me, a pastor who has conscience for me, a doctor who will judge my diet for me and so on, then I do not need to exert myself. I do not have any need to think; if I can pay, others will take over the tedious job for me." (Kant, 1784/2014, p. 481).

So, the programmatic formulation of Enlightenment is not necessarily a political, social or scientific agenda, but a state of mind, a stance that enables and motivates humans to break from authority—another's guidance—and think for themselves.

One characteristic of Enlightenment is that some of its prominent writers did not only produce philosophical treatises, but were also authors of literary works such as novels and drama (Munck, 2000). While not all novels served as platforms for skeptical thought—some countering the epistemological crisis effected by scientific, political and social progress with comfortably unrealistic and irrational narrative worlds (Donoghue, 2002, p. 140f)—a strand of novels exists, many written by Enlightenment philosophers themselves that conveyed ideas of Enlightenment through an entertaining narrative format (Munck, 2000). Often, these narratives belonged to the genre of satire and sought to observe and criticize society, its ethics, customs and laws, religion and people from a distanced perspective—for example, told from the perspective of a stranger from another culture or a naïve person (Greenberg, 2019).

For example, French philosopher and writer Montesquieu was the author of one of the most influential political treatises in Enlightenment that set the groundwork for the modern state and elaborated the separation of powers, "De l'esprit des lois" (The spirit of the laws), published in 1748. Montesquieu is also author of an epistolary novel, "Les lettres persanes" (The Persian letters, 1721) that features 161 letters between two fictional Persians who left their hometown Isfahan for Paris and who converse about and critique cultural, religious and political conditions in France. The "Persian letters" are told from the perspective of strangers that provides a more distanced view and allows to question habits, customs and rituals.

Another example is Voltaire whose most influential work includes the "Lettres philosophiques" or "Lettres anglaises" (Philosophical letters, English letters, 1734). Formally a collection of letters, the work is more a compilation of essays, in which the writer expresses his admiration for the British nation that is more advanced in terms of civil liberties, religious tolerance and constitutional monarchy, at the forefront of European intellectualism, in philosophy and science. He salutes a new type of human that is free, in actions and thought, and does not fear authority. Voltaire is also the author of the fictional novel "Candide" (1759), in which the protagonist, Candide, a simple-minded man, is banished from his home castle. He meets one misfortune after another and is only saved by the most unlikely coincidences. The novel criticizes and ridicules arrogant nobility, religious inquisition, war, and slavery.

Progressive ideas were spread through the rhetoric channels taking the form of treatises, books and pamphlets, but also through entertaining, easy to understand formats, novels and plays, making Enlightenment as much a philosophical and political enterprise as a literary era.

Today, calls for a "new Enlightenment" surface (Pinker, 2018): With ideology, extreme religiosity and anti-science movements gaining traction, and authoritarian leaders becoming popular across the globe, there is reason to revisit Enlightenment as a call for critical thinking. We argue that "new Enlightenment"—just as "old Enlightenment"—can be related through entertainment that demasks and possibly humorously ridicules current circumstances. We propose that such narratives do not just stimulate to reflect on a certain topic, but may serve as a call to "think for yourself", to think critically in general.

The descriptions of Enlightenment's "Think for yourself" resonate with the descriptions of critical thinking. Having a critical and inquisitive mind-set, emancipating oneself from self-evident and habitual ideas and arriving to one's own conclusions is central to both approaches. At the same time, both the Enlightenment and critical thinking approaches emphasize that liberation from traditions and norms are a sign of a modern and mature individual—and thus address one important dimension of wellbeing and eudaimonic happiness: autonomy that describes individuals as independent and self-determining beings, ready to make their own ways through the maze of social conventions. Also, "thinking for yourself" feeds into personal growth when people take on the hardship to stand on their own feet, and not to rely on others to do the work for them—and ultimately achieve their own potential. Similarly, purpose in life may also be a dimension of wellbeing that is promoted by "thinking for yourself": Thinking independently of customs and conventions may uncover and foreground the truly relevant goals in life rather than following habits and being entrenched in everyday life without considering the greater picture.

As in "old" Enlightenment literature, today's modern narratives can contain plots that include critical thinking and characters that employ it. Viewers or readers observe such plots and characters and, according to social cognitive theory (Bandura, 2001), recognize success or failure and either perceive it as a useful or not useful option for actions. An action (in this case, critical thinking) is perceived as successful, if the characters reach their goals or are rewarded by other characters. In this case, viewers or readers store this way of thinking as a viable option

for action, and may apply it when the situation is appropriate. Narrative persuasion theories predict that deep immersion in the form of narrative engagement or transportation will intensify the processing of the narrative and its messages (Bilandzic and Busselle, 2013; Green et al., 2019). Identifying with the characters, that is, taking their perspective, understanding their goals and motivations and hoping for a good outcome also usually support effects of narratives (Cohen, 2001).

The call for critical thinking in a modern media narrative may take very different forms—practically all representational activities of critical thinking suggested by Moon (2008) are possible. To explore the scope of such representational activities of critical thinking implied by a narrative, we use data from a pilot study on the recent film "Don't look up" (McKay, 2021), in whose plot critical thinking is an integral part, and explore what viewers perceive and interpret as the film's call for action.

Pilot study

The goal of the study is to explore viewer interpretations of a film's call for action and probe their perception of critical thinking activities that the film implies. We used a film that specifically foregrounds critical thinking related to interrelation of climate change, science, politics, media and society. With this choice, we seek to explore whether the audience also recognizes the critical potential of the film. This is a first analytical step to assure the potential of the new concept "critical thinking" before we turn to investigating critical thinking as an actual effect in follow-up studies.

Study material

As material, we chose the film "Don't look up" (director: Adam McKay, release: 2021). In this film, a group of astronomers discover a comet that is on collision course and will destroy the Earth within 6 months. Their warnings are first ignored and downplayed, then used as sensationalist fodder for media. The comet was finally slated to be hit and diverted from its course by nuclear weapons, but these plans were changed in the last minute in favor of a much riskier and more speculative plan to fragment and recover the comet in order to exploit its rich contents of rare earths. This plan however fails, and Earth is indeed destroyed. The approaching comet and its deadly force that lies in the future is seen as an allegory to climate change (Doyle, 2022). It is also meant to serve as an allegory to science denial more generally that we have witnessed during the COVID-19 pandemic, as the lead actor Leonardo DiCaprio himself states in a Twitter message (Tassi, 2021). As a satire, the film criticizes the slow and ideologically biased responses to climate change, the lack of mitigation efforts and capitalism ruthlessly extracting financial gain from climate change, as well as the corruption of politics and media to use or ignore climate change for their purposes (Doyle, 2022; Guenther and Granert, 2022). The film reaches its satirical goals, but runs the risk of alienating the audience by making fun of its very viewers (Little, 2022). The film, turned out to be one of the most successful releases on Netflix (Buxton, 2022).

Procedure and participants

An online survey was conducted from January 25 to February 25, 2022 with German-speaking participants. The short questionnaire contained questions about the film experience and demographics. For the purpose of this article, we will analyze the answers to the open-ended question "*What do you think the film wants you to do? The film wants me to...*".

The sample consisted of participants who had seen the Netflix movie 'Don't look up'. They were recruited in a convenience sample through mailing lists and social media. With this procedure n = 78 participants were recruited; two were deleted from the data set due to missing responses. The final data set contained 76 participants (67% female, age $M = 25.21$, $SD = 5.41$, range 18 to 42 years).

Analysis of the open-ended answers

We used the collection of activities of critical thinking by Moon (2008) to analyze the open-ended answers with a simple form of qualitative thematic analysis (Braun and Clarke, 2021).

The first step was to identify relevant cases in which critical thinking was mentioned. For this step, we used a list of terms describing critical thinking by Moon (2008, p. 30) that contains the terms "thinking", "appraisal", "evaluation", "reflection", "understanding", "analysis", and "awareness" (excluding the terms "management", "care", "review", and "appreciation" because they are more geared toward an educational and professional context than the informal media context). In addition, we added the terms "questioning", "drawing conclusions" and "forming opinions". If one or more of these activities (whether as nouns or verbs, or as synonymous variations) were mentioned in the respondents' answers, we coded critical thinking to be present in the answer.

The second step was to explore the material for activities of critical thinking (Moon, 2008) that respondents mentioned as the call for action of the film: (1) Reviewing someone else's argument, (2) evaluating an object, (3) developing an argument, (4) thinking critically about the self, (5) reviewing an incident, event or fictitious scenario, (6) engaging in constructive responses to the arguments of others and (7) habitually engaging with the world. Below we describe how

these activities are present in the answers and give examples for each.

Results

The first step showed that almost two thirds of our respondents thought that the film wanted them to critically reflect (62%), with one or more of the key words appearing in the answers. While this is certainly not equivalent to an actual effect of a media narrative to stimulate people to reflect, it does demonstrate that the majority of viewers understood and recognized the appellative function of the film that the producers and actors themselves set out to fulfill. This is not as trivial as it seems, because an allegorical film about climate change could also be perceived as a request to simply engage more in climate protection. Instead, it was critical thinking that was foregrounded by the answers—with very different targets. Often, no direct object of thinking was mentioned, for example, one person (female, 37 years) stated: "More thinking and questioning!" or another female (39 years): "Scrutinize more." In other statements, politics was singled out as the target of critical thinking; for example, a 28 years old woman wrote: "Reflect the behavior of politics and humanity." In addition to politics, media were often mentioned as a target of critical thinking: "Be more critical of external influences (media, sources of funding for political parties) on political decisions" (male, 30 years) or "Questioning information from the media and, that I am active myself and that together we can achieve a lot" (female, 20 years). Finally, specific topics were also mentioned—especially the two science topics that the film can metaphorically represent: Climate change and the COVID-19 pandemic: A 23-year-old female participant, for example, wrote: "Thinking about which values, things etc. are really important and that people finally believe the scientists and become more active, for example, regarding climate protection, but also COVID".

As for the second step, we were able to find instances of all seven of Moon (2008) activities of critical thinking in the answers.

Reviewing someone else's argument

Respondents refer to the activity of scrutinizing arguments by others in the actual world, for example, arguments put forward by the media, politicians or the industry. For example, a 23-year-old woman stated: "Engage more with the issue of climate change (with the scientific opinions and sources) and question political campaigns and opinions more closely", or "I can look at and understand both sides of future-relevant topics. Especially when it comes to global warming, environmentalists are very humiliated compared to politicians and tech giants" (male, 26 years). In a more generalized version, we can find: "I myself also deal with opinions that do not necessarily correspond to my view" (male, 21 years).

Evaluation of an object

Respondents mention that they felt the call to critically make evaluative judgments of an object, a situation or positions, for example, to think about climate change. A typical example here is feeling prompted to think about climate change in general: "To reflect on climate change and my/our attitude toward it, to exchange ideas with other people and to become aware of the increasingly accelerating effects of climate change and that we must do something about it." (female, 27 years). Other objects include the political system ("question the existing system with regard to the balance of power and think about its future viability", female, 27 years) or media ("Deal more critically with media content", female, 26 years).

Developing an argument

Here, participants stated that they felt compelled to find a position of their own: "Check news sources, make up your own mind, and listen to science" (female, 25 years) or "Form my own opinion" (female, 30 years).

Thinking critically about the self

Respondents perceive that the film invites them to critically assess their own behaviors and to think about ways to contribute to problems like climate change. For example, a 23-year-old woman stated: "Getting out of my comfort zone". Another example is: "Think more about how my consumer behavior in general affects the development of the world" (male, 18 years), and, similarly: "Compare my behavior in the current situation with that of the film and reflect on it" (female, 23 years), or: "Become aware of my use of social networks and their filter bubbles, as well as not jumping from headline to headline and losing sight of important issues" (male, 22 years).

Reviewing an incident, event or fictitious scenario

This category was rarely addressed with a specific event in focus, probably partly due to the very particular way of phrasing the question that asked for generalizations rather than specific

events. Responses that went into this direction were focused on more general real-world events or situations, for example: "think about the vaccination and don't deny Corona. That I think about climate change and the scientists who report on it" (male, 21 years).

Engaging in constructive responses to the arguments of others

As there was no actual engagement with others in the survey, this category was mostly realized as a prompt to look for and work with one's own evidence, and not rely on someone else's interpretation (which can be considered as preparatory for a constructive response to the arguments of others). Examples include "Don't take everything for granted without questioning it yourself" (male, 39 years) or "Maybe even start learning more about scientific things from scientifically proven sources" (female, 22 years).

Habitually engaging with the world

Respondents generalized the call for a critical stance to other topics or even without a restriction, making critical thinking applicable to life in general, for instance, "Critically question and get my own picture of the events based on reputable sources" (female, 20 years), "get thoughtful" (male, 32 years) and "question things more and think about them" (female, 22 years).

Implications of critical thinking as a mind-set effect

In this article, we proposed a new facet of eudaimonic entertainment that is grounded in critical thinking and the tradition of Enlightenment literature. Critical thinking as a mind-set effect of media narratives describes a consequence of media use that entails a change in how people approach problems, beliefs and information in general: with an open, inquisitive and critical mind that seeks to understand and form opinions autonomously. Steven Pinker, a proponent of "new Enlightenment" that counters political or ideological forces seeking to regress societies behind modern achievements, sees Enlightenment as firmly built on reason as a basic principle of life and insight into the world, keeping us from delusions like faith, dogma, authority, mysticism, superstition (Pinker, 2018, p. 8ff). Critical thinking is one expression of such reason, which emphasizes that we need to break the habits of thought and reflect our own thought processes as well as the ways in which we come to our conclusions about the world.

We presented results from a pilot study on the film "Don't look up" (McKay, 2021) and analyzed open-ended responses to the question: "*What do you think the film wants you to do?*" The analysis showed that almost two thirds of participants reported one or more activities of critical thinking to be the perceived call to action of the film. We could also identify many variations of critical thinking in their responses, ranging from a simple evaluation of an object to more complex thinking critically about the self.

The study has certainly some limitations in its ability to provide insight into critical thinking stimulated by media narratives. First, it only reflects people's *perceptions* of the call to action provided by the film, *not actual effects* of the film. While it was useful to determine the scope of people's perceptions of what media narratives may imply about critical thinking, the results should not be confused with critical thinking that actually occurs after exposure. Second, the sample size was rather small, due to the recruitment of viewers of the film rather than a general population sample. While sample size was sufficient to inform the qualitative analysis about possible variations in critical thinking, it was not sufficient to conduct a quantification of the activities of critical thinking in the aftermath of a film. Third, looking at one film rather than a range of films has always its problems, as idiosyncrasies of one narrative are not corrected or compensated by other narratives. "Don't look up" was criticized, for example, for its limited or even inaccurate representations of the role of media and a devaluation of the role of celebrity scientists (Fahy, 2022). Here, it would be useful to also investigate films that do not have this shortcoming (but possibly others). Looking at several instances of narratives can provide a more complete picture and make the insight less dependent on the idiosyncrasies of one product.

While the pilot study cannot serve as a direct test or a definitive answer to narrative influence on critical thinking, we can conclude that there is some promising theoretical and empirical uncharted territory to be mapped out and explored in further research. Nonetheless, based in the study as well as our theoretical considerations on critical thinking and the Enlightenment, we are able to offer first reflections on how the new concept of critical thinking as a mind-set effect fits in and enriches current research on narrative effects. We will elaborate on three aspects: 1) Properties of the narrative conducive to stimulate critical thinking as a mind-set effect, 2) implications for theories of narrative effects and 3) the struggle with the anarchy of fiction.

Properties of the narrative conducive to stimulate critical thinking as a mind-set effect

In research on eudaimonic media effects, a focal point of discussion is the question what properties media content must have in order to stimulate eudaimonic effects. Raney et al. (2019)

suggest that no fixed set of properties exists, and that it depends on the reader or viewer whether meaningful insight can be extracted: "Without a doubt, some media messages are more likely to promote reflection on the human condition and life's meaning than are others. But, even the most light-hearted fare often includes meaningful content—such as depictions of love, hope, or kindness—which can trigger eudaimonic reactions and appreciation" (p. 260). It seems, however, that eudaimonic experiences are connected to a higher level of intensive processing, as dual processing models of entertainment suggest (Bartsch and Schneider, 2014; Lewis et al., 2014). Consistent with that, a study by Bartsch and Hartmann (2017) showed that cognitive and affective challenges in media content increased judgments of appreciation of a movie. A study by Ott et al. (2021) demonstrated that films that were described with eudaimonic attributes in user-generated lists on a movie site (such as poignant, moving, or meaningful) increase eudaimonic outcomes such as making sense of difficulties or accepting the human condition.

For critical thinking, we assume that complexity or challenge is beneficial, and that no manifest simple message can relieve the viewer of the burden to do the necessary interpretational work and draw conclusions. We suggest that complexity or challenge may consist of three aspects of the narrative text.

First, "meaningful" narratives that address the human condition, purpose in life, moral virtue or existential concerns (Oliver et al., 2018) should facilitate critical thinking.

For example, "Don't look up" is based on the deadly threat of the comet. Topics like the struggle for survival or fear of impending death, in principle, concerns all audience members and can create involvement that increases systematic, effortful processing (Petty and Cacioppo, 1986), which is known to be related to eudaimonic media experiences (Bartsch and Schneider, 2014; Lewis et al., 2014). We assume that such topics also facilitate critical thinking as a mind-set effect.

Second, another challenge the narrative can offer is a plot that is an *abstraction, metaphor or allegory* of the actual issue. Viewers or readers need to make the connection to the real-world issue and the real-world people themselves, and when they do, have solved a cognitive task that leaves a satisfactory feeling. In "Don't look up", the comet is considered a metaphor for climate change. Of course, abstraction also entails that a certain ambiguity about the film's meaning and reference to the actual world remains—but it is this ambiguity that allows viewers or readers to complete their creative task of decoding the metaphor.

Third, the narrative benefits from a distanced perspective, for example that of the stranger, of the child, a naïve person or the outsider. Observing events from a distance allows to dishabituate audience members from their usual perceptions and customary thinking and see the issue from an outside perspective. In "Don't look up", several such distanced perspectives are offered, for example, the perspective of the group of scientists, especially the female lead role of astronomy doctoral student Kate Dibiasky who discovers the comet and who—in contrast to her professor Randall Mindy—does let herself be corrupted by the political and media machinery. This makes her an outside perspective, but also the fact that she "cannot be easily transformed into a commodity that she is sidelined as a scientific voice. She comes from the wrong university and the wrong gender and does not fit into the limited frame that women scientists must squish themselves into for public consumption" (Chambers, 2022, p. 4). Another character that is suitable for this kind of perspective is the minor character of Yule who becomes a friend of Kate Dibiasky: "Yule is also an outsider in the film — he is outside of society (shoplifting and skateboarding out the back of an abandoned burger joint) and outside of science. This outsider role allows Yule to be the only character who appears to be reasonably persuadable or skeptical of the science, religion and those in power all at once, and potentially gives the audience a window to reflect on the messages of the film" (Little, 2022, p. 4f).

Fourth, including accurate facts about the issue at hand may also support critical thinking as it prompts the viewer or reader to take the narrative seriously and not to dismiss the issue itself because the narrative lacks credibility in putting forward an issue. Some fictions go as far as mixing narrative and paradigmatic modes (Bruner, 1986); an example of this is "State of Fear" that we mentioned earlier which combines a fictional plot and fictional characters with extensive, information-ridden dialogues and graphs plotting the changes in global temperature. There is some appeal to this strategy, but it may also backfire by adding an overtly persuasive and educational component into an otherwise entertaining text.

Implications for theories of narrative effects

We will now explore how critical thinking as a new type of narrative effect is compatible with existing theories of narrative effects and how it can expand them.

Social cognitive theory

Social cognitive theory predicts that observing a model character having success with a certain behavior leads to memorizing the behavioral option and eventually to an application in an appropriate situation (Bandura, 2001). This is certainly compatible as audience members can observe characters engaging in critical thinking and learn from the encounter. The same rules from social cognitive theory apply: When a character is successful through critical thinking, the viewer's or reader's own propensity to think critically should be increased. The theory encounters a boundary when the ultimate outcome for the critical characters is negative. For

example, in the film "Don't look up", all those who have been involved in efforts to save the Earth, are killed in the end.

Counterfactual thinking

The critical thinkers in "Don't look up" seem to be more akin to tragic heroes who fail in the face of stark adversity—they die trying to save the Earth, which makes their effort heroic and not futile. Still, the straightforward argument of social cognitive theory of observation-memory-action cannot explain neither positive evaluations of the heroic characters nor potential effects. For this type of story with a tragic ending, counterfactual thinking as an effect mechanism seems more appropriate: In this approach, an unfavorable (often tragic, deadly) ending for a character in a story triggers counterfactual thoughts about how the ending could have been prevented (Tal-Or et al., 2004). Persuasion then hinges on the extent to which people engage in counterfactual thinking, that is, generate thoughts about different possible events and outcomes of the story. This constructive process is quite compatible with critical thinking, where readers or viewers necessarily need to contribute extended cognitive efforts to the narrative experience.

Narrative effects theories

Apart from social cognitive theory and counterfactual thinking, narrative effects theories are also potentially relevant for critical thinking as an outcome of narrative exposure. First, critical thinking in a sense presents a contradiction to the main mechanism of narrative persuasion, counterarguing. Second, we suggest that critical thinking both as a mechanism and as an effect in its own right may be used to expand narrative effects theories.

