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# Childhood traumatic experiences: new clinical perspectives and interventions

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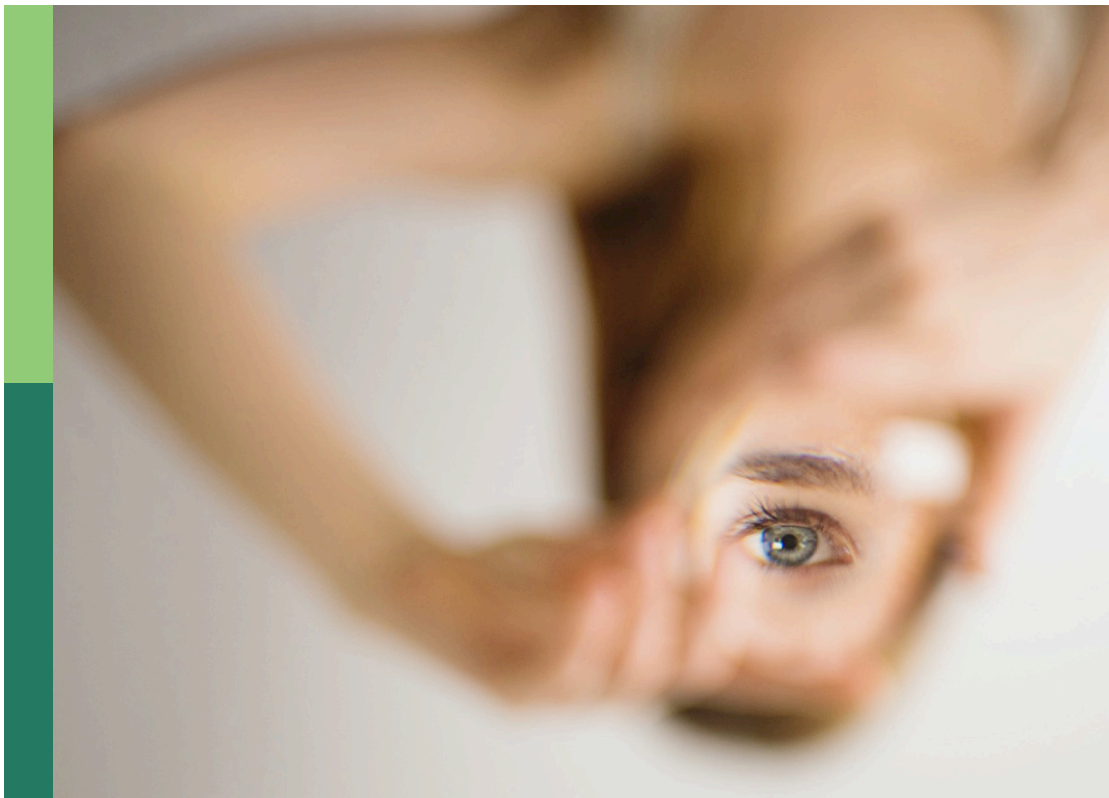

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# Childhood traumatic experiences: new clinical perspectives and interventions

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# Editorial: Childhood traumatic experiences: new clinical perspectives and interventions

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Editorial on the Research Topic
Childhood traumatic experiences: new clinical perspectives and interventions

An overwhelming number of children worldwide are exposed to traumatic experiences, such as psychological, physical and verbal abuse, as well as parental neglect, which impact their psychosocial functioning and development. The parent-child relationship is highly impactful for the holistic development of children and youths. For this reason, adverse, neglectful, and traumatic exposures might impact individuals' emotional wellbeing, quality of adult relationships and growth. Indeed, neglect is characterized as a kind of emotional, educational, and physical abuse, due to its long-term impact. Also, those who have experienced multiple forms of abuse over an extended period may suffer from a greater number and more severe set of symptoms associated with the trauma.

Abused children carry some of such experiences throughout their adolescence, a multifaceted phase of individuals, characterized from physical, psychological, and social development. Relational problems, behavioral difficulties and psychological vulnerabilities often stem from early traumatic experience roughens the process of developing one's sense of self as well as resilience.

Multiple childhood traumatic experiences are closely related to parent-child relations and are likely to be highly amenable to interventions in parent-child contexts. In the past few years research has greatly contributed to dealing with this Research Topic, giving important pointers for further considerations to researchers. Parental separation or abandonment can undoubtedly be a traumatic experience for a child, leading to significant repercussions. A study conducted in Tehran highlighted that orphaned adolescents exhibited greater reward sensitivity, higher impulsivity, emotional regulation difficulties, and attention deficits compared to their peers with parents. These challenges are attributed to the lack of affectionate care during childhood, underscoring the essential role of parental figures in emotional and cognitive development (Sadeghzadeh and Bagheri).

On the other hand, as suggested by Springer and Lueger-Schuster, also the parental drug use and caregiver attitudes influence the mentalization processes of children in foster care. The authors identify factors that support resilience and effective mentalization, helping to inform interventions that improve outcomes for children in foster care (Springer and Lueger-Schuster). Their longitudinal study investigates the psychological and emotional development of these children. Trauma represents a powerful experience that causes physical and mental harm to individuals. In this regard, a study on

adolescents with hearing impairments (DHH) in Saudi Arabia revealed that 97% of these students had experienced at least one form of abuse or neglect. A strong correlation has emerged between maltreatment and psychological disorders such as depression and anxiety. Major risk factors for maltreatment included being male, critical socioeconomic conditions, and limited communication between hearing parents and DHH children. In this regard, the study suggests targeted interventions, such as educational programs on sign language, awareness campaigns, and integrated support between schools and mental health services, emphasizing the need for further longitudinal research (Hammad et al.).

Adverse childhood experiences (ACEs) significantly influence substance use, with low self-control acting as a key mediator. One of the studies, conducted among Ugandan adolescents, emphasizes the need for targeted interventions on self-control and the importance of individualized support for vulnerable youth (Namusoke et al.).

A part of the studies in the topic concentrate on the possible effectiveness of different experiences in decreasing problematic behavior in different children. In Italy, for example, a study explored the effectiveness of the e-Connect program, a digital version of the Connect Parent Group (CPG®), implemented with adoptive and foster parents of adolescents. The program, rooted in attachment and trauma-based principles, demonstrated a reduction in parental stress and adolescents' emotional and behavioral difficulties, while improving the understanding of problematic behaviors and strengthening the parent-child relationship. While the results appear promising, notable limitations, such as a small sample size and the lack of in-depth statistical analysis, emerged. Nevertheless, the study highlights the significant potential of the program as an effective and accessible tool for vulnerable families (Pace et al.). Trauma-informed approaches are essential for supporting vulnerable populations in both educational and family contexts. In a specific study, the authors have found that for refugee students, trauma-sensitive school concepts create safe environments that address psychological wellbeing and academic success by fostering resilience and understanding among educators and policymakers (Lembke et al.). Similarly, another research concentrated on understanding how tailored parenting interventions for African American families impacted by IPV can highlight the need for culturally informed strategies. These include strengths-based approaches, racial socialization, peer support networks, and access to social services, all aimed at empowering mothers and fostering long-term support systems (Cervantes et al.). Both frameworks emphasize the role of systemic, empathetic solutions in addressing trauma and promoting equity.

Over the years, interest in this topic has grown significantly, pushing researchers to deepen the validity of questionnaires aimed at assessing adolescent wellbeing. For instance, Oláh et al. proposed a study to examine the validity of the ACE-10 questionnaire among vulnerable adolescents in the child welfare system in Hungary, comparing it with a modified 9-item version (ACE-9). The latter proved to be more suited to the studied population, showing greater internal consistency and strong correlations with psychological variables such as emotional and behavioral difficulties. The research emphasizes the need for developing dependable diagnostic tools in order to be able to properly recognize traumatic events and be able to plan adequate interventions.

Nevertheless, one must not underestimate the difficulties that parents encounter when they seek to deal with the inappropriate behaviors displayed by their children. A critical topic is understanding and managing children's behavior by their parents. In this regard, an integrated approach to Parent-Child Interaction Therapy (PCIT), combined with the attachment-based Circle of Security-Parenting (COS-P) program, has been developed to address problematic behaviors in maltreated children. This model enhances parents' emotional understanding and reduces children's problematic behaviors, increasing family participation. However, its implementation requires thorough therapist training and further study to evaluate its long-term effectiveness (Belanger et al.). A different approach is proposed by a study from Montenegro et al., which explores the impact of trauma-focused group therapy incorporating Karate-Do on children and adolescents affected by war trauma. It presents a case study demonstrating how this therapy promotes emotional resilience, self-regulation, and social integration. Using martial arts as a therapeutic tool, the program combines physical activity with psychological support to address trauma symptoms. Results suggest positive outcomes, including improved mental wellbeing and coping mechanisms.

Understanding and addressing childhood traumatic experiences are not merely a matter of individual support but a social commitment. It requires an integrated approach involving families, professionals, and institutions. Only through such efforts can the wellbeing of future generations be improved, fostering healthier, and more constructive parental relationships.

## Author contributions

VS: Conceptualization, Writing – original draft. VA: Writing – review & editing. VV: Writing – review & editing. GA: Writing – review & editing. SE: Conceptualization, Writing – original draft.

## 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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# Comparison of behavioral activation/inhibition systems, emotional regulation difficulties, and selective attention in adolescents with and without parents

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Existing literature has established a relationship between adverse childhood experiences and negative outcomes in cognitive and affective functioning. However, further research is needed to thoroughly understand and validate these findings. In this regard, the current study aimed to compare behavioral activation/inhibition systems, emotional regulation difficulties, and selective attention in adolescents with and without parents. A sample of 70 adolescents (M age = 16.36, *SD* = 1.09, 48.57% female) with caretakers from schools and 55 parentless adolescents (M age = 16.58, *SD* = 1.28, 52.00% female) from orphanage centers in Tehran were recruited and completed the measures tapping behavioral activation/inhibition systems, emotion dysregulation difficulties, and selective attention. The results revealed that parentless adolescents exhibited significantly higher levels of behavioral activation/inhibition scores, emotion regulation difficulties, and impaired selective attention. These findings suggest that the absence of parents during the early years of life may have detrimental effects on behavioral inhibition and activation systems, emotional regulation abilities, and selective attention capabilities. The implications of these findings are further discussed.

KEYWORDS

**behavioral activation system, behavioral inhibition system, emotion dysregulation, selective attention, parents, adolescence**

## Introduction

Early childhood development is known to be heavily influenced by environmental factors, such as family, caregivers, environment, and culture. The family environment, in particular, is considered the most natural and appropriate place for forming and stabilizing individuals' cognitive and emotional skills (e.g., Bellis et al., 2018). Optimal growth and development in children are contingent on the provision of supportive environmental stimuli and a strong relationship with primary caregivers (Schore, 2001). Unfortunately, in contemporary society, a significant number of children and adolescents are deprived of parental care and effective parent–child relationship, which can include a wide range of children, such as those in boarding schools, homeless children, children of single parents, and children from displaced and homeless families who lack effective guardianship (e.g., Edwards, 2020). The support of parents and caregivers is crucial in promoting the health and well-being of children. Lack of parental love

and attention, and failure to meet developmental needs such as belonging, admiration, and affection, can lead to a higher prevalence of psychological problems, behavioral disorders, aggression, anxiety, depression, and a tendency to use drugs (Eslami et al., 2013). Studies have shown that parentless children perform significantly lower in developmental fields, particularly in behavioral tests, intelligence, and speech abilities, compared to children who received proper parental care. Delays in cognitive and social development can result in academic and learning problems in these teenagers. Deprivation and early exposure to care centers or orphanages not only affect children's social and emotional abilities but also have negative consequences in adolescence and adulthood, such as cognitive defects, high sensitivity to stress, and vulnerability to diseases (e.g., Gunnar and Fisher, 2006; McLaughlin et al., 2011, 2014). Given the wide range of behavioral, emotional, and cognitive problems among children and teenagers living in welfare organizations and care centers (e.g., orphanages), it is crucial to investigate the different dimensions of impairments in these areas in this group.

The development of approach and avoidance traits in childhood is crucial to the manifestation of individual differences in motivated behaviors and emotional experiences throughout life. Theories of personality and temperament have converged on the significance of the Behavioral Approach System (BAS) and the Behavioral Inhibition System (BIS; Fowles, 1980; Gray, 1990; Elliot and Thrash, 2002). The BAS mediates responses to positive reinforcement to promote reward-seeking behaviors, whereas the BIS responds to potentially aversive stimuli to inhibit behaviors that could lead to harmful outcomes. Studies have shown that an overactive BAS is associated with an increased risk for impulse control, substance use, and attention-deficit/hyperactivity disorders. On the other hand, extreme BIS sensitivity is linked to the development of anxiety disorders, depression, and psychosomatic illnesses (van den Berg et al., 2011; Becker et al., 2013; Park et al., 2013). As the field of temperament research has advanced, newer theories have emerged that complement and expand upon the BAS and BIS constructs. One such noteworthy framework is proposed by Rothbart and Hwang (2005) and Rothbart (2007), introducing several crucial concepts related to individual differences in temperament. Rothbart's temperament theory emphasizes the multidimensional nature of temperament, considering various components that influence an individual's responses to the environment. One of these components is "effortful control," which pertains to an individual's ability to regulate their responses, including attentional control, inhibitory control, and perceptual sensitivity. This aspect of temperament has significant implications for an individual's approach or avoidance tendencies in various situations. Furthermore, Rothbart's theory incorporates the concept of "negative affectivity," akin to the notion of behavioral inhibition. Negative affectivity refers to individual differences in the tendency to experience negative emotions and the intensity of these emotional responses, impacting an individual's avoidance behaviors (Rothbart and Hwang, 2005; Rothbart, 2007).

While BIS and BAS systems have a strong genetic basis, studies suggest that both systems are influenced by environmental factors(Ide et al., 2020). Hence, it is reasonable to expect that adverse childhood experiences, which are commonly encountered by parentless children, may impact the functioning of BIS and BAS systems.

In addition, the family context and parents play a crucial role in the development of children and adolescents' emotion regulation (ER) abilities. ER refers to the ability to adjust emotional arousal and accomplish goal-directed behaviors regardless of emotional state; deficits in ER or emotion dysregulation (ED) lead to difficulties in monitoring, evaluating, or adjusting emotional reactions (Gratz and Roemer, 2004; Gross, 2013). Parenting practices related to emotion management and the emotional climate of the family affect ER. Children learn ER skills through observation, modeling, and social referencing. Factors like attachment relationships, family expressiveness, and parenting style impact the development of ER skills in children (For a review, see Morris et al., 2007). More specifically, children in orphanages suffer from ER problems which could be related to the lack of consistent and nurturing caregiving. Children who have experienced early life adversity, such as separation from their parents, are more likely to develop ER difficulties. In orphanages, children may not receive the individualized attention and emotional support needed to develop healthy coping skills. Additionally, the stressful and unpredictable environment of an orphanage can exacerbate ED, which can lead to a range of negative outcomes such as behavioral problems, academic difficulties, and mental health issues (Bos et al., 2009; McLaughlin et al., 2011; Cullen et al., 2014). Furthermore, research suggests that early life adversity can lead to alterations in neural pathways and structures involved in attention and cognitive control, which can result in difficulties in selective attention among individuals who have experienced childhood adversity (McLaughlin et al., 2014). These alterations in brain structure and function can result in attentional biases toward threat-related stimuli, as well as difficulties in disengaging attention from negative stimuli (Pollak et al., 2010). Also, given the higher levels of negative emotions that unsupervised youngsters experience, these individuals selectively allocate visual attention toward the locus of threatening information. This can result in a build-up of attentional resources towards threatening stimuli, leaving little capacity for the individual to attend to neutral or ongoing tasks, ultimately resulting in a reduction of the individual's attentional resources for the performance of such tasks (e.g., Rudaizky et al., 2021).

The above literature review suggests that inadequate parental care can have negative effects on individuals' brain activation/inhibition systems, emotional regulation abilities, and selective attention. However, empirical studies are needed to further explore this topic. Children and teenagers in welfare organizations or orphanages often lack consistent and nurturing caregivers, and comparing their emotional regulation abilities and cognitive development to those with parents could help expand the existing literature. To fill this gap, this study aims to compare behavioral activation/inhibition systems, emotional regulation difficulties, and selective attention in adolescents with and without parents.

# Method

## Participants and procedure

The sample consisted of 70 adolescents (aged 15–18, M age = 16.36, *SD* = 1.09, 48.57% female) with parents recruited through convenience sampling from schools in Tehran, and 55 parentless adolescents (aged 15–18, M age = 16.58, *SD* = 1.28, 52.00% female) from orphanage centers in Tehran recruited through purposeful sampling. The inclusion criteria for all participants consisted of interest and

willingness to participate in the study. For the orphanage sample, inclusion criteria comprised a residency in orphanage centers of Tehran province for more than 1 year; exclusion criteria were a history of substance abuse and other serious mental disorders assessed through file review and clinical interview. The ethics committee of *Islamic Azad University, Science and Research Branch* approved the study, and participants and their guardians were informed about the study's goals and voluntary nature before providing signed informed consent. The same procedure was followed for the orphanage sample, with their supervisors in the centers also informed about the study's aims. All participants were surveyed, except for those who declined. Participants were informed again about the confidentiality of their information and were asked to complete the questionnaires under the supervision of a specially trained research assistant (a master-level student).

## Measures

### The behavioral inhibition/behavioral activation system scales (BIS/BAS scales)

The BIS/BAS scales (Carver and White, 1994) is a 20-item self-report questionnaire designed to assess the extent to which an individual is sensitive to rewards and punishments. The BIS/BAS Scale measure both the Behavioral Inhibition System (BIS) and three types of Behavioral Activation System (BAS) reactivity, which include Drive, Reward Responsiveness, and Fun Seeking. Items are rated on a Likert-type scale ranging from 1 (*"I strongly agree"*) to 4 (*"I strongly disagree"*), and respondents rate the extent to which they agree or disagree with each statement. The Persian version of the BIS/BAS Scale yielded sound psychometric properties (Amiri and Hassani, 2016).

## Difficulties in emotion regulation scale

The DERS (Gratz and Roemer, 2004) is a 36-item self-report questionnaire that assesses emotion dysregulation. The DERS items load on six subscales, including Lack of Emotional Awareness (6 items), Lack of Emotional Clarity (5 items), Difficulties Controlling Impulsive Behaviors When Distressed (6 items), Difficulties Engaging in Goal-Directed Behavior When Distressed (5 items), Nonacceptance of Negative Emotional Responses (6 items), and Limited Access to Effective ER Strategies (8 items). Participants rate items on a 5-point scale ranging from 1 (*"almost never"*) to 5 (*"almost always"*). A total score is obtained by summing all items. The internal consistency and validity of the Persian version of DERS were supported with the Iranian sample in previous studies (Besharat and Bazzazian, 2013; Vafa et al., 2021).

## D2 attention test

The D2 was developed by Brickenkamp and Zillmer (1998) and is a widely used one-page paper-and-pencil test that measures selective attention and cognitive performance. It consists of 14 rows (trials) with 47 randomly mixed "p" and "d" letters per row, for a total of 658 letters, with the target symbol being a "d" with two dashes. Participants are instructed to cancel out as many target symbols as possible within a 20-s time limit, moving from left to right. In the current study, the following D2 subscores were used: total number (TN), omissions (E1), commissions (E2), and concentration performance (CP). TN is a quantitative measure of performance, while E1 and E2 reflect different types of errors. CP is derived from the number of correctly crossed-out relevant items minus the number of E2 errors.

## Data analyses

In the current study, data entry and statistical analyses were performed using SPSS 20 software. The normality of the distribution for study variables was tested using the Kolmogorov–Smirnov test, and the results supported the normality of the data ($p > 0.05$). Next, independent *t*-tests were then used to compare the two groups on the study variables, along with examining Cohen's *d* as a measure of effect size, with a value of 0.20 denoting a small, 0.50 a moderate, and 0.80 a large effect with effect sizes to estimate the magnitude of the differences (Cohen, 2013). A significance level (*p*-value) of less than 0.05 was predetermined to indicate statistically significant results.

# Results

As shown in Table 1, independent *t*-tests results showed that the parentless adolescents group scored significantly higher in BIS and BAS and its subscales of drive, reward responsiveness, and fun seeking ($p < 0.001$ to 0.013; $d = 0.33$ to 1.07). Similarly, results were indicative of significantly higher DERS and its all but non-acceptance of negative emotional responses subscales for the parentless adolescents group ($p < 0.001$ to 0.03; $d = 0.45$ to 0.85). Table 1 also shows that parentless adolescents performed significantly poor in D2 attention test scores of the total number (TN), omissions (E1), commissions (E2), and concentration performance (CP; $p < 0.001$ to 0.02; $d = 0.46$ to 0.88).

# Discussion

This study aims to compare behavioral activation/inhibition systems, emotional regulation difficulties, and selective attention in adolescents with and without parents. The results showed that parentless adolescents had significantly higher levels of BIS/BAS scores, emotion regulation difficulties, and impaired selective attention. Overall, in line with the literature, our findings suggest that the absence of parents during the early years of life may have detrimental effects on levels of behavioral inhibition and activation system, development of emotional regulation abilities, and selective attention capability. Environmental factors, such as family dynamics, caregiving practices, surroundings, and cultural influences, play a crucial role in shaping early childhood development. Notably, the family environment is widely recognized as the most natural and vital context for fostering cognitive and emotional skills in young individuals (Bellis et al., 2018). Optimal growth and development in children hinge upon the provision of supportive environmental stimuli and the establishment of a secure relationship with primary caregivers (e.g., Schore, 2001; Bellis et al., 2018).

With respect to our findings that show increased levels of BIS and BAS among parentless adolescents, it is important to highlight that

TABLE 1 Comparisons of study variables across the two groups.

| Supervised ($n$ = 70) | | Unsupervised ($n$ = 55) | Group comparison | | |
|---|---|---|---|---|---|
| | M ($SD$) | M ($SD$) | $t$ | $p$ | $d$ |
| Behavioral inhibition system | 19.58 (2.51) | 21.99 (3.48) | 4.18 | 0.001 | 0.79 |
| Behavioral activation system | 32.38 (6.17) | 38.03 (7.92) | 5.62 | 0.001 | 1.07 |
| Drive | 11.40 (1.89) | 13.52 (2.53) | 5.01 | 0.001 | 0.94 |
| Reward responsiveness | 9.68 (2.08) | 12.05 (2.99) | 4.83 | 0.001 | 0.92 |
| Fun seeking | 11.30 (2.20) | 12.46 (2.40) | 2.70 | 0.013 | 0.33 |
| DERS total | 77.32 (17.48) | 93.60 (20.48) | 4.55 | 0.001 | 0.85 |
| Goal | 12.90 (4.94) | 15.01 (4.40) | 2.45 | 0.03 | 0.45 |
| Impulse | 10.24 (4.90) | 13.56 (5.64) | 3.35 | 0.001 | 0.62 |
| Non-acceptance | 13.44 (5.37) | 14.21 (5.88) | 0.73 | 0.93 | 0.14 |
| Lack awareness | 14.67 (4.62) | 18.23 (5.45) | 3.75 | 0.001 | 0.70 |
| Strategies | 15.47 (5.58) | 19.02 (6.38) | 3.16 | 0.001 | 0.59 |
| Clarity | 10.60 (3.78) | 13.57 (4.82) | 3.63 | 0.001 | 0.68 |
| Total number (TN) | 449.31 (95.03) | 403.09 (102.33) | 2.51 | 0.02 | 0.46 |
| Omissions (E1) | 37.79 (26.21) | 59.11 (50.56) | 2.73 | 0.01 | 0.52 |
| Commissions (E2) | 4.29 (12.43) | 12.91 (19.27) | 2.77 | 0.01 | 0.53 |
| Concentration performance (CP) | 156.54 (33.42) | 123.85 (40.41) | 4.68 | 0.001 | 0.88 |

DERS = Difficulties in Emotion Regulation Scale; Goal = Difficulties Engaging in Goal-Directed Behavior; Impulse = Difficulties Controlling Impulsive Behaviors; Accept = Non-acceptance of Negative Emotional Responses; Strategy = Limited Access to Emotion Regulation strategies; Clarity = lack of emotional clarity; M = Mean; $SD$ = Standard deviation; $t$ = Independent Student's $t$-test; $d$ = Cohen's $d$.

although there is solid evidence supporting the genetic basis of these systems, research suggests that environmental factors also play a significant role in shaping BIS and BAS responses (e.g., Ide et al., 2020). For instance, as a common phenomenon among parentless children, adverse childhood experiences could potentially affect the development of both systems. Adverse childhood experiences may result in diminished BIS activation due to chronic stress or trauma during childhood, which can desensitize the BIS and reduce responsiveness to threat cues, leading to decreased cautiousness. Likewise, adverse childhood experiences may also lead to heightened BAS activation in adolescence. Adversities such as neglect, abuse, or exposure to violence can disrupt the development of self-regulation and emotion-regulation skills, resulting in increased reward sensitivity, and sensation-seeking behaviors, which are associated with higher BAS activation (e.g., Nelson, 2000; Pechtel and Pizzagalli, 2011; Tottenham, 2014).

Our findings also revealed that parentless adolescents had higher levels of emotion dysregulation (ED). The way parents manage emotions and create an emotional climate within families has a significant impact on the development of emotion regulation (ER) skills in children. Children learn ER skills through observation, modeling, and social referencing, and factors such as attachment relationships, family expressiveness, and parenting style can shape the development of these skills in children (Morris et al., 2007). Specifically, children who have experienced early life adversity, such as separation from their parents as observed in orphanages, are more likely to face difficulties with ER. The lack of consistent and nurturing caregiving in orphanages can impede the development of healthy coping skills, as children may not receive the individualized attention and emotional support that is necessary. Furthermore, the stressful and unpredictable environment of an orphanage can worsen emotion dysregulation, exacerbating the challenges faced by these children (Bos et al., 2009; McLaughlin et al., 2011; Cullen et al., 2014).

Finally, our findings revealed that parentless adolescents had significantly higher levels of selective attention problems. This is supported by existing literature indicating that adverse childhood experiences are associated with deficits in various cognitive functions, including cognitive performance, memory, and executive functioning (for a review, see Pechtel and Pizzagalli, 2011). Additionally, unsupervised youngsters who experience higher levels of negative emotions may selectively allocate visual attention toward threatening information. This can lead to an accumulation of attentional resources towards threatening stimuli, leaving limited capacity for attending to neutral or ongoing tasks, ultimately resulting in reduced attentional resources for task performance (Rudaizky et al., 2021).

Our findings should be interpreted in the context of some limitations. First, the cross-sectional design of this study precludes establishing a cause-and-effect relationship between the variables. Longitudinal studies that track individuals over time would be needed to establish causality and gain a deeper understanding of the developmental trajectory of parentless adolescents. Second, the relatively small sample size of this study and the inability to conduct separate analyses across gender groups may limit the generalizability of the findings. Replicating these findings in larger samples that include diverse populations would enhance the external validity of the results and increase confidence in their generalizability. Third, the use of self-report measures to assess the variables of interest may introduce biases and may not fully capture the complexities of the constructs being measured. Incorporating multiple assessment methods, such as behavioral observations or physiological measures, in future studies would provide a more comprehensive understanding of the phenomena under investigation and strengthen the validity of the

findings. Finally, we did not incorporate measurements related to parenthood, time spent away from parents, and time spent in residence during the early years of life in our study. We recommend that future research thoroughly investigate the influence of these critical factors to further examine the robustness of our findings.

Overall, our results emphasize the significance of parenthood during the early years of life and suggest the potential need for targeted interventions to address behavioral, emotional, and cognitive difficulties in parentless adolescents. Further research in this area is warranted to better understand the underlying mechanisms and develop effective interventions for this vulnerable population. These findings highlight the importance of addressing the unique needs of parentless adolescents and ensuring that they receive appropriate support during their early years of life.

## 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 humans were approved by The ethics committee of Islamic Azad University, Science and Research Branch. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

## Author contributions

ZS: gathered the data, performed data analyses, and prepared the manuscript. FB: supervised the study and reviewed and revised the manuscript. 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



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# Enhancing attachment-based aspects of PCIT for young children with a history of maltreatment

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Disruptive behavior difficulties, such as aggression, non-compliance, and emotional outbursts, are common among children exposed to maltreatment. Parent–Child Interaction Therapy (PCIT) is an effective parenting intervention for addressing child behavior difficulties, however, treatment retention and engagement among parents remain a concern in the clinical setting. This paper describes how the delivery of an intervention that teaches attachment theory concepts (Circle of Security-Parenting, COS-P) prior to PCIT can increase engagement and retention among parents of maltreated children and inform new coaching practices. A detailed description of how to extend and integrate COS-P concepts with PCIT for maltreated families using specific strategies is provided. Recommendations, limitations, and next steps for research are presented.

KEYWORDS

**child maltreatment, parenting, parent child interaction therapy, behavior difficulties, circle of security parenting**

## 1. Introduction

Young children who are exposed to trauma, particularly maltreatment, are at risk of developing a host of negative outcomes throughout the lifespan (Toth and Cicchetti, 2013; Gardner et al., 2019). As a result of exposure to frightening, violent, and upsetting experiences, children exposed to maltreatment experience disruptions in their developmental, emotional, and social skills that lead to behavior difficulties, such as aggression, non-compliance, and emotional outbursts (Racine et al., 2021). Behavior difficulties in young children occur in the context of the parent–child relationship, which is also the primary mechanism by which improvements in child outcomes can be achieved (Valentino, 2017). As such, parenting interventions that increase parenting skills and improve the quality of the parent–child relationship have been identified as the primary approach for addressing child behavior difficulties for maltreated children.

Although several interventions can be used to address behavioral difficulties in children who have been maltreated, Parent–Child Interaction Therapy (PCIT) has been one of the most robustly studied interventions. A recent systematic review of 40 studies of families presenting with child maltreatment found that PCIT is associated with improvements in both child and parent outcomes, including parenting stress, child behavior problems, child trauma symptoms, parent mental health difficulties, and negative parenting strategies (Warren et al., 2022). However, a significant limitation of PCIT noted in the literature has been high attrition rates, with rates as high as 71% (Phillips et al., 2008; Lyon and Budd, 2010; Danko et al., 2016;

Lieneman et al., 2019). A recent systematic review found that the average attrition rate among families experiencing maltreatment was 39.3% with a range of 5–71% (Warren et al., 2022). Historically, families referred by child welfare display higher rates of attrition (Campbell et al., 2023). For example, a recent study reported a PCIT graduation rate of 17.8% among children in foster care (Onovbiona et al., 2023), pointing to high rates of attrition among families presenting with maltreatment.

Skoranski et al. (2022) examined the pattern of attrition at different phases in treatment when families in the child welfare system were offered PCIT (Skoranski et al., 2022). Notably, 36% of the parents dropped out prior to engaging in PCIT and these parents tended to: (1) endorse beliefs that they had little control over their children's behaviors and (2) demonstrate physiological signs of distress during a clean-up task. Taken together, these patterns of attrition among families presenting with maltreatment suggest that parents of maltreated children may benefit from support to better understand their role in shifting their child's behavior difficulties. In addition, the findings support the role of parental distress in attrition rates and highlight the need to intervene at this level. Specifically, parents of maltreated children may require additional supports to engage in trusting relationships and manage emotions and responses because of their own traumatic childhood experiences (Racine et al., 2021). Although PCIT offers effective strategies to improve child behavior difficulties, there is a need to consider how the intervention can be enhanced to bolster caregiver participation and engagement.