The first point concerns the main mechanism of narrative persuasion put forward by current theories such as the transportation imagery model (Green and Brock, 2000; 2002) or the model of narrative comprehension and engagement (Busselle and Bilandzic, 2008): counterarguing. It is defined as generating thoughts or statements that refute an advocated position, for example, by questioning the validity of arguments, pointing out negative aspects of the position or expressing negative feelings about it (Cacioppo, 1979). Narrative impact is enabled and supported by reduced levels of counterarguing against the narrative's message (Green and Brock, 2002; Bilandzic and Busselle, 2013; Green et al., 2019): As narrative engagement or transportation focuses all mental resources on the plot and the characters, no capacity is left to be critical with the story or its assertions. In an engaged mode, readers or viewers experience a narrative in an intensive, vivid way, and at the same time, are uncritical with it (reduced counterarguing); this strengthens the effects of a narrative.

Narrative effects theories relying on a suppression of counterarguing as a main mechanism are somewhat at odds with the notion of critical thinking stimulated by a narrative. Critical thinking implies that audience members are encouraged to question and challenge issues—and this does not exclude the media narrative itself. Following the basic logic of narrative persuasion theories, a call for critical scrutiny in the narrative may undermine the persuasive effort if people end up generating critical thoughts about the narrative itself. In a way, critical thinking is exactly what needs to be *prevented* in our current models of narrative impact.

The second issue we mentioned above—that critical thinking can be used to expand narrative effects theories—builds on these limitations of counterarguing. We suggest that counterarguing is still a tenable mechanism of narrative impact—albeit with a limited scope. It is suitable for goal-oriented strategic communication, e.g., on health (de Graaf et al., 2016), advertisement (Chang, 2012), pro-social attitudes (Paravati et al., 2022). In these cases, the message is clear: improve your health, buy the product, help others. When the message is unambiguous, arguing against or being critical about the message will weaken the intended effects, whereas an uncritical acceptance of the message will strengthen it. This may be considered a limitation of counterarguing as a mechanism: It needs to be evident what the message is. When the message is complex, depends on perspective or, like moral dilemmas, has neither a "correct" solution nor an advocated position, then counterarguing has no definite target and loses influence as a mechanism. In such cases, critical thinking may be a more likely outcome than persuasion: The narrative makes people aware of a problem and leads them to question their own habitual thinking. So, one expansion that critical thinking may offer to narrative persuasion theories is to draw attention to effects that do not require a suppression of counterarguing.

Furthermore, persuasion—shaping, reinforcing or changing responses through messages (Miller, 2013)—is not everything that narratives can do. We have suggested that critical thinking may be an effect in its own right, which for some issues may be more plausible or desirable than persuasion—even in strategic communication: For example, an entertainment education narrative may promote gender equality in the workplace; obviously, changing deeply engrained, possibly unconscious beliefs and behaviors does not happen after one exposure. Inducing critical thinking rather than aiming at uncritical acceptance of the gender equality message may prolong internal preoccupation with the message as it is pondered again and again. The absence of counterarguing could conclude the matter right after exposure and prevent internal cognitive disputes from the outset. A parallel to this idea is the central route in the elaboration likelihood model (Petty and Cacioppo, 1986), where attitudes that are formed under high-involvement conditions turn out stronger and more resistant to future change.

Thus, the second expansion of narrative effects theories is that the outcome is not accepting the advocated position, but a critical mind-set that people will carry outside of the exposure situation. The critical mind-set applies to all kinds of topics and may alter the way in which people process new information and make decisions. A similar idea was expressed and empirically supported by Xu and Wyer (2012) who activated a counterarguing mind-set in participants and found that subsequent exposure to ads was less effective. The sequence we propose is reversed: A critical mind-set is induced by media narratives and effective in any situation afterwards.

A third expansion relates to the motivation to think critically. As stated above, narrative effects theories assume that being intensively immersed in a narrative reduces the amount of counterarguing. The reason is that people have neither the mental capacity to counterargue, because they are focused on processing the narrative, nor the motivation, because it interferes with their enjoyment of the narrative (Green and Brock, 2002). Our notion of critical thinking as part of the eudaimonic entertainment experience however suggests that the media narrative provides the trigger to think critically. This is an inconsistency, as far as simple persuasion and hedonic enjoyment are concerned. When critical thinking is the outcome, it is in line with what we know about eudaimonic entertainment experiences. As Bartsch et al. (2014) found, watching a moving short film and feeling moved by it (defined as an affective state featuring negative valence, moderate arousal, mixed affect) also evoked more reflective thoughts that in turn explained a more positive experience of the film. Mixed affect—that is, a combination of positive and negative emotions (Slater et al., 2019)—may also be a major motivator to think critically.

Retrospective imaginative involvement

An additional issue is the time frame of effects and mechanisms of effects after one exposure or in between exposures. So far, narrative persuasion research has mostly focused in either one-time exposure effects, long-term effects of single exposures (after a week, or a month) or cumulative multiple-exposure effects. Recently, research has started to investigate cognitive effects that are stimulated by one exposure, but are carried on in an internal process by the viewer or reader: Retrospective imaginative involvement expresses the mental engagement with a story world and story characters imaginatively after exposure to a story (Slater et al., 2017; Sethi et al., 2022; Sherrick et al., 2022). This may include imagined interactions or identification with the characters, connections to one's own life or counterfactual thinking about the story (Slater et al., 2017). This logic can be transferred to critical thinking as a mind-set with less focus on interactions and identification and more on cognitive reflection of the narrative.

The struggle with the anarchy of fiction

Fiction does not have the task to represent truth or reality. As a format, it builds on a tacit agreement between the narrative's author and the audience that fiction tells a story that has not actually happened, but that also does not pretend to be the truth and that is certainly not a lie—because what "fiction" means is commonly (and tacitly) known among the audience and not considered a problem (Busselle and Bilandzic, 2008). Fiction is not expected to comply with facts and relate the truth; often real-world situations or processes diverge from the actual circumstances in the service of a good story. This is one aspect of what we term the "anarchy of fiction"—divergent it is, but legitimately divergent.

Another aspect of the anarchy of fiction is that fiction is not obliged to provide a unified, clear message. The requirement is to tell a good story, and not to have a mission. Thus, fictional narratives more often than not have ambiguous messages. This is especially true for satirical formats where irony, exaggeration and caricature leave it up to the viewer to decide what exactly is criticized and what exactly is supported by the narrative (Little, 2022). Again, clear targets of the satire help achieve effects in the intended direction. For example, Brewer and McKnight (2015) found that satirical television news programs about climate change increased the certainty that global warming exists. But for fictional satirical films, the message is often more complicated.

The third aspect of the anarchy of fiction concerns the reader or viewer. If the message in the narrative is ambiguous, the message that viewers take away is similarly anarchic. The degrees of freedom in readings are considerable—we have seen how many different calls for action people have mentioned in our pilot study. Still, ambiguous messages are not *per se* detrimental for an effect on critical thinking, because simpler message and simpler recognition of the message also means less interesting plots, characters and food for critical thought.

The fourth aspect of the anarchy of fiction deals with the legitimacy of critical thought. One major problem of considering fiction as a vehicle for critical thought is the demarcation of substantial, legitimate critical thought from unfounded, illegitimate, pseudocritical thought. This is especially relevant as critical thinking and "thinking for yourself" has to some extent been hijacked by conspiracy narratives. The logic of the conspiracy "is to question everything the 'establishment'—be it government or scientists—says or does, even on the most hypothetical and speculative grounds" (Goertzel, 2010, p. 494). It is exactly the call *not* to rely on authority that connects legitimate critical thinking with conspiratorial critical thinking. Hübl (2020) contends that conspiracies mimic scientific thinking, with its attacks on the "standard view", offering a simple and original explanation, and cultivating a skeptical stance, all while detached from actual and solid evidence, only representing a "dummy or superficial imitation of real science" (p. 1). A good

example for such hijacking of critical/scientific thinking by conspiracy mentality is the novel "State of Fear" that we already used as an example. In this novel, critical thinking and criminal investigation is directed at an eco-terrorist group that seeks to attract attention to climate change by organizing terrorist attacks supposed to look like climate change effects. A group of international law enforcement agents and a lawyer investigate this conspiracy and, along the way, have critical and inquisitive discussions about the existence and scope of climate change. Here, the conspiracy theorists offer the dominant narrative perspective and it is them who apply critical thinking against the mainstream.

Conclusion

Critical thinking as a mind-set effect is a promising addition to eudaimonic media effects as well as narrative effects. It is certainly desirable to create a more emancipated, enlightened stance in audiences, but a limitation should not go unmentioned. When the topic is science—as in climate change, or the COVID-19 pandemic, just relying on one's own critical thinking may not be sufficient. Even with the best of critical faculty, and the most universal of knowledge in natural sciences, it is next to impossible for non-scientists to look at evidence themselves and decide on a justified position, if not for a lack in specialized expertise and access to the research, then for a lack in time. In this situation, trust in science and scientists become key to seeking and evaluating information as well as judgments on science (Hendriks et al., 2016). This complicates the matter because scientific authorities also belong to the category of authorities—that, in an enlightened perspective, we do not want to believe blindly. So, are scientific authorities an exception—because they belong to the epistemologically privileged group? In this case, we would need to separate good and bad critical thinking, which—needless to say—is a shaky enterprise.

In this article, we have provided a theoretical elaboration of the concept of critical thinking, connected it to eudaimonic media effects as well as narrative persuasion. We have also exemplified what critical thinking might look like with a pilot study on the film "Don't look up". As a black comedy, the film attracted a large audience, one of the largest featured in Netflix (Buxton, 2022). This may be due to the expectation connected to the genre comedy, which promises an enjoyable and entertaining experience. Nonetheless, the film has a deeper, metaphorical meaning and has a mission to raise awareness about climate change. This double layer, enjoyable comedy plus deeper meaning, has been noted in research on eudaimonic media effects, where, "enjoyment and appreciation have not been conceptualized as mutually exclusive or as opposite ends of a continuum, but rather as orthogonal outcomes of entertainment reception." (Raney et al., 2019, p. 259). In this case, we can speculate that the motivation to watch the film was hedonic, and the effect was eudaimonic. This, of course, is a good option if viewers can be expected to be reluctant to deal with a topic or if a topic is unappealing. But ultimately, the active part of the viewer cannot be replaced—the viewer needs to extract meaning from an enjoyable experience, and this is certainly effortful and possibly painful. As Moon (2008) concludes for critical thinking in education: "The nature of thinking of an individual is under the control of that individual and one person cannot make another think critically" (p. 131). Similarly, media narratives cannot be regarded as a magic potion to force someone think critically. However, narratives have the ultimate advantage over other formats in that they do not put forward a persuasive intent or patronize their audience. In the end, the narrative format—accompanying audiences without authority and patronage—seems like an adequate vehicle for Enlightenment's goals to release citizens into autonomy and self-reliance.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

Author contributions

HB developed the theoretical approach and wrote the first draft of the manuscript. JNB carried out data collection and contributed sections of the manuscript. Both authors contributed to the conception and design of the study, to the qualitative analysis, to manuscript revision, read, and approved the submitted version.

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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Personal relevance and state empathy with a character facilitates self-disclosure in film viewers

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Eudaimonic media entertainment has been shown to promote mental health, however, our knowledge of the underlying mechanisms that drive the effect is still limited. This project focuses on self-disclosure, a relevant factor for reducing distress and improving mental wellbeing. The aim was to test whether empathizing with a fictional character and the personal relevance of a story can facilitate self-disclosure responses, as well as to examine the role of social cues and audio-visual formal features. In Study 1, 227 participants were randomly assigned to watch one of 8 videos of individuals sharing their experiences of burnout. Shot scale and social cues were manipulated in the videos. Empathy with the characters but not personal relevance predicted the desire for self-disclosure. In Study 2, participants were randomly assigned to either a control condition ($N = 78$) or one of six manipulated short films ($N = 436$). Movies were manipulated for shot scale and music. Participants' reports on state empathy with the film character, perceived personal relevance of the story, and measures related to self-disclosure were collected. One week later, participants were invited to a second survey on self-disclosure behavior ($n = 390$). Both personal relevance and empathy with character showed strong links to self-disclosure responses. The findings of this project shed light on how self-disclosure is elicited by narratives. These insights are important to further understand the therapeutic effects of narratives.

KEYWORDS

narratives, self-disclosure, empathy, personal relevance, shot scale, music, film viewing, close-up

Introduction

Self-disclosure refers to the intentional (deliberate and voluntary) disclosure of personally relevant thoughts, memories, and feelings about the true self, which has to be differentiated from routine disclosure (Tilton-Weaver et al., 2014) and self-presentation (Schlosser, 2020). Self-disclosure has psychological benefits (Vogel and Wester, 2003). It increases trust and intimacy in relationships (Cozby, 1973; Greene et al., 2006),

reduces stress, and improves wellbeing in the long run (Pennebaker, 1993; Zhang, 2017). People often find it difficult to talk about personal issues due to feelings of shame, fear of stigmatization, or other defense strategies (Larson et al., 2015; Slepian et al., 2020). This fear of self-disclosure is a barrier to seeking support from others (Vogel et al., 2007) and an important contributor to loneliness (Akdogan and Çimşir, 2019). The lack of self-disclosure can reduce the likelihood of recovery as the needed help is not sought (Cepeda-Benito and Short, 1998). Depressive feelings and anxiety are related to the withholding of emotional disclosure (Kahn and Garrison, 2009) and low levels of self-disclosure are related to suicidality in adolescent psychiatric patients (Horesh and Apter, 2006).

There is a growing body of research on the positive effects of media (see Reinecke and Oliver, 2016; Raney et al., 2020) and narratives (e.g., Khoo et al., 2021) specifically. Previous studies show that exposure to narratives can activate skills and processes relevant to the successful navigation of interpersonal relationships, such as social cognition processes (Mumper and Gerrig, 2017; Rooney and Bálint, 2018), empathy (Mar et al., 2006), self-reflection (Khoo and Oliver, 2013), or prosocial behavior (Igartua and Barrios, 2012). However, to the best of our knowledge, self-disclosure has not yet been investigated specifically. The primary aim of the present project is to test the potential of narratives to facilitate self-disclosure.

It can be assumed that the desire for self-disclosure, similarly to any narrative effects, is contingent on the experiential responses to the narrative (Bilandzic and Busselle, 2013). We propose that the narrative response of state empathy with the character and the personal relevance of the story are two important mechanisms facilitating self-disclosure responses. When we construct mental models of fictional or real others, our emotional memories will be activated, and this increased emotional intensity may lead to the desire to share this personal information with others, or in some cases with a professional. The present study aims at testing these assumptions by measuring state empathy with characters, personal relevance, and various self-disclosure responses.

Previous studies have shown that empathy with characters is influenced by shot scale (Rooney and Bálint, 2018) and music (Tan et al., 2007). Closer shots of the face increase empathy (Cao, 2013) and mental state references (Bálint et al., 2020), as well as emotional intensity (Canini et al., 2011) and emotional accuracy (Cutting and Armstrong, 2016). Music has been shown to facilitate emotion recognition (Tan et al., 2007). To gain a more comprehensive understanding of the underlying mechanisms, this study included shot scale in the first study and shot scale and music in the second study to investigate the role of formal features in eliciting state empathy and in turn self-disclosure in viewers.

The findings of this project will help to understand how general self-disclosure after watching is elicited by narratives, and what narrative responses and formal features can increase this effect. These insights are important to further understand the therapeutic effects of narratives.

Background

Self-disclosure

Self-disclosure is a type of social sharing that focuses on verbal or non-verbal communication about the true self to others (Cozby, 1973). Self-disclosure can be described by its breadth, that is the variety of topics disclosed during social interaction, depth, which is the level of intimacy in the shared content, and duration, which is the length in which the self-disclosure takes place (Omarzu, 2000). It has to be distinguished from self-presentation, the process through which people manage their image about themselves to the outside world (Schlosser, 2020).

The capability of self-disclosure is an essential component of psychological wellbeing through its close link to emotion regulation (Vijayakumar et al., 2020) and its potential for reducing stress (Pennebaker, 1993; Sloan, 2010). Social sharing of experiences after media exposure have been identified as an important factor mediating between media exposure and wellbeing (Nabi and Prestin, 2016). Sharing a personal emotionally loaded issue with a trusted other can have a cathartic effect, decreasing the intensity of rumination, as well as negative emotions attached to the issue (Derlega et al., 1993; Rimé et al., 2020). Self-disclosure is a crucial factor in the formation of interpersonal relationships (Beike et al., 2016; Brandon et al., 2017). The feeling of closeness and interpersonal intimacy grows through in-depth and reciprocal self-disclosure (Barak and Gluck-Ofri, 2007).

On the other hand, the lack of self-disclosure after stressful life events can decrease psychological wellbeing (Larson et al., 2015; Zhang, 2017). For instance, research has found that ruminating over distressing thoughts can lead to depression (Kahn and Garrison, 2009), and low levels of self-disclosure are related to suicidality in adolescent psychiatric patients (Horesh and Apter, 2006). The lack of self-disclosure can reduce the likelihood of recovery as the needed help is not sought (Cepeda-Benito and Short, 1998). Vogel and Wester (2003) found the tendency to self-disclose as well as to conceal information to be strongly associated to seek help. Whereas, self-disclosure can be seen as an approach factor to help-seeking, self-concealment can be considered as an avoidance factor, decreasing the likelihood of seeking mental help (Vogel and Wester, 2003). Given the psychological benefits of self-disclosure, it is of social value to investigate the factors that may help people to self-disclose. To address the complexity of human-media interaction, we included interpersonal factors (social cues), narrative responses (empathy and personal relevance,) and media-specific factors (formal features) in the investigation.

Social cue for self-disclosure

An important contextual factor this project investigates is the effect of a social cue. Self-disclosure of an observed other facilitates empathic responses and social-emotional support (Brems, 1989). In interpersonal interactions, people tend to adjust their level of self-disclosure to their communicating partner's self-disclosure, using the partner's self-disclosure as a social cue to set a norm of self-disclosure (Miller and Kenny, 1986; Joinson, 2004). This balance of reciprocity is important both in offline and online interactions (Barak and Gluck-Ofri, 2007). Accordingly, it can be assumed that a social cue of another (online co-viewer) person's self-disclosure facilitates self-disclosure in the viewer.

Self-disclosing characters can serve as models for self-disclosure. According to the social cognitive theory of mass media communication (Bandura, 2009), people can learn and be inspired by observing behaviors in mediated messages; when a behavior is modeled and encouraged, it is more likely that the observer repeats it. In the first study reported here, we examine the effects of modeled self-disclosure by characters and of an external self-disclosure cue. In the second study, we shift the focus from modeled self-disclosure to the role of empathy and personal relevance in eliciting self-disclosure. In the next section, we explicate why empathy with characters together with the personal relevance of the story would promote self-disclosure.

Empathy with characters and self-disclosure

One of the questions of this research is whether empathy with characters has a mediating role between narrative exposure and self-disclosure. Viewers' emotional engagement with characters is a core component of the narrative engagement experience (Busselle and Bilandzic, 2009). Previous studies identified two key dimensions of (real and media-elicited) empathy: that is affective empathy and cognitive empathy (Lieberman, 2007; Zaki and Ochsner, 2012; Happ and Pfetsch, 2015). Through these processes, viewers create a mental model of the character's inner world, which facilitates their comprehension of the narrative (Busselle and Bilandzic, 2008). Based on previous research on affective and cognitive empathy, we theorize that these two processes are connected to self-disclosure through two different paths.

Affective empathy and self-disclosure

The role of affective empathy in self-disclosure can be explained by the fever model of self-disclosure (Stiles et al., 1992). Affective empathy, defined as the involuntary process in which one resonates with the affective bodily states of the observed person (Decety and Jackson, 2004; Gallese, 2007; Lieberman, 2007), for example directly experiencing a similar intensity of anxiety when seeing someone in stress. Affective empathy is closely associated with emotional contagion and empathic distress (Davis, 1983), the feeling of negative arousal upon observing someone else in a stressful situation. According to the fever model of self-disclosure (Stiles et al., 1992), people are likely to self-disclose when their experience is emotionally charged, even when the emotions were elicited by mediated messages (Luminet et al., 2000). Research shows that observing and experiencing an event perceived being stressful activates similar neural patterns in the observer (Singer et al., 2004). Consequently, when we observe another person's emotionally charged mental state, we may automatically experience a similarly intense mental state, which in turn facilitates the desire to self-disclose.

Cognitive empathy and self-disclosure

Previous findings on the connection between autobiographical memory and cognitive empathy can elucidate the role of cognitive empathy in self-disclosure. Cognitive empathy (also mindreading, theory of mind, mentalization, perspective-taking) is the awareness and understanding of mental states in real (Premack and Woodruff, 1978; Baron-Cohen, 2001) or mediated others (Black and Barnes, 2015; Mumper and Gerrig, 2017). Previous findings suggest that cognitive empathy is closely related to autobiographical memory. People tend to empathize more with characters when they have an autobiographical experience matching the story (Koopman, 2015a). Relatedly identification with characters is positively correlated with reflecting on one's own life experiences (Khoo, 2016). Koopman (2015a,b); Koopman (2016) found that personal experience with a story topic predicts empathy with the protagonist as well as insight and post-reading reflection. This is supported by neuropsychological findings indicating that with empathic responses, the memory of one's own experiences is also activated in the observer's mind (Shamay-Tsoory, 2011). Moreover, the more someone can retrieve personally relevant memories, the more they are more able to infer mental states of others (Dimaggio et al., 2008; Tani et al., 2014). Recent studies have shown that cognitive empathy and autobiographical memory are closely related but independent processes with overlapping neural networks that are responsible for tracking similar life experiences during mentalizing (Rabin et al., 2010; Shamay-Tsoory, 2011). Other research revealed that autobiographical memory is used in order infer to others' mental states (Spreng and Mar, 2012). In other words, when viewers empathize with characters, memories of their own life experiences are also activated. These activated memory structures will become part of the narrative experience (Cupchik et al., 1998) rendering the story personally relevant.