The Circle of Security – Parenting (COS-P) program provides parents with an attachment-based framework to understand their role in shifting their child's behavior as well as emotion regulation strategies for dealing with child behavior responses (Marvin et al., 2002; Cooper et al., 2009; Powell et al., 2014; Woodhouse et al., 2018). COS-P engages parents by providing them with knowledge about why children are demonstrating challenging behaviors and how their relationship with their child is a vehicle for addressing these concerns. COS-P teaches parents to view disruptive behavior as a miscue of an underlying attachment need. A miscue refers to the child engaging in one behavior (e.g., aggression) in favor of more adaptive behavior (e.g., requesting emotional support directly). Without this knowledge, the child's need for emotional support is overshadowed by the aggressive behavior and results in negative attributions toward the child. At first, the parent learns to decode disruptive and aggressive behavior as an underlying need that requires parental support and then works toward creating the relational conditions required for a miscued attachment need to be expressed directly. Relational conditions refer to qualities of the parent–child relationship, such as a parent being open to emotion, a parent being emotionally available, or a parent being able to take charge when needed, that are necessary for a child to express an attachment need directly rather than miscue (i.e., behave aggressively). Through the COS-P intervention, attachment needs, and the miscuing process are normalized, and parents learn that they may contribute to the evolution of the miscues. As such, COS-P helps parents to understand why their relationship may need to change (i.e., miscuing attachment needs can be highly problematic for child and parent) and what needs to change for their children to communicate their needs more directly and adaptively.

COS-P provides parents with a framework to understand their child's behavior. Specifically, COS-P addresses the underlying distress associated with the child's miscues. COS-P can also increase motivation for parents by providing a framework for *why* and *how* the intervention works which has been shown to be an important component for treatment engagement (Morawska and Sanders, 2006). Thus, pairing COS-P strategies with the effectiveness of PCIT has the potential to increase engagement in the intervention and retention over time for families who have experienced maltreatment. Indeed, COS-P has been used with substance-involved, maltreating caregiver and other high-risk populations and has shown improvements in parenting behavior from pre-to post-intervention (Gerdts-Andresen, 2021; Zimmer-Gembeck et al., 2022) Specifically, participation in COS-P reduces parental stress and enhances parenting self-efficacy and parenting skills in these high-risk populations. Furthermore, enhancing PCIT with attachment-based strategies may more rapidly shift the child's need to miscue and ultimately increase the likelihood of a shift in the child's behavior (see Figure 1, Panel **A**).

Enhancements and adaptations to PCIT, while maintaining the core components of the intervention, have been undertaken previously (Eyberg, 2005) with some focused on maltreated children. Time-limited adaptations have been developed and evaluated for families involved with Child Welfare (Thomas and Zimmer-Gembeck, 2012). Further, adaptations for children and families who have experienced trauma, including psychoeducation related to trauma, have also been documented (Gurwitch and Warner-Metzger, 2022). Therefore, previous work has identified a need to tailor PCIT for families presenting with maltreatment. Intervening at the parental level to engage and retain parents in PCIT may prove to be another avenue to supporting these families in PCIT.

## 1.1. Parent child interaction therapy for maltreated children

PCIT was initially developed for families of children (ages 2–7 years) with severe behavioral difficulties such as defiance, excessive tantrums, and aggression (Eyberg, 1988). PCIT is delivered in two treatment phases: (1) enhancing positive parenting skills and implementing selective attention during the Child-Directed Interaction (CDI) phase and (2) the Parent-Directed Interaction (PDI) phase emphasizing the introduction of structured discipline (e.g., removal of a privilege) within the context of continued CDI-skills. However, research has shown that the PDI phase may not be necessary for treatment success (Lieneman et al., 2017). As part of the phased intervention, parents are taught skills in each phase and then assisted in changing their parenting behavior via direct coaching strategies from a therapist to shape the child's behavior to decreased externalizing difficulties through reinforcement. PCIT is strongly rooted in social and developmental theories employing behavior management strategies that include rewarding prosocial behavior, ignoring inappropriate behavior, and consequences for poor behavior (Eyberg, 1988). The intervention also emphasizes increasing positive interactions between a parent and child by increasing praise, special time together, and enjoyment within the interaction. In addition to behavioral principles, PCIT also has some foundations in attachment theory. For example, PCIT emphasizes the development of a strong parent–child relationship as well as contingent and sensitive responding on the part of the parent during interactions (Allen et al., 2014). PCIT has demonstrated its efficacy across several randomized controlled trials and populations (Thomas and Zimmer-Gembeck, 2007, 2011; Allen et al., 2014; Lieneman et al., 2017), demonstrating large effects sizes with regards to child and parent behaviors.

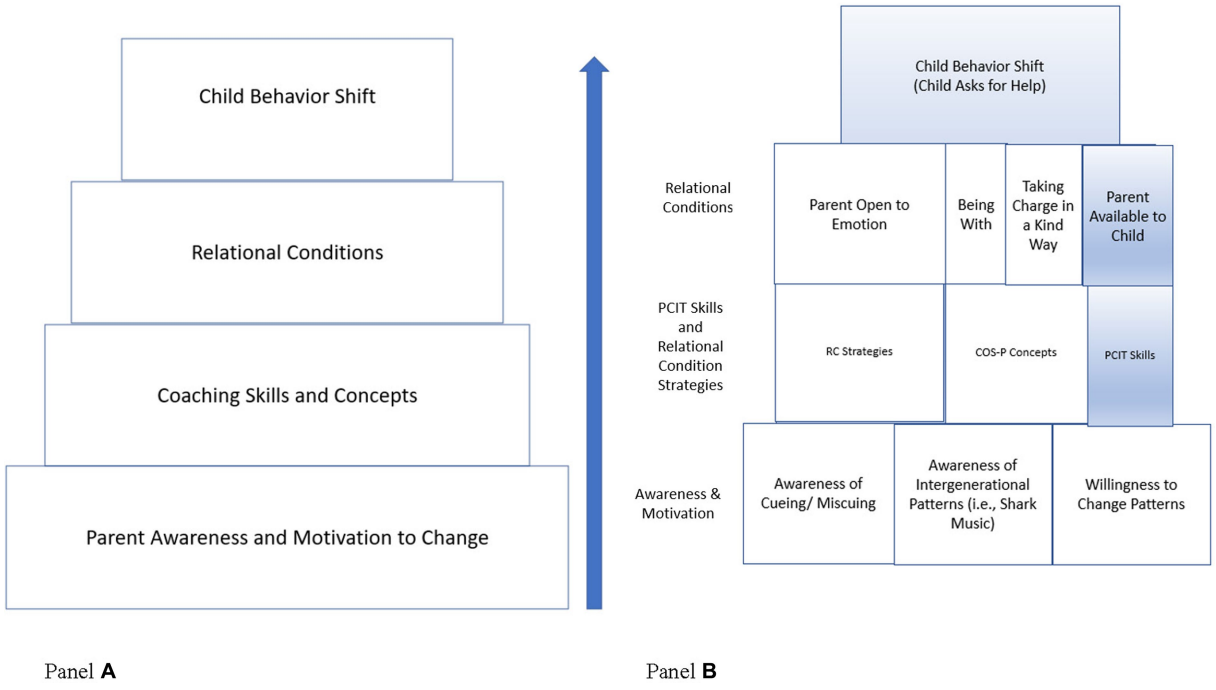


FIGURE 1
Panel **(A)** depicts the series of conceptual building blocks that must be established before a behavioral shift can occur for the child (top row). When PCIT is modified to include attachment-based enhancements, first the parent must gain an awareness of relational patterns and a motivation to change through the COS-P intervention. Next, through coaching using both PCIT and relational condition strategies, the parent develops the skills they need to establish the relational conditions necessary for the child's behavior to shift. Panel **(B)** depicts the components of the COS-P and PCIT interventions. The blocks shaded in blue represent those that are present in PCIT alone and the blocks in white represent the additional components of COS-P and the attachment-based modifications.

Despite supporting parents to meet some of their child's attachment needs (e.g., contingent responding and sensitive caregiving), there are some PCIT procedures that are misaligned with attachment-based approaches which emphasize timely responsiveness to child behavioral cues as well as viewing child behaviors as reflecting an underlying need, particularly for children with a history of maltreatment. Specifically, due to the nature of miscuing, reinforcement strategies are likely less effective as the desired behavior (e.g., asking for help) may have a low base rate because the child may not view the parent as a resource. Secondly, behavioral miscues may mask underlying emotional-regulation needs, as such parental attempts to co-regulate the underlying emotion may offer an opportunity to build skills in contrast to withholding attention (Holden et al., 2022). Third, parents of maltreated children may require additional support to take charge when challenging behaviors arise, which is emphasized in COS-P. Using an intervention that provides the parent with a framework for why and how to repair the relationship with their child has the potential to enhance parent engagement and ultimately treatment outcomes of PCIT, particularly for families who have experienced maltreatment.

## 1.2. Circle of Security-Parenting

There has been significant progress over the last 20 years on the development and evaluation of attachment-based parenting programs (Gregory and Sharman, 2020). The Circle of Security-Parenting program (COS-P); (Cooper et al., 2009). COS-P is a revised 8-session program of the original 20-session Circle of Security (COS) intervention. The COS-P program was adapted to be more cost-effective, brief, and scalable for implementation (Cooper et al., 2009). The goals of the COS-P intervention are to increase a parent's ability to recognize their child's needs, increase sensitive parenting behavior, increase parent emotion regulation, and decrease negative attributions toward the child by the parent (Cooper et al., 2009). Using decades of attachment research, the COS-P program is facilitated by a trained provider who uses computer-delivered content, parent reflection, and discussion, to teach parents core concepts of attachment, intergenerational trauma, regulating emotions, and how to identify and more consistently meet their child's needs to improve the parent–child relationship.

Randomized-controlled trials of the COS-P program have demonstrated modest results with regards to child behavior (Cassidy et al., 2017; Zimmer-Gembeck et al., 2022). One hypothesized reason for a lack of effect on child outcomes is that while parents understand the concepts of attachment following the COS-P intervention, they may lack sufficient opportunities to apply and practice skills in a structured way. That is, COS-P lacks the *in vivo* practice component that is a pillar of the PCIT intervention. Thus, providing parents with an initial attachment framework to understand and to increase motivation for treatment, followed by the practice component of PCIT may be a particularly fruitful way to decrease attrition and improve child behavior difficulties following maltreatment. An understanding of an attachment framework may also increase the mastery of PCIT skills among caregivers due to knowing *how* these behaviors may support their child's needs and

decrease aggressive behavior. Below, attachment theory as presented by COS-P will be discussed and used as a framework to understand the attachment-based elements of PCIT.

The COS-P program helps parents understand attachment theory with the use of a graphic that highlights important theoretical concepts and the role of the parent (Marvin et al., 2002; Maxwell et al., 2021) (The graphic is available at https://www.circleofsecurityinternational.com/circle-of-security-model/what-is-the-circle-of-security/). The graphic illustrates that the parent serves as the basis for exploration and connection processes. For this system of exploration and connection to work optimally, the child expresses their attachment needs directly, increasing the likelihood that the parent will acknowledge or respond to these needs. When a child is unable to express an attachment need directly, then the child may miscue (e.g., a child may be disruptive or aggressive rather than seeking help or expressing an emotional need). The theory posits that these miscues are shaped by the distress experienced by the parent, and then shared by the child, in response to meeting a particular attachment need. Over time, the child learns to avoid the compounded distress of expressing this need directly and adopts a miscue (i.e., aggressive behavior). Given that the child's miscue is rooted in parental discomfort, through COS-P, the parent learns that the parent is well-positioned to be the agent of change in the relationship by inviting new patterns of interaction (i.e., direct expression of attachment needs). Further, COS-P offers parents tools to identify and understand their distress, identify their child's attachment needs, the conditions under which their children can express their attachment needs directly and a framework for parents to understand their own emotional regulation in the service of co-regulating their children's emotions. After the program, parents view behavior as an expression of an underlying attachment need that the parent can address if the parent acknowledges and manages their distress in the moment or by engaging in relational repair.

Further, the graphic organizes and illustrates that children may experience specific attachment needs within the relationship and that miscues may be associated with three aspects of the Circle of Security graphic. First, when a child is engaging in exploratory behavior, children need the parent to watch over them, to delight in them, to enjoy with them and to help them. Second, when a child is engaging and connecting behavior, in addition to delight, children need the parent to protect them, to comfort them, to welcome them and to assist with emotional co-regulation. Third, the child requires the parent to be present and demonstrate kindness alongside the ability to take charge when necessary. This parental balance is a necessary condition for the exploratory and connection attachment needs to be expressed directly. Importantly, the intervention describes how longstanding parental distress can result in children miscueing their attachment needs associated with exploration, connection and/or having a parent to anchor these processes (i.e., taking charge in a kind way). As such, parents have a clear explanation of why the disruptive behavior is occurring (i.e., miscues), what needs to change for the child to be able to express their attachment needs directly and that the change process will cause some distress.

## 1.3. Enhancing attachment-based aspects of PCIT

Examining PCIT from the framework of COS-P, the attachment-based elements of PCIT are readily identified in the Child Directed Interaction (CDI) phase but this examination reveals aspects of attachment theory that are not emphasized in the PCIT model (see Figure 1, Panel **B** for strategies and relational conditions present in PCIT). The CDI phase involves child-directed play which emphasize the exploratory attachment needs. Indeed, the caregiver skills acquired in CDI implicitly communicate that the **parent is actively available to the child** to meet these attachment needs (by commenting their observations and delighting through praise). In contrast, PCIT does not appear to have coaching strategies designed to address connection needs (e.g., emotional co-regulation, protection, and comfort). The need to bolster the emotion-regulation skills of the dyad has been recognized in the PCIT literature both in recent research and in descriptions of clinical practice (Campbell et al., 2023). As such, the parent may need to be coached to be explicit about the child's internal states mattering to the parent and that emotional expression is permissible in the relationship (i.e., **parent open to emotion**). Additionally, given that the parent may not have been available historically, additional coaching strategies may be necessary for children to cue their needs directly, such as COS-P's empathic process of "**being with**." The child may benefit from direct statements of availability from the parent and explicit repair attempts.

Examining the Parent-Directed Interaction (PDI) phase of PCIT from an attachment perspective, parents may need additional support to lead and take charge, particularly for those who have been emotionally and/or physically unavailable due to addictions, mental health concerns and/or domestic violence. For parents who have historically struggled to take charge, it is important to develop the ability to take charge in a way that minimizes the parent's distress. When a parent takes charge in a way that aligns with the child's attachment need, this approach may avert additional distress related to limit setting and be experienced as more kind, allowing parents to **take charge in a kind way**. Theoretically, these efforts should occur early in treatment to bolster the parent's active invitations for children to express their exploratory and connection attachment needs directly as the parent establishes themselves as the anchor for this process.

# 2. Attachment-based enhancements to Parent–Child Interaction Therapy

There are four main reasons for enhancing the attachment-based concepts within the PCIT intervention: (1) increasing parent motivation, engagement, and retention, (2) building parental understanding and appreciation for the relational conditions required for a child to express a miscued need directly, (3) using coaching strategies to make the implicit aspects of PCIT (such as the **parent available to the child** and the emotional regulation aspects) more explicit, and (4) highlighting the ability for the parent to take charge in a kind way from the outset of treatment by aligning with the child's needs.

Figure 1, Panel **B**, depicts the conceptual process by which enhancing the attachment components of PCIT with COS-P can lead to a shift in child behavior. Specifically, increased awareness of attachment principles paired with relational strategies and PCIT skills, lead to establishing relational conditions that promote changes in child behavior. If a relational condition is not met, then children miscue rather than engage in an adaptive behavior. As such, direct cues around attachment needs (e.g., asking for help) may occur so

infrequently that these behaviors are not amenable to reinforcement strategies, requiring the parent to actively invite these direct cues. Because of their own experiences of child maltreatment, intimate partner violence, or mental health difficulties, parents of maltreated children often struggle with the relational conditions that support children in expressing their needs in adaptive ways (Cohen et al., 2008). Thus, parents of maltreated children often require additional support to establish the relational conditions for PCIT to be successful.

In the attachment enhancement to PCIT, parents first complete the COS-P intervention to increase their understanding and their motivation to learn what is required for children to cue their needs more directly (e.g., relational conditions). Subsequently, parents apply their knowledge and identify the relational conditions (identified in bold above and presented in Figure 1, Panel **B**) that require additional support in conjunction with their therapist. Parents complete a didactic session where they learn the CDI skills from PCIT and the relevant Relational Conditions strategies (RC strategies) derived from the COS-P intervention (see Table 1). Then, RC strategies are coached alongside CDI skills to foster the necessary relational conditions. Once the relational conditions are established for the family (i.e., the caregiver is routinely using the RC strategies which are leading to increased child communication of emotions and needs), the child's direct cues are reinforced through traditional PCIT strategies and RC strategies continue to be integrated to create a lasting shift in the child's behavior. The child's responses to the caregiver's use of RC strategies are documented along with PCIT behaviors following coaching sessions. Next, we discuss in detail each component of the attachment enhancements to PCIT.

## 2.1. Parent awareness and motivation to change

Parents of children who have been maltreated can benefit from COS-P psychoeducation to understand their child's disruptive behavior as miscues, their responses to the behavior, and the relational patterns that occur. This understanding provides the underlying rational for coaching the RC strategies. During COS-P, the parent also becomes aware of their own distress related to meeting their child's attachment need that may limit their ability to take charge or respond with empathy (i.e., "being with"). By understanding *why* the child is miscueing with aggressive behavior and the role of relational patterns, parents become engaged and motivated in the treatment (See Figure 1, Panel **B**). For example, rather than responding to aggressive behavior with a punishment or privilege removal, the parent can identify the behavior as a need and take steps toward meeting the need. Lastly, through the COS-P program, the parent learns that there is often discomfort in shifting longstanding relationship patterns and that the ability to acknowledge this distress is often necessary for treatment progress.

Through COS-P (typically delivered in an 8-week group setting, offered virtually), parents develop an attachment-informed understanding of their child's concerning behaviors, learn to reflect on their own responses to their child's behavior, and appreciate how their previous interactional patterns were maintaining the child's behavior difficulties. Using the COS-P framework, parents realize that they may be limited in meeting their child's emotional needs in the past due to preoccupation with family violence or other adverse events. In addition to limited availability, many parents also realize their struggle to **take charge in a kind way** or to respond with empathy ("being with") and how these fundamental limitations undermine their relationship with their children. Through this process, parents learn that their child does not perceive them as an available resource to support their emotional needs. In our experience, parents leave COS-P with a hopeful, non-defensive and accurate description of *why* changes are necessary and *what* needs to change in their relationship with their child, embracing the idea that they are the agent of change in this process.

## 2.2. Coaching of COS-P and PCIT skills

Prior to the coaching sessions, the parent and the therapist set goals related to the behavioral shift the parent would like to see in the child (e.g., using their words to express their needs directly rather than be aggressive). In PCIT, this collaboration is followed by teaching the parent how to use CDI strategies that will increase the child's desirable behavior (e.g., verbalizing anger as opposed to acting aggressively). We follow this process and, with a shared knowledge of COS-P, the therapist and the parent efficiently discuss the relational conditions that may be interfering with the child's ability to express their emotions directly to the parent (i.e., parent open to emotion, being with, parent available to child, and taking charge in a kind way) (See Panel **B** of Figure 1). Based on the outcome of this discussion, the applicable Relational Conditions strategies (RC strategies) are taught (see Table 1). These RC strategies include concepts from the COS-P program (e.g., "being with") and new skills we created to translate COS-P attachment theory into coachable concepts (e.g., permission for emotion, communicating internal states matter). That is, the treatment goals include fulfilling these relational conditions so the child may learn to express emotions directly rather than miscuing with aggression.

Through coaching, parents learn to apply the CDI skills and RC strategies simultaneously. Parent–child interactions are coached individually during a play session, and the coaching can be done in person or virtually. If done virtually, the parent sets up a camera that captures the parent–child interaction using a secure web-based platform. In either format, the parent wears a headset so that they can receive instructions and support from the therapist. Parents can receive between 5 and 10 coaching sessions for the treatment goal of eliminating physical and verbal aggression toward a parent.

Throughout the coaching sessions, there are three main components: traditional PCIT skills, new relationship-focused RC strategies, and new parent-focused RC strategies. The relationship-focused component shapes new interactions between the parent and the child based on an understanding of how the relational conditions may be limited while the parent-focused component provides direct coaching and support related to the parent's self-regulation and emotional needs. The RC strategies associated with each relational condition are summarized below and described in Table 1 with an indication of whether the strategy is parent or relationship focused.

The RC strategies assist parents in establishing the four relational conditions (bolded below). As collaboratively established in goal setting, a parent **takes charge in a kind way** by using strategies that align with the child's need, such as giving permission and advocacy, within the context of child-led play. Given the theoretical significance, this relational condition is always prioritized. The other required RC

TABLE 1 Description of Relational Condition strategies incorporated into the PCIT approach.

| Skills for establishing the four relational conditions | Description |
|---|---|
| ***Taking charge in a kind way*** | |
| Giving permission (relationship) | To establish that the parent can take charge, when necessary, the idea of giving permission for behaviors that align with the child's current need is introduced. For example, if the child starts to leave the table, the parent is coached to say: "I give you permission to leave" to introduce and to reinforce the concept of parent control. Similarly, some PCIT skills can be modified to include the word "allowed" to establish parental oversight in alignment with the child's need. Over time, this approach evolves into supporting the child's actions of waiting for permission or asking for permission by applying the traditional PCIT skills. |
| Advocacy (Relationship) | When advocating, the parent is taking charge in a way that aligns with the child's need by requesting something for the child from another adult. This strategy informs the child that a parent can recognize a need and help the child with this need so that the child views the parent as a capable resource. The most effective advocacy strategies allow the child to witness the parent advocating for the child's need directly. Initially, this occurs in the session with the therapist, but our most successful cases have involved parents who use this approach outside the session. |
| ***Parent available to child*** | |
| Statement of availability (relationship) | To establish that the parent is available to the child, the parent is coached to make explicit statements about their availability (e.g., "I am here to help you") |
| Ascribing good intent (relationship) | When ascribing good intent, the parent comments on a neutral behavior and uses PCIT skills to reinforce a desired behavior. For example, "Thank you for thinking about how I can help you." This strategy has been very successful with children who tend to freeze or whose problematic behaviors are conceptualized as miscues. |
| Delight (relationship) | This core concept from the COS-P resonates with the PCIT skill of Enjoy. It refers to behaviors that show the child that the parent is enjoying the interaction and that the child is worthy of love, attention, and engagement. Delight behaviors may include positive affect, a warm gaze, mutual smiles, or shared laughter. |
| Repairing (relationship) | A parent asserts their availability when they return to a situation where they were unavailable and attempts to repair this rupture with the child. For example, "I think you were trying to tell me something important and I did not understand. I'm sorry. Together we'll figure out what you were trying to tell me." |
| ***Parent open to emotion*** | |
| Co-regulation (parent) | The parent is encouraged to regulate themselves (i.e., take deep breaths) and to provide physical and emotional comfort to their child when distressed. Through COS-P, parents have often identified the specific emotions that they avoid, and they are supported in tolerating these emotions in themselves and their children. |
| Permission for emotion (relationship) | By modelling their own verbal expression of low-level emotion, the parent demonstrates to the child that emotional expressions are acceptable to express in the relationship. For example, when a play session is ending, the parent is coached to say: "I am sad to be ending our special play time together." This message introduces permission for a broader range of shared emotions, and alongside other strategies, gives the child permission to express their feelings as well. Through COS-P, parents have often identified the specific emotions that have been avoided within the historical context of the relationship and this strategy if often necessary to shift this pattern. In our experience, cases where there is an avoidance of joy require extensive use of this strategy, as this intolerance hamstrings many of the PCIT skills. |
| Communicating internal states matter (relationship) | The parent is coached to use PCIT skills to reinforce any instance of a child sharing an internal state (e.g., thoughts or plans). For example, "I really like when you tell me what you want to do next." In our experience, the reinforcement of thoughts is followed by bridging statements ("It is so fun to play with you when you share your plans and your feelings") prior to seeing any direct expression of emotion from the child. |
| ***"Being With"*** | |
| Tolerating parental distress and identifying miscues (parent) | Especially, when the child is starting to get angry or show signs of aggressive behavior, the parent is encouraged to notice their own distress and activation and to acknowledge the child's behavior as a miscue while being supported to remain present in the interaction. |
| "Being with" (relationship) | To build the relational capacity of being with, the parent must try to "be with" their child across a range of emotions. Parents are coached to be attentive to body language and facial expressions and to make empathic statements intended to show the child that the parent can tolerate the feeling and therefore support the child with co-regulation. As part of teaching this strategy, we warn parents that the child may respond with "freezing." The use of emotional labels is usually coached later in the process with initial coaching focused around supporting children in "showing" their feelings and providing explanations to organize their feelings (e.g., "It is so hard when you have a plan, but it does not seem to be working the way you want"). |

strategies are implemented in treatment. For the **parent to be available to the child**, the parent is coached to overtly communicate their availability, ascribe good intent to the child's behaviors and make active repair attempts when they have not been available. In fulfilling **parent open to emotion**, parents first establish that internal experiences (e.g., thoughts, memories, and plans) can be shared with the parent and, then that emotions are also permissible by making direct statements or modelling low intensity expression of emotion. For example, to give permission for emotion, a parent is coached to state that the parent is sad or angry that the play session is over, providing a brief rationale to self-validate this feeling. Once more comfortable with these interactions, bridging statements that invite direct emotional expression from the child are coached to expand the range of permissible emotions displayed by the dyad. Given that parents are often able to **be with** some emotions, they are encouraged to **be with** feelings within their comfort zone and then are coached to expand their emotional repertoire, providing the safety of emotional co-regulation to their child.

Although the setting of limits, ignoring of inappropriate behavior, and consequences are usually implemented in PCIT, the RC strategies early in the intervention often make this aspect of treatment unnecessary. The treatment appears streamlined as the frequency and intensity of undesirable behaviors appear to be lessened. After completion of CDI, an assessment informs whether the family requires additional support with PDI. This additional phase is provided to most maltreating caregivers and most caregivers with a history of domestic violence. This PDI phase tends to be brief and uneventful. This approach is consistent with the findings that PCIT can be effective in realizing desired behavioral outcomes without the implementation of PDI (Thomas and Zimmer-Gembeck, 2007) and a clinical practice described by Campbell et al. (2023).

### 2.3. Relational conditions

By supplementing the PCIT skills with RC strategies, the relational conditions that were challenged in parent–child dyads exposed to maltreatment can be bolstered. This step in the process is based on the accumulation of experiences that create a change in the relationship: over time, the relational condition is met by using the RC strategies.

### 2.4. Child behavior shift

Once the parent establishes the necessary relational conditions, the child is more likely to directly cue their attachment need and PCIT and RC strategies can be effectively used to support the shift in the child's behavior. Gradually, the child learns that their parent is available to them and is an effective resource. Then the child can risk cueing their needs directly aligned with treatment goals. The goal is for these new relationship patterns to gain momentum and be sustained after treatment.

## 3. Recommendations for implementation

In our experience using the attachment enhancements to PCIT with a range of caregivers (e.g., biological parents, kinship parents, and grandparents) presenting with primary maltreatment exposures (e.g., sexual abuse, physical abuse, or both), families have been successful in completing PCIT treatment in approximately 4 to 16 sessions. This range of sessions exclude the COS-P group sessions and only include the PDI phase of PCIT when indicated. Since the implementation of this approach, no families have prematurely dropped out from treatment and all families have reached their identified goal of reduced child disruptive behavior and aggression. The enhanced attachment-based approach can be delivered in-person and virtually by clinicians trained in both PCIT and COS-P. Training in both modalities is necessary to understand key concepts and mechanisms of change for both approaches.

## 4. Limitations

The current attachment-based enhancement to PCIT includes some limitations. First, to provide the adaptation, the therapist must be trained and well-versed in both PCIT and COS-P. This training presents challenges as obtaining training for both modalities can be costly and is intensive for community-based practitioners. A second limitation is that although we have documented the treatment completion of those who have received the adapted intervention, we have yet to conduct a formal evaluation of the outcomes and as such our results should be considered very preliminary. Thus, to what extent outcomes differ between families who receive PCIT alone and those that receive the attachment-based enhancement to PCIT remains to be investigated.

## 5. Conclusion and future directions

Enhancing a well-established parenting program, Parent–Child Interaction Therapy (PCIT), with the delivery of an attachment-focused intervention (Circle of Security Parenting) and additional coaching strategies has the potential to increase parent engagement and decrease attrition for parent–child dyads exposed to maltreatment. A formal evaluation of quantitative changes in child behavior difficulties following the adapted PCIT intervention are needed to demonstrate the effectiveness of the intervention. A randomized controlled trial comparing engagement, retention, and both child and parent treatment outcomes for individuals who receive standard PCIT and those who receive the attachment-based adaptation is also needed. Future research should also investigate the long-term follow-up of children who receive the adapted intervention to see if treatment effects are maintained over time.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Author contributions

KB, HG, NO, and NR contributed to the intellectual content of the manuscript, drafted the manuscript, edited, and revised all the work.

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.

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# Validity and reliability of the 10-Item Adverse Childhood Experiences Questionnaire (ACE-10) among adolescents in the child welfare system

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**Introduction:** Multiple evidence suggests that the vast majority of children in the Child Welfare System (CWS) are victims of early, chronic, and multiple adverse childhood experiences. However, the 10-item version of the Adverse Childhood Experiences Questionnaire (ACE-10) has never been tested in such a particularly vulnerable population as adolescents living in the CWS. We aimed to assess the psychometric properties of the ACE-10 in a community sample of 240 Hungarian adolescents placed in family style group care (FGC) setting.

**Methods:** Demographic data, the 10-item version of the Adverse Childhood Experiences Questionnaire (ACE-10), the Strengths and Difficulties Questionnaire (SDQ), and the HBSC Bullying Measure were used.

**Results:** Our results showed acceptable internal consistency ($\alpha$ = 0.701) and item-total correlations ($r_{pb} = 0.25–0.65$, $p < 0.001$). However, our results also reflect that item 6 ("Parental separation/divorce") is weakly correlated with both the cumulative ACE score and the rest of the questionnaire items. When item 6 is removed, the 9-item version of the ACE produces more favorable consistency results ($\alpha$ = 0.729). Strong and significant associations of the cumulative ACE score with emotional and behavioral symptoms and bully victimization confirm the concurrent criterion validity of both versions of the instrument.

**Discussion:** Our findings suggest that ACE-9 and ACE-10 are viable screening tools for adverse childhood experiences in the CWS contributing to the advancement of trauma-informed care. We recommend considering the use of either the 9-item or the 10- item version in the light of the characteristics of the surveyed population. The implications and limitations are discussed.

KEYWORDS

**adolescence, adverse childhood experiences, child welfare system, family dysfunction, maltreatment, measures, psychometrics, validation**

# 1. Introduction

## 1.1. Child maltreatment and its consequences

The social determinants of health are the conditions in which people are born, grow, work, live, and age, and the broader set of forces and systems shaping the conditions of daily life (1). The social determinants of health represent a broader concept, whereas child maltreatment covers its specific aspect related to the family context. Poverty, unemployment, low socio-economic status and resulting chronic stress, and family structure characteristics (e.g., divorce, household substance use, household mental illness) are risk factors for child maltreatment (2, 3). The ecological model of the etiology of child abuse views maltreatment as a system of interacting risk and protective factors at four levels: the individual or ontogenic level, the family microsystem, the contextual level, and the social macrosystem (4). Accordingly, child maltreatment contributes to maintaining unfavorable social positions.

Child maltreatment (neglect, emotional, physical, sexual abuse) is a major public health issue worldwide. Over the past 20 years, studies were launched to explore child maltreatment on an increasingly broad scale. Some studies attempted to explore the prevalence of different forms of child abuse and neglect (5–10), whereas others focused on exploring their risk factors (2, 3, 11–13) and consequences (14–16). Recent research, however, has started examining a wider range of adverse factors affecting children; therefore, instead of using the term "child maltreatment," we will use the broader term extended "adverse childhood experiences" (ACEs), which also includes dysfunctional family environments (household dysfunction) in addition to maltreatment (neglect and abuse) (15). Research has confirmed that adverse childhood experiences within the family are strong predictors of mental disorders and somatic outcomes, including chronic diseases (14–16).