The mediating role of personal relevance in self-disclosure

When exposed to a narrative text, story receivers often look for similarities and dissimilarities between the content of their self-schema and the story schema (Escalas, 2007). Through this self-referencing process (Burnkrant and Unnava, 1989, 1995), the recipient becomes aware of the link between the story content and his or her own experiences (Seilman and Larsen, 1989), and perceives the story as personally relevant (see review by Kuzmičová and Bálint, 2019). In prior studies, various terms have been used for processes similar to personal relevance, such as recognition of aspects of one's own life (Miall and Kuiken, 1995), personal truth (Oatley, 1999), self-perceptual depth (Sikora et al., 2010; Khoo, 2016), or personal resonance (Larsen and László, 1990). Personal relevance is closely related but not necessarily identical to prior knowledge about (Green et al., 2004) or familiarity with an issue (Hoffner and Cohen, 2015).

Personal relevance shapes how a narrative is processed and experienced. Personal relevance increases the depth of processing (see Petty and Cacioppo, 1979), engagement (Sikora et al., 2011), the level of gained insight (Miall and Kuiken, 1995; Koopman, 2011), and mental imagery (Therman, 2008). Importantly, in many emotion theories, the appraisal of goal relevance or need relevance is a key component of the emotional response (see overview of appraisal theories by Ellsworth and Scherer, 2003). Neuropsychological findings also indicate that stimuli being perceived more related to personal concerns are experienced as emotionally more intense (Bayer et al., 2017). Building on the fever model of self-disclosure (Stiles et al., 1992), we predict that higher level of personal relevance of the story will be associated with higher levels of self-disclosure responses.

To sum it up, this project investigates the mediating role of empathy and personal relevance between narrative exposure and self-disclosure. We propose the following paths: (1) increased affective empathy increases the emotional intensity of the narrative experience and this emotional intensity facilitates self-disclosure, (2) increased cognitive empathy activates related autobiographical memories, which can also increase the perceived personal relevance of the story, (3) increased personal relevance increases the emotional intensity of the experience which again facilitates self-disclosure.

Empathy and audio-visual formal features

This research aimed at experimentally manipulating empathy with characters to test the causal relationships between empathy and self-disclosure. Research inspired by the Limited Capacity Model of Motivated Message Processing (Lang, 2007; Detenber and Lang, 2010) has identified many formal features that have the potential to affect character engagement. One of the most important methodological advantages of manipulating low-level features in a narrative is that the content of the narrative can remain intact.

The most extensively researched formal feature is shot scale, i.e., the apparent size and spatial distance of characters from the camera (Zettl, 2013). It was associated with audience members' empathy (Bálint et al., 2020), liking (Mutz, 2007), emotion recognition (Cutting and Armstrong, 2016), and prosocial behavior (Cao, 2013) in response to mediated characters. Relatedly, it was shown that larger screen size increases character liking (Hou et al., 2012), the intensity of characters' perceived emotions (Lombard et al., 1997), and presence (Bracken, 2005). Additionally, a shorter viewing distance also affects the liking of a character in a positive way (Bellman et al., 2009). Most probably the effect of the shot scale is mediated by the effect of perceived spatial distance on attention (Franconeri and Simons, 2003) and arousal responses (Canini et al., 2011). Furthermore, the close-up of faces is of special importance in empathy responses. Neuroscientific research indicated that images of human faces (Frischen et al., 2007), gazes (Calder et al., 2002), gaze directions (Hood et al., 2003), and gaze dynamics (Pfeiffer et al., 2012) directly activate brain areas responsible for cognitive components of empathy. These findings suggest that shot scale exerts its effect on affective empathy through arousal elicited by image size, and on cognitive empathy through directing viewers' attention to the observed character's facial expression. In this study, it was predicted that an increasing number of close-ups of the character's face will increase empathy with characters in viewers.

In other studies, film music was found to be impactful on viewers' understanding of narrative emotional content as well, presumably because periodicity, pitch, loudness, sound variation, melody variation, and timbre carry emotional value (Lenti Boero and Bottoni, 2008). Film music impacts the type of intentions and relationships viewers ascribe to characters (Bullerjahn and Güldenring, 1994; Vitouch, 2001; Tan et al., 2007, 2017), as well as character likability (Hoeckner et al., 2011). Generally, sound, voices, and music play central roles in shaping the emotional involvement of the audience (Holman, 2010). In this study, it was hypothesized that music will increase empathy compared to environmental sound.

Summary and hypotheses of studies

This project examines the potential of narratives to promote self-disclosure. Specifically, we test whether empathizing with a fictional character and the personal relevance of a story can facilitate self-disclosure responses.

Study 1

In study one, we manipulated close-up frequency within a video and the presence of a social self-disclosure cue afterward. Participants watched one of four non-fictional narrative videos of individuals sharing their experience of burnout. The videos were followed by a Facebook comment that either included a self-disclosure cue or not. Participants reported their level of empathy with the character, personal relevance, self-disclosure behavior, as well as desire for further self-disclosure after exposure. We tested the following hypotheses (see overview in Figure 1):

H1: Shot scale affects state empathy. A higher proportion of close ups increases state empathy compared to a higher proportion of medium shots.
H2: Shot scale has a positive effect on self-disclosure post-exposure (Hyp 2.1) and the desire to further self-disclose (Hyp 2.2) and this effect is mediated by state empathy.
H3: Personal relevance positively predicts self-disclosure post-exposure (Hyp 3.1) and desire to further self-disclose (Hyp 3.2).
H4: The presence of a social cue for self-disclosure will increase self-disclosure post-exposure (Hyp 4.1) and the desire to further self-disclose (Hyp 4.2).

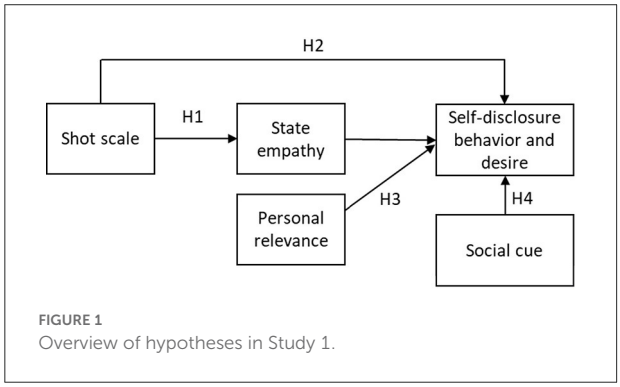

FIGURE 1
Overview of hypotheses in Study 1.

Study 2

In a control-treatment design, Study 2 manipulated shot scale (close-up frequency) and music in a fictional animated narrative and measured empathy with the character, personal relevance of the story, self-disclosure behavior post exposure, desire to further self-disclose, and self-reported self-disclosure behavior 1 week later. The following hypotheses were tested (see Figure 2 for an overview):

H1: Narrative film exposure compared to no exposure (control) increases self-disclosure post-exposure (Hyp 1.1.), desire to further self-disclose (Hyp 1.2.), and self-reported self-disclosure behavior 1 week later (Hyp 1.3).
H2: Shot scale (Hyp 2.1.) and music (Hyp. 2.2.) have an effect on state empathy with the character. Close-up frequency and music compared to environmental noise increase state empathy.
H3: State empathy with the character, positively predicts self-reported self-disclosure behavior 1 week later, and this effect is serially mediated by self-disclosure post-exposure and the desire to further self-disclose.
H4: Personal relevance positively predicts self-reported self-disclosure behavior 1 week later, and this effect is serially mediated by self-disclosure post-exposure and the desire to further self-disclose.

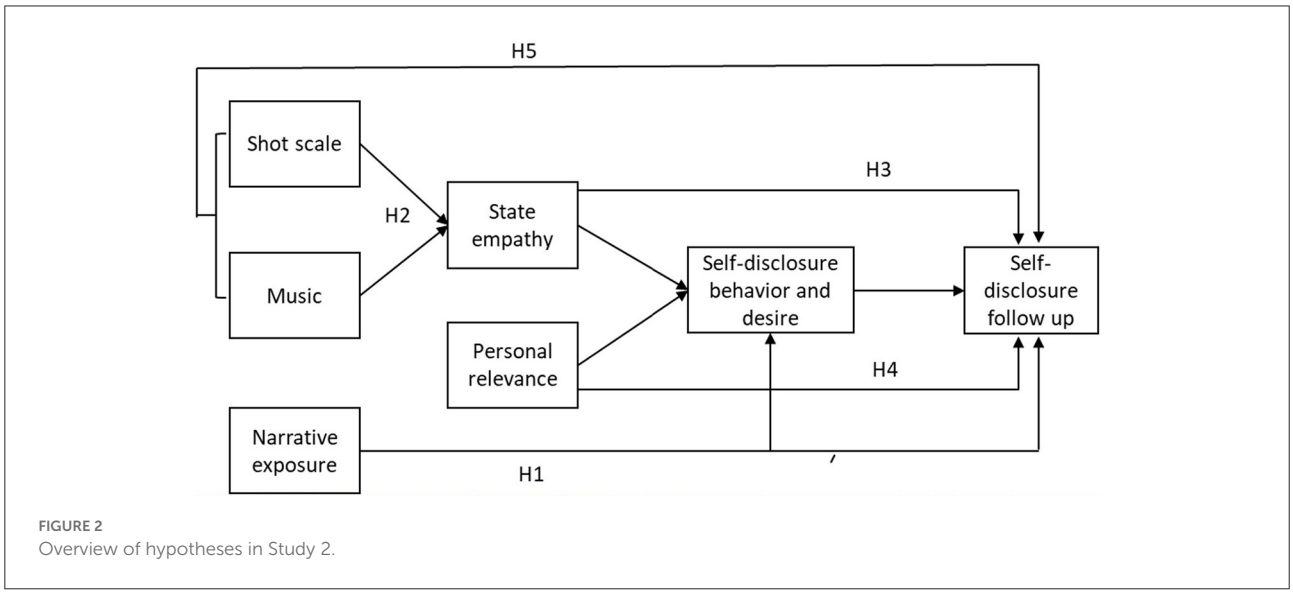

FIGURE 2
Overview of hypotheses in Study 2.

H5: Shot scale and music, i.e. higher close-up frequency, has a positive effect on self-reported self-disclosure behavior 1 week later, and this effect is serially mediated by state empathy, self-disclosure post-exposure, and the desire to further self-disclose.

Study 1: Method

Design and procedure

A 2 (shot scale; close-up shot vs. medium shot) × 2 (social self-disclosure cue; absence vs. presence) × 2 (message; control factor) between-subject experiment was conducted to test the hypotheses. The experiment used two video clips as stimulus material (*message*) to assess whether the hypothesized relationships hold across more than one stimulus. In other words, the interest is not in theorizing differences in effects between the video clips, but in the robustness of our findings. Participants were randomly assigned to one of the eight conditions. After giving consent, participants were first asked to view one of the four video clips. After viewing, they were then randomly assigned to a picture of a Facebook comment according to the social self-disclosure cue condition. Participants were then asked to respond to attention check items followed by questions regarding empathy with the character, personal relevance, and self-disclosure responses. The order of empathy scale and self-disclosure measures was counterbalanced. After finishing the questionnaire, participants were thanked for their cooperation and debriefed. Participants were paid $1.46 in exchange for their participation in the experiment.

Participants

The required sample size was calculated for an F-test using G*Power (Faul et al., 2009) for eight groups and 2 covariates, with a power of 0.80. A small to medium effect size of $f = 0.20$ was used in the power analysis, based on previous research on shot scale and sound in audiovisual narratives (e.g., Cao, 2013; Tan et al., 2017; Bálint et al., 2020). The required sample size denoted by G*Power was 244 participants.

In total, 249 participants were recruited from Prolific, a participant recruitment website for academic research. Participants were required to understand and write Dutch fluently. As the topic of the videos was student burnout, they were also required to be under 35 years of age. Twenty-two participants were excluded from the data analysis because they did not pass the attention checks. These consisted of three questions tailored to the two videos asking about the characters' field of study, their conflict (male character) or challenge (female character), and their sports activity (male character) or living arrangements (female character). Only participants who correctly answered all three questions were included in the analyses.

The final sample consists of 227 participants. Of these, 60.4% identified as male, 38.8% as female, and 0.9% classified their gender as non-binary (these were randomly reassigned to male or female for the analyses). The mean age was 24.4 years ($SD = 4.5$ years). 75.6% lived in the Netherlands, 20.4% in Belgium, and 4.0% lived in other countries. 69.6% of the participants are highly educated, having a bachelor's, master's, or PhD degree. Participants reported low to medium personal contact with people with burnout (1 = *never*, 6= very *often*; $M = 3.49$, SD = 1.34).

Randomization across conditions was successful, the conditions did not differ in terms of gender, $\chi^2 = 9.00$, $df = 14$, $p = 0.831$, age, $F_{(7,219)} = 0.96$, $p = 0.463$, or personal contact with burn-out $F_{(7,219)} = 1.91$, $p = 0.070$.

Stimulus material and manipulations

Videos

Two non-fictional narrative video clips were used as stimulus material—one featuring a young female, and the other featuring a young male. The characters in both videos talked about their own experience with going through burnout syndrome. Both videos were from the same series called #OPGEBRAND created by the Dutch news outlet (NOS op 3). The source material was retrieved from YouTube. All video clips are real-life stories of young people dealing with burnout syndrome. The duration of the video clips ranged from 3:05 to 3:38 min. A detailed description of the videos can be found in Appendix 1.

Video comparability

To ensure that the videos did not differ in terms of *video quality*, participants were asked to rate the video quality on a 7-points Likert Scale (1 = *very bad*, 7 = *very good*). Overall, the videos were perceived to be of good quality ($M = 5.87$, $SD = 1.00$), which did not vary significantly among all conditions [$F_{(7,219)} = 0.95$, $p = 0.469$, part. $\eta^2 = 0.03$]. Similarly, to ensure that the videos' portrayal of burnout is not perceived as differing in *severity*, one item asked "How serious would you describe the burn-out of the character to be?" The item was measured on a 7-points Likert Scale from (1 = *not serious*, 7 = *very serious*). The burnouts of the characters were perceived as serious ($M = 5.46$, $SD = 1.01$), which also did not vary significantly among the conditions [$F_{(7,219)} = 1.91$, $p = 0.070$, part. $\eta^2 = 0.06$][1].

1 We acknowledge that this *p* value does not allow for a confident judgment on the similarity between groups. However, as the inclusion of perceived burnout severity as a covariate does not substantially change the results, we opted to present the results without it in the analyses.

Manipulation of shot scale

Following the procedure described by Cao (2013), the two videos were edited yielding a close-up and a medium shot condition. All videos were edited with Final Cut Pro. First, the original videos were analyzed for their shot scale distribution of long shots, medium shots, and close-up shots following the definitions by Bowen and Thompson (2013). Then, both videos were edited. Approximately, in the close-up condition, close-ups are shown in 45–50% of the total duration of the time, whereas in the medium shot condition, medium shots are shown in the 45–51% of the total duration of the time. See Appendix 2 for the shot scale distribution of the original and the manipulated versions. The online links to the stimulus material can be found in Appendix 3.

Manipulation of social self-disclosure cue

After watching the videos participants viewed an image of a Facebook comment on the video they just watched. The image was either with or without social cue for self- disclosure. The lay-out was exactly the same. It showed the video on a Facebook page, with one single comment below. The comment either related to the commenter (with social cue) or it related to people in general (without social cue). Specifically, there text read as follows:

With social cue for self-disclosure

Thank you for sharing your story! That was very brave! Your story is very relatable to me. I have been dealing with the same feelings and issues as you have for a couple of years now. Nobody seems to understand what I'm dealing with. To know that I am not the only one makes me feel a lot better 😊 Stay strong!

Without social cue for self-disclosure

Thank you for telling your story! That was very brave! Your story must be relatable to a lot of people. Lots of people have been dealing with the same feelings and issues as you for years. They often feel that nobody understands them. People don't always understand what you're dealing with. You surely make a lot of people feel better with letting them know that they are not alone 😊 Stay strong!"

Measures

State empathy

State empathy was measured on a 7-point Likert-scale (1 = *completely disagree*, 7 = *completely agree*) using the cognitive and affective empathy dimensions of the State Empathy Scale (Shen, 2010). *Affective empathy* was measured with four items such as "I was in a similar emotional state as the character when watching this message." The four items were averaged (*Cronbach's* $\alpha = 0.75$; $M = 5.00$, $SD = 1.04$). *Cognitive empathy* was measured with four items such as "I can understand what the character was going through in the message." The four items were again averaged to construct a mean index (*Cronbach's* $\alpha = 0.77$; $M = 5.77$, $SD = 0.94$). Affective and cognitive empathy were combined into an overall index of state empathy (*Cronbach's* $\alpha = 0.85$; $M = 5.38$, $SD = 0.90$).

Personal relevance

Personal relevance was measured by adapting three items from the Personal Relevance Scale (Ellard et al., 2012) to the context of viewing narratives. We used the following items measured on a scale from 1 = *not at all* to 5 = *very much*: 1. "To what extent (if any) did this video make you think of current situations or events in your own life." 2. "To what extent (if any) did this video bring up memories of past situation or events from your own life." 3. "To what extent (if any) could you personally relate to the emotions displayed or represented in this video." The three items were averaged (*Cronbach's* $\alpha = 0.83$; $M = 3.51$, $SD = 0.95$).

Post-exposure self-disclosure behavior

Self-disclosure behavior after exposure was measured using an open writing prompt: *We ask you to think about a topic that personally affected you, or a personal experience that made an emotional impression on you. Please write a paragraph about it, were you let your thoughts, emotions and memories run free. When you start writing, keep writing until you are finished. Spelling and grammar are of no importance and you don't need to worry about that. Everything you write here is anonymous and non-traceable to you.* It was a forced entry question, participants were required to enter an response.

To indicate participants' self-disclosure we planned to quantitatively code the responses according to the level of self-disclosure. However, we were not able to reach acceptable reliability as depth of self-disclosure seems to be strongly subjective. Therefore, we decided to use word count as a proxy for self-disclosure behavior. In previous studies, the length of writing has been used as an objective parameter for message quantity because it reflects the writer's "self-disclosure through sharing personal information, thoughts, and feeling with others" (Barak and Gluck-Ofri, 2007, p. 409). The average word count of the responses was 170.54 ($SD = 79.04$) ranging from 12 to 391 words.

Desire to further self-disclose

The desire to further self-disclose, i.e., the need of the participants to discuss their own feelings, was measured by tailoring the QSU-brief (Cox et al., 2001) a scale used for measuring people's urge to smoke. Six items from the scale were transformed to the subject of self-disclosure to measure the desire to further self-disclose. Cigarettes were replaced by talking about feelings. For example, "If it were possible, I probably would talk about my own feelings now." The items were measured on a 7-point Likert scale (1 = *not at all*, 7 = *completely*). The scores on the six items were averaged to create a mean index (*Cronbach's* $\alpha = 0.89$; $M = 4.17$, $SD = 1.34$).

TABLE 1 Descriptives and correlations for the main study variables in Study 1.

	M	*SD*	2	3	4	5	6
1. State empathy	5.38	0.90	0.91***	0.89***	0.74***	0.19**	0.42***
2. Affective empathy	5.00	1.04	–	0.64***	0.66***	0.18**	0.39***
3. Cognitive empathy	5.77	0.94		–	0.69***	0.16*	0.37***
4. Personal relevance	3.51	0.95			–	0.21**	0.36**
5. Self-disclosure (word count)	170.55	79.04				–	0.09
6. Desire to self-disclose	4.17	1.34					–

***p < 0.001, ***p < 0.01, *p < 0.05.

Study 1: Results

Table 1 provides an overview of the descriptives and correlations of the study variables. Empathy and personal relevance showed a strong positive correlation. Desire to self-disclose was positively associated with state empathy (both cognitive and affective empathy) and personal relevance, but not with the self-disclosure post exposure.

Our first hypothesis predicted an effect of shot scale on state empathy in that close-ups will increase state empathy compared to medium shots. To test Hypothesis 1, we conducted three one-way ANCOVA with shot scale, social cue presence and message as independent variables, and state empathy, affective empathy, or cognitive empathy as the dependent variables, and gender and personal contact as covariates. Shot scale did not have a significant effect on state empathy, $F_{(1,217)} = 130$, $p = 0.255$, part. $\eta^2 = 0.006$, affective empathy, $F_{(1,217)} = 1.26$, $p = 0.264$, part. $\eta^2 = 0.006$, nor did it have a significant effect on cognitive empathy, $F_{(1,217)} = 0.84$, $p = 0.360$, part. $\eta^2 = 0.004$. There were no interactions with any of the other factors, all $p > 0.074$. Thus, Hypothesis 1 was not supported.