## 1.2. Children in the child welfare system

Children in child protection are one of the most vulnerable populations, supporting their growth and providing them with psychological/social care is a major challenge worldwide (17). Children who are displaced from their biological families have a much more difficult life path (18). Children in CWS have a high prevalence of various adverse childhood experiences, ranging from 28 to 80% (19–26). The different prevalence results of these studies are influenced by differences in definitions and groupings of adversities/trauma, differences in measurement instruments, as well as age differences in the sample (27).

The conceptual model ACE pyramid represents the life-long consequences of persistent adverse experiences in childhood (28). Early onset, cumulative and prolonged adverse experiences can result in disrupted neurodevelopment, immune and endocrine system modifications (29–31). Attachment difficulties, emotional and behavioral dysregulation result in a lack of appropriate problem-solving (or coping mechanism) strategies, leading some of those exposed to adversity to engage in persistent health-damaging behaviors (28, 32–34). Some of these children suffering from social, emotional and cognitive impairments will develop mental and somatic illnesses over their life course, which leads to disability and/or social impairments later in life (28, 31).

## 1.3. Measuring adverse childhood experiences

Understanding the prevalence and characteristics of adverse childhood experiences is essential for planning interventions aimed at reducing child maltreatment, this requires easy-to-use, reliable measurement tools (27, 35, 36).

ACEs can be measured through self-assessment questionnaires or expert interviews. The advantage of questionnaires is that they are economical, easy to administer and score, and ensure anonymity, which can reduce the chance of biased responses triggered by shame associated with trauma (35, 37). Self-report by adolescents is still found to be more reliable than agency records, parental reports of adolescent victimization or adult retrospective self-report (37, 38).

Measures used to assess the prevalence of adverse childhood experiences should use consistent concepts about the types of child maltreatment and the same stands for their definitions (39). To avoid underestimation, items in measures should be behavior-specific, not ambiguous or non-specific (40). Ideally, all five forms of child maltreatment (physical abuse, sexual abuse, emotional abuse, neglect, and household dysfunction) should be measured simultaneously, as a number of children experience resulting polyvictimization and its increased consequences (16, 41, 42).

In a previous study methods to assess ACEs among children and families were identified and compared (35). Measuring tools commonly used in children and adolescents (without attempting to be comprehensive): Yale-Vermont Adversity in Childhood Scale; Adverse Childhood Experiences Questionnaire; Adverse Childhood Experiences Abuse Short Form (ACE-ASF); Philadelphia Childhood Adversity Questionnaire (CAQ); Childhood Trauma Questionnaire-Short Form (CTQ-SF); Juvenile Victimization Questionnaire (JVQ) (35, 43–45).

The 10-item ACE Score Calculator examines simultaneously all five forms of child maltreatment outlined above, with clear, unambiguous questions that are behavior-specific and concrete. In this way, the questionnaire is also suitable for testing an adolescent population in the child welfare system, so the clarity of the questions allows for the examination of children. To the best of our knowledge, only one study so far has examined the psychometric properties of this questionnaire in a normal adolescents population (46), although it is perfectly suitable for screening a larger population for adverse childhood experiences (as it can be applied simply and quickly).

The aim of our study was to assess the psychometric properties of the 10-item ACE Score Calculator and to demonstrate its reliability and validity in a specific sample of Hungarian adolescents placed in the Child Welfare System. There are no validated tools in Hungary for screening the vulnerable group of children living in CWS. The

Abbreviations: ACEs, Adverse Childhood Experiences; ACE-10, 10-Item Version of the Adverse Childhood Experiences Questionnaire; CWS, Child Welfare System; FGC, Family Style Group Care; HBSC, Health Behavior of School Children; HBSC-SCL, Health Behavior of School Children Symptom Checklist; SEB, Social, Emotional and Behavioral Symptoms; SDQ, Strengths and Difficulties Questionnaire.

advances of the ACE-10 questionnaire mentioned above make it suitable for screening children in child welfare system for adverse childhood experiences. Increased attention to screening and assisting this population is needed, not only for the benefit of the population concerned, but also for the society as a whole.

# 2. Materials and methods

## 2.1. Sampling and data collection

The data collection on adolescents (aged 12-17) under child protection services was carried out in 31 family-style group care (FGC) settings in 3 counties of Hungary, and was conducted between March 2018 and January 2020. The sampling frame for the CWS sample consisted of 309 mentally sound adolescents living in 31 FGCs. After having been provided oral and written information, the adolescents and their guardians signed the informed consent form to participate in the study. Adolescents filled in the questionnaire anonymously. The questionnaires were filled in during group sessions, where each three adolescents were supervised by one health psychology Msc student, whose help was mainly needed in case of reading or attention difficulties. When emotional, cognitive, or other reasons made it necessary, the questionnaires were completed in individual sessions instead. A total of 271 adolescents completed the questionnaire. The reasons for the missing responses were that some adolescents were not at home on the day of data collection, were runaways, or either the guardians or the adolescents refused to provide consent. After data cleaning (elimination of incompletely filled questionnaires), the final sample size was 240. Ethics approval was issued by the Research Ethics Committee of the Hungarian Medical Research Council under the approval number ETT TUKEB 47848-7/2018/EKU.

## 2.2. Measures

The *demographic data* of the studied adolescents were assessed using a self-developed questionnaire with items asking for information on gender, age, nationality, school type, grade, and residential location. We administered the Strengths and Difficulties Questionnaire (SDQ) (47, 48) and the HBSC (*Health Behavior in School-aged Children Questionnaire*) Bullying Measure (49, 50) to assess concurrent criterion validity of the ACE Score Calculator. Multiple studies have demonstrated that the social, emotional, and behavioral symptoms and roles in bullying (perpetration/victimization) are significant correlates of the accumulation of childhood adversities (16, 51–55).

ACEs were assessed using 10-item version of the Adverse Childhood Experiences Questionnaire (ACE-10), which is a retrospective self-report questionnaire consisting of 10 items (56). The questions in this survey aim to assess 10 types of early ACEs suffered before the age of 18. These ACEs cover the possible forms of maltreatment (physical, emotional, and sexual abuse, and physical, emotional neglect) and household dysfunction (parental separation/divorce, household physical violence, household substance abuse, household mental illness or suicide attempt, incarcerated household member). Previous research has demonstrated the different and distinct nature of these events through a series of analyses. This is why the questionnaire includes these items (15, 56, 57).

A cumulative ACE score between 0 and 10 is calculated by summing the number of 'yes' responses for each question, based on the number of types of ACEs. The ACE score is a severity index that measures the accumulation of different types of adverse experiences, showing how many types of adversities a person has experienced in their childhood. Our previous study confirms that the ACE-10 is suitable for assessing intrafamilial adverse childhood experiences in adolescents (46). The content of the items and the response options are provided in the Supplementary appendix.

For the assessment of social, emotional, and behavioral symptoms the *Strengths and Difficulties Questionnaire (SDQ)* was employed (47, 48). The items of this questionnaire can be grouped in five factors as follows: hyperactivity, emotional problems, behavioral disorders, peer relationship problems, and prosocial conduct. The Hungarian version of the Strengths and Difficulties Questionnaire was adapted and validated by Birkás et al. (58). The questionnaire was found to have acceptable internal consistency in the sample (Cronbach's alpha = 0.70).

Bullying was assessed using the relevant questions of the *Health Behavior in School-Aged Children Questionnaire (HBSC-2014)* (49, 50). The HBSC questionnaire is a comprehensive measure of health behaviors administered among school-aged children every 4 years. The HBSC study is based on a standardized methodology and conducted in more than 40 countries in international collaboration with the World Health Organization (59). The HBSC Bullying Measure includes questions on bullying, the role of perpetrators and victims of physical and emotional abuse and cyberbullying, and participants of physical fight. Previous studies have reported good reliability of scales (Cronbach's alpha = 0.76–0.84) (60, 61). First, the phenomenon of bullying was introduced, followed by four questions about bullying (in-person bullying victimization, cyberbullying victimization, bullying perpetration, and physical fight). In all the four categories the answers to choose from were: never/once or twice/2 or 3 times a month/about once a week/ several times a week. After combining the categories of bullying variables, we defined frequency as a binary variable (never vs. at least once in the past 12 months) (61).

## 2.3. Statistical analysis

Statistical analyses were carried out using IBM SPSS Statistics ver. 23.0 (IBM, Armonk, NY, United States). The sociodemographic and ACE characteristics, the mean and standard deviation of SEB symptom scores, and the frequency of bullying variables were described in the sample overall and by gender. Psychometric properties of the ACE Score Calculator were investigated through internal consistency (Cronbach's alpha calculation), intercorrelations (Phi correlation), item-total correlations (Point-biserial correlations), and association analyses for concurrent criterion validity. Since the studies conducted during the development and evolution of the test confirmed the distinct nature of the events tested in each item, the dimensionality of the test was not examined (15, 56, 57).

Generalized linear models with entry method were used to test associations of ACE score with SEB symptoms, and logistic regression models with backward (Wald) method for ACE score with bullying variables. All models were adjusted for age, gender, and location, and post-test analysis was carried out with the help of the adjusted Wald test.

TABLE 1 Demographic and ACE characteristics of the sample, overall and by gender.

| | Boys $n = 110$ (45.8%) | Girls $n = 130$ (54.2%) | Total sample $n = 240$ |
|---|---|---|---|
| Age mean (SD) | 14.59 (1.59) | 15.15 (1.53) | 14.9 (1.58) |
| **Location *n* (%)** | | | |
| Village | 19 (17.3) | 10 (7.7) | 29 (12.1) |
| Town | 64 (58.2) | 91 (70.0) | 155 (64.6) |
| City | 27 (24.5) | 29 (22.3) | 56 (23.3) |
| ACE score mean (SD) | 3.1 (2.17) | 3.2 (2.36) | 3.16 (2.27) |
| **ACE score *n* (%)**[a] | | | |
| 0 | 8 (7.5) | 9 (7.4) | 17 (7.5) |
| 1 | 21 (19.8) | 30 (24.6) | 51 (22.4) |
| 2 | 24 (22.6) | 17 (13.9) | 41 (18.0) |
| 3 | 13 (12.3) | 14 (11.5) | 27 (11.8) |
| 4 | 7 (6.6) | 18 (14.8) | 25 (11) |
| 5 | 19 (17.9) | 16 (13.1) | 35 (15.4) |
| 6 | 4 (3.8) | 8 (6.6) | 12 (5.3) |
| 7 | 6 (5.7) | 2 (1.6) | 8 (3.5) |
| 8 | 4 (3.8) | 1 (0.8) | 5 (2.2) |
| 9 | – | 7 (5.7) | 7 (3.1) |
| 10 | – | – | – |
| Emotional abuse | 32 (29.6) | 44 (34.1) | 76 (32.1) |
| Physical abuse | 28 (25.7) | 32 (24.8) | 60 (25.2) |
| Sexual abuse | 17 (15.7) | 15 (11.8) | 32 (13.6) |
| Emotional neglect | 30 (27.8) | 41 (32) | 71 (30.1) |
| Physical neglect | 20 (18.3) | 19 (14.7) | 39 (16.4) |
| Parental separation/divorce | 74 (67.9) | 94 (74) | 168 (71.2) |
| Household physical violence | 21 (19.3) | 30 (23.8) | 51 (21.7) |
| Household substance abuse | 33 (30.3) | 43 (34.4) | 76 (32.5) |
| Household mental illness | 23 (21.1) | 34 (26.8) | 57 (24.2) |
| Incarcerated household member | 57 (52.3) | 57 (45.2) | 114 (48.5) |

[a]The category does not add up to the full sample size due to some missing data.

TABLE 2 Social, emotional, and behavioral (SEB) symptoms and bullying characteristics of the sample overall and by gender.

| | Boys $n = 110$ (45.8%) | Girls $n = 130$ (54.3%) | Total sample $n = 240$ |
|---|---|---|---|
| **SEB symptoms mean (SD)** | | | |
| Emotional symptoms | 2.66 (2.34) | 3.42 (2.61) | 3.08 (2.52) |
| Conduct problems | 2.94 (1.65) | 3.05 (1.57) | 3.00 (1.60) |
| Hyperactivity/ inattention problems | 3.63 (1.97) | 3.66 (1.65) | 3.64 (1.80) |
| Peer relationship problems | 3.09 (1.98) | 3.18 (1.79) | 3.14 (1.87) |
| Total difficulties | 12.17 (5.77) | 13.32 (5.11) | 12.81 (5.43) |
| **Bullying variables *n* (%)** | | | |
| Any type of victimization | 36 (36.7) | 69 (57.0) | 105 (47.9) |
| In-person bullying victimization (in FGC) | 21 (19.1) | 44 (34.6) | 65 (27.4) |
| In-person bullying victimization (in school) | 14 (13.2) | 28 (22.2) | 42 (18.1) |
| Cyberbullying victimization | 27 (26.7) | 47 (37.0) | 74 (32.5) |
| Bullying perpetration | 23 (21.3) | 35 (28.2) | 58 (25.0) |
| Physical fight | 65 (60.2) | 76 (58.5) | 141 (59.2) |

# 3. Results

## 3.1. Descriptive statistics of the sample

The total sample consisted of 240 adolescents [54.17% girls, mean age 14.9 (SD = 1.58)]. 7.5% ($n = 17$) of them reported no ACE, while 22.4% ($n = 51$) reported one, 18% ($n = 41$) reported two, 11.8% ($n = 27$) reported three and 40.4% ($n = 92$) reported four or more ACEs.

The most frequent type of reported child maltreatment was emotional abuse in 32.1% ($n = 76$), and emotional neglect in 30.1% ($n = 71$) of the sample. The least prevalent reported child maltreatment was sexual abuse in 13.6% ($n = 32$) of the respondents. Parental divorce or separation was reported by 71.2% of the adolescents ($n = 196$), which was followed by incarcerated household member 48.5% ($n = 114$) and household substance abuse (32.5%, $n = 76$). These three dysfunctions were the most prevalent reported dysfunctional household conditions, while the least prevalent was having experienced household physical violence (21.5%, $n = 51$) (Table 1).

Table 2 presents the descriptive statistics of SEB symptoms and bullying variables in the sample. The mean scores of SEB symptoms ranged from 3.00 (SD = 1.60) (conduct problems) to 3.64 (SD = 1.80) (hyperactivity/inattention problems), while the mean for the total difficulties score was 12.81 (SD = 5.43).

In terms of bullying, almost half of the respondents (47.9%, $n = 105$) reported some type of victimization. The most prevalent form of bullying was physical fight (59.2%, $n = 141$) and cyberbullying victimization (32.5%, $n = 74$).

Around one-quarter reported in-person bullying victimization (27.4%, $n = 65$) and bullying perpetration (25%, $n = 58$).

### 3.2. Internal consistency and intercorrelations of the 10-item version of the ACE score calculator

The Cronbach's alpha reliability shows an acceptable internal consistency ($\alpha = 0.700$).

Intercorrelations of ACEs (Table 3) were used to study the strength of associations between the frequency of occurrence of each adverse event. The item "Parental separation/divorce" barely correlated with the other types of ACEs, and the item "Sexual abuse" only correlated with four of the rest of the adverse events.

### 3.3. Item-total correlation

Point-biserial correlations were carried out to investigate the item-total correlation of the questionnaire. Table 4 shows that "Parental separation/divorce" was the only item to show weak correlation with the cumulative ACE score. In the case of the rest of the items, at least moderate correlations were found, which suggests the appropriate item-total correlations of the scale. "Physical abuse" exhibited the strongest correlation with the cumulative ACE score.

Reviewing the data on intercorrelations and item-total correlations, the item "Parental separation/divorce" proved to be the least correlating item with the rest of the test items and the cumulative score. Consequently, we decided to examine the concurrent criterion validity of the test when the ACE 6 item ("Parental separation/divorce") is removed.

### 3.4. Concurrent criterion validity of the 9-item version of the ACE

Considering the above results, the concurrent criterion validity was tested for both the 10-item and the 9-item version (excluding the item for parental separation/divorce). The comparison yielded similar results in the two versions with equal or somewhat stronger predictive potentials in the 9-item version. We used generalized linear models with entry method to examine the associations between ACE accumulation and SEB symptoms adjusted for age, gender, and location. The cumulative ACE score was significantly associated with more emotional symptoms (ACE-10: $B = 0.20$, $p = 0.005$; ACE-9: $B = 0.23$, $p = 0.002$), conduct problems (ACE-10: $B = 0.15$ $p = 0.001$; ACE-9: $B = 0.16$; $p = 0.001$), hyperactivity/inattention symptoms (ACE-10: $B = 0.16$, $p = 0.002$; ACE-9: $B = 0.18$, $p = 0.001$), and overall difficulties (ACE-10: $B = 0.50$, $p = 0.002$; ACE-9: $B = 0.57$, $p = 0.001$). Peer relationship problems did not correlate with the cumulative ACE score in the sample (ACE-10: $B = 0.05$, $p = 0.391$; ACE-9: $B = 0.07$; $p = 0.255$).

Logistic regressions with backward (Wald) method were applied to examine the relationship between ACE and bullying variables. Models were adjusted for age, gender, and location. One point increase in the ACE score significantly increased the possibility of being a victim of any measured type of bullying by 12 and 20% in ACE-10 and ACE-9, respectively (ACE-10: OR = 1.12, $p = 0.007$; ACE-9: OR = 1.20, $p = 0.009$). In details, the correlation of ACE score with in-person bullying victimization in FGC was marginally significant in ACE-10 and significant in ACE-9 (ACE-10: OR = 1.14, $p = 0.059$; ACE-9: OR = 1.15, $p = 0.44$), while in-person victimization in school was not significant (ACE-10: OR = 1.13, $p = 0.115$; ACE-9: OR = 1.13, $p = 0.139$). At the same time, being a victim of cyberbullying was in significant positive relationship with ACE accumulation (ACE-10: OR = 1.17, $p = 0.014$; ACE-9: OR = 1.17, $p = 0.022$), which was significantly associated with increased odds of involvement in physical fight (ACE-10: OR = 1.27, $p = 0.001$; ACE-9: OR = 0.127, p = 0.001). The association between ACE score and bullying perpetration were not significant in the sample, but $p$-values were nearing the margin (ACE-10: OR = 1.12, $p = 0.094$; ACE-9: OR = 1.13, $p = 0.086$).

When calculating the Cronbach's alpha reliability index of the 9-item version, we found a more favorable value than in the case of the 10-item version ($\alpha = 0.729$).

## 4. Discussion

In the present study, we conducted the psychometric evaluation of the ACE-10 questionnaire in a sample of Hungarian adolescents in the CWS. We assessed the intercorrelations, item-total correlations, concurrent criterion validity, and reliability of the instrument. The 10-item short form of the original ACE questionnaire comprised questions measuring 5 types of maltreatment (physical, emotional, sexual abuse, physical, and emotional neglect), and 5 types of household dysfunction.

### 4.1. Reliability and validity

Consistently with our study on average adolescent population (46), the ACE-10 showed appropriate internal consistency and reliability with a Cronbach's alpha of 0.70. For internal correlation, we found that sexual abuse is only correlated with dysfunctional family factors (apart from physical neglect). This may be explained by the fact that sexual abuse is the only item that refers not only to harm suffered within the family but also to abuse suffered outside the family (15). The CWS population is an at-risk population, where a severely dysfunctional family system increases the risk of exposure to harm outside the family. Accordingly, we can assume that the "yes" responses for these item do not only refer to events experienced within the family, as opposed to the rest of the items. The item "Parental separation/divorce" is only correlated with the item "incarcerated household member," and the correlation there is only a weak one. The results found for these two items are not in line with the results of our study on the average population, where both "Sexual abuse" and "Parental separation/divorce" were correlated with the other items of the scale.

The ACE-10 scale assessed in the CWS population showed adequate item-total correlations. However, not all of the ACE-10 items were found to be equally relevant in the Point-biserial analysis. Again, it is the item "Patental separation/divorce" that barely correlated with the ACE cumulative score. This result differs from our study on the average sample, where this item showed a moderate correlation with the ACE score.

A possible explanation for the less favorable psychometric indicators of this item may be found in the wording of the item itself: "*Were your parents ever separated or divorced?*" This is meant to provide information on the fact of separation itself, but eventually

TABLE 3 Intercorrelations between adverse childhood experiences (ACEs).

| | Emotional abuse | Physical abuse | Sexual abuse | Emotional neglect | Physical neglect | Parental separation/ divorce | Household physical violence | Household substance abuse | Household mental illness | Incarcerated household member |
|---|---|---|---|---|---|---|---|---|---|---|
| Emotional abuse | – | | | | | | | | | |
| Physical abuse | 0.48*** | – | | | | | | | | |
| Sexual abuse | 0.17* | 0.10 | – | | | | | | | |
| Emotional neglect | 0.23*** | 0.27*** | 0.10 | – | | | | | | |
| Physical neglect | 0.22*** | 0.33*** | 0.14* | 0.19** | – | | | | | |
| Parental separation/ divorce | −0.01 | 0.04 | −0.02 | −0.14 | −0.09 | – | | | | |
| Household physical violence | 0.29*** | 0.22**** | 0.26*** | 0.20** | 0.32*** | 0.00 | – | | | |
| Household substance abuse | 0.17* | 0.33*** | 0.13 | 0.11 | 0.21*** | 0.10 | 0.26*** | – | | |
| Household mental illness | 0.19** | 0.25*** | 0.17* | 0.12* | 0.20** | −0.04 | 0.30*** | 0.22** | – | |
| Incarcerated household member | 0.19*** | 0.15** | 0.16** | 0.08 | 0.33*** | 0.14* | 0.14* | 0.20** | 0.21** | – |

Phi correlation; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.





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TABLE 4 Item-total correlations of the ACE questionnaire on the studied adolescent sample.

| | ACE cumulative score[a] |
|---|---|
| Emotional abuse | 0.58*** |
| Physical abuse | 0.62*** |
| Sexual abuse | 0.41*** |
| Emotional neglect | 0.44*** |
| Physical neglect | 0.50*** |
| Parental separation/divorce | 0.21*** |
| Household physical violence | 0.54*** |
| Household substance abuse | 0.56*** |
| Household mental illness | 0.49*** |
| Incarcerated household member | 0.50*** |

[a]Point-biserial correlation coefficients; ***$p < 0.001$.

raises other relevant questions. Did the parents ever live together? How old was the child when the parents separated? How old was the child when he/she was placed in CWS? When did the parents separate compared to the time of the child's placement in CWS? Was this a high-conflict separation/divorce or not (62)? Was it the parents' cohabitation or their separation that had a major contribution more on the child's placement in CWS?

It is worth noting that 71% of the adolescents in the sample reported having separated parents. This means that the sample can be considered as almost homogeneous in this regard, which may also have contributed to the results described above.

In addition, it is important to note that Hungary has relatively high divorce rates (1.9–2.2/1,000 people) in the European Union (63). It is also known that divorce rates are higher among people of lower socio-economic status (52), which is the social segment from which the majority of children in CWS across Europe are reported (53). This raises the question whether parental separation/divorce as an adverse experience should be asked about in this population at all, and if the psychometric properties of the test were still adequate if the item was omitted.

Accordingly, in the next stage we removed the sixth item and checked the psychometric properties of the 9-item version of the ACE. Our results show that the 9-item version of the test yielded better psychometric properties on the CWS population. In the light of the results, we recommend the careful use of item 6 ("Parental separation/divorce"). We suggest that the relevance of this item should be considered after careful examination of the population to be studied. However, our results also indicate that both the 10-item version or the ACE 9-item version of ACE can provide reliable information with appropriate psychometric properties.

The concurrent criterion validity of the instrument was good in our sample. We found strong and cumulative associations of the total ACE score with emotional and behavioral symptoms and bully victimization. The prevalence and gender distribution of reporting bully perpetration and victimization were similar to those found in other studies, in which girls also dominated in both cases (64). However, contrary to our expectations, the severity of peer relationship problems was independent from the cumulative ACE score. Given the previous evidence on clear correlation between ACE accumulation and the severity of peer problems in the general adolescent population (55), the setting of the CWS may be a clear explanation for our findings. Price and Brew (65) conclude that displacement and transitions themselves present unique social challenges for children. These transitions force them to adapt to new social expectations, such as fitting in with a new peer group. When placed in structured settings like group care, their interactions with peers are limited. These can exacerbate social difficulties that are already present as a result of maltreatment. Taking all these into consideration, the problems of peer relationships are very much related to transitions and dependent on the social context, equally for those reporting fewer or more ACEs. ACEs are individual experiences, but the transition adolescents face and the challenges it brings are collectively present, and collectively make it difficult for these youngsters to build and maintain proper relationships.

## 4.2. Strengths and limitations

Our study respondents were adolescents, which was advantageous for our study: they are closer in time to the period when they experienced the adversities compared to adults. Although children and adolescents may generally differ from adults in their ability to understand long-term consequences and regulate behavior, their cognitive abilities are not significantly different from those of adults (66–68). Similarly, adolescents' cognition and reliable episodic memory are sufficiently developed to allow their participation in this type of research (69, 70). The advantages of using scores to measure adverse childhood experiences lie in the simplicity of the scores, which facilitates their widespread application in policy, public health and clinical settings. It is particularly important to use an internationally accepted measure to focus attention on this population.

On the other hand, the disadvantage of using a cumulative score is that it fails to take into account the fact that there are other indicators of severity in addition to ACE cumulation, which may be particularly important when assessing children in child protection. The non-representativity of the sample allows no extrapolation of the results, and the sensitive nature of the topic may cause bias and can potentially reduce the willingness of reporting ACEs. Nevertheless, self-report by adolescents is still found to be more reliable than agency records, parental reports of adolescent victimization or adult retrospective self-report (37, 38). A psychometric limitation of our study is that in the absence of other validated trauma questionnaires in Hungarian, convergent validity could not be assessed. In addition, the reliability levels, although acceptable, are at the limit of acceptability. The number of items and sample size also suggest caution.

A further limitation to the results may be that adolescents living in CWS may not recognize the adversities as adversities, as they have been socialized in them. Furthermore, in their case, self-reporting may have a biasing effect as they may wish to be reunited with their family of origin. Also, dissociation and memory deficits may bias the results downwards (71).

# 5. Conclusion

The results indicate that both the 10-item version and the 9-item version (without item 6) of the ACE is a valid and reliable measure of

childhood adversities among disadvantaged adolescents living in CWS. We suggest that the relevance of item 6 ("Parental separation/divorce") should be considered in relation with the population under study. Screening for trauma among children in CWS and detailed investigation of trauma types is of utmost importance in CWS, as targeted interventions can be based on these data. In order to follow the principles of trauma-informed care (72, 73), a valid measurement tool is needed as a first step. The ACE questionnaire is a brief, time- and cost-efficient, easy-to-understand instrument, which makes it suitable for disadvantaged children, considering that early impairment can lead to reading, comprehension and learning difficulties (24, 31, 74). Its suitability for repeated testing is another advantage. We see it as an appropriate tool for the purposes of screening, research, and treatment planning.

## 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 humans were approved by Ethics approval was issued by the Research Ethics Committee of the Hungarian Medical Research Council under the approval number ETT TUKEB 47848-7/2018/EKU. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

## Author contributions

BO: Writing – original draft, Writing – review & editing. ZF: Writing – original draft, Writing – review & editing. IKSZ: Writing – review & editing, Supervision. BK-T: Writing – review & editing, Writing – original draft.

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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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## Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpubh.2023.1258798/full#supplementary-material

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# Supporting adoptive and foster parents of adolescents through the trauma-informed e-Connect parent group: a preliminary descriptive study

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**Introduction:** Adolescents in adoption and foster care are likely to show internalizing and externalizing problems and affective dysregulation, leading to a lower quality of parent–adolescent attachment relationships and high levels of strain for parents. This study describes the results of the first application of the trauma-informed attachment-based Connect Parent Group in an online form (e-Connect) with Italian adoptive and foster parents. In this study, we describe (1) trends in the aforementioned variables between pre- (T1) and post- (T2) intervention and (2) parents' feedback and suggestions about the intervention.

**Method:** Participants were 10 adoptive and 10 foster parents (53% females, $M_{age} = 53.48$; $SD_{age} = 4.93$) who attended e-Connect, an attachment-focused and trauma-informed 10-session online group intervention. This intervention aims at increasing caregiver awareness of attachment and trauma concerning adolescents' problem behaviors and sensitive responsiveness, thereby leading to improvements in parent–adolescent relationship quality, decreases in adolescents' problems, and reductions in caregiver strain. One e-Connect group was offered for adoptive parents and one for foster parents. Parents completed questionnaires 1 week before (T1) and after (T2) the intervention and responded to a feedback interview following program completion.

**Results:** Only at the descriptive level, scores of adolescents' internalizing and externalizing problems, affective dysregulation, and caregivers' strain show decreasing trends. Parents reported high satisfaction with the program, declaring changes in parent–adolescent relationships both currently (94.7%) and anticipated in the future (100%). All parents indicated that they would recommend e-Connect to other parents.

**Discussion:** Given promising parents' feedback, the feasibility of e-Connect supporting adoptive and foster parents of adolescents can be further empirically investigated.

KEYWORDS

**connect parent group, attachment-based intervention, adolescence, adoption, foster care, online intervention, parenting program**

# 1 Introduction

Adolescents placed in adoption or foster care (Barroso et al., 2017; Muzi and Pace, 2023) are at high risk for childhood traumatic experiences and attachment ruptures (Pace et al., 2022) and suffer from significantly higher levels of internalizing and externalizing problems than peers raised by low-risk biological parents (Behle and Pinquart, 2016; Pace and Muzi, 2017; Pace et al., 2018; Oswald et al., 2019; Engler et al., 2022).

Moreover, both adopted and foster adolescents' exposure to past attachment trauma can be linked to their actual attachment problems (Dozier and Rutter, 2008; Oswald et al., 2019). This may hinder them in forming and maintaining positive attachment bonds with new adult caregivers (Dozier and Rutter, 2008; West et al., 2020; Muzi and Pace, 2022), potentially increase their long-term disadvantage, and require parents' great emotional and financial efforts. In particular, research has highlighted high levels of parental distress and caregiving strain in parents of adopted and fostered adolescents (Sánchez-Sandoval and Palacios, 2012; Goemans et al., 2020), and that adolescence is a period of increasing conflicts, parental difficulties, and emotion dysregulation in adoptive and foster families (Sánchez-Sandoval and Palacios, 2012; Golding, 2014; Leake et al., 2019).

In this regard, some studies have remarked on the importance of parental psychological support to reduce the strain on adoptive and foster parents (Golding, 2014; Oldani and Pancino, 2017; Leake et al., 2019; Hanlon et al., 2022). Reviews (Ní Chobhthaigh and Duffy, 2019; Lotty et al., 2021) highlight that tailored interventions can also be beneficial in reducing children's emotional-behavioral difficulties, especially when they address issues of trauma and attachment, and enhance parents' reflective engagement and skill building (Juffer et al., 2005; Barone and Ozturk, 2019; Ní Chobhthaigh and Duffy, 2019; Lotty et al., 2021; Van Ijzendoorn et al., 2023). However, from the cited reviews (Ní Chobhthaigh and Duffy, 2019; Lotty et al., 2021), none of these available interventions are delivered online, even if some studies during the COVID-19 pandemic (Oldani and Pancino, 2017; Hanlon et al., 2022) demonstrated that adoptive and foster parents particularly struggled during the pandemic due to the absence of support interventions, which had almost exclusively been provided in person to date.

Moreover, most of the available programs are not directly focused on the adolescence phase, except for the Connect Parent Group (CPG®) developed by Moretti and Obsuth (2009), Moretti et al. (2015), and Moretti et al. (2017) who recently implemented a trauma-informed adaptation for foster and adoptive parents (Moretti et al., 2020; Pasalich et al., 2021).

## 1.1 Support adolescent caregivers through trauma-informed and online adaptations of the connect parent group (CPG®)

The standard CPG® is a 10-week manualized group program for parents of pre-teens and teenagers with serious behavioral and emotional problems. The program targets parenting factors that promote secure attachment, namely caregiver sensitivity, reflective functioning, shared mutuality, and dyadic affect regulation, which are crucial for supporting healthy adolescent development and autonomy while maintaining a positive emotional connection with their parents (Moretti and Obsuth, 2009; Moretti et al., 2015; Barone et al., 2020). Each weekly 90-min session is co-conducted in person by two trained group facilitators and introduces the principle of attachment. Sessions are designed to engage parents through role plays and reflection exercises that promote emotion-based learning (Barone et al., 2020). Research conducted over 15 years proved CPG® as effective in building targeted parenting skills, reducing parental stress, increasing the attachment security of adolescents, and improving the quality of parent–adolescent relationships, as well as decreasing the levels of internalizing and externalizing problems in adolescents (Moretti and Obsuth, 2009; Moretti et al., 2015; Högström et al., 2017; Moretti et al., 2017; Osman et al., 2017a,b; Ozturk et al., 2019; Barone et al., 2020; Moretti et al., 2020; Pasalich et al., 2021; Pasalich and Palfrey, 2021), with positive outcomes up to 2 years after the intervention (Högström et al., 2017).

However, when the standard in-person CPG® was used with foster parents, they did not find it as beneficial as biological parents. Therefore, based on foster parents' suggestions, Moretti et al. developed a trauma-informed adaptation for foster parents of teens (Moretti et al., 2020; Pasalich et al., 2021). In this adaptation, each session integrates a part that can help caregivers understand the impact of pre-placement adverse experiences on adolescents' behavior and deal with obstacles and feelings posed by the relationship with childcare services. For example, the first two sessions integrate psychoeducational information on how attachment can be affected by traumatic early childhood adversities, and the third session focuses on how trauma can distort adolescents' behaviors in response to parent–adolescent conflicts. All sessions aim at enhancing the reflective engagement of the parents, considering the role of the attachment background of adolescents (their "attachment suitcase") in shaping adolescents' behavior, aiming at building parent skills of reflection, understanding, and sensitive response to adolescents' behaviors. The pilot test of this trauma-informed adaptation of CPG© with foster and kinship parents revealed promising results and positive feedback from parents and professionals working with them (Moretti et al., 2020; Pasalich et al., 2021), overall suggesting that this adaptation is recommended for foster and adoptive families.

Moreover, during the COVID-19 pandemic, Bao and Moretti (2023) adapted the standard intervention to be delivered online, i.e., e-Connect. In this adaptation, each participant follows the group through video calls on a personal device, a laptop, or a tablet, which enables them to see other participants and the facilitators who use digital flipcharts to work through exercises and reflections. Digital flipcharts contain prompts and are filled with participants' responses, as would paper flipcharts in the in-person version. To prevent facilitators' fatigue, unlike CPG® in person, e-Connect is composed of smaller groups of a maximum of 10 participants and requires an additional assistant to manage the online flipcharts and provide technical support (Bao and Moretti, 2023). Role-playing has also been adapted to be performed by the two facilitators, each using their screen so parents can clearly observe facial expressions and non-verbal language. To facilitate participants' attention and facilitators' efficiency, for each e-Connect group, preferably no more than 10–12 video tiles should appear on the screen (Pasalich and Palfrey, 2021). Research with e-Connect conducted in Canada and Italy (Bao and Moretti, 2023; Benzi et al., 2023; Tracheggiani et al., 2023) suggests positive outcomes with this online adaptation as with the in-person one, suggesting its use is promising when parents can have difficulty accessing in-person programs. For instance, the online intervention could be fruitful for adoptive and foster families, often residing in

decentralized areas, while adoption/foster services are usually in urban centers (Oldani and Pancino, 2017) and the overload of commitments partly resulting from adolescents' problems can be a barrier to accessing support services (Golding, 2014; Leake et al., 2019).

To date, the trauma-informed adaptation of the CPG® has been provided only in person and only to foster parents, and there is no information about how this adaptation might work if it were also delivered online, not only to foster parents but also to adoptive ones.

## 1.2 The current study

From the above, the utility of parent support tailored to the specific needs of adoptive and foster families emerged, particularly in trauma-informed attachment-based group programs such as CPG®. The lack and potential of online intervention among these populations of parents also emerge. Therefore, the current study aimed to describe the outcomes of two pilot experiences where the trauma-informed adaptation of CPG® for foster parents was delivered online, i.e., e-Connect for foster parents, to two groups of adoptive and foster parents of adolescents living in Italy. With descriptive purpose, we visually inspected trends of adolescents' emotional-behavioral problems and affective regulation, caregivers' strain, and quality of parent–adolescent relationships from the week before the intervention (T1) to the week after the intervention (T2), and we reported their feedback and suggestions about the program's value, strengths, and limits.

# 2 Materials and methods

## 2.1 Participants and procedure

The study was conducted with the support of "Fondo di Beneficenza di Intesa Sanpaolo" (protocol n. B/2021/0452).

Participants were enrolled with the collaboration of the project stakeholders, who signed a formal agreement sheet to collaborate. Full details about the study procedure (time and phases of data collection, dropout and attrition, and data collected and analyzed) are shown in the flowchart in Figure 1.

Participants reported on socio-demographic information during pre-intervention interviews, which are included in the Connect program and are designed to increase treatment motivation and address barriers to attendance. Socio-demographic information was also collected in the set of T1 pre-intervention questionnaires. This study included data from parents who completed both pre- and post-intervention questionnaires and at least 70% of sessions, which were all participants except one adoptive mother, who dropped at the second session for personal unresolvable reasons (5%). Therefore, this study included data of 9 adoptive parents (5 fathers, $M_{age} = 51.30$, $SD_{age} = 5.75$) of 6 adopted adolescents (60% males, $M_{age} = 13.60$, $SD_{age} = 1.67$; placed at $M_{age} = 6.42$ for $M_{lenght} = 7.40$; area of origin: 60% Italy, 40% Russia, 20% Colombia), and of 10 foster parents (four fathers, $M_{age} = 55.30$, $SD_{age} = 4.29$) of 8 adolescents in foster care (50% males, $M_{age} = 14.13$, $SD_{age} = 3.04$; placed at $M_{age} = 6.42$ for $M_{lenght} = 7.88$; area of origin: 87.5% Italy, 12.5% Pakistan). All parents had medium-high socio-educational levels. Only foster parents already had biological siblings (70%).

Data from the two samples were reported separately to highlight potential population specificities and because of different population characteristics, i.e., legal parenting in adoption vs. a temporary role in foster care.

## 2.2 Measures

### 2.2.1 Adolescents' problems and affect regulation referred by parents

The 25-item Strengths and Difficulties Questionnaire filled out by parents (SDQ-parent version) (Goodman et al., 2010) was used to assess adolescents' symptoms as evaluated by parents. It provides two scores for internalizing problems (sum of emotional problems and peer problems subscales) and externalizing ones (sum of conduct problems and hyperactivity-inattention subscales).

The 12-item Affect Regulation Checklist Youth (ARC-Y) (Moretti et al., 2015; Goulter et al., 2023) was completed by parents to assess adolescents' affect regulation in the previous 6 months in the dimensions of affect dysregulation, reflective strategies, and affect suppression.

### 2.2.2 Parental self-reported strain and opinion of parent–adolescent relationship quality

The Caregiver Strain Questionnaire-Short Form (CGSQ-SF) (Brannan et al., 1997), a 10-item self-report questionnaire on a 5-point Likert-type scale, was used. The measure assesses strain on three dimensions: caregivers' subjective internalized strain, subjective externalized strain, and objective strain, and provides a score in each of these three dimensions as the mean of the scale items' scores, plus a global score of strain as the sum of scores in the three dimensions.

The self-report questionnaire Psychological Availability and Reliance On Adult–Parent version (PARA-P) (Schuengel and Zegers, 2003; Muzi and Pace, 2020), an 18-item questionnaire on a 4-point Likert scale where the caregiver assesses the quality of the adolescent–adult relationship in three scores of psychological availability, reliance on adults, and affectional bond, corresponding to the mean of the item scores in each dimension. The mean of scores in the first two dimensions provides an additional score of attachment security. In the PARA-P, item 8 of the original 19-item version must not be administered.

### 2.2.3 E-connect feedback and integration

Parents' evaluation of e-Connect was collected during the 10th session of "Feedback and Integration," where parents completed a 15-item questionnaire plus a group semi-structured interview conducted by an independent research team member about the perceived value of intervention to understand and respond to their adolescents' problems and suggestions to improve the intervention.

## 2.3 Analytic plan

This study includes data from T1 and T2, as the follow-up data collection (T3) is ongoing. Given the descriptive nature of the study and the limited sample sizes, no statistical analyses were performed. Scores in the two phases in each group were reported in a table, and results of the feedback session were narratively reported, grouped in themes of "program value," "perceived changes," and "suggestions to improve."

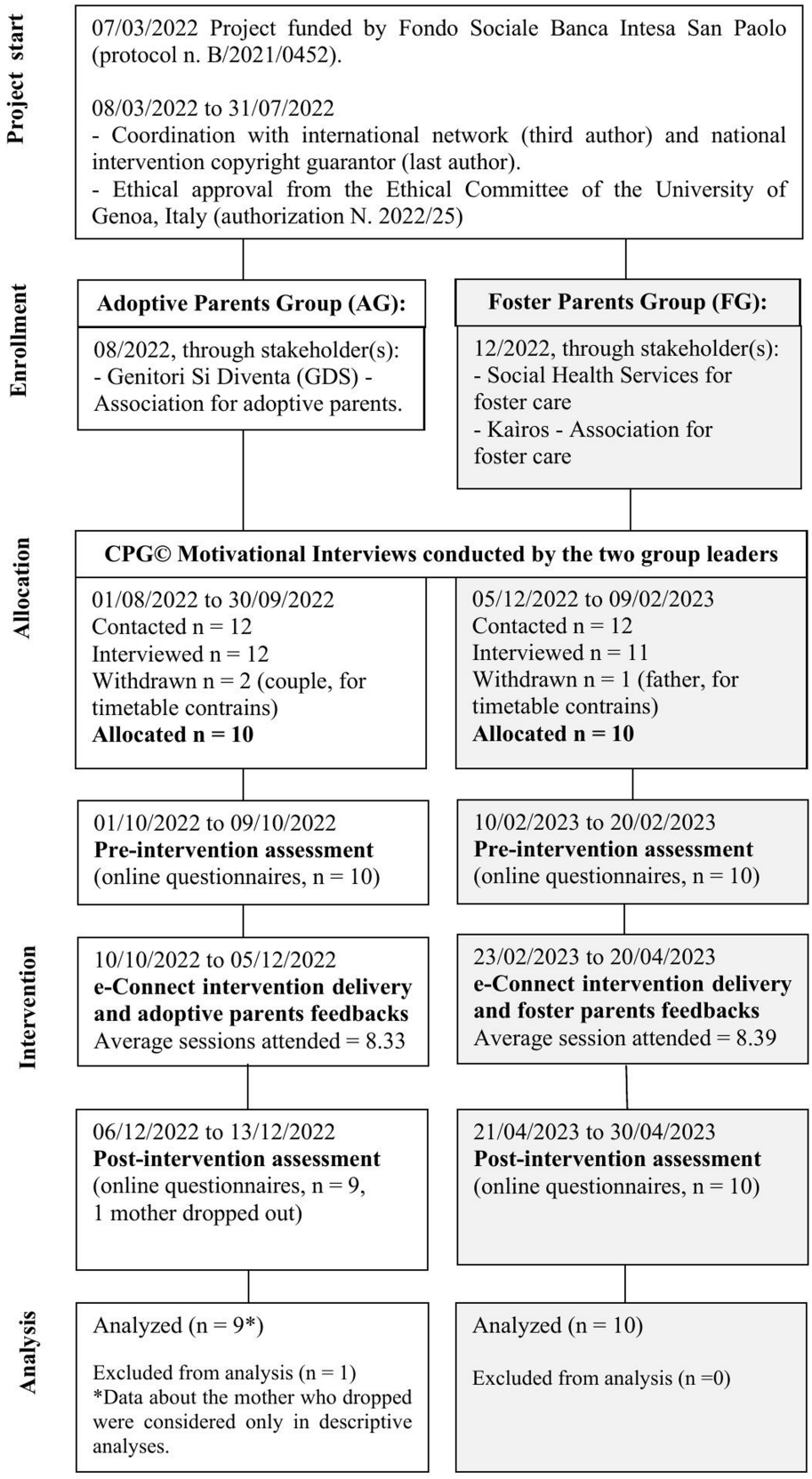


FIGURE 1
Flowchart of the study procedure.

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# 3 Results

## 3.1 Trends from pre- (T1) to post- (T2) intervention

Table 1 reports scores' means [*M*] and standard deviations [SD] in both groups.

Scores on Table 1 seem to suggest decreasing trends regarding scores of parent-reported adolescents' internalizing and externalizing problems and affective dysregulation and suppression, as well as in caregiving strain, while lines of quality parent–adolescent relationships appear quite stable on high scores (over 2.5 on a 4-point Likert scale).

## 3.2 Parents' feedback

### 3.2.1 Program value

Most parents reported that e-Connect was quite or very useful (89.4%) in understanding their child, and similarly, they reported that it was quite or very useful in understanding themselves (84.2%). Most parents reported as strengths the chance to "normalize" and "understand" problem behaviors of children that often lead to confusion and a sense of powerlessness, e.g., *[it was useful to]"understand and accept his aggressivity as a way to manifest his needs and not a violence toward me*" or "*recognize that every behaviour has an origin and our children are not foolish*," as well as the attachment perspective in discussing certain topics, e.g., "*the value and the sensitive management of the conflict and periods of impasse*" or "*understand that relationship's crisis can be a resource*" and "*it has reassured me that there are not only his needs but also mine*".

All parents (100%) reported the discussion of trauma effects and attachment, empathy, and conflict, as well as role-playing, as the most useful dimensions of the intervention. All of them would suggest other adoptive and foster parents attend e-Connect (100%).

### 3.2.2 Perceived changes

Most parents (94.7%) reported changes in their parent–adolescent relationship as an effect of having attended e-Connect, e.g., "*In the past, I would have overreacted in front of poor transparency of [my son], I would have taken it personally, but now I have understood that he avoids conflicts because in his history this would have mean be abandoned or beaten […] he said me 'mom, you are a better mom since you attend that group!'*" or "*I sought the magic and…I found it! [During the group] I have started to reduce the volume of the radio when he seems to want to talk, and our relationship is much better now!*" or "*I am more cautious and I put more effort in listening to my daughter's opinion before jumping to the conclusions*." All of them forecasted further changes in the future (100, 57.9% very much, and 42.1% quite much). Most of them referred to feeling more confident in their parental abilities after the intervention (68%), e.g., *"I was already prepared about [my son] bruises/traumas, but I improved the way of managing it.,"* or *"I increased the observation and curiosity of my child."*

### 3.2.3 Suggestions to improve

Almost all parents suggested proposing the intervention before the placement and/or during early adolescence. Some parents suggested enlarging the focus to current problems such as the adolescents' misuse

TABLE 1 Scores at pre-intervention (T1) and post-intervention (T2) of parents attending the trauma-informed adaptation of e-Connect for adoptive and foster parents.

| | Adoptive parents group | | | | Foster parents group | | | |
|---|---|---|---|---|---|---|---|---|
| | T1 | | T2 | | T1 | | T2 | |
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Adolescent symptoms (SDQ) | | | | | | | | |
| Internalizing problems | 6.90 | 3.90 | 6.22 | 4.79 | 5.10 | 2.13 | 4.30 | 2.87 |
| Externalizing problems | 12.30 | 3.86 | 10.78 | 4.55 | 9.60 | 3.69 | 8.20 | 3.26 |
| Adolescent affective regulation (ARC-Y) | | | | | | | | |
| Affective dysregulation | 13.20 | 4.16 | 11.00 | 3.67 | 12.70 | 3.92 | 12.40 | 3.44 |
| Reflective strategies | 11.90 | 2.42 | 10.78 | 2.39 | 13.00 | 3.65 | 12.10 | 2.23 |
| Affective suppression | 10.00 | 3.30 | 9.67 | 3.67 | 11.50 | 3.41 | 11.20 | 3.05 |
| Caregiver strain (CSQ) | | | | | | | | |
| Objective strain | 2.38 | 0.87 | 2.06 | 0.87 | 1.59 | 0.47 | 1.56 | 1.59 |
| Subjective internalized strain | 2.48 | 0.38 | 2.72 | 0.42 | 2.75 | 0.44 | 1.90 | 2.75 |
| Subjective externalized strain | 2.65 | 0.91 | 2.20 | 0.88 | 2.05 | 0.57 | 2.08 | 2.05 |
| Caregiver strain total | 7.51 | 1.16 | 6.99 | 1.91 | 6.39 | 0.91 | 5.55 | 6.39 |
| Quality of parent–adolescent relationship (PARA) | | | | | | | | |
| Psychological availability | 3.44 | 0.47 | 3.39 | 0.42 | 3.08 | 0.48 | 2.98 | 0.41 |
| Reliance on adult | 2.51 | 0.24 | 2.59 | 0.29 | 2.53 | 0.22 | 2.77 | 0.46 |
| Security | 2.98 | 0.27 | 2.99 | 0.28 | 2.80 | 0.29 | 2.88 | 0.39 |
| Affectional bond | 2.86 | 0.30 | 2.91 | 0.40 | 2.64 | 0.34 | 2.73 | 0.40 |

Adoptive parents group $n = 9$, foster parents group $n = 10$.

of social networks or external relationships with peers and teachers, and some of them reported a supposed preference for in-person delivery.

# 4 Discussion

This study aimed to describe the first employment of trauma-informed and attachment-based parenting interventions for foster parents of teens (Moretti and Obsuth, 2009; Moretti et al., 2015, 2017) in an online form, i.e., e-Connect for foster parents. This adaptation was proposed to two small groups of adoptive and foster parents in Italy, who provided feedback and suggestions about the intervention's value, strengths, and limits. This study has a descriptive goal, describing trends in youth and parent difficulties and parent–adolescent relationships from the week before and after the intervention and reporting parents' feedback about the intervention. Therefore, the following comments are qualitative, with no statistical relevance, but with the idea of understanding if this intervention may deserve further empirically based investigation and feasibility testing.

Apparently, scores in Table 1 suggest a reduction in all the outcomes inquired, i.e., adolescents' internalizing and externalizing problems, affective dysregulation, and caregiving strain. Future studies with larger samples are required to confirm or disconfirm these results on a statistical basis. In this regard, the scores of adoptive and foster parents presented some difference, and an empirical investigation should clarify if the intervention worked differently in the two samples, highlighting some population-specificity not detected in the feedback session, where both groups reported similar contents.

Concerning comments provided by both adoptive and foster parents during the feedback session, they were mostly positive and overall reflected a high level of satisfaction with having participated in e-Connect for foster parents. In fact, in the feedback session, both adoptive and foster parents mainly highlighted that e-Connect helped them to improve their ability to "stop" and "get curious" when faced with their children's problematic behaviors, in terms of aggressive and oppositional-defiant behaviors as well as lying and lazy withdrawal, instead of "jumping to conclusions" and reacting angrily or confused to these problematic behaviors. Furthermore, they emphasized that receiving psychoeducation on the lasting effects of early adverse experiences on behavior and attachment improved their empathy toward their children's harsh history and relieved them of guilt about adolescent problems or anger toward children, clarifying the involuntary nature of their problematic behaviors and relative independence from the attitudes of adoptive and foster parents. Thus, in the feedback session, parents mostly reported positive changes in the relationship and the expectation of changes in the future. The contents of this feedback align with those of foster parents attending the in-person version of the intervention (Moretti et al., 2020; Pasalich et al., 2021) and, overall, suggest a perceived value of e-Connect for foster parents in supporting adoptive and foster parents during adolescence. Our study calls for further empirical investigation on the feasibility of the eConnect online version compared to the traditional CPG® in-person with these populations, paying particular attention to its strengths and limitations. An obvious strength of this treatment format is the potential to reach decentralized families who can participate in treatment from their own homes. This is often a better fit for many parents, and many parents voiced this to us informally. On the other hand, some parents highlighted that physical distance slightly limited their motivation to engage in role-playing as an actor with the co-leader, creating a slight emotional barrier, especially in the first sessions, which may have slowed the development of group cohesion. Over time, however, we found that parents became increasingly comfortable participating by sharing their perspectives and experiences with other parents. In this regard, a central factor may have been the positive attitude of the co-leaders toward the delivery of the online intervention, as the comfort of the therapist is proven crucial in favoring clients' engagement in the online intervention (Cowan et al., 2019), calling for future training on how to deliver psychological interventions online.

## 4.1 Limitations and conclusion

This descriptive study has marked limitations to consider. First, because of the absence of data from follow-up assessment (under collection), this study was designed as a pilot preliminary description, and no statistical analyses were performed, so the statistical significance of the trends described was not empirically tested and should be verified by future studies. With the scope to describe pilot experiences and highlight possible population specificities, the small sample size groups were kept separate because they participated in the intervention separately and because of population characteristics, i.e., legal parenting in adoption vs. a temporary role in foster care. Furthermore, some parents were couples with only one child and referred to the same children, so the data were not independent of each other, and a larger, statistically based investigation should address this point. Third, adoptive and foster families have been fairly supported from the beginning, benefiting from psychological support and declaring a good-quality parent–adolescent relationship since T1. Therefore, this sample may not totally represent hard-to-reach adoptive and foster parents dealing with the plight of their children included in the previously mentioned CPG® and e-Connect studies. Some families may be hard to reach due to their demanding childcare responsibilities that often occur as a result of problems in parenting adopted children (Moretti and Peled, 2004; Sánchez-Sandoval and Palacios, 2012; Golding, 2014; Oldani and Pancino, 2017; Leake et al., 2019; Hanlon et al., 2022) or because of their distant or remote geographical location. This online intervention is a promising option for overcoming these population-specific barriers to treatment. Furthermore, by working in partnership with formal and informal agencies and local services, we have found that barriers to the recruitment of population-specific and hard-to-reach populations (van der Ven et al., 2022) can be more easily resolved. Importantly, this recruitment strategy can build the engagement of trusted community professionals who can encourage and support parents in enrolling in online treatment (van der Ven et al., 2022).

However, having only one group of adoptive parents and one of foster parents, this study is configured more as the description of a pilot experience, and further experiences of other groups in these populations are necessary in order to reach the numbers necessary to substantiate these results with appropriate statistical tests.

Finally, because the aim was not a statistical pre- and post-change investigation, we did not report information from adolescent measurements or data from a control group, all limitations to be addressed in future study design.

Despite these limitations, and given the published findings supporting the effectiveness of Connect for alternate caregivers (Pasalich and Palfrey, 2021) and e-Connect in other countries

(Bao and Moretti, 2023), our results appear encouraging and suggest further research on the feasibility of the trauma-informed version of e-Connect with adoptive and foster parents in Italy.

## 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 humans were approved by Università degli Studi di Genova Comitato Etico per la Ricerca di Ateneo (CERA). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

## Author contributions

CP: Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. SM: Data curation, Formal analysis, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. MM: Conceptualization, Methodology, Visualization, Writing – review & editing, Supervision. LB: Conceptualization, Methodology, Resources, Supervision, Visualization, Writing – review & editing.

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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.

The author(s) declared that they were an editorial board member of Frontiers, at the time of submission. This had no impact on the peer review process and the final decision.

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# Child maltreatment among deaf and hard-of-hearing adolescent students: associations with depression and anxiety

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**Objective:** Child abuse and neglect have several short- and long-term consequences for the victim. Though Deaf and Hard-of-Hearing children are at higher risk of being maltreated as compared to hearing children, little research in Saudi Arabia has focused on this population. To determine the prevalence of child maltreatment and to examine its association with depression and anxiety among a sample of Deaf and Hard-of-Hearing students in Saudi Arabia, recruited from secondary schools in southern Saudi Arabia.

**Methods:** The sample included 186 Deaf and Hard-of-Hearing students aged 14–17 years ($M$ = 15.7 years; SD = 3.41 years). Data were collected using the Child Abuse Self-Report Scale, Center for Epidemiological Studies Depression Scale for Children, and Generalized Anxiety Disorder Questionnaire. Bivariate and Linear regression analyses were conducted using SPSS 20.

**Results:** About 47.3% of the students were exposed severe to very severe child maltreatment. The severity of maltreatment varied based on parents' educational and income level, number of children in the family, the Deaf and Hard-of-Hearing student's gender, and parents' hearing status. Linear regression analysis indicated that child maltreatment was a significant predictor of depression and anxiety in this sample.

**Conclusion:** Considering the socio-demographic factors influencing the prevalence of maltreatment in the present study, it seems important to work with parents of Deaf and Hard-of-Hearing children to improve their skills in rearing a child with special needs. Addressing the social stigma and social barriers experienced by DHH individuals through familial, institutional, and community interventions may be a first step toward long-term prevention of maltreatment among DHH children.

KEYWORDS

**child maltreatment, deaf and hard-of-hearing, depression, anxiety, Saudi Arabia**

## 1 Introduction

Child maltreatment, including child abuse and neglect, lead to physical and psychological harm, and cause unwanted short- and long-term trauma to the victims. According to the World Health Organization (2022), child maltreatment includes "all forms of physical and emotional ill-treatment, sexual abuse, neglect, and exploitation that results in actual or

potential harm to the child's health, development or dignity." Defined to include physical, sexual, and emotional abuse, and neglect (Hillis et al., 2016), child maltreatment continues to be highly prevalent despite substantial evidence of its negative effects. For instance, In the United States alone, there were about 3.5 million reported cases of child abuse each year (Health and Services, 2013). Another meta-analysis reported that the global number of abuse victims aged 2–17 years was 1 billion (Hillis et al., 2016). Children in low- and middle-income countries have been found to experience higher incidences of abuse, whether in the form of corporal punishment or psychological abuse (McCoy et al., 2020). In fact, as compared to Africa, Europe, Latin America and North America, Asia was found to have the highest incidence of abuse among children aged 2–14 years (68%) (Lansford et al., 2020). Parents are the most common perpetrators of physical and psychological abuse of their children (McCoy et al., 2020), with parents being the abuser in 61.4% of the reported cases (MacNiven et al., 2020). Nevertheless, non-parental abusers are also common, including but not limited to a relative, school personnel, family friend, another child, etc. (Abuse, 2014).

Children with disabilities, including those who are Deaf and Hard-of-Hearing (DHH) are more likely to be exposed to violence both at home and in the school environment than are their normal peers, and they may experience domestic violence at an earlier age than their normal peers (Turner et al., 2011; Koivula et al., 2018; Wakeland et al., 2018). Factors contributing to higher maltreatment vulnerability among persons with disabilities include increased physical, emotional, and financial dependence on others to meet their basic needs, poor ability to control their lives, and poor knowledge about sex and touch (e.g., "Good" vs. "Bad" touch) (Plummer and Findley, 2012). Furthermore, the communication difficulties experienced by DHH individuals may contribute to this high risk of being abused (Fellinger et al., 2012). Among DHH children, those born to hearing parents may experience substantial communication difficulties owing to a lack of family members' knowledge of ways to communicate with their DHH child (Wakeland et al., 2018) or lack of social programs that support their learning of alternative communication methods such as sign language (Schwenke, 2019). Furthermore, lack of acceptance and the stigma of having a DHH child may cause negative familial attitudes, which may expose the child to aggression and abuse (Wakeland et al., 2018). Thus, poor communication may hinder the ability of DHH children to report abuse or identify sources of assistance within the community (Fellinger et al., 2012). Further, the stigma, social isolation, and rejection associated with hearing disabilities may contribute to the higher vulnerability to abuse. For instance, DHH individuals may sometimes be viewed as inferior or less humane than their hearing peers, and therefore, they may be more vulnerable to aggression and abuse as compared to their hearing peers (Admire and Ramirez, 2021).

Landsberger et al. (2014) reported that more than a third of young DHH individuals experience poor family relationships, suicidal behavior, poor communication, poor mental and physical health, and a higher incidence of certain clinical disorders. As compared to hearing peers, DHH children are more vulnerable to emotional abuse and neglect (Admire and Ramirez, 2021) physical abuse (Titus, 2010), and sexual abuse (Francavillo, 2009), with the incidence of sexual abuse being as high as 50% among children who experience communication difficulties (Francavillo, 2009). The high rate of sexual assault among DHH children may be because they are perceived as less likely to report the abuse, may not be aware that the sexual assault behavior is illegal, or may have limited sexual awareness (Denmark, 1994; Wakeland et al., 2018).

A large body of research has confirmed that child abuse and neglect are closely associated with the emergence of various mental illnesses (Norman et al., 2012), including but not limited to depression (Nelson et al., 2017) and anxiety disorders (Hovens et al., 2015). However, the incidence of mental health problems among DHH children is substantially higher than that among their hearing peers (Lightfoot and Williams, 2009; Fellinger et al., 2012). Nevertheless, being a population minority, there is little research on the mental health outcomes of DHH individuals (Barnett et al., 2011; Landsberger et al., 2014). This is also true in the Saudi context. Though not conclusive, extant literature suggests a 50–75% prevalence rate for child abuse in Saudi Arabia (Mogaddam et al., 2015; Almuneef M. et al., 2016). Almuneef M. A. et al. (2016) also reported that childhood abuse and violence were linked to increased rates of anxiety, depression, mental illness, drug use, smoking and alcohol dependence. However, the present authors failed to find similar studies conducted on the DHH population.

Though studies from other contexts show that *D*HH children are more vulnerable to child abuse and neglect, the prevalence of such maltreatments among Saudi DHH children, and their its effects on their mental health are currently unknown. Accordingly, the present study aimed to fill a research gap in the Saudi context, by exploring the following research questions:

1. What is the prevalence and severity of child abuse and neglect among the sample of DHH students in Saudi Arabia?
2. Does child abuse and neglect predict the level of depression and anxiety among the present sample of DHH students in Saudi Arabia?

# 2 Methodology

## 2.1 Participants

The current sample consisted of 186 DHH students enrolled in integration programs offered in southern Saudi Arabia (age range = 14–17 years; $M = 15.7$ years, SD = 3.41 years). Using G*Power version 3.1.9.7, we computed the recommended sample size for all the statistical tests used, with 0.05 α error probability and 85% power. The highest recommended sample size was for One-way ANOVA, which was 180. Thus, our final sample met the requirement. Purposive sampling was used to select participants who fit the following selection criteria: being aged 14–17 years, being identified as DHH (with hearing impairment level ranging from severe to profound hearing loss (> 81 dB HL), as recorded in the school reports), absence of other disabilities (confirmed through school reports), being able to communicate in sign language, which was the primary mode of communication used by the present researchers, providing voluntary informed assent to participate in the study, and who received voluntary informed consent from parents. Table 1 presents the detailed demographic information of the DHH participants.

TABLE 1 Demographic characteristics of the study participants.

| Demographic characteristics | | *f* | % |
|---|---|---|---|
| Participants' gender | Men | 102 | 54.83 |
| | Women | 84 | 45.61 |
| Parents' educational level | High school or less | 98 | 21.31 |
| | Graduation | 66 | 40.65 |
| | Higher than graduation | 22 | 38.03 |
| Parents' socio-economic level | High Level | 89 | 29.18 |
| | Middle Level | 65 | 34.94 |
| | Low Level | 32 | 17.20 |
| Number of children in the family | ≤1 children | 94 | 50.53 |
| | 2–4 children | 59 | 31.72 |
| | ≥ 5 children | 33 | 17.74 |
| Parents' hearing status | Hearing | 139 | 74.73 |
| | DHH | 37 | 19.89 |

## 2.2 Measures

### 2.2.1 Child abuse self-report scale

The Child Abuse Self-Report Scale (CASRS) (Kent and Waller, 1998) was developed to assess abuse and neglect experienced in the home environment. This self-report, 38-item questionnaire assess children's experience of four types of childhood maltreatment, namely, physical abuse (8 items) sexual abuse (5 items), emotional abuse (14 items), and neglect (11 items), which are rated on a 4-point Likert scale assessing the frequency of abuse. Total scores range from 0 to 152 points. Several studies have confirmed the reliability and validity of the CASRS (Kent and Waller, 1998; Mohammadkhani et al., 2003; Hadianfard, 2014). The current study confirmed good internal consistency in the DHH sample (Cronbach's $\alpha = 0.87$).