Consequently, the mediating effect of empathy for the effect of shot scale on self-disclosure post exposure and the desire for further self-disclosure postulated in H2 was not supported either. Using the same set of ANCOVAs but for both self-disclosure responses as dependent variables we tested whether there is a direct effect of shot scale. However, there were no direct effects, all $p > 0.176$.

In the next step, we conducted regression analyses to examine whether state empathy or affective and cognitive empathy (H2 second path), personal relevance (H3), and the presence of a social cue for self-disclosure (H4) predict self-disclosure post exposure and desire for further self-disclosure. Shot scale and message conditions as well as gender and personal contact served as covariates. The results show that empathy, $b = 0.49$, $SE = 0.14$, $p < 0.001$, 95% *CI* [0.215, 0.758], $\beta = 0.33$, and specifically affective empathy, $b = 0.28$, $SE = 0.11$, $p = 0.012$, 95% *CI* [0.062, 0.499], $\beta = 0.22$, significantly increased the desire for further self-disclosure. Neither cognitive empathy, $b = 0.20$, $SE = 0.13$, $p = 0.122$, 95% *CI* [−0.053, 0.448], $\beta = 0.14$, personal relevance, $b = 0.12$, $SE = 0.14$, $p = 0.370$, 95% *CI* [−0.145, 0.387], $\beta = 0.09$, nor the presence of a social cue, $b = 0.13$, $SE = 0.16$, $p = 0.427$, 95% *CI* [−0.191, 0.449], $\beta = 0.05$, significantly predicted the desire for further self-disclosure (values from regression model with both affective and cognitive empathy). There were no predicted effects on self-disclosure post exposure, as indicated by word count, all $p > 0.19$. Self-disclosure post exposure also did not predict the desire for further self-disclosure, $p > 0.83$. Thus, the second path proposed in Hypothesis 2 was supported with the positive effect of state empathy and affective empathy on the desire for further self-disclosure. H3 and H4 were not supported.

Study 1: Discussion

Counter to our assumptions shot scale did not have an effect on state empathy. Additionally, the social cue manipulation did not have an effect on self-disclosure.

Empathy with a character and personal relevance showed a moderately strong positive correlation with desire to self-disclose, which suggests that they are both important factors in predicting the extent to which viewers would share personal content after narrative exposure. However, personal relevance and empathy are strongly correlated, when putting them in the same regression model, the effect of personal relevance is canceled out. Affective empathy seems to be strongly related to self-disclosure; experiencing similar feelings to the character's can elicit the desire to share personal content with another person. This effect was shown across two messages.

Participants were prompted to share recent impactful events and the description of these events were submitted to a quantitative content analysis for the depth of self-disclosure. Three independent coders could not reach a sufficient level of inter-rater reliability after several rounds of training sessions. Depth of self-disclosure turned out to be a highly complex and subjective rating category depending on the individual context of the sharer. Therefore, in the current study we used word count as a proxy for self-disclosure behavior. Study 2 aims at improving this measure by asking the participants to rate

the depth of self-disclosure themselves. Besides, the process of self-disclosure unfolds in time. A personally relevant topic is triggered through the narrative exposure, some sharing can happen right after the movie, the desire to talk more might be elicited, but it takes time to process the narrative experience and for the actual self-disclosure behavior to take place. To capture this process, we introduced a follow-up measure in Study 2 and asked participants 1 week after the exposure about their actual self-disclosure behavior.

Study 1 showed that empathy with a non-fictional character who is self-disclosing about a very specific life situation increases the desire to self-disclose in viewers. To explore the nature and strength of the relationship between empathy, perceived personal relevance and self-disclosure, in Study 2, participants were exposed to a fictional character who does not model self-disclosure but rather just goes through the universal human experience of loss and separation.

Concerning the study's sample size, we have to acknowledge that the final sample is lower than the planned sample size based on power calculations (227 vs. 244). We did recruit slightly more participants than needed (249); unfortunately we had to exclude a higher number than expected. At the same time, a sample of 227 still has sufficient power to detect the effect size of $f = 0.20$ according to a sensitivity analysis with G*Power. Nevertheless, we made sure to oversample to a larger degree for Study 2.

Study 2: Method

Design and procedure

An online longitudinal experiment was conducted in a three (close-up frequency; low vs. medium vs. high) × 2 (sound; diegetic environmental sound vs. non-diegetic music) plus control group (no movie) between-subject factorial design. Participants ($N = 514$) were randomly assigned to either a film condition ($n = 436$) or a control condition ($n = 78$). Within the film condition, participants were assigned to one out of six versions of the film ($n = 69$–76 per condition). One week later, participants were invited to a second survey on self-disclosure behavior ($n = 390$, 48 control group, 342 film group).

The data was collected through Prolific. Dutch speaking participants between the age of 18 and 50 years were invited to a study entitled Film and Emotions. Participants could fill in the survey either using a tablet or a laptop/ PC but not on mobile phone. Participants signed an informed consent. Then the audio of their device was checked. Participants needed to count the number of beeping sounds and enter the correct number. Participants were randomly assigned to either a film or a control condition. Participants in the film condition were randomly assigned to one of the six conditions, and watched the animated film, after which they filled in the attention check items, rated the perceived quality of the movie and reported whether they have seen the movie before. Then they reported their state empathy with the film character, perceived personal relevance of the story. These two scales were presented in randomized order. Afterwards, they were asked to write a paragraph about their thoughts and rate the depth of self-disclosure of their writing, and fill in questionnaires on their urge for self-disclosure. Participants in the control condition were not exposed to a movie but were directed to the self-disclosure related questions directly. One week later, all participants were invited to fill in a short survey on their actual self-disclosure behavior in the past week. Participants were debriefed and reimbursed 1.75 GBP for the main study and 1 GBP for the follow-up study.

Participants

Participants were recruited through Prolific. The required sample size was calculated for an *F*-test using G*Power (Faul et al., 2009) for seven groups (6 film groups plus one control) and 2 covariates, with a power of 0.85. A smaller effect size of $f = 0.15$ was used in the power analysis for this study, adjusting the effect size estimate based on previous research on shot scale in audiovisual narratives (e.g., Cao, 2013; Bálint et al., 2020) to the small effect sizes seen in study one. The required sample size denoted by G*Power was 489 participants.

In total, 636 participants opened the survey through Prolific, out of which 84 returned the survey immediately. Eight participant failed to identify the theme of the movie (grief), and 28 failed the 4-item attention check on the content of the film (family status of main character, vehicle used by the main character, location of first scene). Only participants with at least 3 correct answers were kept in the sample. The final sample consisted of 514 participants (78 control group, 436 film group), out of which 390 (48 control group, 342 film group) participated in the follow-up study 1 week later. Due to technical issues in the main study, 17 (14 in follow-up) participants in the film group did not receive the empathy and personal relevance scales. There were 229 females in the main study, there were four non-binary participants, they were randomly reassigned to male or female for the analyses All participants reported a native or fluent level of Dutch. Participants' age ranged from 18 to 50 years old ($M = 29.35$, $SD = 7.88$). The 65.6 % of the participants were from the Netherlands, 23.5% from Belgium, and 10.9% had another nationality (e.g., Germany, UK, USA, Poland, Spain). Most participants (28.7%) completed a university of applied sciences education, 27.4% completed a university-level master, and 19.9% had a university bachelor's degree.

The experimental conditions did not differ significantly in age $F_{(6,506)} = 1.25$, $p = 0.281$ and gender distribution $X^2_{(6,514)} = 6.65$, $p = 0.354$, meaning that the randomization was successful.

Forty-four participants had seen the movie before. Independent *t*-test showed no effect of participants' previous

exposure to the movie on any of the dependent variables (*ps* > 0.566), therefore these participants were kept in the sample.

When exploring the patterns in data attrition between main and follow up measurements, independent *t*-test showed no significant difference between participants who participated in the follow-up study compared to those who did not in post exposure self-disclosure $t_{(512)} = 0.009$, $p = 0.742$ and desire for self-disclosure $t_{(512)} = 2.27$, $p = 0.409$, as well as state empathy $t_{(417)} = 1.37$, $p = 0.171$, however the groups differed in personal relevance $t_{(417)} = 2.24$, $p = 0.025$. Chi-square test showed a significant effect of film-control assignment on data attrition [$X^2_{(1)} = 10.32$, $p = 0.001$]. Control group showed a higher level of data attrition (38.5%) compared to film group (21.6%). This indicates that participants were more likely to participate in the 1-week follow-up when they were assigned in the film group.

Measures

State empathy

Participants' state empathy was measured following the same procedure to Study 1. The two subscales *affective empathy* (*Cronbach's* α = 0.82; *M* = 5.19, *SD* = 1.12) and *cognitive empathy* (*Cronbach's* α = 0.62; *M* = 5.95, *SD* = 0.74), were combined into an overall index of state empathy (*Cronbach's* α = 0.83; *M* = 5.57, *SD* = 0.83).

Personal relevance

Personal relevance was measured by the procedure described in Study 1 (*Cronbach's* α = 0.85; *M* = 3.71, *SD* = 1.58).

Post exposure self-disclosure behavior

Self-disclosure behavior after exposure was measured using an open writing prompt: *We are interested in people's comments. What comes to mind right now? Please write a paragraph about this, giving free rein to your thoughts, emotions, and memories. When you start writing, write on until you are finished. Spelling and grammar are not important, so don't worry about them. Everything you write here is anonymous and not traceable to you.* After writing, participants were asked to rate the depth of self-disclosure in their own texts by choosing one of these options: *Now that you have finished writing, we would like to ask you to rate how much you revealed of yourself in that which you wrote/how personal you were in the text: I did not reveal anything personal (1); I revealed a little bit of personal information, I would share this kind of stuff with a stranger I just met (2); I revealed somewhat personal information, I would share this kind of thing with a colleague or neighbor (3); I revealed a lot of personal information, I would share this kind of thing with a close friend (4); I have revealed very much personal information, I would not share this with anyone except perhaps a psychologist who keeps it secret (5).* This participant given score was used to measure the depth of post-exposure self-disclosure behavior (*M* = 2.31; *SD* = 1.14).

Desire to further self-disclose

The extent to which participants had the desire to further self-disclose was measured the same way as in Study 1 (*Cronbach's* α = 0.89; *M* = 4.17, *SD* = 1.37).

Self-reported self-disclosure 1 week follow-up

Participants were contacted again 1 week after their participation in the main study. They were asked to report the extent to which they agree with the following sentence: *In the past week, I have talked to someone about my feelings in the past week* (1 = completely disagree, 7 = very much agree) (*M* = 4.28, *SD* = 1.59).

Stimulus material and manipulation

Video clip

The experiment used the 9-min long, international award-winning animated film entitled Father and Daughter (Dudok de Wit, 2001). The main theme of the film is loss and overcoming grief. The detailed description of the movie content and structure can be found in a previous paper of the authors (Bálint et al., 2020).

Manipulation of shot scale

We used the original (zero close-ups) and two manipulated versions (3 close-ups and 5 close-ups) of this movie created for the study by Bálint et al. (2020). The original video (Dudok de Wit, 2001) did not contain any close-ups, hence this video was used for the zero close-up conditions. No facial expressions were visible in the zero close-ups conditions. For the three and five close-up conditions, the frequency of closeups was manipulated using close-ups of the daughter with a sad facial expression (see Bálint et al., 2020). For the three close-ups conditions, three close-ups of the daughter were inserted at three time marks in the video: at 1:14, 4:47, and 5:33 min. For the five close-up conditions, two more close-ups were added on top of those from the three close-ups conditions: at 2:30 and 3:43 min. The close-ups were added at these time marks to spread them throughout the video. Detailed description of the manipulation of shot scale can be found in Bálint et al. (2020).

Manipulation of music

There were two versions of each video. One with the soundtrack of the original movie, the waltz melody of

TABLE 2 Descriptives and correlations for the main study variables in Study 2.

	M	*SD*	2	3	4	5	6	*M*
1. State empathy	5.57	0.83	0.93***	0.84***	0.49***	0.30**	0.38***	0.20***
2. Affective empathy	5.19	1.12	–	0.58***	0.52***	0.32**	0.37***	0.22***
3.Cognitive empathy	5.95	0.74		–	0.32***	0.19*	0.30***	0.11***
4. Personal relevance	3.71	1.58			–	0.33**	0.31**	0.17**
5. Post exp self-disclosure	2.31	1.14				–	0.29***	0.10*
6. Desire to self-disclose	4.17	1.37					–	0.57**
7. Self-disclosure follow-up	4.28	1.59						–

***p < 0.001, ***p < 0.01, *p < 0.05.

the *Waves of the Danube*, which is an emotional, rather repetitive, instrumental music. For the no music condition, we replaced the non-diegetic music with professionally made environmental sound fitting to the physical events in the movie (e.g., noise of bicycle, birds, wind) (Dudok de Wit and de Vries, 2010, https://www.youtube.com/watch?v=JeWIGubqxZA).

Video comparability

Participants rated the films on *video quality* on a 7-points Likert Scale (1 = *very bad*, 7 = *very good*). Overall, the videos were perceived to be of good quality ($M = 4.11$, $SD = 1.03$), which did not vary significantly among all conditions $F_{(5,413)} = 0.487$, $p = 0.779$, part. $\eta^2 = 0.006$.

Study 2: Results

Covariates

Age showed a significant weak correlation with affective empathy ($r = 0.171$, $p < 0.001$) and personal relevance ($r = 0.184$, $p < 0.001$). The gender of participants had an effect on desire for self-disclosure $t_{(326)} = -0.281$, $p = 0.005$ and self-reported self-disclosure 1 week follow-up $t_{(326)} = -4.75$, $p < 0.001$, females showing higher levels compared to males. Given these significant effects, these covariates are included in the further analyses.

Hypothesis testing

Table 2 presents the descriptives and correlations among dependent variables. Self-disclosure responses showed a positive moderately strong relationship with personal relevance and empathy.

A multivariate ANOVA (Bootstrapped with 5000 samples) showed a significant difference between the film group and control group in self-disclosure post exposure $F_{(1,509)} = 5.93$, $p = 0.033$, $\eta^2 = 0.009$ but not in desire for self-disclosure $F_{(1,509)} = 0.58$, $p = 0.312$, $\eta^2 = 0.001$. Results of an univariate ANOVA (Bootstrapped with 5,000 samples) indicated an effect of group assignment on self-disclosure behavior 1 week follow up $F_{(1,386)} = 12.40$, $p = 0.023$, partial $\eta^2 = 0.013$. However, the direction of the effect is the opposite to what was expected. The control group reported higher level of self-disclosure related values compared to the film group (see details in Table 3). Hypothesis 1 was rejected.

TABLE 3 Mean and standard deviation of self-disclosure responses in the control and film conditions in Study 2.

	Control condition		Film condition		
	M	*SD*	*M*	*SD*	*N*
Self-disclosure post exposure	2.55	1.10	2.27	1.15	514
Desire for self-disclose	4.07	1.33	4.18	1.37	514
Self-disclosure follow-up	4.68	1.38	4.22	1.61	390

Data was submitted to a regression analysis (enter method) with the variables of close-up frequency, music, and interaction of close-up frequency and music as independent variables, state empathy as dependent variable, with age and gender as covariates. This regression analysis was repeated two more times with cognitive empathy and affective empathy as dependent variables. Results indicated no significant effect of close-up frequency on state empathy $b = -0.11$, $SE = 0.16$, $p < 0.474$, 95% CI [−0.42, 0.20], $\beta = -0.11$; cognitive empathy $b = -0.18$, $SE = 0.14$, $p = 0.194$, 95% CI [−0.46, 0.09], and affective empathy $b = -0.04$, $SE = 0.21$, $p = 0.830$, 95% CI [−0.46, 0.37]. Results showed no significant effect of music on state empathy $b = -0.22$, $SE = 0.21$, $p = 0.307$, 95% CI [−0.64, 0.20], $\beta = -0.13$, cognitive empathy $b = -0.29$, $SE = 0.19$, $p = 0.133$, 95% CI [−0.66, 0.09], $\beta = -0.19$ and affective empathy $b = -0.15$, $SE = 0.29$, $p = 0.601$, 95% CI [−0.639, 0.201], $\beta = -0.07$. The interaction effect of close-ups and music was

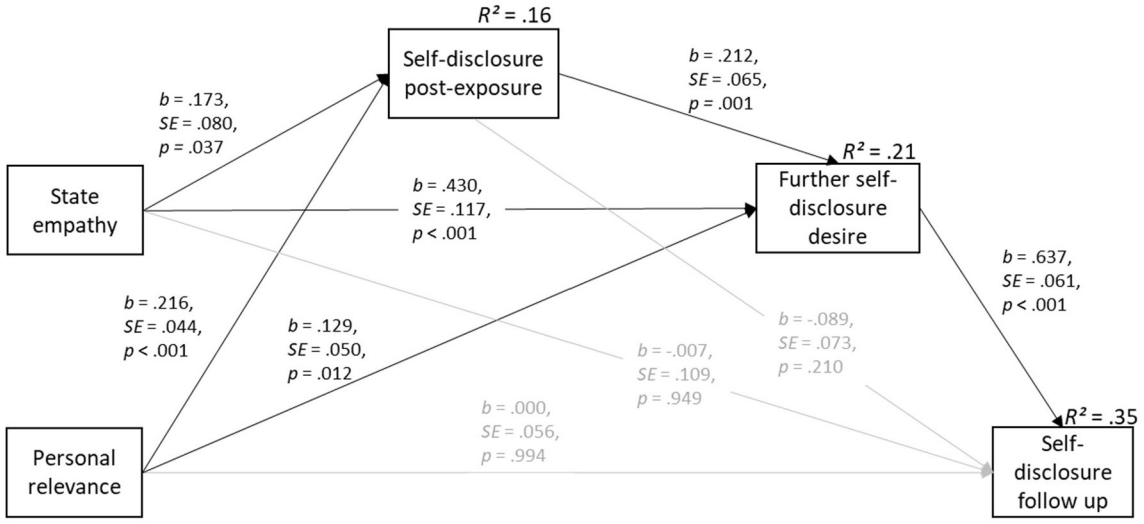

FIGURE 3
Effects of state empathy and personal relevance on self-disclosure follow up (Model 1). $N = 328$, unstandardized regression coefficients, 5.000 bias-corrected bootstrap samples. Model fit: $\chi^2 = 6.57$, $df = 8$, $p = 0.584$; $CFI = 1.00$; $RMSEA = 0.000$, 90% CI [0.000, 0.057]; SRMR = 0.022. Covariates: Gender, age, music, shot scale (for all three DVs).

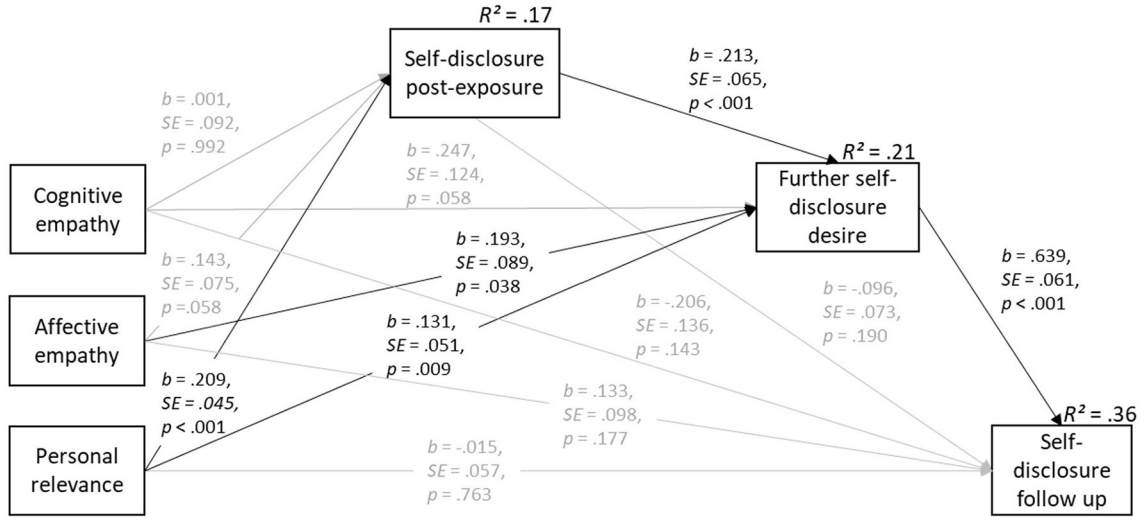

FIGURE 4
Effects of cognitive empathy, affective empathy, and personal relevance on self-disclosure follow up (Model 2). $N = 328$, unstandardized regression coefficients, 5.000 bias-corrected bootstrap samples. Model fit: $\chi^2 = 6.58$, $df = 10$, $p = 0.764$; $CFI = 1.00$; $RMSEA = 0.000$, 90% CI [0.000, 0.057]; SRMR = 0.021. Covariates: Gender, age, music, shot scale (for all three DVs).

non-significant as well on all response variables ($p > 0.05$). Hypothesis 2 was rejected.

We predicted that empathy (H3) and personal relevance (H4) positively predict self-reported self-disclosure behavior 1 week later, and that this effect is serially mediated by self-disclosure post exposure and the desire to further self-disclose To test these hypotheses, we used AMOS 28 to conduct path analyses with 5,000 bias-corrected bootstrap samples as depicted in Figure 2 but adding the formal features as covariates, next to age and gender, instead of as independent variables. We ran two path models, one with state empathy (Model 1, Figure 3) and one with affective and cognitive empathy (Model 2, Figure 4). Both models achieved a very good model fit [Model 1: $\chi^2 = 6.57$, $df = 8$, $p = 0.584$; $CFI = 1.00$; $RMSEA = 0.000$, 90% CI (0.000, 0.057); SRMR = 0.022; Model 2: $\chi^2 = 6.58$, $df = 10$, $p = 0.764$; $CFI = 1.00$; $RMSEA = 0.000$, 90% CI (0.000, 0.042); SRMR

=0.021] explaining 35 and 36 percent of variance, respectively, in self-reported self-disclosure 1 week later. In model 1, both state empathy, $b = 0.28$, $SE = 0.08$, $p < 0.001$, 95% *CI* [0.134, 0.432], $\beta = 0.14$, and personal relevance, $b = 0.09$, $SE = 0.04$, $p = 0.010$, 95% *CI* [0.021, 0.171], $\beta = 0.09$, had significant positive indirect effects on self-disclosure 1 week follow-up. In addition, the total effect of state empathy was significant, $b = 0.28$, $SE = 0.13$, $p = 0.046$, 95% *CI* [0.006, 0.521], $\beta = 0.13$. In model 2, it becomes apparent that it is affective empathy driving the positive effect on self-disclosure reported 1 week after exposure [total effect: $b = 0.26$, $SE = 0.12$, $p = 0.030$, 95% *CI* (0.024, 0.486), $\beta = 0.17$; indirect effect: $b = 0.13$, $SE = 0.06$, $p = 0.028$, 95% *CI* (0.012, 0.246), $\beta = 0.09$], although no longer through self-disclosure right after exposure (Figure 4). Table 4 provides details on total and indirect effects. Hypothesis 3 and 4 can be partially supported.

Hypothesis 5 predicted a mediation effect of state empathy between the audio-visual formal features and self-disclosure responses. While we did not find an effect of the audio-visual formal features on state empathy and thus no mediation effect, a direct effect of shot scale on self-disclosure post exposure, $b = -0.17$, $SE = 0.07$, $p = 0.026$, 95% *CI* [−0.319, −0.024], $\beta = -0.13$, as well as an indirect effect on the desire to self-disclose through post exposure self-disclosure, $b = -0.04$, $SE = 0.02$, $p = 0.014$, 95% *CI* [−0.088, −0.007], $\beta = -0.02$, emerged in the path analyses. Contrary to our expectations, a higher frequency of close-ups reduced self-disclosure post exposure and the desire to self-disclose. Hypothesis 5 was not supported.

Discussion

The primary aim of this project was to explore the potential of narratives to facilitate self-disclosure. We proposed that state empathy and personal relevance are two important mechanisms facilitating self-disclosure responses. To address the complexity of human-media interaction, we tested social cue as an external factor. Two online between-subject experiments were conducted, in which we aimed at manipulating state empathy through the manipulation of audio-visual formal features. Audio-visual formal features did not have a significant (linear) effect on state empathy, therefore we continued with a correlational analysis of the response variables. In both Study 1 and Study 2, state empathy, affective empathy in particular, was found to have a significant link to the desire for self-disclosure. In Study 2, personal relevance was an additional predictor of self-disclosure responses. Overall then, viewers who empathized with the character and felt that the story was personally relevant, self-disclosed more and reported higher desire to self-disclose, which in turn led to higher level of self-disclosure behavior 1 week later. These findings shed light on the determinants of self-disclosure.

Empathy and self-disclosure

State empathy was found to be a significant predictor of desire to self-disclose, indicating that viewers' desire to talk about personal issues with another person might be facilitated by their emotional engagement with the character. This relationship emerged in both studies and for both modeled and non-modeled self-disclosure, suggesting a generalizable result. Additionally, state empathy was closely related to self-disclosure post exposure in Study 2, meaning that participants who empathized with the character more, shared more personal content after the movie.

Results suggest that the effect of state empathy on self-disclosure responses is driven by affective empathy. This finding is in line with the literature on the close connection of affective empathy and activation of own past experiences (Shamay-Tsoory, 2011). The significant relationship between affective empathy and desire to self-disclose confirms the fever model (Stiles et al., 1992), which states that the intensity of the emotional experience impacts social sharing. Cognitive empathy showed a moderately strong positive correlation with self-disclosure responses in both studies, however this effect disappeared when the effect of other variables were taken into account. It seems that self-disclosure is more connected to the activation of an observed emotional experiences relative to the understanding of that experience.

Empathy and self-disclosure were strongly associated in both studies, suggesting that this relationship may hold independently of the fictionality of the narrative message. This is in line with previous meta-analytic findings that shows that both fictional and non-fictional stories have a strong potential to elicit narrative effects (Braddock and Dillard, 2016). Moreover, there was a relationship of empathy and self-disclosure both with a self-disclosing and a non-self-disclosing character, which suggests that self-disclosure does not necessarily occur as a result of symbolic modeling rather it is the result of activation of personally relevant mental content through (affective) empathy. Empathy is a core process of character engagement, however, future research should extend the scope to other processes such as parasocial relationship (Giles, 2002) or identification (Tal-Or and Cohen, 2010). Viewers' parasocial relationship can be interesting for self-disclosure in particular as it refers to the illusion of having a friendship with a media character. It might be that the desire for self-disclosure in some cases led to an imaginary self-disclosing dialogue with the character, rather than with a real other.

Personal relevance and self-disclosure

In both studies, personal relevance showed a positive correlation with self-disclosure responses, indicating that the

TABLE 4 Total and indirect effects of Model 1 and Model 2 path analyses.

	b	SE	p	BC 95% CI [LL, UL]	β
Model 1–State empathy					
Total effect state empathy	0.275	0.132	0.046	0.006, 0.521	0.133
Indirect effect state empathy→ … → SDfollow	0.282	0.079	<0.001	0.134, 0.432	0.137
Total effect personal relevance	0.093	0.066	0.171	−0.039, 0.220	0.089
Indirect effect personal relevance→ … → SDfollow	0.092	0.037	0.010	0.021, 0.171	0.088
Model 2–Cognitive & affective empathy					
Total effect cognitive empathy	−0.048	0.160	0.783	−0.356, 0.276	−0.021
Indirect effect cognitive empathy→ … → SDfollow	0.158	0.079	0.051	−0.001, 0.313	0.071
Total effect affective empathy	0.262	0.118	0.030	0.024, 0.486	0.172
Indirect effect affective empathy→ … → SDfollow	0.129	0.059	0.028	0.012, 0.246	0.085
Total effect personal relevance	0.077	0.067	0.256	−0.055, 0.205	0.074
Indirect effect personal relevance→ … → SDfollow	0.092	0.037	0.011	0.022, 0.168	0.088

Bootstrap sample size = 5,000; BC 95% CI, bias-corrected confidence interval; LL, lower limit; UL, upper limit.

level to which viewers perceived reminders of their own life experiences in the movie was associated with their actual self-disclosure after the movie, their desire to talk more about personal issues, and their actual self-disclosure 1 week later. This relationship was observable in both studies, indicating that personal relevance is closely related to self-disclosure independently of the fictionality of the narrative message. The path analysis confirmed the direct effect of personal relevance on self-disclosure post exposure and desire to self-disclose, and its indirect effect on self-disclosure behavior in the follow-up. This suggests that the activation of personal memories promotes self-disclosure in the short term, which in turn motivates a longer term self-disclosure, albeit not translating into a significant total effect. Thus, other factors might have to be taken into account here.

Prediction of long term self-disclosure behavior

To go beyond a cross-sectional design, the present research included a 1 week follow-up measure of self-disclosure. The results showed an overall effect of empathy on long term self-disclosure that was fully mediated by post exposure and the desire to self-disclose. While personal relevance did not have an overall effect on self-disclosure in the follow-up there was also an indirect effect through post exposure self-disclosure and desire to self-disclose. This indicates that the desire to self-disclose is a necessary component fostering long term self-disclosure in the real world. The effect of narrative responses on real-life self-disclosure are channeled through the elicited desire to self-disclose.

Measuring self-disclosure

Innovatively, in Study 2, we asked participants to rate the depth of self-disclosure of their own writing, yielding an indicator of self-disclosure behavior after narrative exposure. We introduced this measure after having failed to reach sufficient inter-rater reliability in rating self-disclosure in participant-generated texts in Study 1. Asking the participants to rate the depth of their own self-disclosure can handle a lot of contextual-individual factors that an independent coding would not be able to. At the same time, participants did not specify whether their self-disclosure was related to the movie or the memory elicited by the movie or an unrelated topic. Future research should disentangle different aspects of self-disclosure, which will help to further understand how narratives may help to circumvent defense mechanisms preventing self-disclosure. Moreover, setting the time interval to 1 week between narrative exposure and follow-up measurement might have also introduced too much noise. Future research should test shorter intervals to increase experimental control.

In the current project, personality traits relevant for self-disclosure or empathy were not included, despite their importance. Future studies should explore potential main and interaction effects of steady personality features to explain between-person differences.

Social cue

We included an external factor, social cue for self-disclosure, however, this manipulation had no effect on participants' desire to self-disclose. The lack of effect did not result from a ceiling effect, the average desire to self-disclose was 4 on a 7-point scale. Rather, it seems that one (short) comment might not

be perceived as a socially relevant encouragement for self-disclosure. Future studies need to think of more ecologically valid ways to integrate the interpersonal factor of self-disclosure. Especially, because self-disclosure after narrative exposure takes place in a social context most of the time.

Audio-visual formal features and empathy

The present study planned to experimentally manipulate empathy through the manipulation of shot scale and music. Contrary to previous studies, the present project could not detect the effect of audio-visual formal features on self-reported empathy. The low effect size of the shot scale manipulation in Study 1 might be due to the way shot scale was manipulated. We compared close-up shots to medium shots, however, it might be that medium shots are just as effective in showing the face and emotional expressions of characters as close-up shots. Specifically, the fact that we did not remove all close-up shots from the medium shot condition just decreased their proportion in the whole duration of the movie which might have been too subtle to exert a measurable effect.

Another explanation for the lack of significant effect, is the way empathy was measured. In this research, we used self-report scales for state empathy, which might be less sensitive to the subtle effect of audio-visual features. In previous research, performance tasks of theory-of-mind were used and were shown to be influenced by close-up frequency (Bálint et al., 2020). Future research should introduce more effective ways of manipulating empathy, which will enable going beyond the correlational nature of the current study. For example, manipulating empathy by instruction manipulation (e.g., participants are instructed to take the perspective of the character or focusing on stylistic components) can be an effective way to create variance in response without having to manipulate a video clip.

Unexpectedly, shot scale exerted an effect on self-disclosure post exposure and, indirectly, on the desire to self-disclose that was contrary to the hypotheses. A higher frequency of close-ups actually reduced self-disclosure responses after viewing. While previous research has demonstrated the effect of close-ups on social cognition (Rooney and Bálint, 2018), other work has demonstrated that the number of close-ups is not linearly related to increases in social cognition responses, rather higher numbers can be associated with lower mental state attribution (Bálint et al., 2020). This finding indicates that shot scale can modulate self-disclosure behavior, however, the nature of the effect may not be linear or perhaps not mediated via empathy but through some other, yet unknown, processes. For example, perhaps the lack of close-up shots led to some ambiguity about character responses and participants projected from their own experiences. This interpretation might also help understand another counterintuitive finding from this current study: the effect of narrative exposure.

Effect of narrative exposure

We introduced a control group to test the direct effect of narrative exposure on self-disclosure. Surprisingly, the control group showed a higher level of self-disclosure behavior post exposure, as well as in the 1 week follow-up. Taken together with the earlier finding that higher frequency of close-ups was associated with lower self-disclosure, the finding can be interpreted from the perspective of catharsis theory of aesthetic experiences (Khoo and Oliver, 2013). In this way, perhaps during narrative exposure emotions are elicited but only partly processed leaving less need for self-disclosure. Yet this is not the only possible interpretation. Self-disclosure post exposure was measured through participant-rated depth of self-disclosure in their own writing. It can be that this self-rating is reliant on a subjective reference point, which might have been shifted by the emotional content of the movie. In other words, the same level of self-disclosure is rated less deep after having watched a movie on grief compared to not having watched emotional content. This raises the issue of the kind of treatment given to the control group in research such as this. In the current study, we decided not to expose participants in the control group to any mediated message. However, it can be that showing a non-fictional self-help video on a similar topic could prevent this systematic bias. Additionally, data attrition was not random in Study 2; attrition was significantly higher in the control group. It can be that only those who were triggered by the self-disclosure scales at a higher level were willing to participate in the follow-up group.

Conclusion

The primary aim of this research was to explore the potential of narratives to facilitate self-disclosure and to test two potential underlying mechanisms, state empathy and personal relevance. The findings indicate that both empathy, affective empathy in particular, and personal relevance are strongly related to self-disclosure behavior after the movie and desire to self-disclose. This relationship appeared both with non-fictional and fictional characters. Furthermore, self-disclosure did not have to be modeled for this effect to occur. The relationship of empathy and personal relevance to self-disclosure was detected even 1 week after the self-disclosure. These findings extend existing research on narratives and wellbeing and the role of character engagement in

carrying psychological effects. These insights make an important contribution to further understanding the therapeutic effects of narratives.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: https://doi.org/10.34894/MME21W.

Ethics statement

The studies involving human participants were reviewed and approved by VU Amsterdam Ethics Committee of the Social Science Faculty. The patients/participants provided their written informed consent to participate in this study.

Author contributions

KB and BR contributed to the theoretical conception and experimental design of the studies. BR led the stimuli preparation. KB organized the data collection. KB and FS performed the statistical analysis and wrote the first draft of the manuscript. All authors contributed to the revision of the paper and approved the submitted version.

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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.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcomm.2022.984341/full#supplementary-material

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How to help your depressed friend? The effects of interactive health narratives on cognitive and transformative learning

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Using narratives is an important communication strategy in mental health campaigns to empower readers to adequately help people suffering from depression. These narratives could be enhanced by giving readers agency to make choices on behalf of the main character that noticeably affect the narrative. Yet, few studies have explored the effects of these choices. This study investigated the effects of agency in an interactive digital narrative (IDN) about depression on cognitive and transformative learning. In two experimental, between-subjects design studies, the learning outcomes of a traditional (without agency) and interactive version (with agency) of a narrative about depression were compared. The mediating roles of identification, transportation and intrinsic motivation were also considered. In experiment 1 ($N = 216$), no effects of agency on cognitive learning, intrinsic motivation, identification or transportation were found. After better embedding learning content and increasing the choices' meaningfulness in the narrative of experiment 2 ($N = 155$), agency positively affected transformative learning but not cognitive learning. The effect on transformative learning was mediated by identification with the character. These results suggest that agency in educational narratives about depression increases identification with caretakers and reflection on how to approach people with depression sensibly. Implications of these results are discussed.

KEYWORDS

interactive digital narratives, agency, cognitive learning, transformative learning, identification, transportation, intrinsic motivation, mental health intervention

Introduction

Depression is a mental illness that can be hard to comprehend and talk about. Research commissioned by the Dutch government showed that many young adults wish to talk about depressive feelings, but find it difficult to start a conversation themselves and often find little support from their environment (Rijksoverheid, 2021). It is proposed that the latter is in part due to a lack of understanding about depression, or "mental health literacy" (MHL; Jorm, 2000). People often are unaware of the signals that indicate depression, do not truly understand the thoughts and feelings that come with depression and can be uncertain how to approach the subject in conversation. As a result, an impasse

is maintained in which family and friends of those with depression feel ill-equipped to help, and thus, do not contribute to mitigating the mental health problems and improving the wellbeing of their loved ones. Given that a quarter of Dutch young adults suffers from mental problems (CBS, 2021) and that worldwide mental health problems are on the rise since the COVID-19 pandemic (Robinson et al., 2022), it is important to educate the public about depression.

Educational interventions that strive to empower the public to provide adequate help can aim to facilitate two types of learning: cognitive and transformative learning. Firstly, people may acquire relevant knowledge (e.g., "What are the symptoms?"), understand relevant concepts (e.g., "What is rumination?") and apply knowledge about depression to real-life situations (e.g., "How to approach the subject in conversation?") (Bloom et al., 1956). We coin this cognitive learning. Secondly, transformative learning occurs when someone reevaluates and adjusts their frame of reference as a result of an experience (Mezirow, 2003; Taylor and Cranton, 2013). Frames of reference refer to the values, feelings, and learned behaviors which define one's worldview. One could argue that transformative learning resembles narrative persuasion (Green et al., 2019) as both involve a change in beliefs, intentions, actions, due to a (narrative) experience. By reassessing their frame of reference, friends and family can be made aware of their unique position to identify and address depressive symptoms in loved ones (Hess et al., 2014) and can be prompted to take action in a sensible way (Knaak et al., 2016). Cognitive and transformative learning are thus fundamentally distinct ways to alleviate mental health problems.

To attain these learning outcomes, Gray (2009) proposes that complex and sensitive information regarding mental health can best be communicated through narratives. A narrative can be described as "any cohesive or coherent story with an identifiable beginning, middle, and end, that provides information about scene, characters, and conflict; raises unanswered questions or unresolved conflict; and provides resolution" (Hinyard and Kreuter, 2007, p. 778). Narratives resemble our real-life experiences, in structure and content. Related to structure, both narratives and real-life experiences involve chronologically ordered causal actions and events, goals and obstacles on our way to these goals, and resulting emotions (Graesser et al., 1994). As for content, the covered topics and vocabulary in narratives match what we discuss in real-life and how we do this (Gardner, 2004; Mar and Oatley, 2008). This prior knowledge–based on our real-life experiences–makes it easier to generate inferences facilitating comprehension (Shapiro, 2004). Above this, narratives facilitate comprehension by inviting readers to "step into the shoes" of a character (similar to identification; Cohen, 2001). Readers make a deictic shift (Segal, 1995a,b) adopting the cognitive stance of the character and interpreting the narrative from within. This shift enables mental transportation into the story world (Cohen et al., 2015, p. 240), which coincides with intense processing of the narrative (Green et al., 2019). A recent meta-analysis by Mar et al. (2021) found a robust effect of comprehension and recall of information being higher for narrative texts than expository texts, indicating that narratives can promote cognitive learning. As for transformative learning, the deictic shift allows readers to vicariously experience different perspectives (Segal, 1995a,b; Busselle and Bilandzic, 2008). Arguably, this prompts them to reevaluate their own frame of reference, which stimulates transformative learning (Mezirow, 2003).

Cognitive and transformative learning through narrative-based educational interventions can be enhanced by actively involving readers in the learning process, in line with the educational construct of active learning (Bonwell and Eison, 1991; Hammond et al., 2007; Murray, 2017; Roth, 2019; Zhou et al., 2020). Interactive digital narratives (IDNs) (Murray, 2017; Smed et al., 2019, 2021; Winskell et al., 2019) can be used for active learning. Interactive narratives transform readers into interactors and provide them with the agency to exert influence on "salient aspects" (the plot, perspective, etc.) of a narrative (Roth and Koenitz, 2016, p. 31). In the current study, agency is conceptualized as the ability to make choices on behalf of characters that have a meaningful effect on the narrative.

Agency in narratives could elicit two processes that, in turn, may affect both cognitive and transformative learning: narrative engagement and intrinsic motivation. Narrative engagement overlaps with the earlier mentioned constructs of identification and transportation (Bilandzic and Busselle, 2017). When interactors can make decisions for characters that have a perceptible effect on the narrative, interactors may be more inclined to identify with the character (Segal, 1995a,b) and to actively adopt the goals of this character (Green and Jenkins, 2014), possibly enabling a higher mental transportation into the story world (Cohen et al., 2015, p. 240; Hand and Varan, 2008). As a result, interactors may process information that is relevant to the narrative more deeply (Busselle and Bilandzic, 2008) and may internalize the perspectives of characters even more than in a traditional narrative (Cohen, 2001, 2006; Hand and Varan, 2009), affecting cognitive and transformative learning, respectively. As for intrinsic motivation, the decisions that interactors can make for characters could make them feel competent, autonomous and related to the characters in the narrative, boosting intrinsic motivation (Ryan and Deci, 2009) to process learning materials (i.e., cognitive learning; Patall et al., 2008) and to understand different perspectives (i.e., transformative learning; Mezirow, 2003).

Where previous studies have explored the potential of individual choices to promote learning and relevant processes outside of the context of narratives, the educational effects of

choices on behalf of characters to influence the development and presentation of a narrative has received less attention.

Hence, the following research question has been formulated:

> RQ: To what extent does agency in a narrative about depression affect cognitive and transformative learning, and to what extent are these effects mediated by identification, transportation, and intrinsic motivation?

In conclusion, this study will explore the effects of agency on learning in a narrative context. The findings will provide new theoretical insights into the learning capacity of interactive narratives with an educational goal. The study consists of two experiments and provides a broad approach by assessing both cognitive and transformative learning and by taking the role of the relevant processes of intrinsic motivation, identification and transportation into account. Furthermore, given that traditional narratives are a popular tool to address mental health literacy problems (Gray, 2009), this study possibly provides organizations insight into how to improve educational mental health interventions.