### 2.2.2 Center for epidemiological studies depression scale for children

The Center for Epidemiological Studies Depression Scale for Children (CES-DC; Weissman et al., 1980) is a self-report tool to assess the severity of depressive symptoms in individuals aged 6 to 17 years. The scale comprises 20 items rated on a 4-point Likert scale, with scores ranging from 0 to 60. Items 4, 8, 12, and 16 are reverse scored, and a total score of over 15 points is considered to indicate depression children and adolescents. The CES-DC has exhibited good internal consistency reliability in several studies with normal hearing children and adolescents (Weissman et al., 1980; Barkmann et al., 2008; Betancourt et al., 2012), and with children with disabilities (Quintero and McIntyre, 2010; Pepa, 2013; Çelik et al., 2018). It exhibited good internal consistency in the present DHH sample (Cronbach's $\alpha = 0.83$).

### 2.2.3 Generalized anxiety disorder questionnaire

The 7-item Generalized Anxiety Disorder Questionnaire (GAD-7; Spitzer et al., 2006) is a self-report tool that assesses the severity of generalized anxiety disorder symptoms based on DSM IV criteria. Assessing the frequency of symptoms experienced over the past 2 weeks, the GAD-7 takes approximately one to 2 min to administer. Each item is rated on a 3-point Likert scale, with total scores ranging from 0 to 21. Scores of 5, 10, and 15, are considered as cut-off points to indicate mild, moderate and severe anxiety symptoms, respectively. The scale showed good internal consistency (Cronbach $\alpha = 0.92$) and reliability (correlation within category = 0.83) in the original study (Spitzer et al., 2006), as well as subsequent studies with children and teenagers with normal hearing (e.g., Mossman et al., 2017; Sun et al., 2021) and with children and adolescents with disabilities (Pozzatti, 2020; Hammad, 2023). In the current study, it showed good internal consistency in the DHH sample (Cronbach $\alpha = 0.77$).

## 2.3 Data collection

For use in the present study, all three tools were translated from English to Arabic and then translated back into English by language experts, to ensure that the Arabic translation had the same meaning as the original questionnaire. First, the English version was translated into Arabic by a bilingual professor from the English Department in the researcher's institution. The Arabic version was retranslated into English by another professor who specializes in English and whose first language is Arabic. Subsequently, the Arabic and English translated versions were reviewed by three experts specializing in Arabic, Psychology, and English, respectively. Based on the consensus among the three specialists, some words and clauses were revised to create the final Arabic version of the tools. As the present sample of students preferred to communicate in sign language, the final Arabic version was translated into sign language by a specialist who teaches DHH students. Three teachers who worked in the schools with the DHH students were assigned to communicate directly with the participants and administer the questionnaires. This was done because the teachers were fluent in sign language and had a trusting relationship with the DHH participants. Prior to data collection, the researchers explained key jargon to the teachers, such as child abuse, depression, generalized anxiety, etc., to help them communicate their meanings effectively to DHH students. Subsequently, the teachers were asked to read the questionnaires carefully, and the researchers and teachers came to an agreement on how to translate them into sign language. Finally, the tools were pilot tested with a 4 DHH students (who were not included in the study sample). They were asked to clarify difficult words and unclear elements, and suggest easier alternatives. After incorporating their feedback, the tools were administered to the study sample.

Data were collected from February to April 2023. Before collecting the data, all DHH student participants and their parents completed informed consent forms that explained that their participation was voluntary, that all information obtained would remain strictly confidential, and that the data would only be used for research purposes. Their right to decline participation at any point in the study was also explained. Additionally, before the study began, the researchers obtained ethics approval from the Deanship of Scientific Research at ABC University (No. NU/DRP/SEHRC/12/3). The data collection process took 75 min for each participant, after which, the teachers and students received a small gift in appreciation of their participation.

## 2.4 Data analysis

All statistical analyses were performed using SPSS version 20. The internal consistency of the three tools used in the study was assessed by computing Cronbach's α coefficients because these tools had never been used in a Saudi sample of DHH students. Appropriate descriptive statistics (frequency and percentage or mean and standard deviation) were computed to examine the prevalence of child maltreatment and its severity in the present sample. Bivariate analyses (t-tests and ANOVA) were used to conduct comparisons across demographic variables. Finally, linear regression analysis was used to examine the relationship between child maltreatment and the two mental health variables of depression and anxiety scores. As explained later, appropriate control variables were included in the regression model. Statistical tests were calculated using guidelines from Cohen (Cohen, 2013).

# 3 Results

## 3.1 Child maltreatment among DHH students

Table 2 shows the prevalence of child abuse and neglect among the present sample of DHH students, across the 4 severity categories created by the researchers for the present analysis. Given that the CASRS does not provide specific cut-off points to determine the severity of maltreatment, the present authors utilized the following arbitrary classification for further analysis: 0–38 points: mild or no child maltreatment; 39–76 points: moderate maltreatment; 77–114 points: severe maltreatment; and ≥115 points: very severe maltreatment. Note that the psychometric properties of this classification have not been determined, and it has been used only for analytical purposes in the present study.

The results showed that, of the 186 DHH participants, 92 (50%) were exposed to a moderate level of child maltreatment, and 88 (about 47.3%) were exposed to a level ranging from severe to very severe. All students experienced each type of abuse/neglect at least to some extent. Furthermore, nearly all DHH participants (184, about 99%) reported having experienced moderate to very severe levels of emotional abuse and neglect, 164 (89%) reported having experienced moderate to very severe levels of physical abuse, and 93 (50%) reported having experienced moderate to very severe levels of sexual abuse.

Subsequently, one-way ANOVAs were conducted to examine differences in CASRS scores based on demographic characteristics with more than 2 categories. Significant group differences in CASRS scores were observed for parents' educational level ($F = 13.496$, $p = 0.000$), parents' income level ($F = 7.847$, $p = 0.001$), and number of children in the family ($F = 4.260$, $p = 0.016$). To further assess the nature of these differences, Scheffe's test was used for post-hoc analyses based on parents' educational level, parents' income level, and number of children in the family (Table 3).

As evident from Table 3, DHH students whose parents had a High school or less exhibited highest CASRS scores, followed by those whose parents had a graduation and Higher than graduation, respectively. Similarly, DHH students whose parents had a low income level exhibited highest CASRS scores, followed by those whose parents had medium and high income level, respectively. Finally, DHH students from families with ≥5 children exhibited highest CASRS scores, followed by those from families with 3–4 and 1–2 children, respectively. These results suggest that DHH children are more likely to experience abuse and neglect in families with more number of children, and when their parents have low educational and income levels.

For demographic variables with 2 comparison groups, a t-test was performed. Findings revealed that men participants tended to have higher CASRS scores as compared to their women counterparts ($t = 9.58$, $p < 0.05$; men s: $M = 90.42$, SD = 19.18; women s: $M = 82.65$, SD = 15.25). With reference to parents' hearing status, participants with DHH parents had lower CASRS as compared to their peers with hearing parents ($t = 9.16$, $p < 0.05$; participants with DHH parents: $M = 89.29$, SD = 17.06; participants with hearing parents: $M = 93.85$, SD = 18.64).

## 3.2 Depression and anxiety among DHH students experiencing child maltreatment

As mentioned before, all students in the present sample experienced at least some form of aubse or neglect. Concurrently, the overall depression and anxiety scores in this sample were high. Specifically, out of a total possible score of 0–60 on the depression tool, the mean score in this sample was 15.38 (SD = 4.35). Using the recommended cut-off of 15 points to diagnose depression, it was found that 52.68% of the DHH students in the present sample fell in the "depressed" category. With reference to anxiety, out of a total possible score of 0–21 points, the mean score in this sample was 11.16 (SD = 2.75). Using the recommended cut-off of 5, 10, and 15 for mild, moderate, and high anxiety, it was found that majority (46.23%) of the DHH students in the present sample fell in the moderate, followed by those in the mild (21.03%) and high anxiety (19.82%) categories, respectively. Together, these findings confirm the high incidence of depression and anxiety among DHH students.

TABLE 2 Prevalence of child maltreatment among DHH students.

| | No child maltreatment or mild *N* (%) | Moderate *N* (%) | Severe *N* (%) | Very severe *N* (%) | *M* (SD) |
|---|---|---|---|---|---|
| Emotional abuse | 2 (1.07) | 102 (54.83%) | 68 (36.55) | 14 (7.52) | 2.51 (0.63) |
| Physical abuse | 20 (10.75) | 51 (27.41) | 92 (49.46) | 23 (12.63) | 2.63 (0.83) |
| Neglect | 3 (1.61) | 54 (29.03) | 85 (45.69) | 44 (23.65) | 2.96 (0.74) |
| Sexual abuse | 93 (50.0) | 88 (47.31) | 5 (2.68) | 0 (0) | 1.52 (0.55) |
| CASRS Total | 4 (2.68) | 94 (50.53) | 73 (39.24) | 15 (8.06) | 2.55 (0.64) |

CASRS, Child Abuse Self-Report Scale.

TABLE 3 Post-hoc analyses results comparing CASRS scores based on demographic characteristics.

| Variables | | Mean difference* (I-J) | Std. Error | Sig. | 95% CI | |
|---|---|---|---|---|---|---|
| | | | | | Lower bound | Upper bound |
| (I) Parents' educational level | (J) Parents' educational level | | | | | |
| Higher than graduation | Graduation | −19.63 | 0.000 | 1.678 | −15.48 | −11.32 |
| | High school or less | −44.21 | 0.000 | 1.737 | −39.91 | 35.61 |
| Graduation | Higher than graduation | 11.32 | 0.000 | 1.378 | 15.48 | 19.63 |
| | High school or less | −28.45 | 0.000 | 1.623 | −24.43 | −20.41 |
| High school or less | Higher than graduation | 35.61 | 0.000 | 1.737 | 39.91 | 44.21 |
| | Graduation | 20.41 | 0.000 | 1.623 | 24.43 | 28.45 |
| (I) Parents' socio-economic level | (J) Parents' socio-economic level | | | | | |
| High level | Medium Level | −20.59 | 0.000 | 1.64 | −16.51 | −12.44 |
| | Low level | −43.78 | 0.000 | 1.78 | −39.35 | −34.92 |
| Medium Level | High level | 12.44 | 0.000 | 1.64 | 16.51 | 20.59 |
| | Low level | −26.91 | 0.000 | 1.64 | −22.83 | −18.75 |
| Low level | High level | 34.92 | 0.000 | 1.78 | 39.35 | 43.78 |
| | Medium Level | 18.75 | 0.000 | 1.64 | 22.83 | 26.91 |
| (I) Number of children in the family | (J) Number of children in the family | | | | | |
| 1–2 children | 3–4 children | −23.62 | 0.000 | 1.66 | −19.50 | −15.38 |
| | ≥ 5 children | −42.08 | 0.000 | 1.83 | −37.54 | −33.00 |
| 3–4 children | 1–2 children | −15.83 | 0.000 | 1.66 | 19.50 | 23.62 |
| | ≥ 5 children | −22.08 | 0.000 | 1.63 | −18.03 | −13.98 |
| ≥ 5 children | 1–2 children | 33.00 | 0.000 | 1.83 | 37.54 | 42.08 |
| | 3–4 children | 13.98 | 0.000 | 1.63 | 18.03 | 22.08 |

CASRS: Child Abuse Self-Report Scale. *All mean differences are significant at the 0.05 level.

Table 4 presents the results of the linear regression analysis conducted to examine the relationship between DHH students' maltreatment and mental health scores. Since all five demographic variables exhibited significant group differences in the CASRS scores, they were included as control variables in the analysis.

Gender, parents' educational level, parents' income level, number of children in the family, and parents' hearing status were included as control variables.

The results revealed that depression and anxiety were significant predictors of maltreatment scores in the present sample of DHH students, with both variables together explaining over 80% of the variance in maltreatment scores. With every 1 point increase in the depression and anxiety score, there was a 1.7 and 1.8 point increase in the maltreatment score, respectively. These findings confirm the association of child maltreatment with depression and anxiety among DHH students.

TABLE 4 Linear regression analysis of association between child maltreatment, and depression and anxiety.

| Variables | B | Std. Error | Beta | *t* | *p* |
|---|---|---|---|---|---|
| Constant | 6.38 | 62.21 | 9.74 | | 0.00 |
| Depression | 0.397 | 1.67 | 4.20 | 0.339 | 0.00 |
| Anxiety | 0.58 | 1.82 | 4.20 | 0.23 | 0.002 |

$R = 0.903$; $R^2 = 0.815$; Adjusted $R^2 = 0.807$; $F = 111.79$, $p < 0.05$.

## 4 Discussion

Parental abuse (including the use of physical or psychological punishment) and neglect undoubtedly have several short- and long-term, physical and psychological effects on the child (Gershoff and Grogan-Kaylor, 2016; Hammad and Awed, 2020; Kong et al., 2021a,b). Children who experience parental abuse often present with co-existing conditions such anxiety, depression, constant fear, lack of security and psychological stability, low self-esteem, and poor self-confidence and personal competence (Xing and Wang, 2013; Maxwell and Huprich, 2014; Taillieu et al., 2016; Kong et al., 2021b; Awed and Hammad, 2022; Liu et al., 2023). The main objective of the present study was to fill the gap in the literature on child maltreatment and its relationship with mental health outcomes in the DHH population, a minority group that is rarely researched upon, especially in

Saudi Arabia. This study was the first of its kind (to the best of the researchers' knowledge) to examine these issues in a sample of DHH students in Saudi Arabia by taking demographic variables into account. The results showed that more than 50% of the DHH students experienced at least a moderate level of maltreatment, and about 47.3% experienced severe to very severe levels. With a combined incidence of about 97%, this incidence of child abuse and neglect in the present sample is extremely concerning. Furthermore, while about 50% of the students reported having experienced sexual abuse, over 89% reported experiencing physical abuse, and nearly all students (99%) experienced emotional abuse and neglect. These findings corroborate those reported in several previous studies (e.g., Kvam, 2004; Fellinger et al., 2012; Schenkel et al., 2014; Wakeland et al., 2018; Admire and Ramirez, 2021), which reported high incidences of multiple types of abuse (physical, emotional, and sexual abuse, and neglect) among DHH individuals of different ages, including children.

Furthermore, significant group differences were observed in terms of their demographic characteristics, with men s, having parents with low education and income levels, and belonging to a family with 5 or more children exhibiting higher maltreatment scores. These findings offer additional insight into the socio-cultural factors that may be influencing the parent–child relationship with DHH children, and therefore, the latter's vulnerability to abuse and neglect. As evidenced by a higher incidence of maltreatment in DHH children with hearing parents in the present study, communication and attitudes toward DHH children seem to play a vital role. Majority of DHH children estimated at over 95% by Hindley (2005) are born into hearing families with no previous experience of deafness (Landsberger et al., 2014). Hence, such parents often experience difficulties in communicating with their DHH child, and/or accommodating to their different needs (Opoku et al., 2022). This may lead to higher levels of parental frustration, and possibly a higher likelihood of using harsh disciplinary strategies (including but not limited to scolding, harsh language, and corporal punishment). Evidently, this may increase the DHH child's vulnerability both physical and emotional abuse (Knutson et al., 2004). This is supported by the present results that DHH participants were less likely to experience maltreatment when they had DHH parents as compared to their peers with hearing parents. In addition (Schenkel et al., 2014) reported that the severity of hearing impairments was associated with lower levels of communication with others, which may put children at greater risk of abuse and aggression. Further, they added that DHH children are less likely to report or even talk about aggression with others, and therefore, perpetrators may feel reassured that they are not held accountable for the child abuse (Schenkel et al., 2014). Relatedly, hearing disability is associated with limited access to information through various media, or access to support from social institutions, thus mitigating their access to education, health services, or psychological support to reduce their vulnerability to abuse (Schenkel et al., 2014).

The present results also indicated a very high incidence of emotional abuse and neglect. This result needs to be examined in the context of cultural norms and values prevailing in some societies. For example, in the Lebanese society, which is similar to the Saudi society in terms of socio-cultural norms, it is considered normal for children to take care of themselves without parental supervision at a younger age (Sawrikar, 2014). With DHH children being dependent on the parents, siblings, or other close family members for a longer period, their dependence may be a source of stigma, isolation, and possible aggressive behavior toward them. Socio-cultural differences in what is acceptable parenting behavior is also an important factor. For instance, in several traditionalistic societies, parents' or adults are considered as an authority figure and the use of some amounts of violence (e.g., smacking, scolding, corporal punishment) could be considered harmless and may even be viewed as appropriate parental supervision (Fekih-Romdhane et al., 2022). Especially in the case of DHH children in the Saudi society, keeping them away from certain experiences, controlling every aspect of their life, enforcing parental decisions on the child, etc., are considered a matter of caution or protective behavior toward the child and not as deprivation or emotional abuse.

With reference to gender, the present study found that men students exhibited higher maltreatment scores as compared to their women counterparts. This finding corroborated the higher incidence of child abuse and neglect among men s as compared to women s reported in previous studies (Almuneef M. A. et al., 2016; Fekih-Romdhane et al., 2022). This may partly be because women s are generally better at perceiving verbal and non-verbal behaviors. As explained by Darling and Heckert (2010), women s tend to be more polite and friendly as compared to men s, while men s appear more dominant and aggressive. Possibly, women children are better at observing and understanding parental behaviors, and thus modify their own behaviors to avoid punishment. Furthermore, in the Saudi society, men children bear responsibility to safeguard and continue the family name or pride. Therefore, they may be subject to stricter discipline as compared to women children.

The results also indicated that DHH students with parents with lower levels of education and income had higher scores on maltreatment. Parents with low education may also be likely to have low-paying jobs, and the related stressors from both these factors may strain their relationship with family members, including their children. Additionally, providing for a child with special needs, such as DHH children, may be an additional source of financial stress for them. Indeed, family income, specifically poverty at the individual and neighborhood levels, have been found to be closely related to a higher risk for experiencing child abuse and neglect (Pelton, 2015; Maguire-Jack and Font, 2017). Furthermore, having a large family to take care of could be another stressor (Mikolajczak et al., 2018). As found in the present study, DHH children belonging to families with over 5 children had higher maltreatment scores. This may be related to the financial and emotional stress on parents to meet all children's needs (Lundberg et al., 1994; Mikolajczak et al., 2018). Another aspect of parents' low educational level could be their lack of awareness of their child's rights and confidence in their own parenting skills (Yaghoubi-Doust, 2013) reported that parents with higher education have higher self-confidence and awareness of their children's rights, due to which they may refrain from using harsh parenting. Further, with limited knowledge, awareness, and education, such parents may be less adept at accessing and utilizing the social supports available to them as low-income families or as those taking care of a child with a disability. With limited social resources to tap into, these parents may rarely receive reprieve from their struggles of caring for a DHH child. This could also circle back to lack of resources to improve their skills in taking care of a DHH child, e.g., learning sign language and more effective communication strategies.

With reference to mental health outcomes, the current results also showed high incidences of depression and anxiety in the present sample, which could be partly attributed to their hearing status itself, and the struggles, stigma, and isolation that come with it, and partly to their experience of maltreatment. Previous studies have confirmed the association between child maltreatment and poor mental health among DHH individuals (Wright et al., 2009; Schenkel et al., 2014). It is well-established that repeated and prolonged maltreatment leads to feelings of worthlessness, shame, guilt, depression, anxiety, and low self-esteem among victim (Huang et al., 2010; Fakhari et al., 2012; Fellinger et al., 2012). Higher exposure to maltreatment is also linked to a higher degree of maladaptation and psychological incompatibility, thus suggesting that child maltreatment victims are also highly likely to exhibit behavioral and emotional dysfunction (Hampton, 1999). Further, as mentioned earlier, poor communication between parents and the related isolation and loneliness experienced by the DHH children may exacerbate their mental ill-health (Fan et al., 2023).

Though this study has several valuable findings, it is important to consider its limitations while drawing conclusions and practice implications.

## 4.1 Limitations of the study

The first set of limitations pertains to the sample utilized in the present study, which limit the generalizability of its findings. For instance, the sample only included DHH secondary students attending an integration program in schools in southern Saudi Arabia. Even considering the population of DHH children and adolescents, the limitations in terms of representation of age groups, geographic location and related socio-cultural differences, etc. cannot be ignored. Therefore, the present prevalence data, as well as other findings are more specific to the population that may share characteristics with the present limited sample of DHH secondary students attending an integration program in schools in southern Saudi Arabia. In reality, auditory and cultural definitions of the term "deaf" affect identity, group affiliation, and social concepts. In addition, the current sample included only DHH students from regular schools offering integration programs. Hence, DHH sample of DHH students may have unique sociocultural characteristics compared to DHH students who may not be similarly educated. As such, current results should have been interpreted considering the social and cultural characteristics of integrated DHH students. With integration, it is also important to note that the aspects of belongingness to the "Deaf" community and/or "hearing" community, and the individuals', families, society's perception of their "Deafness" were not included in the present study. This sense of belongingness with the "Deaf" community could act as a protective factor against maltreatment, long-term trauma, and mental health outcomes (Schenkel et al., 214). Further, it could be also linked to these children's lack of identification with their hearing parents, which may be another factor causing frequent interpersonal problems among them. This too could explain the higher incidence of maltreatment among DHH students with hearing parents. Furthermore, there too, the present sample did not clarify if one or both parents' hearing status did not match that of the participant. Having at least one parent with hearing impairments may change the dynamic in the household. However, unfortunately, the present dataset did not contain such information. Further, both maltreatment and mental health outcomes, and their interplay with hearing status could be influenced by several other socio-demographic factors not included in the present study. For instance, having another DHH sibling could be a protective factor against maltreatment (Schenkel et al., 2014). Additionally, parents' mental health, their own experience of maltreatment as children or adults, personality factors, etc., could influence their relationship with their children, including the DHH child. In future, similar studies on DHH children and adolescents should aim to include different socio-cultural factors.

Finally, as with all cross-sectional studies, the causal relationship between child maltreatment and mental health outcomes cannot be established. The participants' depression and anxiety could precede their experience of maltreatment, and could be factors that rendered them vulnerable to maltreatment owning to the cognitive, perceptual, and emotional effects of these mental illnesses on the individual. Further, the maltreatment and mental health outcomes could have a bidirectional relationship augmenting each other's effects. Future longitudinal, controlled, and/or qualitative studies could shed more light on these relationships.

Despite these limitations, current findings possess merit as they add to the extant literature by exploring a relatively unresearched topic on the present target population, especially in Saudi Arabia. This preliminary study opens up prospects for future research in this area. Further examination of the impact of parental abuse on different aspects of DHH students' development, such as psychological, emotional, social, cognitive, and academic aspects, may provide valuable information that can be used to develop effective interventions and training programs. Finally, more research may be needed on the prevalence and impact of peer or teacher abuse and bullying on DHH children. With these strengths, the present study offers important insights and practice implications.

# 5 Conclusions and implications

The main objective of this study was to determine the prevalence and mental-health effects of child maltreatment on the present sample of DHH students in Saudi Arabia. Our findings showed that a large majority of the participants experienced moderate to very severe levels of various types of abuse and neglect, and all of them experienced at least one type to at least some extent. Further, statistically significant differences based on gender, parents' educational and income level, number of children in the family, and parents' hearing status revealed important socio-demographic factors that may contribute to the DHH students vulnerability to abuse and neglect. Finally, the results of the linear regression analysis indicated that depression and anxiety predicted the prevalence of maltreatment, explaining over 80% of the variance in maltreatment scores. When combined with past research in this field, the present findings provide strong evidence of the negative impact of child abuse and neglect on the mental health of DHH students, and vice versa. Therefore, it is important to recognize parental abuse among DHH children and adolescents as a public health concern and to develop appropriate strategies to prevent the same. Provision of support to parents in terms of socio-economic stressors, parent–child communication, and the conscious or unconscious bias against DHH children would go a

long way in preventing the triggers that may lead them to engage in abusive behaviors toward their DHH child. Further, different professional, and governmental and non-governmental agencies working with DHH individuals and their families, including those in the field of public health (physical and mental health), child protection, justice, law, etc., need to consider integrated services that cater to the needs of the DHH individuals and their family as a whole. In the present study, communication difficulties and the social isolation experienced by DHH children within their families, especially when they belong to families without other DHH individuals (e.g., parents or siblings), emerged as one of the risk factors for parental abuse. Therefore, focus should be on providing parents skills and knowledge related to effective communication skills (e.g., sign language), appropriate parenting strategies (e.g., conflict resolution and disciplining), and effectively utilizing the existing government aids and services, and their social network to tackle their parenting challenges. Finally, considering DHH individuals or those with any visible or invisible disability, reducing the social stigma associated with their disability is an important part of achieving long-term protection efforts. False stereotypes about and negative views of DHH individuals can lead to increased feelings of shame and inferiority in the individuals themselves, and in their immediate family members, leading to greater social isolation, anxiety, depression, and the risk of maltreatment. Therefore, awareness programs, diversity and inclusion measures, appropriate accommodations, etc., are required to improve the overall quality of life of DHH individuals and their family, and to reduce their vulnerability to maltreatment within and outside their family.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Ethics statement

The studies involving humans were approved by the authors complied with APA ethical standards, and the ethics guidelines of Najran University. The study was approved by the Deanship of Scientific Research at Najran University (NU/IFC/2SEHRC/-/27). Participation in the research was voluntary and informed consent was obtained from all participants. The studies were conducted in accordance with the local legislation and institutional requirements. Voluntary informed consent was provided by the participants' legal guardian/next of kin.

## Author contributions

MH: Conceptualization, Data curation, Methodology, Writing – original draft, Writing – review & editing. MA-O: Conceptualization, Methodology, Writing – original draft. HA: Conceptualization, Methodology, Writing – original draft.

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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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# Considerations in cultural adaptation of parent–child interventions for African American mothers and children exposed to intimate partner violence

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African American women are at disproportionate risk of experiencing intimate partner violence (IPV) and consistently report more severe and recurrent IPV victimization in comparison to their White and Hispanic counterparts. IPV is more likely to occur in families with children than in couples without children. Parenting in the wake of IPV is a challenging reality faced by many African American women in the United States. Despite the urgent need to support mothers who have survived IPV, there is currently no culturally adapted parenting intervention for African American mothers following exposure to IPV. The aim of this review is to summarize and integrate two disparate literatures, hitherto unintegrated; namely the literature base on parenting interventions for women and children exposed to IPV and the literature base on parenting interventions through the lens of African American racial and cultural factors. Our review identified 7 questions that researchers may consider in adapting IPV parenting interventions for African American women and children. These questions are discussed as a possible roadmap for the adaptation of more culturally sensitive IPV parenting programs.

KEYWORDS

**African American families, parent–child intervention, intimate partner violence, cultural adaptation, parenting**

## Introduction

Intimate partner violence (IPV), defined as physical and/or sexual violence, stalking, and/or psychological aggression inflicted by a current or former intimate partner (Breiding et al., 2015), is a significant public health concern that leads to harmful short-term and long-term physical and mental health consequences, particularly for women (e.g., Cimino et al., 2019). Nearly one in three women in the United States experience stalking and/or physical or sexual IPV at least once in their lifetime (Basile et al., 2011; Smith et al., 2018). While 41.2% of African American women experience physical victimization by an intimate partner in their lifetime, women overall experience lower rates (31.5%) (DuMonthier et al., 2017). Further, in

2020, African American women were victims of intimate partner homicide at a rate nearly three times higher than their White counterparts (DuMonthier et al., 2017; Violence Policy Center, 2022).

African American women experience IPV in qualitatively different ways than women from other racial groups and thus, are disproportionately impacted by IPV (Powell, 2008). For instance, African American women encounter systemic and institutional racism, historical trauma, and the resultant structural inequalities, which elevate the risk of IPV, perpetuate domestic violence and create barriers to formally reporting or seeking help for IPV (West, 2012; Kelly et al., 2020). Moreover, African American women encounter additional challenges in the wake of experiencing IPV, such as revictimization by the criminal justice system, increased risk of losing custody of their children, and inadequate healthcare (DuMonthier et al., 2017). Indeed, their lived experiences of racism, discrimination, and neglect from the intersecting criminal justice and health care systems and anticipation of an adverse experience with health providers and law enforcement deter them from seeking help and utilizing available domestic violence services until their abuse is at "peak lethality level" (Waller et al., 2022; Waller and Bent-Goodley, 2023).

The COVID-19 pandemic and resultant stay-at-home orders have exacerbated IPV issues over the last three years, with rates of IPV rising due to economic instability, heightened stress, increased opportunity for relational conflict, and the breadth of IPV resources (e.g., hotlines, shelters) becoming narrower due to limited shelter availability and police efforts to limit arrests to felonies (Buttell and Ferreira, 2020; Evans et al., 2020). Recent findings on the impact of COVID-19 on IPV survivors underscores the disproportionate risk for IPV for African American women, which is consistent with a "dual pandemic" perspective on African American women's heightened vulnerability to COVID-19 and IPV due to notable social determinants of health, social injustice, and racism (Wood et al., 2023). Against this background and the recently increased salience of IPV related to COVID-19, effective interventions are critical to addressing this serious public health issue among African American women.

## Impact of IPV exposure on child outcomes and caregiving behaviors

Many women who are impacted by IPV are also mothers. Research on the associations between exposure to IPV and child outcomes consistently concludes that children who are exposed to IPV suffer a variety of harmful consequences that impact their psychological, emotional, behavioral, cognitive, and physical well-being and span from infancy through late adolescence (Carlson et al., 2019). Indeed, some authors consider IPV exposure to be a distinct form of child maltreatment (Wathen and MacMillan, 2013; Kimber et al., 2018), and it is often included in measures of adverse childhood experiences (Negriff, 2020).

Children's exposure to IPV increases their risk of internalizing, externalizing, and adjustment problems, with the strength of these associations increasing over time and with broader operationalizations of IPV (i.e., both physical and psychological IPV versus physical IPV alone; Vu et al., 2016). Specifically, compared to their peers, IPV-exposed children and youth are more likely to experience higher levels of depressive and anxiety symptoms; exhibit higher levels of externalizing behaviors, including aggression, bullying, inattention, and impulsivity; and have greater academic and social difficulties (e.g., Fantuzzo et al., 1991; Kitzmann et al., 2003; Osofsky, 2003; Wolfe et al., 2003; Hungerford et al., 2012; Fong et al., 2019; Sharp et al., 2020). In preschool-aged children, IPV exposure is also associated with cognitive deficits, including reduced short-term and working memory capacity and executive functioning (Jouriles et al., 2008a). Further, physiological impacts, including posttraumatic stress symptoms, and more frequent health problems, such as asthma, allergies, and dizziness, have also been observed (Perry, 2001; Kuhlman et al., 2012; Levendosky et al., 2013). Notably, long-term psychosocial impacts have also been demonstrated, with increased relationship challenges in later life and heightened risk of intergenerational transmission of violence, either as victims or perpetrators (Evans et al., 2008; Wathen and MacMillan, 2013; Kimber et al., 2018). In short, it is evident that exposure to IPV interrupts critical developmental trajectories for children and has a multitude of adverse consequences.