Agency in interactive narratives

Interactive narratives give agency to their audience, which converts readers into interactors. Creators of interactive narratives can incorporate agency in different ways in their interactive narratives (e.g., Ryan, 2011, 2015; Crawford, 2013; Kway and Mitchell, 2018). The overarching idea of agency is that interactors can "(...) intentionally influence salient aspects (e.g., the plot) of a narrative" (Roth and Koenitz, 2016, p. 31) in some shape or form. Roth and Koenitz (2016) distinguish three different factors which determine the degree to which interactors can exert influence over an interactive narrative: usability, autonomy and effectance. Usability refers to a user's interaction with the hardware and software interface of a system (Shackel, 2009). Therefore, usability can be seen as a prerequisite for agency. The current study focuses on the remaining two dimensions as they pertain to the interaction with a narrative rather than the system surrounding it. As for autonomy, Roth and Koenitz (2016) argue that the more choices interactors can make, the more autonomy interactors have in an interactive narrative: "the concept of autonomy describes the freedom to choose from a large set of options without feeling 'pushed' in one direction." Effectance is about user impact, the degree to which each choice influences the narrative. Effectance (Klimmt and Hartmann, 2006; Klimmt et al., 2007) can be subdivided into two categories: local and global effectance. Local effectance describes an instant effect on a specific section of the plot. Global effectance describes a delayed effect that can impact later parts of the plot which can have consequences for the overall structure and progression of a narrative (Roth and Koenitz, 2016).

Agency and learning

The agency in interactive narratives can affect both cognitive learning (Hammond et al., 2007; van Enschot et al., 2019; Zhou et al., 2020) and transformative learning (Murray, 2017; Roth, 2019). By facilitating agency in one shape or form, educational interactive narratives fall under the scope of active learning (Winskell et al., 2019). In active learning, students are actively engaged in the learning process and actively reflect on learning materials (Bonwell and Eison, 1991). Active learning is considered a favorable learning method in part due to its ability to promote student engagement (Prince, 2004) and intrinsic motivation (Ryan and Deci, 2009) to grasp the learning material. Meta-analyses have found that non-digital (Freeman et al., 2014) and digital (Shi et al., 2020) active learning formats in classroom contexts are indeed more beneficial for cognitive learning than more passive lecture-based formats. Active learning can also be instigated through interactive narratives (Hammond et al., 2007; Winskell et al., 2019) and may trigger both cognitive learning and transformative learning. When an interactor has the agency to, for example, make choices on behalf of a character, the interactor enacts instead of witnesses the perspective of characters in interactive narratives and experiences the story events directly instead of vicariously (Hand and Varan, 2008; Rigby and Ryan, 2016). As a result, an interactor may process the information in the narrative more deeply (Busselle and Bilandzic, 2008) and may be more invested in the hardships that characters face motivating the interactor to understand the character's perspective toward these conflicts (Hand and Varan, 2009), triggering cognitive and transformative learning respectively. Our hypotheses are as follows:

> H1: Narratives with agency lead to a higher level of cognitive learning than narratives without agency.
> H2: Narratives with agency lead to a higher level of transformative learning than narratives without agency.

Given the pivotal role of narrative engagement (subdivided into identification and transportation) and intrinsic motivation for both cognitive and transformative learning in interactive narratives, the interplay between agency, narrative engagement, intrinsic motivation, and learning will now be explored in more detail.

Agency, narrative engagement and learning

Narrative engagement can be described as the degree to which one is cognitively and emotionally involved in the narrative rather than in one's immediate environment (Busselle

and Bilandzic, 2008). By devoting all cognitive resources on understanding (learning) concepts relevant to a narrative, narrative engagement can be viewed as a concept similar to engagement as mentioned in the context of active learning (Prince, 2004). Identification and transportation are well-known constructs when talking about narrative engagement (Bilandzic and Busselle, 2017). Cohen (2001) defines identification as "an imaginative process through which an audience member assumes the identity, goals, and perspective of a character" (p. 261). When readers are cognitively and emotionally involved in the unfolding of narrative events, Green and Brock (2000) speak of transportation to the story world. Cohen et al. (2015) state that identification enables transportation: readers are "absorbed into the story through the position and role of the character with whom one identifies" (p. 240; Brown, 2015; Bilandzic and Busselle, 2017). This means that identification with a character can facilitate the transportation into a storyworld: by adopting the role of a character, readers may be more cognitively and emotionally involved in the narrative. Therefore, it can be assumed that a higher level of identification may lead to an increased level of transportation.

Narrative engagement can have a positive effect on both cognitive and transformative learning. Several processes that affect learning take place when readers/interactors are engaged with a narrative. Firstly, readers are more likely to be emotionally affected by the narrative. As a result, it is more probable that schemata about prior experiences with these emotions are activated than when readers are not engaged in the narrative. These emotional schemata can be used as cognitive support to store and comprehend learning concepts (Kneepkens and Zwaan, 1995; Rees et al., 2013). Secondly, as narratives enable readers to take on a character's perspective by giving insight into the thoughts, beliefs, feelings and sensory perceptions of protagonists (Bruner, 1986; Herman, 2009; Sanford and Emmott, 2012), readers perceive, think and feel (i.e., "perfink") simultaneously when engaged in narratives (Bruner, 1986). These processes trigger different brain regions, which can consequently facilitate cognitive learning (Yarkoni et al., 2008). Thirdly, readers who identify with a character are more likely to feel empathy toward a character and will be more inclined to try and understand the views and attitudes of a character (De Graaf et al., 2012; Hoeken and Fikkers, 2014). Perspective-taking (Jarvis, 2012) and empathy (Taylor and Cranton, 2013) are not only relevant for identification, but are also key factors in transformative learning. Taking on the perspective of a character can make readers feel empathy for the character which may reduce judgment and promote a shared understanding. This in turn may result in the reflection and adjustment of one's own frame of reference ultimately facilitating transformative learning. Lastly, when readers are transported in narratives, all cognitive processes are focused on the comprehension of the narrative. As a result, readers process relevant learning content more intensely (Green and Brock, 2002) and are more open to different perspectives (Green et al., 2004), which can be beneficial for both cognitive learning and transformative learning.

The agency in interactive narratives may enhance narrative engagement, as has been pointed out by narratological scholars for identification (Hand and Varan, 2009; Green and Jenkins, 2014; Roth and Koenitz, 2016) and transportation (Hand and Varan, 2008; Murray, 2017). Firstly, in interactive narratives, readers become interactors who, in the current interactive narrative, actively adopt the goals of characters by making decisions for them. Moreover, interactors can better empathize with characters, because they experience the events that characters face directly instead of vicariously (Rigby and Ryan, 2016). Secondly, in interactive narratives, the unfolding of events is affected by choices of the interactor and as a result, interactors are invested in the outcomes of their choices and the course of the narrative as a whole ("the consequences of those events are felt more deeply"; Hand and Varan, 2008, p. 13), making them more transported. Empirical studies point toward a positive effect of agency on transportation (Hand and Varan, 2007; Jenkins, 2014; Walter et al., 2018; Vázquez-Herrero, 2021) and identification (Hand and Varan, 2007, 2008; Peng et al., 2010; Jenkins, 2014; Dillman Carpentier et al., 2015; Walter et al., 2018; Green and Jenkins, 2020).

All in all, the literature points at a positively mediating role of narrative engagement in the effect of the agency in interactive narratives on both cognitive and transformative learning. Our hypotheses are formulated as follows:

H3: Agency within narratives has an indirect positive effect on cognitive learning through identification and transportation.

H4: Agency within narratives has an indirect positive effect on transformative learning through identification and transportation.

Agency, intrinsic motivation and learning

The agency that interactors have in interactive narratives can also motivate them to actively process learning materials. Self-Determination Theory (SDT) and its Cognitive Evaluation Theory specifically (Ryan and Deci, 2000, 2017; Rigby and Ryan, 2016; Tyack and Mekler, 2020) posits that humans have innate needs for autonomy, competence and relatedness that need to be fulfilled to be optimally intrinsically motivated. Autonomy is defined as the degree to which people feel in control over their behavior. Competence is the degree to which people feel capable and personal growth, and relatedness is the degree to which people feel connected to others. All three needs can be satisfied by interactive narratives. Interacting with and feeling connected to characters can satisfy the need for relatedness (Sherrick et al., 2021). As for the need for autonomy, by

making choices that noticeably affect the narrative, interactors can feel more autonomous than when passively reading a traditional narrative (Katz and Assor, 2007). Furthermore, in interactive narratives, interactors can have the agency to make the right (or wrong) choices and observe the effectance of those choices allowing them to feel competent (Patall et al., 2008). All in all, interactive narratives seem to be perfectly suitable to motivate readers to learn and consequently influence different learning types since they potentially fulfill all three basic needs. The current study focuses on the needs for autonomy and competence as they are directly related to the agency factors autonomy and effectance and are theorized to trigger intrinsic motivation.

Intrinsic motivation is a process relevant to both cognitive and transformative learning. It can be described as "the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn," supported by the satisfaction of the three above-mentioned needs (Ryan and Deci, 2000, p. 70). As for cognitive learning, when people are intrinsically motivated, they process information more deeply (Hidi, 2001), and can better remember (Patall et al., 2008) and understand (Patall et al., 2017) learning concepts. Arguably, intrinsic motivation is beneficial for transformative learning as well. The readiness to face challenges, explore and learn associated with intrinsic motivation paves the way for reassessing one's own frame of reference and–with that–for transformative learning.

Based on the above, we hypothesize a positively mediating role of intrinsic motivation in the effect of the agency in interactive narratives on both cognitive and transformative learning. Our hypotheses are formulated as follows:

H5: Agency within narratives has an indirect positive effect on cognitive learning through intrinsic motivation.
H6: Agency within narratives has an indirect positive effect on transformative learning through intrinsic motivation.

We developed the interactive health narrative *Cloudy* to test our hypotheses in two experiments, focusing on cognitive learning (experiment 1) and on cognitive learning and transformative learning (experiment 2). Our conceptual model can be found in Figure 1. We expect that the agency in a narrative will lead to more identification with the main character (Hand and Varan, 2009; Green and Jenkins, 2014; Roth and Koenitz, 2016) and, through this, to more transportation into the story world (Brown, 2015; Cohen et al., 2015; Bilandzic and Busselle, 2017). Subsequently, we expect that this higher identification and transportation have a positive effect on both cognitive and transformative learning (Green and Brock, 2000; Green et al., 2004). Additionally, we presume that the agency in a narrative will yield a higher intrinsic motivation (Katz and Assor, 2007; Patall et al., 2008; Rigby and Ryan, 2016; Sherrick et al., 2021) and, through that, higher cognitive and transformative learning outcomes (Ryan and Deci, 2000; Patall et al., 2008, 2017).

Method experiment 1

Design

Experiment 1 adopted a between-subjects design to investigate whether agency in narratives about depression (IV: traditional vs. interactive narrative) positively affects cognitive learning outcomes regarding depression (DV), and whether this effect is mediated by intrinsic motivation on the one hand (MED 1) and identification and transportation on the other hand (MED 2 and 3). Participants were randomly assigned to the interactive narrative, traditional narrative or control condition.

Participants

Participants were acquired through the Human Subject Pool of the Tilburg School of Humanities and Digital Sciences and the personal network of the first author. Participants recruited through the Human Subject Pool received one credit of compensation for their participation. The desired age range for this study was 18–29 years old, as depressed people between 18 and 29 years old are most in need of conversation (Rijksoverheid, 2021) and people aged 18 to 25 in particular lack knowledge about recognizing and treating depression (Farrer et al., 2008; Reavley and Jorm, 2011). Both participants with and without experience with depression were included in the sample.

The total sample consisted of 277 Dutch participants. The data of 61 participants was not used in the analysis. These participants met at least one of the following criteria: (1) They did not complete the survey, (2) they did not comply with the age requirements, (3) they did not pass one of the attention checks (see "procedure"), (4) they spent more than 1 h on the survey or (5) they spent <5 min on the survey in the control group or <10 min in one of the narrative conditions.

The final sample of 216 participants after exclusion was well above the desired sample size. Based on a power analysis (G*power3, Faul et al., 2007), a sample size of 156 participants (52 per condition) was required to achieve a statistical power of 0.80 with a medium effect size ($d = 0.25$) and an alpha of 0.05. The participants were distributed across conditions as follows: 75 participants in the control condition, 68 in the traditional narrative condition and 73 in the interactive narrative condition. The participants' age ranged from 18 to 29 ($M = 21.3$, $SD = 2.8$) and consisted of 152 females (70.4 %) and 64 males (29.6 %). Lastly, most participants were highly educated ($n = 204$, 94.4 %) and a majority had either experienced depression themselves

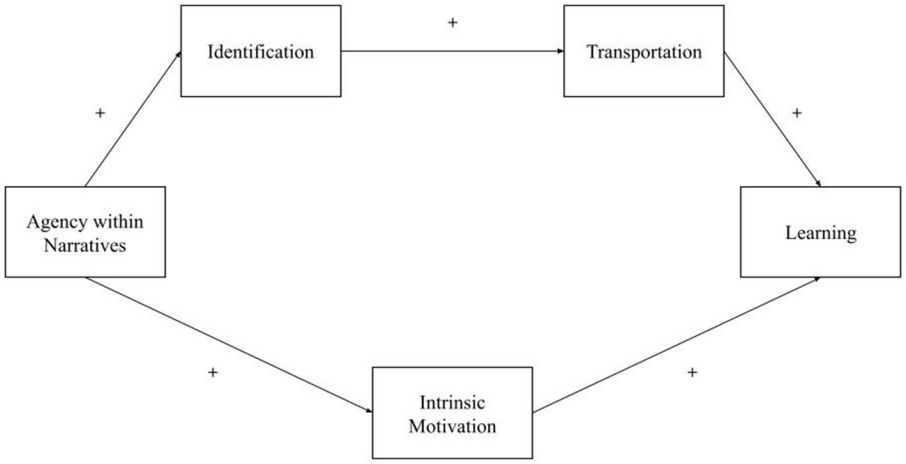

FIGURE 1
The conceptual model.

or had close relations with someone with depression ($n = 115$, 53.2 %).

Stimulus

For this study, an educational narrative was developed to teach young adults how to pick up on signals that indicate depression, how to initiate and navigate conversations about depression and to create awareness about the thoughts and feelings that are prevalent when suffering from depression. In this narrative, titled *Cloudy*, participants experience a day in the life of Sofie, who suffers from depression. The plot revolves around an unpleasant surprise visit by a friend called Mark. The story is told from the perspective of Sofie (intradiegetic, first-person point of view) and reveals her thoughts and feelings (i.e., internal focalization; Herman and Vervaeck, 2019; van Krieken and Sanders, 2021). *Cloudy* is text-based and written in Dutch and one storyline is ∼2,300 words long.

The traditional and interactive version of *Cloudy* differ as follows. Throughout the interactive version of *Cloudy*, participants face five choices and can choose between two choice options at each choice. The consequences of these choices are minimal (i.e., the effectance is low) and always directly noticeable (i.e., local effectance). Agency in *Cloudy* is intentionally limited to maintain experimental control and to rule out content differences as a confounding factor. For example, at one point in the narrative, interactors can decide whether Sofie should open the door for Mark after he rings the doorbell for a surprise visit, yet after choosing to ignore the doorbell, Sofie hesitates and ends up opening the door anyway. The effect that this choice has on the narrative is only directly noticeable and has relatively little effect on the narrative. After each choice, learning materials about a different subtopic about depression are presented, in an identical manner for both narrative branches. Moreover, the interactive narrative uses a foldback structure in which narrative branches intersect before each next choice and in which the ending is always the same. In the traditional narrative, choices are removed and the outcome of one of two choice options unfolds. A visualization of the narrative structure is available as Supplementary material and the whole traditional and interactive narrative (in Dutch) are available on OSF.

In this version of *Cloudy*, learning materials are communicated in two ways. First, the readers/interactors experience and learn about depression from the viewpoint of the protagonist Sofie. For example, in a conversation with Mark, thoughts of Sofie help readers/interactors determine whether conversational choices made by Mark help Sofie feel better or not. Secondly, the narrative is interspersed with separate expository text blocks which provide psychological explanations for occurrences in the story. These expository texts help readers/interactors understand why thoughts occur and provide information about depression that cannot be subtly molded in narrative form (e.g., statistics, facts). As learning materials are ideally intertwined in the narrative (Wolfe and Woodwyk, 2010), expository passages always came after narrative passages and oftentimes referred to narrative events to integrate the two types of texts. According to Beishuizen et al. (2003), this is an advisable strategy: readers are best able to use narrative content to understand learning materials if the main idea (i.e., learning concept) is presented after the example (i.e., narrative content). An example of a reference to the narrative in an expository text is: "In situation x, Mark could have helped Sofie by saying (…), because (…)." Expository texts were presented in italic

font so participants could easily distinguish the expository and narrative texts.

Learning materials covered several subtopics about depression and were developed through a variety of sources. First, interviews were conducted with a clinical psychologist and a young adult who was suffering from depression. Moreover, several academic and non-academic sources were assessed (the reference list can be found on OSF). Learning materials were divided into the following subtopics: (1) depression and negative thinking, (2) recognizing depression, (3) depression and social anxiety, (4) helping someone with depression and (5) seeking professional help. The learning materials consisted of factual knowledge (e.g., "Cortisol is a stress hormone that plays an important role in the symptoms of depression") and instructional knowledge (e.g., "Be cautious about giving advice. People with depression often already know what is best for them.").

Procedure

Due to COVID-19 restrictions, a Qualtrics survey was distributed to participants via the internet. After providing informed consent, participants were informed that they could not go back within the test environment. Participants were divided over the three conditions. In the control condition, participants answered only questions that measured cognitive learning outcomes. Participants in the narrative conditions were told that they were going to experience a narrative about depression, that they could encounter this narrative on popular news sites and were asked to experience the narrative at their own pace. After having seen the traditional or interactive narrative, participants were asked three attention-check questions (e.g., "Why did Sofie go outside?"). Participants then filled in, in respective order, the cognitive learning, transportation, identification and intrinsic motivation scales. Then, perceived agency was measured as a manipulation check with one item from Roth and Koenitz (2016): "I felt like I could make choices that affected the course of the story." Finally, all participants were asked about prior experience with depression, demographics and were debriefed about the goal of the study. The final experiment took ~10–30 min.

Measures

Cognitive learning

Bloom's taxonomy (Bloom et al., 1956) was used to establish the cognitive learning measure. Specifically, the levels "knowledge," "comprehension" and "application" were used. The final scale assessed the aforementioned subtopics (e.g., depression and negative thinking) and consisted of twelve items with four items per educational level. This resulted in a cognitive learning score which represents the number of correct answers out of twelve, four per level. Questions referred to the expository information and were multiple-choice with four possible answers and one correct answer. An example of a knowledge question is: "Which of the following symptoms is indicative of depression?". An example of a comprehension question is: "What is a typical example of a rumination thought?". An example of an application question is: "If a friend of yours would show symptoms of depression, how could you best approach this situation?". The validity and difficulty level of this measure was assessed by assessment experts and explored in a pretest (see "pretest").

Intrinsic motivation

To measure the mediating variable intrinsic motivation, the Intrinsic Motivation Inventory (IMI) was adapted for this study (Deci and Ryan, 1982). Only the subscale for interest/enjoyment was used as this subscale is considered to measure intrinsic motivation alone and by itself (Deci and Ryan, 1982). Four of the seven items in this subscale were used. Two items had similar counterparts and were not used to decrease the length of the survey. One item overlapped with the scale for transportation and was also omitted. Participants indicated to what extent they agreed with statements on a scale from 1 ("Not at all true") to 7 ("Very true"). An example of a statement is "I enjoyed this way of learning very much." Reliability of the scale was sufficient, $\alpha = 0.711$.

Identification and transportation

To measure the mediating variables identification and transportation, scales by De Graaf et al. (2012) were adapted for this study with ten items for identification and ten for transportation. Four items in the identification subscale had similar counterparts and were not used to decrease the length of the survey. In the transportation subscale, two items were not used for the same reason. Participants indicated to what extent they agreed with statements on a scale from 1 ("Completely disagree") to 7 ("Completely agree"). An example of a statement for identification is "During the story, I felt like Sofie was feeling" and for transportation "During the story I forgot the world around me." Four identification and four transportation items were rephrased in the opposite direction. Reliability for both identification ($\alpha = 0.813$) and transportation was sufficient ($\alpha = 0.785$).

Perceived autonomy

To measure whether participants indeed felt more agency whilst experiencing the interactive vs. the traditional narrative, perceived autonomy was assessed. One item was adopted from the autonomy scale by Roth (2015) tailored for the context of

interactive narratives, which is directly based on the autonomy factor of the Self-Determination Theory: "During the story, I felt like I was able to make choices that could influence the development of the story." The item was measured on a 7-point Likert scale ranging from 1 ("Completely disagree") to 7 ("Completely agree").

The whole survey (in Dutch) can be found on OSF.

Pretest

Learning materials and questions were assessed for validity by a psychologist and an educational sciences expert. The educational sciences expert assessed whether the items of this scale correctly measured concepts of depression on the intended learning levels. The clinical psychologist assessed whether the information about depression was correct and whether the questions had a clear, single correct answer. By adjusting the information and questions based on the feedback of these professionals, expert validity was established.

To assess whether the measures and the narratives were easily comprehensible and were sufficiently difficult, four interviews were conducted before the main experiment. Participants were asked to fill out the preliminary survey and to place comments when they did not understand a question or part of the narrative. Learning scores were computed and comments were discussed after completing the questionnaire. Overall, the narrative was considered easily understandable and enjoyable. Based on the feedback, the narrative was slightly adjusted to improve comprehensibility and readability. The learning questions were relatively difficult, as participants had an average score of six correct answers out of twelve questions. The questions were not viewed as unfair, irrelevant or overly complicated. Based on these scores, a ceiling effect seemed improbable.

Data analysis

The data were analyzed using the program SPSS (version 27). First, scales were tested for reliability (Cronbach's alpha). Then, an independent sample *t*-test was conducted to assess whether the manipulation was successful, comparing the perceived autonomy for the interactive condition with the traditional condition. A one-way ANOVA with planned contrasts was used to compare the learning scores for the control condition vs. the two narrative conditions. To test the hypotheses, a mediation analysis was conducted using Hayes' (2022) PROCESS macro with the experimental condition agency entered as independent variable, cognitive learning as dependent variable, (1) identification and transportation and (2) intrinsic motivation as separate (serial) mediators.

TABLE 1 B matrix specifying whether (1) or not (0) antecedent variables have an effect on consequent variables.

	X	M1	M2	M3
M1	1	0	0	0
M2	0	1	0	0
M3	1	0	0	0
Y	1	1	1	1

X, Agency; M1, Identification; M2, Transportation; M3, Intrinsic Motivation, and Y, Cognitive Learning.

As the conceptual model (see Figure 1) is not among Hayes' (2022) preprogrammed models, a custom model was made using the B matrix in Table 1 (Hayes, 2022, Appendix B). This matrix specifies which antecedent variables affect which consequent variables (B matrix). The mediation analyses used 95% bias-corrected bootstrap CIs based on 5,000 resamples.

Results experiment 1

Manipulation check

First, an independent-samples *t*-test was performed to test whether the manipulation was successful. The homogeneity of variance was met, since Levene's test was not significant ($p = 0.316$). On average, people who read the traditional narrative ($M = 2.9$, $SD = 1.6$) scored lower on perceived autonomy than people who read the interactive narrative ($M = 5.0$, $SD = 1.7$). This difference was significant, $t(139) = -7.75$, $p < 0.001$, $d = -1.31$. It can be concluded that participants who experienced the interactive narrative felt like they had more autonomy compared to the participants in the traditional narrative.

Cognitive learning: Control group vs. narrative conditions

A one-way ANOVA with planned contrasts was performed to compare the learning outcomes of the three conditions (control, traditional narrative, interactive narrative). The homogeneity of variance was met, since Levene's test was not significant ($p = 0.213$). The ANOVA showed a significant effect of agency on cognitive learning [F (2, 213) = 44.19, $p < 0.001$, $\eta 2 = 0.29$]. The planned contrasts showed that the learning outcomes of the control group ($M = 6.6$, $SD = 2.0$) were significantly lower than of the traditional ($M = 9.2$, $SD = 1.7$) and interactive narrative ($M = 9.0$, $SD = 1.9$), t (213) = 9.40, $p < 0.001$, $d = 2.69$.

Overall results

Table 3 shows the overall results of cognitive learning (divided by knowledge, comprehension, and application), identification, transportation, intrinsic motivation and perceived autonomy for the traditional and interactive narrative conditions. Independent-samples *t*-tests were performed to compare the scores of the traditional and interactive group. The homogeneity of variance was met, since all Levene's tests were not significant (p's > 0.05).

None of the differences were significant except for the difference in perceived autonomy. As mentioned in section Manipulation check, perceived autonomy was higher for the interactive narrative ($M = 5.0$, $SD = 1.7$) than for the traditional narrative ($M = 2.9$, $SD = 1.6$), t (139) $= -7.75$, $p < 0.001$, $d = -1.31$.

Effects on cognitive learning

A PROCESS mediation analysis (Hayes, 2022) was performed to test Hypotheses 1, 3 and 5 (see Figure 2, with an overview of all effects). The analysis indicated that there was no significant total effect of agency on cognitive learning, $b = -0.15$, $SE = 0.31$, BCa 95% CI [−0.75, 0.45], leading to the rejection of H1. In addition, there was no significant direct effect of agency on cognitive learning, $b = -0.19$, $SE = 0.30$, BCa 95% CI [−0.79, 0.41]. There was no indirect effect of agency on cognitive learning through identification and transportation, $b = 0.004$, $SE = 0.02$, BCa 95% CI [−0.03, 0.05], despite a positive direct effect of identification on transportation, $b = 0.35$, $SE = 0.06$, BCa 95% CI [0.23, 0.47]. This led to the rejection of H3. Furthermore, there was no indirect effect of agency on cognitive learning through intrinsic motivation, $b = 0.01$, $SE = 0.05$, BCa 95% CI [−0.10, 0.11], leading to the rejection of H5. In summary, it can be concluded that the data do not support H1, H3, and H5.

Exploratory analyses

To explore whether cognitive learning differed for people who had ($n = 79$) or had no ($n = 61$) prior experience with depression and whether this experience influenced the effect of agency on cognitive learning, a two-way ANOVA was performed with cognitive learning as dependent variable. On average, participants with prior experience ($M = 2.6$, $SD = 1.8$) had a higher difference score for cognitive learning than participants without prior experience ($M = 2.5$, $SD = 1.8$). The ANOVA did not show a significant main effect of experience with depression, F (1, 136) $= 0.07$, $p = 0.80$. There was also no significant interaction effect, F (1, 136) $= 0.76$, $p = 0.38$. The results indicate that people who had prior experience with depression did not learn significantly more or less from the narratives than people who had no prior experience with depression and that experience with depression did not impact the effect of agency on cognitive learning.

Discussion experiment 1

Experiment 1 attempted to provide insights into the cognitive learning effects of agency in educational narratives. Learning outcomes of an interactive and traditional version of an educational narrative about depression were compared. Furthermore, the mediating roles of intrinsic motivation, identification and transportation were investigated. The analyses suggest that agency did not affect cognitive learning. Moreover, no mediation effects were found. These findings are not in line with previous studies pointing toward a positive effect of agency in interactive narratives on intrinsic motivation (Katz and Assor, 2007; Patall et al., 2008), identification (Hand and Varan, 2007, 2008; Peng et al., 2010; Jenkins, 2014; Dillman Carpentier et al., 2015; Walter et al., 2018; Green and Jenkins, 2020), transportation (Hand and Varan, 2007; Jenkins, 2014; Walter et al., 2018; Vázquez-Herrero, 2021) and cognitive learning (Hammond et al., 2007; Freeman et al., 2014; Shi et al., 2020). The insignificant results concerning cognitive learning in experiment 1 may well be explained by shortcomings in the stimulus design.

Firstly, the learning material was not fully integrated into the narrative. It consisted of separate narrative and expository segments, the latter containing the educational information. The expository segments were also presented in italic font, making them easily identifiable. The expository segments did refer back to the narrative but in a limited way and the expository segments were also not needed to grasp the story's progress. This could have resulted in the participants focusing primarily on plot comprehension rather than comprehension of the educational content, which might explain the lack of effect (Fisch, 2000).

Secondly, the relevance of the learning material for the choices represents another point of improvement. According to active learning theory, activities should be built around learning outcomes (Wiggins and McTighe, 2005). However, the educational content in the interactive narrative did not relate to the choices in the interactive narrative. For example, when participants were able to decide whether Sofie should open the door for Mark, participants did not need to rely on their knowledge of depression to make this choice. Cognitive load theory (Sweller, 2016) posits that our working memory is limited and that learning-irrelevant processing (i.e., extraneous cognitive load) can get in the way of learning-relevant processing (i.e., intrinsic cognitive load). This applies here; the choices are unrelated to the educational information and may have hindered learning by consuming working memory capacity (Schneider et al., 2018).

TABLE 2 Overview of descriptives, *t*-values and effect sizes per condition for experiment 1.

	Traditional narrative ($n = 68$) M (SD)	Interactive narrative ($n = 73$) M (SD)	*t-value*	*d*
Cognitive learning	9.2 (1.7)	9.0 (1.9)	0.49	0.08
Knowledge	3.4 (0.7)	3.4 (0.8)	0.10	0.08
Comprehension	3.0 (0.9)	3.1 (1.0)	0.16	−0.03
Application	2.8 (1.0)	2.6 (1.0)	0.96	0.16
Identification	4.6 (1.0)	4.8 (1.0)	1.10	−0.19
Transportation	5.3 (0.8)	5.6 (0.8)	0.65	−0.11
Intrinsic motivation	5.3 (1.0)	5.4 (0.9)	0.25	−0.04
Perceived autonomy	2.9 (1.6)	5.0 (1.7)	−7.75*	−1.31

*$p < 0.001$ | $df = 139$.

TABLE 3 Overview of descriptives, *t*-values, *df*'s and effect sizes per condition for experiment 2.

	Traditional narrative ($n = 52$) M (SD)	Interactive narrative ($n = 50$) M (SD)	*t-value*	*df*	*d*
Cognitive learning	10.4 (1.9)	10.1 (1.6)	0.70	100	0.14
Knowledge	3.3 (0.9)	3.3 (0.7)	0.28	100	0.06
Comprehension	3.3 (0.9)	3.1 (1.0)	0.81	100	0.16
Application	3.7 (0.6)	3.7 (0.6)	0.45	100	0.09
Transformative learning	2.9 (1.0)	3.2 (0.7)	−2.21*	100	−0.44
Identification	3.6 (0.8)	3.9 (0.7)	−2.09*	100	−0.41
Transportation	3.6 (0.6)	3.8 (0.6)	−2.28*	100	−0.45
Intrinsic motivation	3.8 (0.7)	4.0 (0.8)	−1.54	100	−0.31
Perceived autonomy	2.4 (1.3)	4.3 (0.7)	−9.99**	80.47	−1.85
Perceived effectance	2.3 (1.3)	4.2 (0.9)	−9.58**	90.77	−1.78

*$p < 0.05$, **$p < 0.001$.

Thirdly, the limited effectance of the choices made by interactors is another shortcoming of the original stimulus. For example, when interactors choose not to open a door, Sofie proceeds to open it anyway. This can be categorized as a false choice or foldback structure where all options result in the same consequence (Mawhorter et al., 2014; Carstensdottir et al., 2019). This low effectance might have led to the rejection of H3, stating that agency within narratives leads to increased cognitive learning through a higher level of intrinsic motivation. The lack of effectance might have caused a lower intrinsic motivation through a decreased sense of competence (Roth and Koenitz, 2016) which could, in turn, have decreased the learning effect.

The triviality of choice might also explain why no support has been found for H3, that identification and transportation mediate a relationship between agency and cognitive learning. It could be that choices in the interactive condition were too insignificant to prompt participants to actively adopt the cognitive stance of the main character because the choices did not allow participants to meaningfully affect the character's life. Moreover, it was argued that participants would more likely be transported into a narrative where the plot was tailored to the choices that they made. Yet, because choices had little effect on the plot, the low effectance of choices provide a reasonable explanation why agency did not lead to higher transportation. Hence, the triviality of choice provides plausible explanations why the results of the current study are not in line with previous research that found positive effects of agency on identification and transportation.

On the basis of the aforementioned discussion, adjustments were made for experiment 2.

Method experiment 2

For experiment 2, a new version of the interactive health narrative was created which improves on the potential shortcomings, i.e., the integration of learning materials, choice relevance, and choice effectance. Furthermore, transformative learning was included as an additional outcome variable.

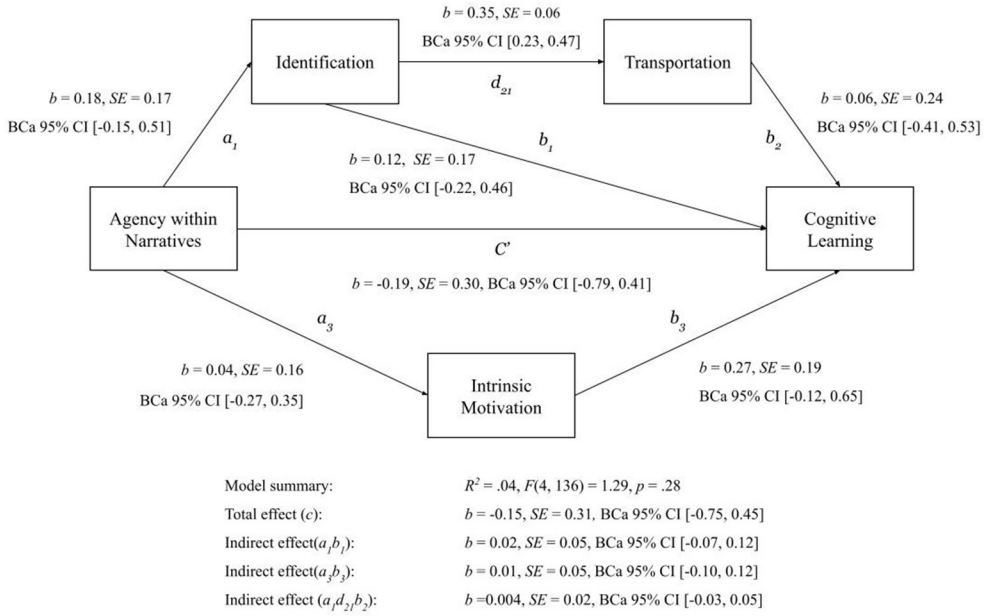

FIGURE 2
Mediation analysis experiment 1.

Participants

Participants were recruited through convenience sampling of the researcher's personal network as well as the Human Subject Pool of the Tilburg School for Humanities and Digital Sciences and the survey exchange sites SurveyCircle and SurveySwap. According to a power analysis (G*power3, Faul et al., 2007), a statistical power of 0.8, with a medium-sized effect ($d = 0.25$) and an alpha of 0.05 requires a sample of 156 participants with 52 participants per condition. This sample size was almost achieved. The final sample consisted of 155 participants who were randomly assigned to the control ($n = 53$), traditional narrative ($n = 52$), and interactive narrative condition ($n = 50$). The participants' age ranged from 18 to 34 with the 18–24-year group consisting of 86 (55.5 %) participants and the 25–34-year group consisting of 69 (44.5 %) participants. Most participants were female ($n = 94$, 60.7 %), followed by male ($n = 60$, 38.7 %), and non-binary/third-gender ($n = 1$, 0.65%). Most participants completed a bachelor's degree ($n = 81$, 52.3 %), followed by a high school diploma ($n = 34.84\%$), master's degree ($n = 17$, 11.0 %). Lastly, most participants had experience with depression themselves or experienced it up close ($n = 123$, 79.6 %).

From the initial sample of completed surveys ($N = 205$), 55 were excluded. Participants were excluded from the data based on the following criteria: (1) They did not give consent, (2) they were outside of the age range, (3) they failed one or more of the attention checks, (4) they exceeded 1 h on the survey or (5) they took <3 min on the survey for the control group or <10 min for the narrative conditions.

Stimulus

In experiment 1, no significant difference was found concerning the cognitive learning outcomes between the traditional and interactive version of the narrative. Therefore, a new version of the narrative was created for experiment 2 which improves on potential shortcomings.

The original version of *Cloudy* was written from Sofie's perspective, a person struggling with depression. In the new version, the perspective was changed to that of Mark, Sofie's friend, who is trying to help her. One reason for this decision is that experiencing the narrative as a friend of a depressed person might be more relevant to the goal of the narrative to teach interactors how to handle conversations with people with depression. Furthermore, the narrative is being told from a second-person point of view (Jahn, 2005) instead of a first-person point of view, addressing the reader directly as if they were Mark (e.g., "You feel the urge to check in with Sofie and send her a message to ask what she's up to."). As in experiment 1, internal

focalization is used, providing access to Mark's thoughts and feelings.

Integration of learning materials

Resulting from the perspective change, the learning material in the new version of *Cloudy* focuses specifically on three main aspects when dealing with someone with depression: (1) detection of depression, (2) communication (addressing concerns, empathizing), (3) behavior (reacting to rejection, giving advice). Moreover, the learning material is not presented separately but is fully integrated into the narrative. In an effort to educate himself about depression, the main character gathers information at different points of the narrative (e.g., by consulting a mutual friend who is a clinical psychologist who specializes in depression). Therefore, the interactor is encountering the educational information together with the character.

Choice relevance

The new version of the IDN was adjusted so that the educational content is more relevant to the choices within the narrative. Each choice is based on learning material that the interactor encounters earlier in the narrative. Therefore, interactors can anticipate which option represents the right or wrong choice. For example, Mark reads that one should never disregard comments about suicide. Later, Sofie makes a suicide joke, after which the interactor has the choice to either ignore her remark or point it out. This is in contrast to the first version of *Cloudy* where the learning material was presented after making a choice and did not always directly relate to the choice.

Choice effectance

The choices within the new version were adjusted to have a narrative impact. Each choice an interactor makes has an immediate (local effectance) or delayed (global effectance) positive or negative consequence in the narrative and results in a different narrative branch. For example, after Sofie opens up about her depression, the interactor can choose how to respond. Depending on the choice, Sofie either reacts positively or negatively (local effectance). Furthermore, the interactor can reach four different possible endings. Firstly, they differ on the location the interactor chooses earlier in the story. Secondly, they differ on whether Sofie feels understood by Mark and agrees to seek professional help (positive ending) or does not feel understood and refuses to seek professional help (negative ending). This aspect depends on a previous choice where the interactor must decide how to address his concerns to Sofie (global effectance).

To make sure the same educational information is being encountered independent of the choices being made, a partial foldback structure (Carstensdottir et al., 2019) was used to convene the narrative branches at different points (see the structure of the interactive narrative at the Supplementary material).

The adjusted traditional and interactive narrative (in English) can be found on OSF.

Procedure

The survey was exclusively distributed online due to the COVID-19 pandemic. The data collection was divided into two phases. In the first phase, participants were randomly assigned to the control or interactive condition. In the control condition, participants were asked cognitive learning questions regarding depression without being exposed to the narrative. In the second phase, participants were assigned to the traditional condition.

For the second phase, participants' choices and resulting story paths in the interactive condition were analyzed. The analysis showed that participants chose seven different paths. Each path within the sample resulted in the same (positive) ending. Most participants (75.66 %) solely chose the positive options. The other paths only differed by one choice, resulting in mostly identical narratives. Therefore, the traditional version of *Cloudy* was created based on the most chosen path. Apart from the stimulus, the procedure for the traditional narrative condition was the same as the interactive narrative one.

Measures

To ensure that the results are comparable, the same scales as in experiment 1 were used to measure identification ($\alpha = 0.82$), transportation ($\alpha = 0.69$) and intrinsic motivation ($\alpha = 0.76$). The identification scale by De Graaf et al. (2012) is especially suitable for experiment 2 as the subscales include perspective-taking and empathy, both of which are highly relevant for transformative learning.

The questions measuring cognitive learning (DV1) were created based on the learning material of the new version of *Cloudy*. Additionally, transformative learning (DV2, $\alpha = 0.69$) was assessed by means of the Learning Activities Survey (LAS) by King (2009). Four items were used and adapted (e.g., "While reading the story, I had an experience that caused me to question the way I normally act."). In addition to perceived autonomy, participants had to rate the level of perceived effectance (single item: "While reading the story, I felt like my choices had considerable impact on the events in the story.") to check how high participants perceived the impact of their choices to be in the new version of *Cloudy*. This item was adapted from the effectance scale by Roth (2015). All items were measured on a 5-point Likert scale (1 = "Strongly disagree", 5 = "Strongly agree").

The whole survey of experiment 2 (in English) can be found on OSF.

Data analysis

The same analyses were used as for experiment 1.

Results experiment 2

Manipulation checks

Two independent-samples *t*-tests were performed to test whether the manipulations of autonomy and effectance were successful. The first independent-samples *t*-test was used to compare the perceived autonomy of the interactive narrative with the perceived autonomy of the traditional narrative. The homogeneity of variance was not met, since Levene's test was significant ($p < 0.001$). On average, participants in the interactive condition ($M = 4.3$, $SD = 0.7$) scored higher on perceived autonomy than participants in the traditional condition ($M = 2.4$, $SD = 1.3$). This difference was significant, t (80.47) $= -9.46$, $p < 0.001$, $d = -1.85$. It can be concluded that participants who experienced the interactive narrative felt like they had more autonomy compared to the participants in the traditional narrative.

The second independent-samples *t*-test was used to compare the perceived effectance of the interactive narrative with the perceived effectance of the traditional narrative. The homogeneity of variance was not met, since Levene's test was significant ($p < 0.001$). On average, participants in the interactive condition ($M = 4.2$, $SD = 0.9$) scored higher on perceived effectance than participants in the traditional condition ($M = 2.3$, $SD = 1.3$). This difference was significant, t (90.77) $= -9.06$, $p < 0.001$, $d = -1.78$. It can be concluded that participants who experienced the interactive narrative felt like their choices had more impact on the events in the story compared to the participants in the traditional narrative.

Cognitive learning: Control group vs. narrative conditions

A one-way ANOVA with planned contrasts was performed to compare the learning outcomes of the three conditions (control, traditional narrative, interactive narrative). The homogeneity of variance was met, since Levene's test was not significant ($p = 0.565$). The ANOVA showed a significant effect of agency on cognitive learning [F (2, 152) $= 43.51$, $p < 0.001$, $\eta 2 = 0.36$]. The planned contrasts showed that the learning outcomes of the control group ($M = 7.3$, $SD = 2.0$) were significantly lower than of the traditional ($M = 10.4$, $SD = 1.9$) and interactive narrative ($M = 10.1$, $SD = 1.6$), t (152) $= 9.30$, $p < 0.001$, $d = 3.15$.