Beyond the primary physical and psychological impacts of IPV on survivors' children, current research on the implications for caregiving behaviors and the parent–child relationship reflects mixed findings. The cascading effects of IPV exposure onto parenting behaviors and subsequently onto child outcomes have been conceptualized using a *spillover* model, which hypothesizes that abusive behavior within parents' relationships "spills over" into their parenting practices and therefore increases the risk of abusive parenting and disruptive behaviors in their children (Krishnakumar and Buehler, 2000; Whiteside-Mansell et al., 2009). Indeed, the vast majority of researchers have found that parenting quality becomes compromised in households where IPV is experienced, highlighting the evidence linking IPV and negative parenting practices, such as higher levels of harsh discipline, physical abuse, and neglect (Jouriles et al., 2008b; Chiesa et al., 2018), and attachment difficulties (Velotti et al., 2018; McIntosh et al., 2021). Mothers affected by IPV have been observed to experience diminished parental effectiveness and authority and are more likely to demonstrate physical and psychological aggression toward their children. In addition, IPV victimization is linked with negative parenting and maternal psychological functioning (Gustafsson and Cox, 2012).

However, mothers in relationships with IPV have also been shown to make substantial efforts to protect their children and compensate for their children's exposure to IPV by increasing their sensitivity to their children's needs (Letourneau et al., 2007; Lapierre, 2010; Chiesa et al., 2018). Indeed, some mothers appear to utilize more effective parenting strategies as well as resilient strategies, such as seeking out additional internal and external resources to promote positive family well-being (Gavidia-payne et al., 2015), suggesting that not all mothers' parenting becomes compromised (Levendosky et al., 2003). IPV survivors may also paradoxically resort to harsh or physical discipline in an attempt to protect their children from the abuser (Little and Kaufman Kantor, 2002). Put differently, mothers may discipline their children harshly as a protective mechanism to mitigate future violence perpetrated by the abuser by keeping their child "in line." Most mothers who have survived IPV are fundamentally motivated to be "good" mothers and, against this backdrop, the effects of IPV on their children are often a driving factor in regaining their sense of power as a mother and in seeking help (Lapierre, 2010; Sousa et al., 2021). Qualitative studies have also found that children themselves identify mothers as the most

important protective factor in the wake of IPV (Mullender et al., 2002).

Taken together, and considering these protective efforts, sensitive maternal caregiving is an important buffering mechanism against the adverse effects of IPV (Anderson and Van Ee, 2018; Austin et al., 2019). Thus, consistent with resiliency frameworks, several intervention programs have been developed to prevent impairment from IPV exposure by targeting maternal sensitivity and caregiving behaviors. Yet, as we will discuss below, despite the disproportionate rates of IPV exposure among African American women and their children and the rise in IPV associated with the COVID-19 pandemic, an IPV parenting intervention adapted specifically for African American mothers has not been developed.

## Current family-based interventions for IPV survivors

Recent systematic reviews of parenting interventions for mothers and children exposed to IPV (e.g., Anderson and Van Ee, 2018; Lindstrom Johnson et al., 2018; Austin et al., 2019) have identified several programs, including but not limited to Moms' Empowerment Program (Graham-Bermann and Miller, 2013), Project Support (Jouriles et al., 2001, 2009), and Child–Parent Psychotherapy (Lieberman et al., 2005). These established programs have demonstrated improvements in mother–child interactions and other treatment targets, including significant increases in positive parenting practices (Howell et al., 2015; Grogan-Kaylor et al., 2019), greater reductions in inconsistent and harsh parenting behaviors, and greater reductions in conduct problems (Jouriles et al., 2001; McDonald et al., 2006). Additional positive outcomes of current IPV parenting programs have included reduction in maternal distress and trauma symptoms (Lieberman et al., 2005, 2006). Overall, Lindstrom Johnson et al.' (2018) meta-analysis demonstrated moderate to large effect sizes for increases in positive parenting practices ($d = 0.72$) and reduction in child internalizing, externalizing, and trauma symptoms ($d = 0.48$–$0.59$). While additional programs have been developed for mothers and children exposed to IPV (e.g., Kamal et al., 2017; Katz et al., 2020), here our aim is to distill and summarize common characteristics of parenting interventions developed for IPV-exposed families, irrespective of race or ethnicity, to facilitate later integration with the literature on parenting interventions designed for African American women.

First, family-focused IPV programs all necessitate the engagement of caregivers as the primary target of the intervention, with greater variability in the inclusion of children and the extent to which they are involved. IPV programs tend to collect outcome data from children to assess intervention effects but whether children are also recruited as additional subjects to engage in the intervention varies across programs. Further, when both parents and their children are involved as treatment targets, programs use a variety of session formats; namely, separate (i.e., concurrent mother and child groups or counseling sessions), joint (i.e., mothers and children attend the same group or session), or combined (i.e., both separate and joint groups or sessions) sessions. Nonetheless, while the inclusion of children as treatment subjects varies by program and may inform programmatic decisions about session format and content (detailed below), it is clear that an integral component of any family-based IPV program, regardless of race or ethnicity, is the primary engagement of parents in the intervention.

Second, as summarized in Austin and colleagues' systematic review (Austin et al., 2019), what is common to most IPV-family based programs with respect to intervention themes is the following: improving mother–child interactions and relationship quality, enhancing parenting knowledge and skills, developing adaptive coping and problem-solving strategies, and providing social support to mothers. Treatment targets for mothers tend to focus on improving mothers' parenting and disciplinary practices, parenting confidence, psychological adjustment and processing of IPV, emotion regulation and coping strategies, and child management skills. Child outcomes include children's psychological adjustment, behavioral outcomes, social competence, emotion regulation and coping strategies, and understanding of IPV. Programs explicitly designed to target both parent and child outcomes through conjoint parent–child intervention aim to improve the quality of parent–child interactions and/or a combination of the aforementioned parent-and child-specific variables. Overall, the study aims of most IPV programs target behaviors and outcomes in mothers or in both mothers and their children, with less targeting children only (Austin et al., 2019).

Third, family-based IPV intervention programs are often guided by some theoretical orientation that then informs the specific intervention components, which varies by the specific therapeutic framework (e.g., trauma-focused cognitive behavioral therapy, trauma-informed attachment-based, emotion-focused, filial therapy, parent–child interaction therapy, child–parent psychotherapy). For instance, trauma-focused interventions may incorporate some aspect of trauma processing, whereas programs guided by parent–child interaction therapy provide a basis for teaching child management skills while enhancing the attachment relationship.

Another common component of these family-based interventions are the considerations made for the mode of delivery (e.g., in-home, community-based, group format, phone consultation, integration into existing services) and type of intervention facilitators (e.g., social workers, clinicians, mentor mothers), regardless of families' races and ethnicities. Next, IPV parenting programs often include some element of safety planning, building conflict-resolution skills, and processing IPV exposure, which is common among interventions for IPV-exposed families but a unique feature that differentiates these programs from other psychosocial family interventions developed for broader contexts with non-traumatized populations.

Finally, family-based IPV programs share common recruitment methods, such that mothers tend to be recruited from IPV shelters, the broader community, by referrals from local agencies, or by court mandate. Notably, conclusions from a review by Anderson and van Ee (2018) suggested that the most successful psychosocial recovery interventions for mothers and their children following IPV likely incorporate both separate and joint mother–child sessions and focus on improving mother–child interactions.

Importantly, while research supports the effectiveness of existing parenting programs for IPV-exposed mothers and children, the extent to which these positive effects generalize to African American women and their children is unclear. Specifically, parenting interventions for mothers and children exposed to IPV have been implemented in samples that included African American mothers and children, but analyses of intervention effects for subgroups of families, such as African American families, have not been conducted. As a result, it is

unclear if the findings generalize to specific groups. Furthermore, there are reasons to believe that the positive effects of interventions designed for mothers and children exposed to IPV can be improved for African American families. That is, the interventions that have been evaluated thus far do not explicitly incorporate cultural components of African American parenting practices. Family-based programs that attend to the unique sociocultural contexts of diverse families can improve positive parenting and psychosocial outcomes in parents and their children (Coard et al., 2007; Smith et al., 2022). Next, we turn to the literature on African American parenting practices and a discussion of how existing parenting programs for IPV-exposed mothers and children might be enhanced for African American mothers and children.

## African American parenting practices and parenting programs

### Parenting practices in African American families

African American parents encounter a distinct set of parenting challenges in the United States. While navigating discrimination, racism, limited access to healthcare, disproportionate rates of poverty, unemployment, and incarceration, they must also contend with raising their youth in this environment (Coard et al., 2007). Parenting practices in African American communities differ from other communities in that they consider a range of factors (social, economic, individual) and are aimed to prepare children to navigate societal realities, where they will face and must cope with racial discrimination and systemic inequalities (Kotchick and Forehand, 2002). For instance, central to African American parenting is the use of racial socialization practices; the socialization process by which parents transmit verbal and non-verbal messages about the significance of their racial/ethnic group, and their children subsequently "acquire the behaviors, perceptions, values, and attitudes of [their] ethnic group, and come to see themselves and others as members of the group" (Phinney and Rotherham, 1987, p. 11). For African American families, racial socialization practices are those that teach youth what it means to be Black by instilling a strong sense of African American culture and pride, explaining the dynamics of inter-and intragroup interactions, and preparing them for the negative race-related challenges they will face (Stevenson, 1994; Lesane-Brown, 2006). Growing evidence suggests that African American youth experience better psychosocial outcomes when their parents use more racial socialization practices (Coard et al., 2004; Wang et al., 2020). In addition to these socialization practices, shared parenting responsibility with extended family members, and having spiritual or religious faith are highly valued within the African American community (Coard et al., 2004). These constitute important supports for African American youth, as they promote healthy psychological well-being and positive self-concept, reduce risk-taking behaviors, and serve as a coping mechanism against racism and discrimination (Butler-Barnes et al., 2018; Rose et al., 2020).

Prior literature has demonstrated that African American parents tend to use physical disciplinary strategies more frequently than White parents and are more likely to be described as authoritarian, a parenting style characterized by low warmth and high control through restrictive parenting practices that utilize harsh, punitive disciplinary methods (Baumrind, 1971; Maccoby and Martin, 1983). In light of this, studies on African American childrearing strategies often evaluate the impact of authoritarian parenting practices and other indices of parental control, including strictness, monitoring, intrusiveness, physical discipline (e.g., spanking), and demanding behaviors on African American children (Tamis-LeMonda et al., 2008). While an authoritarian parenting style tends to be associated with negative child outcomes in White youth, outcomes have resulted in mixed findings for African American children. For instance, higher levels of parental physical discipline have been found to predict higher levels of externalizing behaviors among White children but lower levels of aggression and externalizing behaviors in African American youth (Deater-Deckard et al., 1996). Conversely, other findings indicate that the authoritarian style and its characteristics are associated with negative outcomes for both White and African American children (Kelch-Oliver and Smith, 2015). It is also noteworthy that African Americans' use of physical discipline stems from the institution of slavery, wherein parents used harsh discipline to promote their children's survival (Bradley, 1998; Thomas and Dettlaff, 2011; Kelch-Oliver and Smith, 2015), and is continued even now, given the continued presence of racism, white supremacy, antiblack rhetoric, and police killings of Black people (Patton et al., 2021).

Despite mixed evidence of authoritarian parenting and harsh discipline on African American children, research with African American youth has pointed to the universality of the positive benefits of supportive, responsive parenting behaviors (e.g., Elmore and Gaylord-Harden, 2013). As a result, parenting interventions aimed at increasing parental sensitivity, responsiveness, and warmth and reducing harsh, controlling disciplinary practices to promote positive child outcomes have been developed for African American parents-aims that are consistent across several programs for families in which there has been IPV. Further, a common theme in these tailored parenting interventions is the promotion of racial socialization practices and recognition of the "broader historical context and functional significance of physical discipline in African American culture" (Kelch-Oliver and Smith, 2015, p. 27). We highlight key culturally-relevant components of select African American parenting programs, which are distinct from many "standard" parenting programs for IPV-affected families, in the forthcoming section. Of note, these select parenting programs were included based on our literature review of parenting interventions for Black and African women, which yielded studies based on a search strategy using a combination of search terms and their adjectives or derivatives (*African American, Black, mothers, families, parenting intervention, parent training*) and review of reference lists of relevant articles. The parenting programs described below include those identified in our review that provided details of the intervention components, evaluated treatment outcomes, and/or described the process of cultural adaptation.

### African American-focused parent-training programs

The Effective Black Parenting Program (EBPP; Alvy, 1987; Alvy and Marigna, 1990) is a cognitive-behavioral, skills-based program designed specifically for parents of African American school-aged children to improve parental behaviors (e.g., reducing coercive disciplinary practices, increasing positive parenting practices), parent–child relationship quality, and child behavioral and

socioemotional outcomes. Parents are encouraged to explore the functional purpose of their rules and provide this rationale to their children (i.e., "appeal to their minds and not their behinds") and to consider the developmental and environmental causes of their children's misbehaviors (Myers et al., 1992). Additionally, parents are taught specific behavioral management strategies for increasing desirable behaviors, such as using behavior-specific praise and small incentives, and reducing undesirable behaviors, such as time outs and ignoring. Importantly, the EBPP carefully considers and integrates several aspects of African American culture into its framework and delivery. In line with racial socialization practices, parents are encouraged to instill *pride in Blackness* (Myers et al., 1992) in their children while also helping them to cope with race-and ethnicity-related issues. Discussions of coercive parenting practices (i.e., physical discipline) are sensitive to the historical significance and adaptive utility of these practices and acknowledge their contemporary use as protective measures against dangerous environments and the race-related consequences of violating social norms. However, through meaningful discussions parents are motivated to engage in positive parenting behaviors and challenged to view these traditional disciplinary strategies as potentially interfering with their children's ability to become empowered individuals who can effect social and economic change (Myers et al., 1992). Finally, the EBPP is culturally-sensitive in its program delivery in that it is exclusively delivered by African American professionals. Regarding treatment outcomes, Myers et al. (1992) reported mixed findings on two cohorts of families participating in EBPP. Treatment parents reported significant pre-posttest reductions in parental hostile/aggressive rejection and parental undifferentiated rejection compared to control parents in both cohorts, with an observed trend for reductions in these specific parenting practices at 1-year follow-up, though not statistically significant ($p < 0.07$). There was also mixed evidence of significant group differences in improvements in family relations or child behavior outcomes in the two cohorts, as well as a surprising finding of regression to aggressive parenting practices among treatment parents at 1-year follow-up. Thus, while the EBPP is among one of the first culturally adapted interventions for African American families, that its evidence base has few sustained statistically significant findings is a notable program limitation.

The Black Parenting Strengths and Strategies (BPSS) Program (Coard, 2003; Coard et al., 2007) is another culturally-relevant, strengths-based parenting program that was adapted from the Parenting the Strong-Willed Child Program (Forehand and Long, 1996) and designed to support African American caregivers. Leveraging the unique parenting strategies of the African American community (e.g., parental racial socialization) and the specific social, cultural, and political challenges that impact parenting in this community, the BPSS program focuses on strengthening parenting skills, involvement, and confidence to reduce children's behavioral and socioemotional problems (e.g., noncompliance, conduct disorders). Specifically, parents are encouraged to engage in positive parenting, racial socialization, and parental monitoring practices to promote positive self-image in their children, positive discussions with their children about race, increased academic confidence in their children, and enhanced parental understanding of their children's socioemotional development (Coard et al., 2007). In addition, parents are allotted a significant portion of each group session to discuss their experiences as African American individuals and as parents with one another. Cultural considerations are also made for program delivery and possible barriers to participation. Groups are led by African American women and both childcare and meals are provided during the sessions. Finally, there are several modifications to the program materials, including the use of common African American language and expressions, *we*-talk to represent collectivist African American values, sayings and affirmations that are meaningful to this community, prayer, role-playing, storytelling, including extended family members, and humor (Coard et al., 2007). The BPSS program has been shown to be successful in significantly increasing parental use of racial socialization and positive parenting and reducing harsh disciplinary practices and child externalizing problems (Coard et al., 2007). Further, the average attendance rate across 12 sessions was 85%, 88% of all families (intervention and waitlist-control) completed the post-intervention assessment, and 100% of intervention families completed the post-intervention assessment. These attendance and retention rates are remarkable given the difficulties in recruiting and retaining African Americans for family-based programs (Kumpfer et al., 2002). Limitations of the BPSS program include the use of a small sample size ($N = 30$) and provision of participant compensation, limiting the generalizability of findings.

The Strong African American Families (SAAF) Program is a 7-week preventive program developed for rural African American mothers and their 11-year-old children (Brody et al., 2004). Through the promotion of effective parenting behaviors and communication strategies (i.e., racial socialization, involved-vigilant parenting, communication about sex, and articulated expectations for alcohol use), this intervention aims to enhance youth self-pride and deter them from risky behaviors—specifically, alcohol use and early sexual debut. The weekly group sessions, which consist of separate parent and youth groups and a joint group at the end of each session, are led by African American facilitators and held in local community centers. To address potential barriers to treatment, transportation, childcare for siblings, and a catered meal are provided. Evaluations of SAAF confirm that, compared to the control group, intervention youth were less involved in alcohol use, sexual risk-taking behavior, and conduct problems across time, and parents exhibited increases in communicative parenting strategies (Brody et al., 2004, 2008; Murry et al., 2007). However, that the sample was limited to 11-year-old children in rural areas is one limitation of the SAAF program, as these findings may not be generalizable to African American children from different age groups and regions with different community characteristics (e.g., neighborhood composition, inner city versus rural community settings) (Tamis-LeMonda et al., 2008).

Gross et al. (2009) developed the Chicago Parent Program (CPP), an evidence-based, culturally-tailored intervention for parents of preschool-aged children, in consultation with an advisory board of low-income African American and Latinx parents. This 12-week group intervention is intended to increase positive parenting skills, improve parental competence, reduce harsh disciplinary practices, and reduce preschoolers' behavioral problems through the use of videotaped vignettes of real-world parenting scenarios (e.g., parent–child interactions at home, in the grocery store) to guide group discussions about specific parenting behaviors (Gross et al., 2009). Importantly, feedback from the advisory board was integral to making decisions regarding how to present and discuss specific components of the intervention in a culturally sensitive, relevant, and meaningful way (e.g., offering alternative disciplinary strategies to physical

punishment rather than taking a hard stance against it). The program also allows group facilitators to flexibly discuss core CPP concepts in culturally-specific ways, such as discussing stress management in the context of also having to cope with the stress of racism. In terms of logistics, CPP has been implemented in both professional and community settings (e.g., schools, local community centers) and offers program participants meals or refreshments and childcare for siblings. Participation in CPP resulted in less parental use of corporal punishment and child commands and fewer observed child behavior problems, as compared to participation in the control condition (Gross et al., 2009).

Similarly, another group parenting program for parents of African American adolescents in urban, high-crime neighborhoods was adapted to this target population through a variety of techniques (Finigan-Carr et al., 2014). The techniques included input from a parental community advisory board comprised of African American parents, the use of *photo novella* story essays to depict specific concepts using a sequence of images and storyboards of interactions between African American parents and their youth, acknowledgment and discussion of parenting stress in urban environments, accommodation of families' schedules by offering sessions at various times and in various community locations close to participants, and offering transportation vouchers, meals, and childcare. Results from a feasibility study revealed that only 34% of parents who consented to participate were also enrolled in the intervention, and intervention participation was highest among parents receiving in-home session visits compared to parents receiving community-based group sessions or parents participating in a hybrid model (Finigan-Carr et al., 2014).

Other interventions have taken established parent training programs that were not initially developed for or tailored to African American parenting contexts and have implemented them in exclusively African American communities or diverse populations that include African American parents. For instance, the Triple P-Positive Parenting Program (Triple P; Sanders, 1999) was evaluated in a case study of a low-income, African American mother of a preschool-aged child (Kelch-Oliver and Smith, 2015). In this study, a set of recommendations for adapting Triple P to low-income, single African American parents was put forth, including ensuring audiovisual materials are representative of the target population, modifying wording in the manual to be more culturally sensitive, being cognizant of parents' literacy and education levels, being sensitive to the race-related factors associated with harsh discipline, using group facilitators who are culturally competent and/or of the same culture and can interject anecdotal experiences, including other important parental figures, and offering telephone consultations and post-intervention booster sessions. Child parent relationship training (CPRT; Bratton and Landreth, 2006) is a strengths-based program that utilizes play to facilitate parental understanding of their children and has also been implemented with low-income Black and African American parents (Sheely-Moore and Bratton, 2010). Finally, an in-home adaptation of a parent and child therapy (PCT) program has been conducted with a diverse sample of African American, Latino, and White parents of young children with significant behavior problems to address barriers that low-income, culturally diverse groups often face (e.g., lack of transportation and childcare) by making the intervention transportable to a naturalistic environment (Gresl et al., 2014). Clinicians teach parents alternative ways of responding to their children in an effort to reduce childhood behavior problems and harsh parenting techniques. In addition, clinicians use an appropriate and matched communication style with the parents.

Researchers have also conducted qualitative interviews and focus groups with African American parents to understand their parenting views and solicit their feedback about the needs of their communities and the specific considerations to be made when developing culturally-relevant parenting programs. Several themes related to parental racial socialization emerged from qualitative interviews conducted by Coard et al. (2004). Specifically, the content of mothers' race-related messages conveyed meaning related to racism preparation, racial pride, racial equality, and/or racial achievement, and was communicated via oral communication, modeling, role-playing, and/or exposure (Coard et al., 2004). Unequivocally, racial socialization practices were considered to be a critical component of African American parenting. Focus groups with African American and Latino parents have revealed various perspectives on parenting-related challenges (e.g., cultural differences in parenting, childcare laws and policies), the need for parenting education in their communities (e.g., informing parents of acceptable parenting practices in the United States, providing a space for parents to network and share their experiences), and the shortcomings of existing parenting education programs (e.g., no cultural components) (Toure et al., 2021). Recommendations for the ideal parenting program include ensuring the program is culturally appropriate, providing updated parenting information and education on child development and legal issues related to childrearing strategies, program delivery by community members familiar with the culture, recognition of different family structures and circumstances, discussion of discipline, religion, education, and community resources, and assurance to discuss sensitive topics without fear of being disciplined (Toure et al., 2021).

Finally, it is noteworthy that among the parenting programs that have been specifically tailored and adapted for and/or evaluated in African American communities, the primary goal of these interventions has been to enhance parenting behaviors, reduce coercive disciplinary practices, and reduce or prevent children's socioemotional or behavioral challenges. These programs commonly integrate the following elements: a strengths-based approach, racial socialization practices, discussion of race-related challenges, consideration of the historical context of physical punishment, group sessions led by African American facilitators, held in the community, audiovisual and linguistic modifications to program materials, and provision of meals, transportation, and childcare. What primarily distinguishes these programs from one another lies in the specific child outcome the intervention aims to address (e.g., broad psychosocial and behavioral challenges versus specific risky behaviors). Further, the extent to which these interventions consider the specific parenting contexts that African American parents encounter is substantially limited (e.g., non-resident fathers).

## A roadmap for tailoring IPV parenting interventions for African American mothers

Head-to-head comparisons of culturally adapted parenting interventions to non-adapted parenting interventions are scarce (McCabe et al., 2012). However, results from meta-analytic studies generally suggest that culturally adapted mental health interventions

improve program relevance, acceptability, and sustainability and are more efficacious for ethnic minorities-though with variability in effect size estimates-when compared to non-adapted intervention, no treatment, and treatment-as-usual conditions (Griner and Smith, 2006; Benish et al., 2011; Cabassa and Baumann, 2013; Baumann et al., 2015). In the absence of studies that have explicitly adapted IPV parenting programs for African American women, the current paper aims to bridge this gap by presenting a set of guiding principles, recommendations, and reflective questions for future IPV parenting interventions to be culturally adapted to the African American context. In so doing, this deliberate synthesis of African American parenting practices and values with core IPV family-based intervention components will allow IPV parenting researchers to make use of this framework and adapt existing interventions for this priority population in a manner that is intentional and culturally sensitive.

Critically, we posit that any parenting intervention for African American IPV-surviving mothers would benefit from explicit consideration of the unique parenting challenges mothers grapple with, such as incorporation of racial socialization practices, and that interventions must sufficiently acknowledge and be tailored to allow for discussions and engagement with these unique challenges. To assist this intervention development and adaptation process, we propose a framework that highlights seven key principles and is informed by our review of the literature (see Table 1). To guide our development of these seven guiding principles, we largely employed a data-driven, bottom-up approach using the themes we identified as common among parenting interventions for African American parents. However, we also allowed our development to be guided by intersectionality and social justice frameworks. Importantly, while we consider these suggestions to be of equal importance, we recognize that incorporating all suggestions may not be feasible and encourage programs to evaluate which suggestions are within the scope of their project. Given this, we also put forth a series of questions for consideration as they pertain to each principle. Supplementary Table 1 lists these illustrative questions.

## Using a strengths-based approach

Historically, the quality and nature of African American families have been viewed from a deficit lens. From this theoretical perspective, African American families' experiences are conceptualized as the result of innate deficiencies that perpetuate high poverty, unemployment, crime rates, single-parent families, and welfare recipiency, and the traditional matriarchal structure is thought to be the mechanism by which families get "caught in a tangle of pathology" (Briscoe, 2000, p. 98; Smith et al., 2022). This perception of African American parents carries into school systems, where they are perceived as uninvolved, unconcerned, and threatening by educators for not demonstrating investment in their children's education according to traditional conceptualizations of parental involvement (e.g., physical presence at school events, homework assistance, communication with teachers, monitoring academic performance) (Love et al., 2021). Consequently, interventions aiming to promote academic, behavioral, and socioemotional outcomes in African American children and improve parenting strategies among African American parents have predominantly been guided by a deficit-based approach. As a result, the reality of historical trauma, systemic and institutional racism, discrimination, and the inherent strengths of African American parents are largely dismissed, minimized, or ignored. Moreover, an implicit message of helplessness and the need for external resources to drive the solutions to their challenges is conveyed.

Despite the extensive literature base using a deficit model to understand African American parenting, current perspectives on parenting have shifted away from this framework and have begun to move toward strengths-based, or asset-based, approaches that embrace individuals' unique abilities and focus on positive, protective, and resilient factors, as opposed to individual shortcomings and difficulties (Briscoe, 2000; Pollock et al., 2015). For instance, the authoritarian style attributed to African American parenting is now better understood as an example of the heterogeneity in parenting within the African American community which is influenced by the harsh sociopolitical realities they face, rather than a deficient parenting style that is characteristic of the African American community. The family strengths perspective more reasonably works toward understanding how "families succeed in the face of life's inherent difficulties" and further conceptualizes the difficulties families encounter as "vehicles for testing our capacity as families" (Asay et al., 2016). Such approaches are strongly recommended by researchers, as they tend to be multifaceted and acknowledge the social and political systems that impact parenting abilities (Sousa et al., 2021). We argue that parenting interventions explicitly utilizing a strengths-based lens are especially well-poised and conducive to working with IPV-exposed population – specifically, African American women-as a way to ensure the challenges that these mothers face as both African American women and as IPV survivors, such as stigmatization and inadequate welfare programs, and the ways in which they succeed as parents are not overlooked, minimized, or dismissed. Such a framework is sensitive to these intersecting identities and should make use of African American mothers' existing parenting abilities and the cultural values most salient to them by emphasizing that there is significance and power in their core beliefs and values about parenting, family, and culture, regardless of their trauma exposure. By bringing the inherent strengths and values of African American mothers to the forefront, strengths-based programs can effectively enhance their feelings of competence and motivate their engagement with the intervention. We encourage programs to consider how they can incorporate messages of parental strength, resilience, and competence into the interventions' rhetoric and within the relationships that intervention facilitators establish with participants and that group members establish with one another, while maintaining the integrity

TABLE 1 Seven guiding principles for adapting IPV parent–child interventions for African American mothers.

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|---|
| 1. Using a strengths-based approach to avoid perpetuation of discrimination against African American women as caregivers |
| 2. Integrating racial socialization specific to African American interests and values |
| 3. Embracing African American cultural values and traditions |
| 4. Addressing barriers through equity promotion focused on disparities African American women face |
| 5. Ensuring a safe space and transparency about mandated reporting sensitive to African American disciplinary practices |
| 6. Adopting peer support networks for African American survivors of IPV |
| 7. Providing psychoeducation and resource sharing to address specific gaps identified for African American mothers and children |

of a strengths-based versus deficit-based approach. Moreover, we contend that this reflection should be frequent and ongoing throughout the intervention delivery period to ensure the program remains grounded in the strengths-based framework. To guide this reflection, the following questions are set forth.

1 Are intervention facilitators engaging with mothers and asking what parenting values are most salient to them and their community, or have these values already been assumed?
2 Are intervention facilitators inviting mothers to identify the ways in which they are succeeding as parents in their own, unique contexts and then using this as an opportunity to enhance their sense of competence, or is a model of parenting being imposed?
3 Is an appreciation for the mothers' opinions and experiences being conveyed via frequent check-ins throughout the intervention and at its conclusion about what worked and did not work, or are their voices being dismissed?

## Integrating racial socialization

As outlined in our examination of African American parenting programs, parenting practices within the African American community are unique and distinct from those employed in non-African American communities in their use of racial socialization strategies. African American parents are tasked with not only navigating their own daily experiences of racial discrimination and trauma but also equipping their children with the psychological armor to cope with and navigate the same experiences they will come to encounter (Lesane-Brown, 2006). Within various frameworks for racial socialization, several themes have been identified related to the types of experiences and messages conveyed, rationale for these practices, and modes of teaching (Hughes et al., 2006). For African American children, they commonly receive both implicit and explicit messages about cultural heritage and pride, personal and group identity, inter-and intra-group relations, African American experiences versus "mainstream" European American experiences, social hierarchy, and education about the historical and modern-day context of racism (Coard et al., 2004; Lesane-Brown, 2006). Thus, parenting interventions for IPV exposed mothers and children would potentially benefit from the incorporation of racial socialization practices.

The Black Parenting Strengths and Strategies Program (BPSS; Coard et al., 2007) is one exemplar intervention that tapped into the importance of racial socialization strategies for African American parents by incorporating "culturally specific content and delivery strategies concerning racial socialization" (Coard et al., 2007, p. 805) without diluting content from the original parenting intervention. Specifically, the BPSS program allotted time during the parenting group sessions to discuss specific race-related challenges, process parents' individual and group experiences as African Americans, and learn about developmental processes for racial identity formation (Coard et al., 2007). Importantly, these adaptations were informed by a qualitative analysis identifying the common race-related messages parents give their parents have also been identified, which included parents' efforts to instill racial pride, prepare their children for future encounters with racism, impart multi-ethnic egalitarian values, and emphasize the need to excel and achieve (Coard et al., 2004).

Against this background, we provide the following reflection questions to assist researchers in their considerations of how to incorporate racial socialization strategies into their interventions.

1 Does the intervention make space for parents and children to talk about their racial identities and personal experiences? Do facilitators touch on aspects regarding racial pride, preparation for racial prejudice, achievement, and racial equality?
2 Does the intervention explore what it means to be Black in America, especially within the unique contexts of the participating families (IPV exposure), and how does it acknowledge the historical and modern-day implications of racism?
3 To what extent are these conversations being incorporated into the intervention content? Are these stand-alone modules to be discussed in addition to the "standard" parenting curriculum, or have the two "contents" been fused together? For group discussions, what will this look like (e.g., built-in discussion time during each session, in session intervals, as needed)?
4 What are the mechanisms for transmitting racial socialization messages the intervention is using? Are both explicit and implicit methods employed?

## Embracing African American cultural values and traditions

In order to ensure that interventions truly meet the needs of their target population, they must be sufficiently designed or adapted in a manner that includes both 'surface structure' changes to intervention materials and messages that match the observable characteristics of the target population and 'deep structure' adaptations, which concern "incorporating the cultural, social, historical, environmental, and psychological forces that influence the target health behavior in the proposed target population" (Resnicow et al., 2000, p. 271). In doing so, target populations may be more receptive to the intervention program and perceive it as being more salient to their personal experiences and their community (e.g., Coard et al., 2007). For the purpose of intervention development and adaptation for IPV-exposed African American families, in addition to integrating racial socialization practices, researchers would benefit from incorporating other components that demonstrate an appreciation for the cultural values and traditions of their community while also ensuring the more "visible" adaptations are in place. These surface changes include adapting audiovisual material to make sure images are culturally representative and words are linguistically appropriate and that intervention facilitators are of similar backgrounds, or at the least, knowledgeable and caring toward this population.