Overall results

Table 2 shows the overall results of cognitive learning (divided by knowledge, comprehension, and application), transformative learning, identification, transportation, intrinsic motivation, perceived autonomy and perceived effectance for the traditional and interactive narrative conditions. Independent-samples *t*-tests were performed to compare the scores for the traditional and interactive narrative. The homogeneity of variance was met, since all Levene's tests were not significant (p's > 0.05), except for perceived autonomy and perceived effectance.

As in experiment 1, none of the differences between the cognitive learning scores were significant. Transformative learning was significantly higher for the interactive narrative ($M = 3.2$) than for the traditional narrative ($M = 2.9$), t (100) $= -2.26$, $p = 0.030$, $d = -0.44$. Identification was significantly higher for the interactive narrative ($M = 3.9$) than for the traditional narrative ($M = 3.6$), t (100) $= -2.2$, $p = 0.030$, $d = -0.41$. Transportation was also significantly higher for the interactive narrative ($M = 3.8$) than for the traditional narrative ($M = 3.6$), t (100) $= -2.09$, $p = 0.040$, $d = -0.45$. The difference for intrinsic motivation was not significant but perceived autonomy and perceived effectance were significantly higher for the interactive narrative than for the traditional narrative (see section Manipulation checks).

Effects on cognitive learning

A PROCESS mediation analysis (Hayes, 2022) was performed to test hypotheses H1, H3, H5 (see Figure 3, with an overview of all effects). The analysis indicated that there is no significant total effect of agency on cognitive learning, $b = -0.29$, SE $= 0.37$, BCa 95% CI [−1.01, 0.45] leading to the rejection of H1. In addition, there was no significant direct effect of agency on cognitive learning, $b = -0.25$, SE $= 0.37$, BCa 95% CI [−0.99, 0.48].

There was no indirect effect of agency on cognitive learning through identification and transportation, $b = 0.01$, $SE = 0.02$, BCa 95% CI [−0.03, 0.07], despite a positive direct effect of identification on transportation, $b = 0.21$, $SE = 0.08$, BCa 95% CI [0.05, 0.36]. This lack of indirect effect led to the rejection of H3. Furthermore, there was no indirect effect of agency on cognitive learning through intrinsic motivation, $b = -0.02$, $SE = 0.08$, BCa 95% CI [−0.14, 0.18], leading to the rejection of H5. In summary, it can be concluded that the data do not support H1, H3, and H5, as in experiment 1.

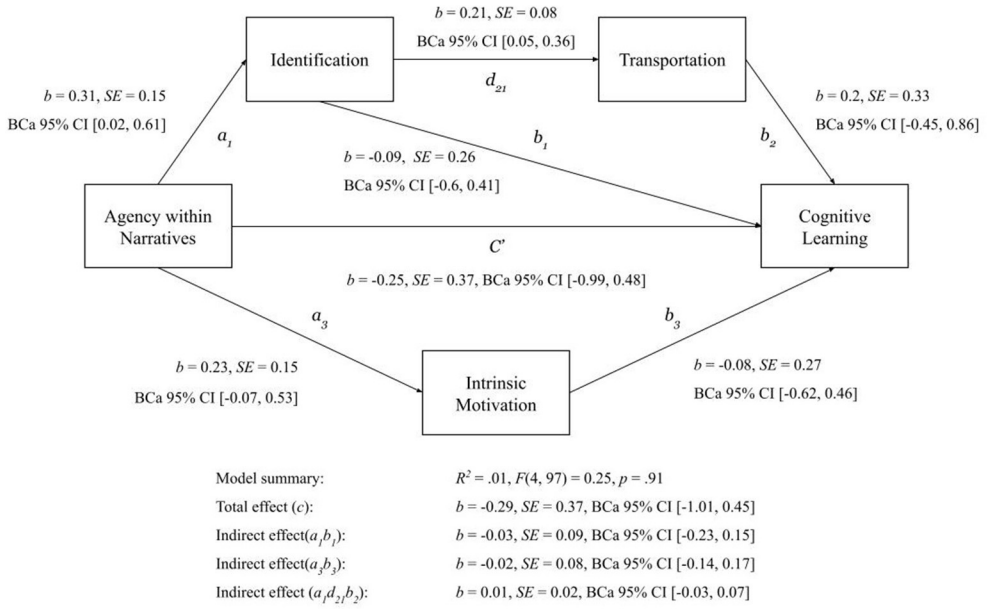

FIGURE 3
Mediation analysis experiment 2–cognitive learning.

Effects on transformative learning

A PROCESS mediation analysis (Hayes, 2022) was performed to test H2, H4, H6 (see Figure 4, with an overview of all effects). The analysis indicated that there was a significant total effect of agency on transformative learning, $b = 0.36$, $SE = 0.17$, BCa 95% CI [0.04, 0.69]. Therefore, H2 is supported. There was no significant direct effect of agency on transformative learning, $b = 0.28$, $SE = 0.17$, BCa 95% CI [−0.05, 0.61].

Moreover, there was no indirect effect of agency on transformative learning through identification and transportation, $b = -0.004$, $SE = 0.01$, BCa 95% CI [−0.03, 0.02], despite a positive direct effect of identification on transportation, $b = 0.21$, $SE = 0.08$, BCa 95% CI [0.05, 0.36]. There was a significant indirect effect of agency on transformative learning through identification alone, $b = 0.11$, $SE = 0.07$, BCa 95% CI [0.005, 0.26]. Therefore, the data partially supports H4. Agency does lead to a higher level of transformative learning, but this effect is only mediated by identification, not transportation. Furthermore, there was no indirect effect of agency on transformative learning through intrinsic motivation, $b = -0.01$, $SE = 0.03$, BCa 95% CI [−0.08, 0.05], leading to the rejection of H6. In summary, it can be concluded that the data supports H2 but not H6. However, H4 is partially supported as agency does affect transformative learning through identification but not through transportation.

Exploratory analyses

To explore whether cognitive learning and transformative learning differed for people who had ($n = 85$) or had no ($n = 13$) prior experience with depression and whether this experience influenced the effect of agency on cognitive learning and transformative learning respectively, two two-way ANOVAs were performed.

For cognitive learning, participants with prior experience ($M = 3.1$, $SD = 1.7$) had a higher difference score for cognitive learning than participants without prior experience ($M = 1.9$, $SD = 2.3$). The ANOVA showed a significant main effect of experience with depression, F (1, 94) = 5.63, $p = 0.02$, $\eta^2_{partial} = 0.06$. There was no significant interaction effect, F (1, 94) = 0.13, $p = 0.72$. The results indicate that people who had prior experience with depression learned significantly more from the narratives than people who had no prior experience with depression, but that experience with depression did not interact with agency in the effect on cognitive learning.

For transformative learning, participants with prior experience ($M = 3.1$, $SD = 0.9$) scored better on the transformative learning measure than participants without prior experience ($M = 2.7$, $SD = 0.9$). The ANOVA did not show a significant main effect of experience with depression, F (1, 94) = 2.42, $p = 0.12$. There was also no significant interaction effect, F (1, 94) = 0.65, $p = 0.42$. The results indicate that transformative learning did not differ between people with and without experience with depression and that experience

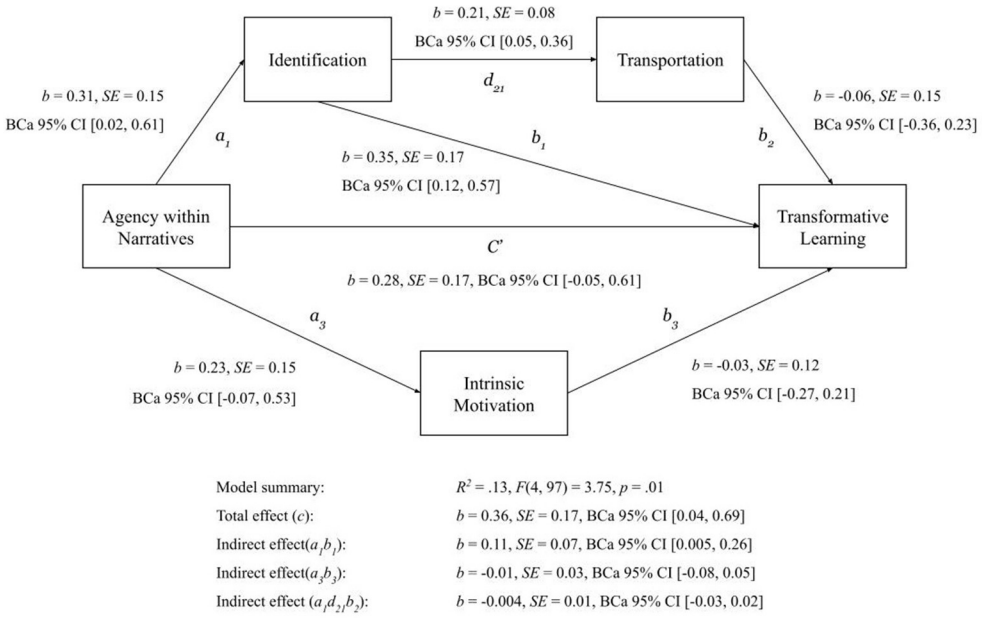

FIGURE 4
Mediation analysis experiment 2–transformative learning.

with depression did not interact with agency in its effect on transformative learning.

Discussion experiment 2

The aim of experiment 2 was to improve on the stimulus of experiment 1 and to investigate whether agency in narratives about depression affects cognitive learning and transformative learning and to what extent these effects are mediated by identification, transportation, and intrinsic motivation.

As with experiment 1, no effect of agency on cognitive learning (H1) was observed in experiment 2 even though a high level of perceived effectance could be achieved. Additionally, there was also no mediating effect of identification and transportation (H3) or intrinsic motivation (H5). Therefore, all findings of experiment 1 concerning cognitive learning were replicated despite all the improvements. One possible explanation is that a ceiling effect may have occurred. The participants who experienced the traditional version of *Cloudy* scored significantly higher on the cognitive learning questions than participants in the control group. However, adding agency to the narrative did not yield a significant difference. This indicates that the traditional narrative already increased the learning outcome to a point where agency did not provide an added value. Moreover, an exploratory analysis of prior experience with depression showed that most participants had prior experience with depression and that participants with prior experience scored higher on cognitive learning than participants without prior experience. This may serve as an explanation for the lack of an effect of agency on cognitive learning.

In addition to the cognitive learning outcomes, the effect of agency on transformative learning was assessed. The findings suggest that narratives with agency positively affect transformative learning supporting H2. In addition, the hypothesis that the effect of agency within narratives on transformative learning is mediated by identification and transportation (H4) was partially supported as there was only an indirect effect of agency on transformative learning through identification. These findings can be explained by the fact that empathy (Taylor and Cranton, 2013) as well as perspective-taking (Jarvis, 2012) are parts of identification (De Graaf et al., 2012). Lastly, the hypothesis that the effect of agency within narratives on transformative learning is mediated by intrinsic motivation (H6) was not supported. Intrinsic motivation was elicited by the traditional as well as the interactive narrative and had no impact on transformative learning.

To investigate the effect of prior experience on transformative learning, an exploratory analysis was performed, which yielded no significant difference. This goes against the core idea of transformative learning that the reassessment of one's frame of reference is triggered by a disorienting dilemma, i.e., an unexpected, new incident (Mezirow, 1991).

In conclusion, experiment 2 replicated the insignificant effects of agency on cognitive learning. In contrast, the findings

did suggest a positive effect of agency on transformative learning through identification.

General discussion

The current study set out to investigate the effects of agency in a narrative about depression on cognitive learning (Bloom et al., 1956) and transformative learning (Mezirow, 2003; Taylor and Cranton, 2013). Furthermore, the mediating effects of the narrative constructs of identification and transportation (Green and Brock, 2000; Cohen, 2001; Green et al., 2004; Hand and Varan, 2009; Green and Jenkins, 2014; Brown, 2015; Cohen et al., 2015; Roth and Koenitz, 2016; Bilandzic and Busselle, 2017) and intrinsic motivation (Ryan and Deci, 2000; Katz and Assor, 2007; Patall et al., 2008; Rigby and Ryan, 2016; Sherrick et al., 2021) were investigated. We expected positive effects of agency on both cognitive learning (H1) and transformative learning (H2), as well as a positive serial mediation effect of identification and transportation (H3, H4) and a positive mediation effect of intrinsic motivation (H5, H6) on both learning outcomes.

Experiment 1 focused on cognitive learning as a dependent variable. Agency did not affect cognitive learning and no mediation effects of identification, transportation and intrinsic motivation were found (rejecting hypotheses 1, 3 and 5). This may have resulted from shortcomings in the design of the interactive narrative. Therefore, a new interactive narrative was created for experiment 2 improving on the integration of learning materials, choice relevance, and choice effectance. However, in experiment 2, we still did not find an effect of agency on cognitive learning nor any mediation effects (rejecting hypotheses 1, 3 and 5 again). These findings contrast with other previous studies, which have suggested that agency in narratives has a positive effect on cognitive learning (e.g., Hammond et al., 2007; Zhou et al., 2020). A possible explanation could be a ceiling effect. The participants who experienced the traditional version of the narrative scored higher on the cognitive learning questions than participants in the control group. However, adding agency to the narrative did not make a difference. This indicates that the traditional narrative already increased the learning outcome to a point where agency did not provide an added value. These results support previous findings concerning the effectiveness of traditional narratives in educational contexts in terms of comprehension and information retention (Mar et al., 2021). In the present study, we investigated the ceiling effect through an exploratory analysis of the effect of prior experience with depression on cognitive learning. Although prior experience did not affect cognitive learning in experiment 1, the results of experiment 2 did show that participants with prior experience scored higher than participants without prior experience. In both experiments, participants who had prior experience with depression largely outnumbered participants without prior experience with depression, meaning that this ceiling effect would apply to the majority of participants. Therefore, it would be of interest for future research to investigate the effects of agency on cognitive learning using a topic of which participants have less baseline knowledge. Another explanation may be found in the education level of the current sample. Participants were mostly highly educated, having obtained a bachelor's or master's degree. A study by Lee et al. (2020) suggests that mental health literacy is higher in highly educated groups. Therefore, there is a bigger need in targeting less educated groups with mental health interventions. A last explanation could be that assuming a medium effect size was too optimistic. It may well be that the differences between narratives with and without agency are so small that a larger sample is required.

Experiment 2 added transformative learning as a dependent variable. The findings suggest that interactive narratives positively affect transformative learning (confirming hypothesis 2) and that this effect is mediated by identification (partially confirming hypothesis 4; see below). This is in line with theories about transformative learning, specifically regarding the importance of empathy (Taylor and Cranton, 2013) and perspective-taking (Jarvis, 2012), which are both components of identification (De Graaf et al., 2012). Perspective-taking was facilitated by directly assigning a role to interactors and enabling them to make choices on behalf of the friend (Green and Jenkins, 2014; Roth and Koenitz, 2016). The fact that the choices within the new version of the interactive narrative specifically pertain to interactions between characters might have further supported identification. Subsequently, identifying with the main character can shape attitudes and expand perspectives leading to the adoption of opinions, attitudes, and behaviors which are consistent with those described in the narrative (Hoeken and Fikkers, 2014) resulting in a transformative experience (Hess et al., 2014; Knaak et al., 2016).

In contrast to cognitive learning, prior experience with depression did not affect transformative learning. This finding is consistent with the assumption made by Jarvis (2012), stating that the transformative potential of narratives persists both when dealing with experiences that are different as well as similar to our own. On the one hand, identifying with a character who is in a situation that is different from our own can result in transformation by experiencing a new perspective (a disorienting dilemma; Mezirow, 1991). On the other hand, identifying with a character that is in a situation that is similar to one's own can also trigger transformation. The latter is referred to by Jarvis (2012) as resonance. He argues that resonance can be elicited by exploring new solutions to the same struggles (Wright, 2007) or by increasing self-confidence and confidence in one's abilities (Burr, 2010). Future research could specifically compare transformative learning effects triggered by experiencing a differing situation from one's own compared to experiencing a similar one.

We hypothesized that a higher level of identification would lead to a higher level of transportation (Brown, 2015; Cohen et al., 2015; Bilandzic and Busselle, 2017). As described above,

we did find a mediation effect of agency on transformative learning via identification. However, no serial mediation took place via identification and transportation, hence providing only partial support for hypothesis 4. Tal-Or and Cohen (2010) argue that identification and transportation are two distinct processes. Whereas, identification is solely focused on a character, transportation pertains to a more general experience resulting from experiencing a narrative in its entirety. The kind of educational content presented in the narrative could serve as an explanation here. The interactive narrative in this study mostly deals with interpersonal interactions (i.e., how to act and what to say around someone struggling with depression). One could argue that identification is more relevant in this interaction-focused context than transportation.

Lastly, the current study also did not provide any evidence for a mediating effect of intrinsic motivation on transformative learning (rejecting hypothesis 6). Perceived autonomy (and effectance in experiment 2)–related to Self-Determination Theory's needs for autonomy and competence respectively–were quite high in the interactive narrative and substantially higher than in the traditional one. Both constructs were operationalized through one item each which only related to the choices made in the narrative (e.g., "While reading the story, I felt like my choices had an impact on the events in the story"). Therefore, it is not clear whether, for instance, feeling like one's choices have an impact on the events in the story directly equates to the overall satisfaction of the need for competence. A future study should also specifically measure perceived need satisfaction (Ryan and Deci, 2000; Gagne, 2003). Other than this, the operationalization of intrinsic motivation through enjoyment (Deci and Ryan, 1982) may serve as an explanation. Although the intrinsic motivation scores were on the high end of the scale in both experiments, asking participants about their enjoyment ("I enjoyed this way of learning very much") may not have been appropriate for such a serious topic as depression, despite the fact that participants were deliberately asked about "this way of learning" instead of the topic. A think-aloud and interview study would be helpful to shed light on the thought processes of interactors and the extent to and manner in which agency in an interactive narrative drives interactors' intrinsic motivation through need satisfaction (Rieger et al., 2022). Nonetheless, the fact that intrinsic motivation could be elicited in both experiments regardless of agency, may be an indication of the positive effect narratives can have on recipients, not just afterwards but already within the narrative experience. Satisfaction of the basic psychological needs (autonomy, competence, relatedness) goes together with an increase in subjective wellbeing (Ryan and Deci, 2011). A(n interactive) narrative in which a reader/interactor learns how to help a fictitious loved one who is struggling with depression can enable this need satisfaction and–with that–a sense of wellbeing (Weinstein and Ryan, 2010).

Limitations

The following limitations need to be taken into account. Both experiment 1 and 2 had an overrepresentation of participants who were highly educated and who had prior experience with the subject of the educational narrative. The skewness of the sample on these characteristics might have hampered cognitive learning effects and could have restricted the representativeness of the findings. Moreover, the decision to assume medium effect sizes for both power analyses might have been overly ambitious. As pointed out earlier, the samples of both experiments could have been too modest in size to expose subtle effects. On the other hand, medium and large effect sizes were found for the (in)direct effects on transformative learning, indicating that sample size is a more pressing concern when assessing cognitive learning, especially when the sample is highly educated and knowledgeable on the subject at hand. It is also noteworthy that the survey was exclusively distributed online due to the COVID-19 outbreak, resulting in diminished experimental control. Possible distractions might have decreased participants' attentional focus, possibly influencing the results. To counter this, attention checks were included and responses that took unreasonably little or much time were excluded. Lastly, although perceived autonomy and effectance were assessed in the current study, it is not a given that the needs of the Self-Determination Theory are satisfied based on this assessment. Future studies are advised to measure need satisfaction directly (Rieger et al., 2022).

Conclusion

The present study investigated the effects of agency within narratives about depression on cognitive learning and transformative learning while taking the mediating effects of intrinsic motivation, identification and transportation into account. No effects of agency on cognitive learning were found in the two experiments, possibly because of the familiarity of the topic for the participants in this study. However, the results of the second experiment suggest that narratives with agency positively affect transformative learning and that this effect is mediated by identification. Being able to make choices on behalf of the caretaker led people to identify more with the role of caretaker and make them reflect on how to approach their depressed loved-ones in a sensible way. Transformative learning occurs irrespective of prior experience with depression implying that an interactive narrative can yield a new perspective on unfamiliar as well as on familiar situations. These findings can be used to inform the design of narrative mental health interventions. Emphasis should be put on the identification with characters to support their transformative potential. The choices within interactive narratives should have meaningful

consequences and should pertain to interpersonal interaction to support identification.

Data availability statement

The datasets and supplementary material presented in this study can be found at: https://osf.io/mn5pb/.

Ethics statement

The studies were reviewed and approved by the Research Ethics and Data Management Committee of the Tilburg School for Humanities and Digital Sciences (TSHD) at Tilburg University. The participants provided their written informed consent to participate in this study.

Author contributions

RE conceived of the original study concept. JS, MP, and RE developed the research design. JS oversaw data collection and analyzed the data of experiment 1. MP oversaw data collection and analyzed the data of experiment 2. JS and MP wrote the manuscript with contributions from RE. All authors contributed to the article and approved the submitted version.

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.

Publisher's note

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