Regarding the deep structure adaptations, apart from racial-ethnic socialization practices, it is well-established that strong spirituality and religion plus a reliance on extended family networks and *fictive kin* are culturally salient resources for African American families (McNeil Smith and Landor, 2018). Accordingly, family-based interventions for African American parents can embrace these core values by recognizing these as strengths and making space for them in their intervention programs, which can include having extended family members as participants or

incorporating spiritual or religious messages into program rhetoric. With respect to trauma-exposed families, integration of these values and traditions may be especially important to instilling messages of strength and resilience and demonstrating program relevance for their community, as it aligns with what we know about African American mothers' help-seeking experiences following IPV (Waller et al., 2022). That is, we know that African American women often lean on their churches for guidance and support rather than mental health providers or criminal justice sectors, and that extended family members often play an important caregiving role in their children's lives, especially in the aftermath of IPV exposure as they navigate the structural barriers that evoke re-traumatization. Finally, of note, the voices of program participants, past and present, and other members of the community (e.g., community advisory boards) can also be particularly helpful in guiding researchers to make these decisions regarding the values most salient to this community and how to adapt program elements to be the most well-received by future program participants. Given these considerations, we propose that researchers consider the following questions.

1 Who is included in the caregiving support system of the parents participating in the intervention (e.g., grandparents, godparents, aunts), and are these members included in discussions?
2 Are there strong spiritual, religious beliefs that guide the parenting practices of the participants? How does the intervention ensure that it is respectful of this, and to what extent are parents encouraged to harness these strongly held beliefs to enhance their parenting?
3 Are program materials sufficiently and appropriately adapted specifically for African American mothers and children? How are materials evaluated to be culturally relevant and sensitive? Has feedback been sought from members of the community?
4 Who is facilitating the intervention – a member of the community with shared experience or an outside member in a position of power despite having little or no knowledge of the community?

## Addressing barriers through equity-promotion practices

Equity is defined as the "absence of avoidable, unfair, or remediable differences" between groups of people (World Health Organization, n.d.). To promote equity is to reduce disparities between groups, including the removal of barriers in accessing resources and interventions. Thus, equity-promotion practices are an essential component of interventions intended to benefit vulnerable populations, and care must be taken by intervention developers and providers to ensure equitable access to their interventions, regardless of the economic, practical, or other challenges their target populations encounter. For interventions targeting IPV-exposed African American mothers, it is critical that equity-promotion practices be incorporated to mitigate the multitude of barriers they face, which not only impact mothers' accessibility to interventions but also their level of engagement and participation. In other words, parenting interventions for these mothers must aim to address both the structural (e.g., lack of transportation, childcare, and time) and attitudinal (e.g., lack of parental buy-in regarding program relevance) barriers (Kerkorian et al., 2006). Without equity-promotion practices, these barriers may preclude parents from participating in the intervention altogether, which influences the number of persons reached by the intervention and the ability to assess whether the intervention is effective for all members of a targeted group. For example, if an intervention requires in-person attendance at a group meeting but does not provide transportation, it is likely that the number of individuals who cannot afford cars, bus fare, or rideshare may be excluded from the intervention. This exclusion not only grossly highlights and perpetuates the systemic inequalities these vulnerable families already face, but it may also impact the generalizability of the research findings, as there may be systematic differences in families who do have access to transportation and those who do not. On the other hand, providing transportation for those who need it, whether through monetary assistance or pick-up services, is an equity promotion practice that increases the external validity of the intervention. Put differently, the removal of barriers (in this case, transportation), increases our ability to deliver interventions to targeted groups and our ability to assess the impact of interventions. Moreover, it taps into the community-building aspects of equity promotion by bringing in more families from the same community to participate in the intervention. The provision of childcare, meals, and technological resources as well as intervention delivery by paraprofessionals in non-traditional settings are among other common implementation strategies used in community-based interventions for hard-to-reach families that harness the community-building benefits of equitable interventions (Cooper et al., 2022). Ultimately, it is in programs' best interest to make it as easy as possible for already busy and vulnerable families to participate in their intervention.

We put forth the following guiding questions for intervention developers to consider in order to promote equity in their intervention development, as well as maximize validity of their study such that potential participants are not systematically excluded as a result of their barriers faced.

1 What factors might prevent a potential participant from participating in the intervention? For instance, is the program time/location convenient to them? Do participants require childcare? Is it expensive for participants to attend? Will participation in the intervention interfere with participants' work or other obligations (e.g., cooking a meal)?
2 Given relevant barriers, how can the intervention be modified or adapted to promote equity for participants? Can transportation be provided? Is it possible to convert some in-person requirements to virtual? Can relevant technology be provided if the intervention necessitates it? Can childcare or meals be provided? Can parking, gas, or bus fare be reimbursed?
3 How can intervention fidelity and adherence be maintained while also promoting equity? Note that this ratio will be different for every intervention and population and will also depend on the goals of the intervention developer. In order to address every barrier for a population, it is possible that the scope will be narrowed due to costs. If it is needed to cover transportation, technology, childcare, and meals for participants, there may be fewer participants reached in total.

## Ensuring a safe space and transparency about mandated reporting

Given the focus of these recommendations on African American families impacted by IPV, the discussion and treatment of child abuse allegation is critical. Depending on state and local laws, many intervention developers and providers may be required to report any suspicion of physical abuse of a child, including physical punishment. Mandated reporting can present a challenge for providers and organizations, given its potential custody and legal impacts, in the context of relationships with clients. Indeed, research has shown that many mandated reporters have low levels of reporting to Child Protective Services (CPS; Alvarez et al., 2004). Further, many experts even disagree about the standard threshold for reporting (Levi and Crowell, 2011). These challenges with mandated reporting are relevant for all providers working with children and families, but they are especially relevant in working with African American families who have been exposed to IPV. Research with African American families has demonstrated increased rates of authoritarian parenting practices, including physical punishment (Taillieu et al., 2014). As mentioned previously, several factors influence this parenting practice, including the historical context of violence toward African Americans in the United States (Thomas and Dettlaff, 2011) and the modern-day context, which includes state-sanctioned discrimination and violence, including by the criminal justice system (Durrant, 2008). Against this background of increased use of physical punishment, it should also be noted that African American women are also at risk for retraumatization and suffer worse legal and custody outcomes than other groups.

Mandated reporting and concerns related to physical abuse and safety are crucial issues for parenting interventions to address. We suggest the following questions to guide intervention developers and providers to maximize transparency with the clients they serve while allowing for honest dialogue, as well as maintaining the legal and ethical responsibilities associated with keeping children safe.

1 What are the local/state/federal guidelines for mandated reporting? What constitutes physical abuse? Who needs to be informed when a report is made?
2 How can I ensure my clients are aware of the requirements I must abide by? At the start of each session, can I explicitly remind them of what is and is not reportable?
3 If a CPS report must be made, how can the parent be informed of this process in a manner that is sensitive and works to maintain the relationship between the parent and the intervention provider? How can the shared priority of the child's safety be leveraged in the provider-parent relationship?

## Adopting peer support networks

Our review of interventions for families affected by IPV as well as family-based interventions for African Americans points to the importance of the dual roles parenting interventions have in not only giving parents a forum to acquire knowledge and parenting skills to improve their own and their children's psychological and behavioral health outcomes, but also provide a space for mothers to connect with one another and process their experiences. This opportunity for African American mothers to seek support from members of their community with shared experiences and to be a reciprocal source of support is a critical component of these interventions (Toure et al., 2021). Indeed, *sister circles* are a common style of support group in the African American community (Neal-Barnett et al., 2011). Consequently, it is essential that IPV parenting interventions adapted for African American families build on this relational foundation and aim to cultivate lasting relationships that extend beyond the immediate intervention group context. This can be done by adopting a relational orientation that recognizes the importance of relationships both within intervention groups (i.e., relationships with one another and with intervention facilitators) and between intervention groups (i.e., relationships formed by connecting participants with former participants and intervention facilitators, akin to mentoring or coaching one another). Put differently, adopting a peer support network creates both cohort-level relationships and a broader sense of community among former and current group members that contributes to the support system that parents need for their own psychological well-being and to enhance their parental efficacy. To this end, researchers may consider reflecting on the following questions.

1 Does the intervention take a relational lens that aims to build foundational relationships between group members, both former and current, and intervention facilitators? Has the intervention been intentional in bringing together members of the community with shared cultural and racial experiences?
2 To what extent and how does the intervention aim to cultivate relationships? Have we established a model for "graduates" of the program to stay connected with each other and future cohorts? Do we stay in touch with families both formally (e.g., telephone consultations, booster sessions) and informally?
3 If the intervention incorporates a group processing element, what will this look like? Do we intend to integrate sister healing circles? How do we strike a balance between allowing enough time for group conversations to be healing and empowering while also being mindful of intervention adherence and curriculum needing to be covered?

## Providing psychoeducation and resource sharing

Empowerment is an important component of many IPV-related services. Empowerment has been operationalized in the IPV field as a process in which a person sets goals to gain power and control over their lives by accessing and developing skills, community resources and supports, and self-efficacy (Cattaneo and Chapman, 2010). This process also includes gaining access to knowledge, especially information that is relevant to specific circumstances for African American mothers who have survived IPV. As a trusted service provider, parenting interventions have the opportunity to connect parents with important resources to maximize the growth potential of their children and help families achieve their goals. These resources may include educational information on developmental milestones for parents of young children, adolescent development and relationships for parents of teenagers, and on the psychological and neurocognitive impacts of IPV. Parents may also find it useful for parenting interventions to serve as a resource sharing hub that they can turn to for assistance with finding various services (e.g., employment, food assistance, housing, other social services). More information shared with parents will empower them to make better,

more informed decisions for themselves and their families. Therefore, we propose the following critical questions:

1 What questions have families asked that are outside the scope of the intervention content? What information are they seeking or have they conveyed interest in learning about?
2 What services does this target population need that the intervention can help put them in touch with?

## Discussion

In synthesizing the two disparate literature bases on African American parenting interventions and interventions for families surviving IPV, we have provided a 'roadmap' for tailoring parent–child interventions for IPV-exposed African American families; also setting forth seven recommendations, each with a corresponding set of reflective questions for researchers to consider. These include: (1) Using a strengths-based approach to avoid perpetuation of discrimination against African American women as caregivers, (2) Integrating racial socialization specific to African American interests and values, (3) Embracing African American cultural values and traditions, (4) Addressing barriers through equity promotion focused on disparities African American women face, (5) Ensuring a safe space and transparency about mandated reporting sensitive to African American disciplinary practices, (6) Adopting peer support networks, and (7) Providing psychoeducation and resource sharing.

Importantly, our proposed framework shares similarities with the common components we identified in our review of IPV family-based interventions regardless of race and ethnicity, while also bearing important differences. For instance, engagement of parents as the primary target of the intervention was identified as a common component, which although not explicitly stated in our framework, is implied by our proposal of Principle 2 (integration of racial socialization), which highlights the promotion of a specific parenting practice. Similarly, a common intervention theme among IPV family-based programs is providing social support to mothers, which is subsumed under Principle 6 (adopting peer support networks) of our proposed framework. Common considerations by most IPV programs regarding the mode of intervention delivery (e.g., in-home, community-based, integration into existing services) are also captured by our guiding principle of addressing barriers through equity promotion (Principle 4). However, under our model, this is reflected upon in greater detail with respect to the disparities that African American women face, so that we can provide practical suggestions. Several IPV programs are also guided by some theoretical orientation (e.g., trauma-focused, attachment theory). Likewise, our proposed framework is informed by theoretical lenses including intersectionality (Crenshaw, 1998) and a social justice perspective (Morris, 2002). Finally, it is important to note that while the common elements of IPV family-based programs and our guiding principles have some overlap, there are considerable differences. Most obviously, our considerations of the unique parenting challenges of African American families due to their overrepresentation in IPV and criminal justice system directly informed each guiding principle within our framework, whereas common components of IPV family programs are generally agnostic of race or ethnicity and consideration of whether they can be made to "fit" the African American context is typically a secondary step. Other key distinctions include the explicit designation of a strengths-based approach, incorporation of African American cultural values and traditions, and sensitivity of the historical roots of physical discipline with respect to mandated reporting.

While each recommendation aims to address some unique aspect of African American IPV-exposed families' experiences and is therefore considered of equal importance, we note that in practice, the incorporation of all suggestions may not be feasible and is thus a potential limitation of our framework. However, in these circumstances, we encourage intervention developers to use the guiding illustrative questions to facilitate discussions with their teams, considering input from individuals at multiple levels of involvement in the project (e.g., principal investigators, intervention facilitators, community stakeholders, community advisory boards, funding agencies). In particular, soliciting feedback from community advisory boards composed of members from the specific community the program aims to serve, as well as from community stakeholders with prior experience serving this community, can be informative for determining which guiding principles hold the greatest importance. Because an individual program's ability to make specific cultural adaptations will be unique to their setting in terms of project aims, personnel, location, community involvement, funding resources, and characteristics of their specific community, we recommend first identifying the factors most salient to the program's context (e.g., specific barriers in their setting, available resources allocated for their program, desired resources for program implementation, previous experience working with and knowledge of the community, needs of the given community) and then reflecting on the feasibility of each component of our framework, given these salient factors. These domains can be conceptualized and assessed using the Consolidated Framework for Implementation Research (Damschroder et al., 2022). Further, as cultural adaptation is a critical aspect of implementation science (Baumann et al., 2015), additional frameworks such as the Ecological Validity Model (Bernal et al., 1995) can be utilized iteratively to enhance sustainability and feasibility. Reflections based on the present guiding principles should remain ongoing and collaborative given that cultural adaptation and implementation are both dynamic processes that may require adjustments throughout the intervention (Cabassa and Baumann, 2013).

Taken together, our goal in setting forth seven guiding principles and reflective questions was to provide a potential solution to the current limitations of IPV parenting programs, which do not address the specific needs and challenges of African American families. We acknowledge our recommendations and reflective questions are process-oriented in lieu of content-based suggestions for addressing specific parenting behaviors. This is done intentionally, as we believe this is consistent with a strengths-based perspective (Principle 1) that draws from the unique characteristics and strengths of individuals from all levels of involvement of an intervention program (e.g., parents/participants, facilitators, supervisors) as opposed to an orientation that imposes beliefs about the "best" approaches to parenting. Further, as it is beyond the scope of this review to provide solutions for addressing the systemic inequities and related psychological challenges that African American mothers face after IPV, we instead make programmatic suggestions that aim to help intervention developers serve this vulnerable population while navigating their current realities. Nonetheless, we recognize that these conceptual decisions may be less informative for those seeking an

established IPV parenting intervention that has already been tailored to the parenting context of African American mothers post-IPV. Finally, because African American mothers in the United States were our primary focus due to their overrepresentation in the U.S. criminal justice system and U.S.-based rates of poverty and IPV, it is possible that our recommendations may not be as salient in non-U.S. contexts where systems may operate differently. However, we believe that our proposed roadmap still has utility for other Black groups (e.g., Afro-Caribbean, Afro-Latina), for whom discussions about strengths-based perspectives, specific cultural values, traditions, and racial socialization practices, potential barriers to accessing care, concerns about mandated reporting, use of peer support networks, and the need for resource sharing and psychoeducation are still worthwhile. In these cases, we recommend that program developers also remain attuned to considerations related to immigration status and acculturative processes (Tamis-LeMonda et al., 2008).

Our review and proposed framework are timely and have important implications for ensuring culturally sensitive, nuanced services are made available to this priority population. The practical suggestions and reflections elicited by our illustrative questions serve as a steppingstone for taking the next step in designing, adapting, and implementing culturally sensitive parent–child interventions that fully address the wants and needs of trauma-exposed African American families.

## Author contributions

BC: Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing. MA: Conceptualization, Formal analysis, Project administration, Writing – original draft, Writing – review & editing. QW: Supervision, Writing – review & editing. EJ: Writing – review & editing. CS: Conceptualization, Funding acquisition, Supervision, Writing – review & editing, Investigation.

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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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## Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2024.1295202/full#supplementary-material

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# Trauma-sensitive school concepts for students with a refugee background: a review of international studies

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Children and adolescents with a refugee background are at high risk for traumatization. Once they arrive in safe countries, schools are the institutions where teachers are responsible for caring for them sensitively and competently. Furthermore, schools are organized in learning groups consisting of multiple peers of the same age, which provides excellent opportunities for social learning and experiences of social support. In this respect, schools are the appropriate places where preventive concepts can be applied to students with a refugee background. This systematic review summarizes studies that examine or evaluate existing international concepts of trauma-sensitive schools for supporting traumatized students with a refugee background. Based on $N = 41$ selected articles, 17 relevant concepts of trauma-sensitive schools were identified. In 35.3% of the concepts, traumatized students with a refugee background are explicitly included in the target group of the concept, while 47.1% of the concepts refer to groups of students with trauma as a result of various adverse childhood experiences, which also occur more frequently within the population of refugee children and adolescents 17.6% of the concepts contain specific adaptations for pupils with a refugee background. The majority of these concepts were developed in the United States. Additional concepts can be reported for Australia, the United Kingdom, Turkey, and Cambodia. Based on available empirical data, no significant effectiveness regarding the researched concepts' effects on academic and other school-related data can be determined. Although some studies indicate positive effects concerning school-related target variables, most of the studies have only limited significance due to inadequate research designs and methodological deficiencies. Therefore, there is a great need for further development, careful implementation, and evaluation of trauma-sensitive concepts in schools, especially for the growing group of refugee students.

KEYWORDS

**trauma-sensitive, trauma-informed, trauma, refugee, school, school-wide**

## 1 Introduction

Globally, 110 million individuals were displaced by the middle of the year 2023. This includes nearly 36.4 million refugees, 6.1 million asylum seekers, and 62.5 million internally displaced persons. In that same year, over 50% of refugees worldwide came from three countries: the Syrian Arab Republic, Afghanistan, and Ukraine. The top five host countries, in descending order, were the Islamic Republic of Iran, Turkey, Germany, Colombia, and Pakistan, while most individual applications for asylum were made in the United States of

America, Germany, Spain, Mexico, and France (United Nations High Commissioner for Refugees (UNHCR), 2023). Within Europe, the war in Ukraine has been accompanied by a sharp increase in refugee-related border crossings, with approximately 5.8 million refugees from Ukraine recorded across Europe at the beginning of 2024, while further displacement is to be expected (United Nations High Commissioner for Refugees, 2024a). Overall, 40% of refugees worldwide are under the age of 18 (United Nations High Commissioner for Refugees, 2024b), and thus, in many destination countries, they are also of compulsory school age. Among Ukrainian refugees, the ratio is as high as about 50% (Brücker, 2022).

The health and education systems in the host countries are facing major social challenges due to the high number of refugees and the history of suffering they have already experienced. Furthermore, in addition to insufficient material and human resources, there is a lack of evidence-based trauma-sensitive care and therapy concepts. Schools are particularly confronted with this since trauma-affected students with a refugee background inevitably pass through the education system due to compulsory schooling. Teachers not only have to fulfill the educational mandate but are also confronted with the challenge of supporting traumatized students regarding their individual needs. This requires a deep understanding of trauma-sensitive teaching methods and support interventions.

## 1.1 Forced migration and trauma in childhood and adolescence

Numerous studies have shown that children and adolescents from war zones are at an increased risk of experiencing trauma (Pine et al., 2005; Slone and Mann, 2016; Slone et al., 2017; Khamis, 2019) due to exposure to various traumatic events (Thabet et al., 2006; Khamis, 2019). About one in four children or adolescents experience various fear-inducing situations, such as physical and mental abuse, sexual abuse, domestic violence, accidents, life-threatening illnesses, wars, displacement, death of close relatives, and others (Costello et al., 2002). In the long term, early childhood trauma is a risk factor for a variety of physical and mental illnesses, including heart disease, diabetes, depression, and increased risk behaviors that can lead to other illnesses and social problems. In addition, the risk of suicide is greatly increased (Felitti et al., 1998). Unaccompanied refugee minors are particularly vulnerable to traumatizing experiences as they are largely unprotected in their environment without supporting family members or other adults (Witt et al., 2015). In this regard, Bean et al. (2007) reported a prevalence of physical abuse of about 23% and sexual abuse of 8% among accompanied children with a refugee background in the Netherlands. Among unaccompanied children, physical abuse affected about 63%, and sexual abuse affected about 20%. Multiple and prolonged interpersonal and intentional human-caused traumatic events correlate particularly strongly with psychologically chronic and severely debilitating consequences (Kessler, 1995). Children and adolescents with a refugee background frequently exhibit internalizing and externalizing behavioral concerns as well as symptoms of post-traumatic stress disorder (PTSD) with a prevalence rate of 40–50%, anxiety (about 54%), and depression (32–38%) due to their experiences (Thabet et al., 2006, 2016; Sirin and Rogers-Sirin, 2015; Eruyar et al., 2018; Kandemir et al., 2018; Khamis, 2019; Veale, 2020; Yayan et al., 2020). Common symptoms of PTSD include recurring nightmares, reliving a traumatic experience (flashbacks), sleep disturbances, lack of emotion, anxiety and depression, constant nervousness, and an exaggerated startle response [World Health Organization (WHO), 2019].

Early trauma and changes in the environment caused by flight can also have a long-term negative impact on the psychosocial development of children and adolescents. These changes comprehensively impact all domains of children's and adolescents' lives and are attributed to biological, psychological, interpersonal, and contextual dynamics within the framework of biopsychosocial models, which are linked to each other in complex interactions that influence children's development up to adulthood. At different ages and stages of development, the influence of dynamics in various areas on the psychosocial development and health of individuals is characterized by different weightings (Bronfenbrenner, 1994; Elder, 1994; Halevi et al., 2016; Lehman et al., 2017; Ajrouch et al., 2020).

From a biological perspective, neurophysiological studies have shown that early trauma can adversely affect the brain development of children by impairing brain maturation, overall brain growth, and intelligence development (Bremner and Narayan, 1998; De Bellis et al., 1999; Bremner, 2002; De Bellis et al., 2011). Difficulties often occur in areas of executive function such as working memory, attention, cognitive flexibility, impulse control, and emotion regulation (Perfect et al., 2016; Kavanaugh et al., 2017; Malarbi et al., 2017; Op Den Kelder et al., 2018). Traumatic events can already have an impact on the fetus prenatally through the release of stress hormones, such as cortisol, by the mother, which may be associated with epigenetic changes in the brain and other organs as well as increased sensitivity of the hypothalamic–pituitary–adrenal axis (Carpenter et al., 2017; Huizink and De Rooij, 2018). During early childhood, trauma can also have a negative impact on the developing hypothalamic–pituitary–adrenal axis, causing structural changes in the hippocampus and amygdala, an increase in the number of perceived threats and fear responses, and dysregulation of emotions (Bick and Nelson, 2017). During adolescence, structural changes in the brain, the hypothalamic–pituitary–adrenal axis, and neuronal connectivity make adolescents particularly reactive to environmental influences (Romeo, 2010; Powers and Casey, 2015; Tottenham and Galván, 2016). Impairments in neurophysiological development can be accompanied by changes in children's behavior that interact with psychological, interpersonal, and contextual dynamics (Lehman et al., 2017; Ajrouch et al., 2020). The extent to which traumatizing life events in the context of flight affect a child or adolescent is, therefore, determined to a large extent by their age and stage of development (Weder and Kaufman, 2011; Siehl et al., 2022).

In infancy and early childhood, parents, especially the mother or other adult caregivers, have a major influence on psychosocial development (Lundberg and Wuermli, 2012; Sangalang et al., 2017; Suárez-Orozco et al., 2018; Zwi et al., 2018; Sim et al., 2019; Goodman et al., 2020; Arakelyan and Ager, 2021; Eltanamly et al., 2021; Gredebäck et al., 2021; Scharpf et al., 2021; Popham et al., 2023). Attachment to caregivers in early childhood plays a critical role in the processing of stressful experiences, as emotion regulation and stress reduction primarily take place in co-regulation with caregivers, whereby children learn long-term skills for self-regulation and affect tolerance (Van Der Kolk, 2006; Feldman and Vengrober, 2011). While the family environment and a good attachment to caregivers with positive parenting styles can, therefore, be an important protective factor (Punamäki et al., 2015; Eltanamly et al., 2021), impairments in

parental mental health, such as PTSD, are associated with an unfavorable parenting style that fosters insecure attachment in the child (Eltanamly et al., 2021; Scharpf et al., 2021) and can impair social interaction between parent and child (Gredebäck et al., 2021). This can lead to stress-related changes in parental behavior, resulting in avoidant, overprotective, insensitive, strict, and punitive behavior and even child abuse (Bryant et al., 2018, 2021; Scharpf et al., 2021; Popham et al., 2023), which, in turn, correlates with higher levels of PTSD, depression, and behavioral problems in the children (e. g. Feldman and Vengrober, 2011). A study by Punamäki et al. (2015) shows that children with a refugee background from family dynamics characterized by secure attachment and positive parenting practices have better mental health and can process traumatic experiences more effectively than children from families with insecure attachment and less favorable parenting practices. Parental behavior can, in turn, be significantly influenced by stressful environmental conditions, such as post-migratory stressors (Lundberg and Wuermli, 2012; Bryant et al., 2018; Suárez-Orozco et al., 2018; Sim et al., 2019; Eltanamly et al., 2021; Popham et al., 2023). Using a sample of 1,446 mother–child dyads of Syrian refugee families in Lebanon, Popham et al. (2023) found, based on a holistic model, that the environment of this sample had an impact on the mental health of the child via the mental health of the mother. The age of the child moderates these effects.

Unfavorable attachment patterns in early childhood can also affect the ability to allow relationships with other adult caregivers in later development, for example, when adults are seen as a threat and not as potential help providers (West et al., 2014). In later life, this can also affect the development of relationships with teachers, who can act as supportive, attentive caregivers and provide important support in coping with trauma (Van der Kolk, 2005). This negative effect can be reinforced by teachers who use punitive methods in response to the undesirable trauma-related behavior of refugee students, which in turn can lead to re-traumatization (Hemphill et al., 2014; Howard, 2019). Trauma in infants and young children is more likely to affect the development of internalizing symptoms compared to older children (Kaplow and Widom, 2007; Grasso et al., 2016), while at the same time, it can promote extensive delays in cognitive development, for example, attention span, memory and abstract thinking, problem-solving skills, receptive and expressive language, as well as impairments in inhibitory control, working memory, and executive functions (Cicchetti and Toth, 1995; Cook et al., 2005; DePrince et al., 2009; Shonkoff et al., 2012). This, in turn, can have a negative impact on school performance and learning success (Anda et al., 2006; Miller et al., 2012; Jimenez et al., 2016; Porche et al., 2016).

When children enter school age, school becomes an additional contextual factor for their psychosocial development, as a place where they spend a large part of their time and can establish social contacts with peers, teachers, and other adults outside their family context. Social interactions such as verbal exchange and support in problem situations not only represent an important protective factor to the development of PTSD, but they are also central to the social–emotional development of children and adolescents (Daiute, 2017; Demir et al., 2020; Höltermann et al., 2022). Cohen et al. (2014) find evidence that sharing trauma-related experiences with supportive adults can help adolescents improve their emotional regulation. For children and adolescents with a refugee background, however, social exchange with peers and supportive adults in the school context is considerably more difficult, as they usually do not speak the language of the host country and are not familiar with the cultural context. This not only makes it more difficult to resort to social support as an adaptive coping strategy through peers and advice from teachers, but it also impairs participation in lessons, which can have a negative effect on academic success. Trauma-affected children and adolescents are, therefore, more likely to be rejected by their peers (Schwartz and Proctor, 2000; Boda et al., 2023) and show frequent school performance-related problems such as lower grade point averages and lower graduation rates (Delaney-Black et al., 2002; Terrasi and De Galarce, 2017). On a psychological level, this can impair self-perception and negatively affect the school-related motivation of the children, which can lead to persistent learning deficits in the long term (Lehman et al., 2017). Negative teacher feedback communicated openly in the classroom as a result of poor school performance and behavioral problems caused by emotional dysregulation also carries the risk of having an additional negative impact on social integration (Huber, 2011). Schools, and teachers in particular, therefore, play a central role in the psychosocial development of children in terms of social integration and academic success.

## 1.2 School support for students at risk for trauma

Schools, as highly important and potentially protective environments, have a special responsibility to provide support for students with a refugee background and a risk of traumatization in accordance with their abilities and needs concerning their academic progress as well as trauma-related psychological issues (Kataoka et al., 2018). Teachers and school staff, as the most important trusted adults, can initiate measures to identify and diagnose existing trauma-related symptoms and offer support or refer the child to institutions for additional psychological support. Schools have a crucial function in providing psychological first aid in the context of difficult access to out-of-school therapy due to linguistic, cultural, and bureaucratic barriers. Teachers should, therefore, have a basic knowledge of trauma, its effects on performance, and the social–emotional situation of students in order to recognize and respond appropriately to trauma-related symptoms, support them, and prevent renewed trauma in the school context (Chafouleas et al., 2016; Dorado et al., 2016; Overstreet and Chafouleas, 2016; L'Estrange and Howard, 2022). Social inclusion and support, as well as emotional regulation, are proven protective factors against the development of PTSD (Demir et al., 2020; Höltermann et al., 2022). According to a survey of 304 classes from German schools, students with refugee experience, in particular, have fewer friends than their classmates and are rejected more frequently, although this effect was less pronounced in classes with a highly heterogeneous student body (Boda et al., 2023). Friendships do not only offer social support to students with refugee experience. Social contacts with the majority group in particular offer students with a refugee background important resources for acquiring the language of the host country, thus increasing their chances in the education system and the labor market and acculturating overall (Edele et al., 2020; Lorenz et al., 2021). Supporting social integration is therefore not only of individual importance for the development of the students concerned but is also of long-term interest concerning current political discourses on migration and inclusion policy (Lorenz et al., 2021; Boda et al., 2023; Organisation for Economic Co-operation and Development, 2023).

While trauma-sensitive school concepts are increasingly being established in the United States of America (Simon et al., 2020), limited efforts have been made to implement such concepts into European school systems. Teachers often lack a comprehensive understanding of the neurophysiological, psychological, academic, and behavioral effects of trauma on their students. This hinders their ability to recognize and appropriately respond to symptoms of trauma. Moreover, they are often insufficiently trained in school-based strategies for supporting students who have experienced trauma.

## 1.3 Trauma-sensitive schools

Due to its human, material, spatial, and social resources, the school has the necessary prerequisites to carry out preventive measures to support students with a refugee background in the event of traumatization, in addition to specific interventions in the event of trauma (Ellis et al., 2013). Trauma-sensitive concepts are organized holistically and, in addition to helping people cope with trauma-related symptoms, consider aspects such as self-regulation, well-being, physical and emotional health, and academic competence (Cole et al., 2005, 2013). Developing a trauma-sensitive school requires processes of change at all levels of schools, including the way they run, trauma-sensitive adaptation of all school policies and guidelines, their spatial design, and the use of evidence-based testing and support measures for affected students. Additionally, collaborating with external organizations and involving parents and other key caregivers of students is vital (Cole et al., 2005, 2013; Substance Abuse and Mental Health Services Administration (SAMHSA), 2014; Chafouleas et al., 2016).

The first comprehensive approach in the United States exclusively related to the development of trauma-sensitive schools, *Helping Traumatized Children Learn – A Report and Policy Agenda* (Cole et al., 2005) was published by the *Trauma and Learning Policy Initiative (TLPI)* and later expanded in 2013 with a second volume, *Helping Traumatized Children Learn – Creating and Advocating for Trauma-Sensitive Schools* (Cole et al., 2013), which provided guidance and further recommended actions for designing trauma-sensitive schools. This flexible framework for designing trauma-sensitive learning environments in schools includes guidance for transformations in the domains of (1) leadership, (2) professional development, (3) access to resources and service delivery, (4) in-school and out-of-school strategies, (5) policies and regulations, and (6) collaboration with families.

In addition, the following specific characteristics of trauma-sensitive schools are outlined:

- Leadership and staff share an understanding of trauma's impacts on learning and the need for a school-wide approach.
- The school supports all students to feel safe physically, socially, emotionally, and academically.
- The school addresses students' needs in holistic ways, taking into account their relationships, self-regulation, academic competence, and physical and emotional well-being.
- The school explicitly connects students to the school community and provides multiple opportunities to practice newly developing skills.
- The school embraces teamwork, and staff share responsibility for all students.
- Leadership and staff anticipate and adapt to the ever-changing needs of students (Cole et al., 2013: 18)

Another trauma-informed care (TIC) concept that has been adapted for the school context and has influenced many of the subsequent trauma-sensitive school concepts is the Substance *Concept of Trauma and Guidance for a Trauma-Informed Approach*:

> *A program, organization, or system that is trauma-informed realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization* (Substance Abuse and Mental Health Services Administration (SAMHSA), 2014: 9).

Key principles include trauma-sensitive adaptations in terms of *Safety*, *Trustworthiness, Transparency*, *Peer Support*, *Collaboration and Mutuality*, *Empowerment, Voice and Choice,* and *Cultural, Historical, and Gender Issues.* These principles must be realized in ten implementation areas: *Governance and Leadership*, *Policy*, *Physical Environment*, *Engagement and Involvement*, *Cross Sector Collaboration*, *Screening, Assessment and Treatment Services*, *Training and Workforce Development*, *Process Monitoring and Quality Assurance*, *Financing*, and *Evaluation*.

Chafouleas et al. (2016) integrated the key principles and implementation domains established by SAMHSA into a multi-tiered diagnostic and support concept (Multi-Tiered System of Support; MTSS) and transformed it into a blueprint for implementing trauma-informed approaches in schools. MTSS is usually organized on three successive levels (tiers) with increasing intensity of diagnostic and support approaches. Assignment of students to the respective tiers is done preventively through regular data collection at each tier (Grosche and Volpe, 2013; Simon et al., 2020; Linderkamp and Casale, 2023) and without the need for stigmatization (by, e.g., identifying support needs). MTSS has been mandated by law since 2001 through the *No Child Left Behind Act* and has subsequently been implemented in numerous schools throughout the United States (Reinbergs and Fefer, 2018; Simon et al., 2020).

Tier 1 includes school-wide and universal strategies directed toward all students. These strategies promote a positive school climate, reduce negative conditions, and enhance social problem-solving and coping skills. They may be combined with established approaches, like School Wide Positive Behavior Support or Social–Emotional Learning. Tier 2 provides additional support to students identified as needing increased assistance or who are at a higher risk of experiencing trauma due to the Tier 1 diagnostic process. To assist these students, Tier 2 employs various approaches, such as psychoeducation related to trauma, strengthening social support systems, and improving self-regulation skills. Typically, this support is offered in small groups within the school setting. Tier 3 entails conducting intensive and specific interventions to mitigate trauma-related symptoms, frequently utilizing approaches such as cognitive behavioral therapy (CBT) (Chafouleas et al., 2016; Berger, 2019; Linderkamp and Casale, 2023). CBT-based interventions achieve moderate to large effects in school contexts in terms of reducing PTSD symptoms (Rolfsnes and Idsoe, 2011).

The intervention most commonly integrated into three-tiered trauma-sensitive school concepts is the Cognitive behavioral intervention for trauma in schools (CBITS; Jaycox, 2003). Further notable interventions based on CBT include the Support for Students Exposed to Trauma (SSET; Jaycox et al., 2009) and the specialized approach of trauma-focused cognitive–behavioral therapy (Hansel et al., 2010; Farina et al., 2018). Some U.S. concepts explicitly refer to close collaboration with mental health services in order to assist students in accessing trauma-specific therapy when it is not available through the school itself (Chafouleas et al., 2016; National Child Traumatic Stress Network Schools Committee (NCTSN), 2017). Four-tiered models may involve parental and community engagement (Ellis et al., 2013). Despite major overlaps in terms of content, the final implementations within the respective tiers might vary (Berger, 2019). Four-tiered models may involve parental and community engagement (e.g., Ellis et al., 2013).

According to Maynard et al. (2019), three criteria were created to facilitate the identification of trauma-sensitive whole-school concepts as follows:

1. Workforce/PD components of the program are designed to increase the knowledge and awareness of school staff on the impact, signs, and symptoms of trauma, including secondary traumatization. PD does not necessarily have to be provided to all school staff in a school, but there must be some staff development component as part of the program.
2. Organizational change may include school-wide policies and procedures and/or strategies or practices intended to create a trauma-informed environment integrating the key principles of the trauma-informed approach.
3. The concept must implement changes in practice behaviors across the school, including trauma-specific screening, prevention, and/or intervention services (Maynard et al., 2019: 9).

Reviews of trauma-sensitive school concepts cover various areas of the school environment and yield divergent conclusions based on the underlying research question (Berger, 2019; Thomas et al., 2019; Fondren et al., 2020; Stratford et al., 2020; Avery et al., 2021; Cohen and Barron, 2021; Roseby and Gascoigne, 2021).

Stratford et al. (2020) developed a taxonomy of techniques for ensuring trauma-sensitive practices within schools. The system includes *policies* (guidelines for addressing trauma), *programs* (structured activities designed to address trauma), and *practices* (actions or series of actions aimed at addressing trauma). Components can vary in their dosages, approaches (*Universal, Selected, Targeted, Sequenced*), and objectives (such as identification, referral, promotion of coping strategies, or the creation of a positive classroom climate) across different levels of the school, classroom, and outside the classroom.

Maynard et al. (2019) conducted a comprehensive review of the literature on the impact of trauma-informed approaches in schools. Based on their definition of trauma-informed school concepts, the researchers were unable to find any studies with a randomized or quasi-experimental design with comparison groups in a school setting (PreK–12 or similar) that examined the effects of trauma symptoms/mental health, academic performance, behavior, or socioemotional functioning at the student level.

In a study conducted in the same year, Berger (2019) identified a total of ten three-tiered and three 4-tiered concepts for TIC in schools. In a review of the effect of trauma-informed educational programs on the academic achievement of students who were exposed to adverse childhood experiences (ACEs) in childhood, Roseby and Gascoigne (2021) identified 15 programs that (a) were implemented at the whole-school level, (b) targeted participants who were directly or indirectly affected by ACEs, and (c) examined a school performance-related effect like grades, attendance, academic performance, standardized performance, or discipline as the dependent variable. Existing concepts for adapting to refugee students' backgrounds were not analyzed, even though they experience higher trauma rates. Avery et al. (2021) provided an overview of school-wide trauma-informed approaches that required at least two of the following characteristics to be met, following the trauma-sensitive school characteristics of Substance Abuse and Mental Health Services Administration (SAMHSA) (2014) and TLPI (Cole et al., 2005, 2013) "(1) staff professional development directly related to understanding the impact of trauma (2) Practice change – implement changes in practice behaviors across the school i. e.: trauma screening, prevention and/or intervention and an intentionality toward relational connection with students and (3) Organizational change – includes policies and procedures, strategies or practices to create a trauma-informed environment i.e.: policy relating to disciplinary practices" (Cole et al., 2013: 383). Studies that were limited solely to an evaluation of effects using trauma screening, assessment, or treatment of trauma symptoms were excluded. In this process, four scholarly articles relating to four school-wide concepts were identified: *Healthy Environments and Response to Trauma in Schools* (HEARTS; Dorado et al., 2016), *The Heart of Teaching and Learning: Compassion, Resiliency, and Academic Success* (HTL; Day et al., 2015), *The New Haven Trauma Coalition* (NHTC; Perry and Daniels, 2016), and *Trust-Based Relational Intervention* (TBRI; Parris et al., 2015). Overall, trauma-informed programs have been shown to improve academic performance in schools, although studies have produced varying results depending on the specific variables and outcomes examined. The impact of trauma-sensitive school concepts on students with a refugee background who have experienced trauma is not established. However, the importance of further research in this area is emphasized by all reviewed articles.

Despite the high relevance given the global political situation and the growing number of refugee children and adolescents attending schools in different countries, no research has yet focused on trauma-sensitive concepts that support this particular group or explicitly address them in their design. The purpose of this article is to provide a systematic review of international studies on concepts of trauma-sensitive schools that aim to support traumatized students with a refugee background. Due to the very dynamic developments in global refugee movements in recent times, the currency of such studies is of particular importance here. The research is based on the following research questions:

1. What concepts of trauma-sensitive schools exist internationally that address the group of traumatized students with a refugee background?
2. Which adaptations do the concepts include for refugee students who have experienced trauma?
3. How are the concepts distributed worldwide in terms of their conception?

4. What empirical evidence is available regarding the impact on academic and school-related aspects of concepts of trauma-sensitive schools that address the group of traumatized students with a refugee background?

## 2 Materials and methods

The study examines the research question based on a comprehensive database literature search regarding existing concepts of trauma-sensitive schools worldwide.

### 2.1 Literature search

The following platforms and databases were screened during the literature search:

- EBSCOHost (MEDLINE, Psychology and Behavioral Sciences Collection, APA PsycARTICLES, APA PsycINFO, Psyndex Literature, EBSCO eBook Collection, OpenDissertations)
- ProQuest (ERIC, PTSDpubs, Social Services Abstract, Sociological Abstract)
- FIS Bildung
- PubMed
- Database of the University of Wuppertal
- Google Scholar

The keywords used for the literature search were generated from the current English-language literature on trauma-informed research in schools (Carter and Blanch, 2019): (trauma-informed OR "trauma informed" OR trauma-sensitive OR "trauma sensitive" OR trauma-responsive OR "trauma responsive" OR trauma-aware OR "trauma aware") AND school AND (refuge* OR asyl* OR).

Additional records were identified through the websites of journals, the U.S. Department of Education, the NCTSN, independent trauma-sensitive school concepts, and bibliographies (see Figure 1). The research and selection were conducted by a single person. The search via Google Scholar revealed a saturation of results after approximately 500 search results, so the remaining results were roughly screened according to this number using the titles.

### 2.2 Selection strategy

The understanding of trauma-sensitive school concepts that underlie this study is based on the core tasks of trauma-sensitive systems articulated by Substance Abuse and Mental Health Services Administration (SAMHSA) (2014). Based on this, the criteria formulated by Maynard et al. (2019) were used to identify trauma-sensitive school concepts:

1. The trauma-sensitive school concept is designed to increase the knowledge and awareness of school staff (and groups thereof, as appropriate) about the signs and symptoms of trauma, its effects, and the importance of trauma-sensitive approaches in schools.
2. The concept includes organizational changes, such as school-wide policies or practices to develop a trauma-sensitive environment.
3. The concept involves a change in practice that includes an application of evidence-based methods for dealing with trauma.

In this study, concepts were considered in which the three criteria described were met. Following Stratford et al. (2020), publications that provide theoretical guidelines and guidance for implementing trauma-sensitive school concepts ("policies"), as well as programs and studies with an underlying approach that is or has been implemented in practice, are included in the data extraction process. Due to a lack of relevance to our research question, concepts relating to kindergartens or preschools were not included.

The selection process followed the PRISMA guidelines for systematic review and meta-analysis (Moher et al., 2009). Within the literature search using the above-mentioned databases, a total of 9,363 hits were recorded during the survey period of October 13–21, 2021 and August 20–27, 2023 (including 7,411 hits in Google Scholar). Due to the high number, the selection was limited to the first 500 results displayed (sorted by relevance). The selection of relevant articles and other literature can be seen in Figure 1. A total of 460 documents were included in the abstract analysis. This was followed by a review of the available documents regarding further concepts of trauma-sensitive schools and the inclusion of additional literature. A total of 41 publications were identified that were relevant to answering the research question.

Quantitative, qualitative, and mixed-methods studies were reviewed to evaluate the effectiveness of trauma-sensitive school concepts. The non-randomized design was used in the quantitative and mixed-methods studies, and in many cases, there was no control group. In most studies, multiple interventions were evaluated. The risk of bias was therefore examined using the *Risk Of Bias In Non-randomized Studies of Interventions tool* (ROBINS-I; Sterne et al., 2016). The risk of bias is assessed in the domains (a) bias due to confounding, (b) bias in the selection of participants into the study, (c) bias in classification of interventions, (d) bias due to deviations from intended interventions, (e) bias due to missing data, (f) bias in the measurement of outcomes, and (g) bias in the selection of the reported result and both at the domain level and at the overall level with "low," "moderate," "serious," "critical" risk of bias, or "no Information." Due to a lack of adequate instruments to calculate the risk of bias in mixed-methods approaches for non-randomized intervention studies, the quantitative elements of the studies were also analyzed separately with the ROBINS-I and the qualitative study parts. The majority of the studies examined showed an increased risk ("critical" or "serious"), while only two studies showed a "low" risk of bias.

Qualitative studies and study elements were evaluated using the *CASP Qualitative Studies Checklist* (Critical Appraisal Skills and Programme, 2018). The checklist focuses primarily on the quality assessment of qualitative research but also includes two items that consider the assessment of bias risk in the areas of (a) researcher bias and influence during the formulation of research questions, data collection, including recruitment and site

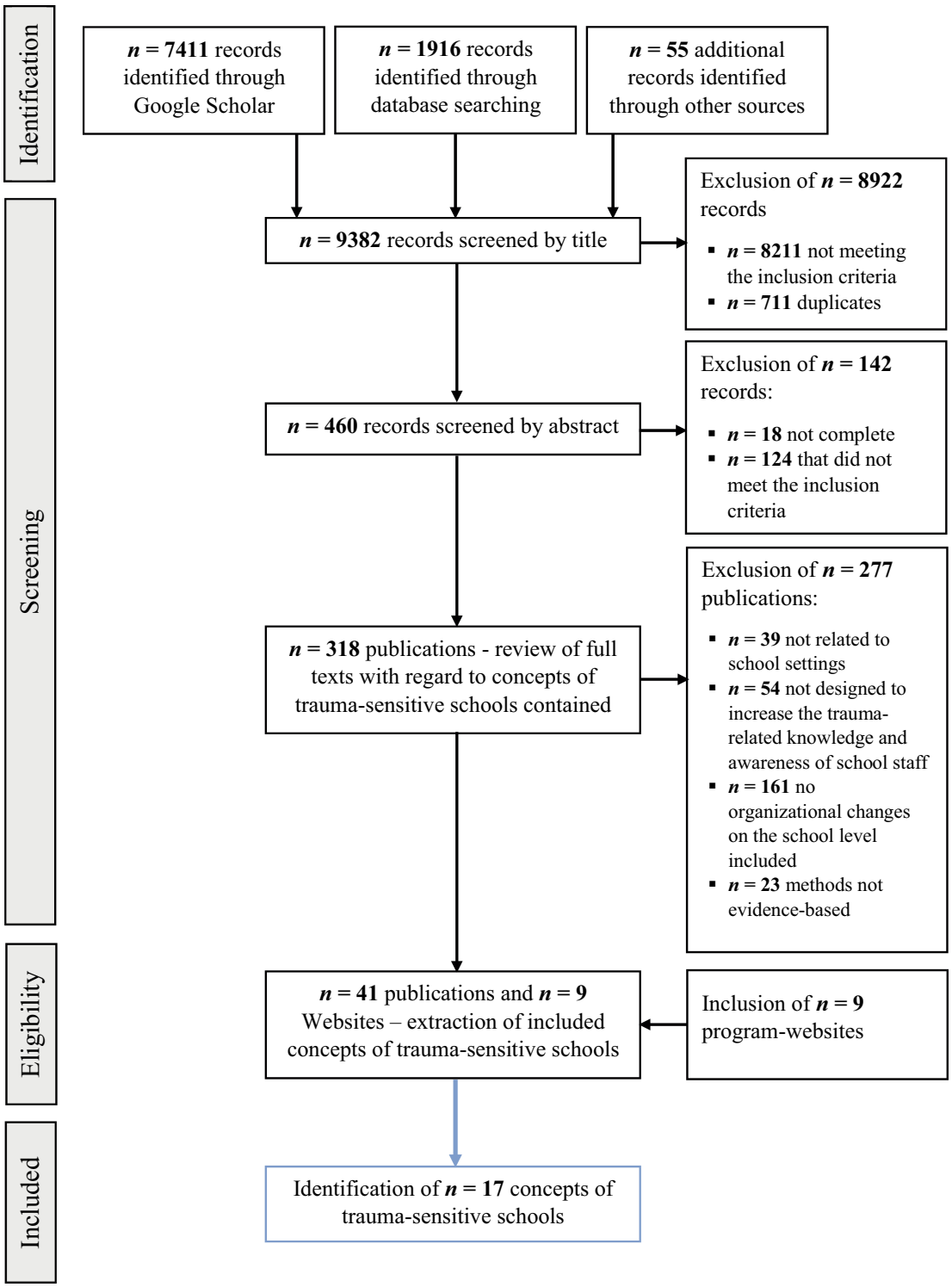


FIGURE 1
Flowchart describing the process and results of the literature review [adapted from Moher et al. (2009)]. The area highlighted describes the process of extracting concepts of trauma-sensitive schools from the included documents.

selection, and during (b) analysis and selection of data for presentation. The majority of the studies did not contain sufficient information to allow a well-founded analysis of the risk of bias about these criteria. Therefore, to assess the effectiveness of trauma-sensitive school concepts, studies were not excluded due to an increased risk of bias.

## 2.3 Data extraction

For data extraction, the reference of the documents, the respective country, the type of document, if applicable, the internet presence, and the respective title of the concept contained within were documented (Table 1). Since the literature partly shows overlaps considering the

TABLE 1 Summary of trauma-sensitive school concepts worldwide.

| Concept name (acronym) | Publication(s), main reference | Country | Concept type | Target group | Concept description | Implementation realized by |
|---|---|---|---|---|---|---|
| ***Arora et al. (2021): "A three-tiered model for addressing the mental health need of immigrant-origin youth in school" | Arora et al. (2021) | USA | Policy, MTSS | Potentially traumatized students with a migration background in adolescence (immigrant-origin youth) | Concept for promoting the mental health of immigrant youth and their families with suggestions for implementation in school practice based on empirical findings. Three levels: (1) Universal, supportive strategies that benefit immigrant students and are school-wide (e.g., SEL, Resilience Classroom Curriculum, strategies to improve classroom climate, family involvement interventions) (2) Selective and specialized support, some of which is group-based (e.g., Mental Health Literacy Program, culturally sensitive programs for immigrant youth and their families). (3) Intensive, some individualized (e.g., TF-CBT, CBITS) support at Levels 2 and 3 can occur inside or outside of school, depending on resources. | School staff |
| **Berry Street Education Model | Brunzell et al. (2015a), Farrelly et al. (2019), Stokes et al. (2019), Stokes and Turnbull (2016), and Berry Street (2023) | Australia | Program | Traumatized students (non-specific/ACEs), all grades | Concept that implements the framework of TIPE in the form of an alternative educational approach in schools. More than 100 combinable strategies that teachers can draw on as part of the concept's curriculum relate to five domains: (1) Body—building students' skills: Inside by improving physical regulation of stress response, de-escalation, and concentration, (2) Relationship—promoting task-based learning through relationship-based classroom management strategies, (3) Perseverance—creating a culture of academic perseverance by promoting resilience, emotional intelligence, and a growth mindset, (4) Engagement—strategies that increase readiness for learning, (5) Utilizing Values and Character Strengths. Training and mentoring by program staff are an integral part of the program. | School staff |
| * Chafouleas et al. (2016): "Toward a blueprint for trauma-informed service delivery in schools" | Chafouleas et al. (2016), Chafouleas et al. (2019), and Kataoka et al. (2018) | USA | Policy, MTSS | Traumatized students (non-specific/ACEs), all grades | Concept based on the guidelines of trauma-informed organizations (Substance Abuse and Mental Health Services Administration (SAMHSA), 2014), applied to schools for the first time as a blueprint. Three levels: (1) universal (e.g., positive school climate, reducing negative environmental conditions, promoting problem-solving and coping skills, teaching behavioral expectations), (2) targeted (e.g., trauma-informed psychoeducation, promoting social support systems, strengthening self-regulation skills), (3) Selective (psychological interventions to reduce the impact of trauma and re-traumatization, e.g., CBT or referral to psychotherapeutic service providers). | School staff, cooperating instances |
| *Collaborative Learning for Educational Achievement and Resilience (CLEAR) | Blodgett (2019), Blodgett and Dorado (2016), Washington State University (2016), Washington State University (2018), and Washington State University (2023) | USA | Program, MTSS | Traumatized students (non-specific/ACEs), all grades | Concept that focuses specifically on the use of evidence-based trauma-sensitive practices that are trained with guidance from program staff and combined with trauma-sensitive language. The goal is, after an implementation period of three years, to develop basic strategies, decision-making structures, leadership practices, and skills of educators to the point where trauma-sensitive practices are self-sustaining. CLEAR may or may not be implemented in a multi-tiered system. Training and guidance by program staff is an inherent part of the concept. | School staff, cooperating instances |
| **Compassionate schools/The Heart of Teaching and Learning (HTL): Compassion, resiliency, and academic success | Day et al. (2015), Wolpow et al. (2009) | USA | Program | Traumatized students (non-specific/ACEs), all grades | Concept that emphasizes the promotion of resilience in students and creation of a co-leadership environment that incorporates and explicitly addresses trauma-sensitive approaches. Drawing on research, ecological and educational theories, and psychoeducational cognitive-behavioral and relational approaches, the concept contains a curriculum that can be used in a variety of educational settings. The Heart of Learning and Teaching: Compassion, Resiliency, and Academic Success (Wolpow et al., 2009) handbook provides extensive recommendations for implementation related to instructional principles, curriculum areas, strategies, teacher self-care, and school-community partnerships. In-service Training is provided. | School staff, parents, cooperating instances, employees of the project |
| *Hagar-Model: | Wyatt et al. (2017) and Wyatt et al. (2018) | Cambodia | Program | Traumatized students (non-specific/ACEs), all grades | Concept whose description of structure and content are part of recent empirical research (Wyatt et al., 2017, 2018). In a qualitative survey with 14 teachers at one school, the core strategies identified were encouragement and empowerment, behavior management strategies, collaboration, fostering relationships and coping with trauma. Teacher training is an integral part of the program. | School staff, employees of the project |

*(Continued)*

TABLE 1 (Continued)

| Concept name (acronym) | Publication(s), main reference | Country | Concept type | Target group | Concept description | Implementation realized by |
|---|---|---|---|---|---|---|
| *Healthy Environment and Response to Trauma in Schools (HEARTS): | Blodgett and Dorado (2016) and Dorado et al. (2016) | USA | Program, MTSS | Traumatized students (non-specific/ACEs), all grades | Concept designed to reduce the amount of time spent in the classroom on disciplinary measures and thus increase effective instructional time. Three levels: (1) primary intervention (80% of students; building capacity of school staff, e.g., trauma-informed training and self-care for staff, using a trauma-sensitive perspective to strengthen universal support, e.g., school climate support, PBIS, SEL, restorative justice), (2) early secondary intervention (for 15% of students; e.g., team meetings for at-risk students, trauma-informed training and self-care for staff, using a trauma-sensitive perspective to strengthen universal support, e.g., school climate support, PBIS, SEL, restorative justice). For example, team meetings for at-risk students, trauma-sensitive, social justice, and anti-racist behavior support systems, (3) Intensive, tertiary intervention (for 5% of students; trauma-specific psychotherapy for students, trauma-sensitive crisis management, and consultation with teachers by program staff). Training is offered to school staff and cooperation partners, workshops for parents, support and counseling for teachers, and optional individual psychotherapy for traumatized students by a program staff member on several days at the school. | School staff, parents, cooperating instances, employees of the project |
| **Helping Traumatized Children Learn (HTCL) | Atallah et al. (2019), Jones et al. (2018), Cole et al. (2005, 2013), and Trauma and Learning Policy Initiative (TLPI) (2023) | USA | Policy | Traumatized students (non-specific/ACEs), all grades | "Flexible Framework," two manuals with comprehensive recommendations for schools to implement measures to move toward a trauma-sensitive school in the areas of school mobilization, leadership, the development of action plans, and educational support strategies. The second volume additionally contains far-reaching suggestions for educational policy changes related to trauma sensitivity. | School staff, cooperating instances |
| *Missouri Model: | Alive and Well Community (2019) and Carter and Blanch (2019) | USA | Policy | Traumatized students (non-specific/ACEs), all grades | Concept in which the development of a trauma-informed school is understood as a process that is operationalized based in of various indicators at different levels in different domains. Depending on these indicators, schools can be assigned to the levels "Pre-Trauma Aware," "Trauma Aware," "Trauma Sensitive," "Trauma Responsive," and "Trauma Informed." Different domains each display different levels of progress in the development process. The indicators can be used as targets for reaching the next level. In addition, there is a range of training courses. | School staff |
| **National Child Traumatic Stress Network Schools Committee (NCTSN) (2017) | National Child Traumatic Stress Network Schools Committee (NCTSN) (2017) | USA | Policy, MTSS | Traumatized students (non-specific/ACEs), all grades | Concept with ten key areas of trauma-sensitive schools, which are organized according to the different tiers and contain instructions for action. Three levels: (1) Universal (building and supporting a trauma-sensitive school community and safe environment that benefits all students, e.g., improving school climate, emergency management, bullying prevention), (2) Early intervention and identification of at-risk students (e.g., including forms of CBT and peer support), and (3) Intensive support (e.g., through individual and/or family therapy and trauma-specific treatment). Specific key strategies and key partnerships are formulated for each stage. | School staff, cooperating instances |
| *Rethinking Learning and Teaching Environments (ReLATE) | Diggins (2021) | Australia | Program | Traumatized students (unspecific/ACEs) at a specialist school for students with learning needs or social and/or emotional challenges | Concept that synthesizes based on multiple concepts (see right column of table) school-wide trauma-specific interventions that include a correction of dysregulated stress responses, the enhancement of self-regulation skills, embedding routines and rituals for the purpose of establishing safety and predictability, and building relationship skills. | School staff |
| ***School's In for Refugees | Grant and Francis (2011) and Foundation House (2023) | Australia | Program | Traumatized students (non-specific/ACEs), all grades | Concept, which is carried out in cooperation with the Department of Education and Training Victoria, among others, and is financially supported by the latter. Schools can participate in the program free of charge. At the heart of the concept is the Refugee Education Support Program, which provides teachers with basic knowledge about refugee-related trauma, its impact on learning, and classroom-based strategies for dealing with students with a refugee background and trauma. Staff from the organization use the materials and network partnerships to create customized programs for schools that include action plans, resource provision, professional development, and promotion of collaboration with parents. The materials address teaching and learning, school climate, transitions, families and partnerships, and professional leadership, and draw on scientific evidence. | School staff, employees of the project |

*(Continued)*

TABLE 1 (Continued)

| Concept name (acronym) | Publication(s), main reference | Country | Concept type | Target group | Concept description | Implementation realized by |
|---|---|---|---|---|---|---|
| **The Sanctuary Model | Banks and Vargas (2009), Bloom (2007), Bloom (2014), Esaki et al. (2013), Matey (2014), National Child Traumatic Stress Network (NCTSN) (2008), Yanosy et al. (2015), and Andrus Sanctuary Institute (2023) | USA | Policy | Traumatized students (non-specific/ACEs), all grades | Concept was originally developed as an evidence-based intervention within mental health services and adapted in various schools within the USA. At its core, a change process is built on three components: 1. theoretical principles, 2. a common trauma-sensitive language (S.E.L.F.), 3. tools for practical implementation (Santcuary Tool Kit). Training offered; implementation in schools also in the United Kingdom and Northern Ireland as well as Australia. | School staff, employees of the project |
| ***Trauma informed schools | Maya Vakfı (2019) and Maya Vakfı Foundation (2023) | Türkey | Program, MTSS | Traumatized students (non-specific/ACEs), all grades | Concept that primarily addresses the target group of Syrian refugee students with trauma. Three steps: (1) Establishment of a safe environment from which all students benefit, (2) Screening for trauma-related symptoms and intervention in small groups by the Maya Vakfı Foundation, (3) Measures to build resilience and reduce trauma-related symptoms in the field office of the Maya Vakfı Foundation. Within the framework of a training course, teachers are trained in the knowledge of trauma, its effects, trauma in connection with displacement and the frequently correlated causes of trauma, as well as strategies for dealing with traumatized students at school with regard to various strategies. | Teachers, school administrators and school counselors, Maya Vakfı |
| *Trauma Informed Schools UK (TISUK) | Demkowicz and Humphrey (2019) and Trauma Informed Schools UK (2023) | United Kingdom | Program | Traumatized students (non-specific/ACEs), all grades | Concept that is being implemented in schools across the UK and internationally. The non-profit organization behind it offers training for individuals on trauma and mental health at different levels of intensity, training for whole schools (with the option of implementing a whole-school approach), and training for student counseling and webinars. | School staff, employees of the program |
| *Trauma-Informed Positive Education (TIPE) | Stokes and Brunzell (2019), Brunzell et al. (2016), and Brunzell et al. (2015b) | Australia | Policy | Traumatized students (non-specific/ACEs), all grades | Concept was implemented across the United Kingdom and internationally in schools. The non-profit organization behind it provides training for individuals on trauma and mental health at various levels of intensity, training for whole schools (with the option of implementing a whole-school approach), and training for counseling students and webinars. | School staff |
| **Trauma-Sensitive School Training Package (TSSTP) | Guarino and Chagnon (2018), Delaney (2020), and National Center on Safe Supportive Learning Environments (2023) | USA/ United Kingdom | Program, MTSS | Traumatized students (non-specific/ACEs), all grades | Concept, which provides a basis for various implementation guides, informational materials for understanding trauma, as well as guidance for building and managing trauma-sensitive schools and supplementary materials (including reflection materials). Three levels: (1) School-wide strategies (relate to trauma and resilience building and are preventive and proactive to all students), (2) Secondary interventions (group interventions for students at risk), (3) Tertiary, individualized interventions. Offering training and webinars | School staff, cooperating instances |

The relation of the respective concepts to the group of traumatized students with a refugee background is divided into three groups based on the asterisks: ***the concept includes measures for the group of traumatized students with a refugee background. **the concept explicitly considers the group of traumatized students with a refugee background, and *the concept refers to trauma-related experiences that may occur among the group of students with a refugee background, but does not explicitly list them as part of the target group. In the context of this work, the term "school staff" is understood to mean the entire staff of a school in pedagogical, nursing, medical, managerial, or supportive positions, including the school management, teachers, school psychologists, inclusion assistants, social workers, and other staff.

underlying concepts, several references for the respective concepts were noted in these cases.

For an overview of the concepts, all documents referring to the same concept were compared, and the document in which the concept was described for the first time was listed as the main reference. In the first descriptive step, the concepts were classified into policies and programs according to their practical relevance. In addition, subgroups that are primarily addressed by the concept or the trauma-specific measures contained therein were identified, and the respective implementation approaches were elaborated. In addition, the concepts were classified with regard to their relation to the subgroup of traumatized students with a refugee background. A distinction was made between three types of reference:

1. Concepts that directly address traumatized students with a refugee background and/or contain specific measures for this group.
2. Concepts that explicitly consider traumatized students with a refugee background and report this in a written form.
3. Concepts that refer to trauma-related experiences that can occur in the context of forced migration, but do not explicitly mention students with a refugee background as part of the target group.

To assess the effectiveness of trauma-sensitive school concepts, empirical publications that examined the impact on various outcomes were summarized in terms of the following characteristics:

- Status of publication in a journal with the peer-review process
- Setting of the concept
- Size and composition of the sample
- Evaluation design
- Existence of a description of the concepts' implementation by school staff
- Length of intervention (in most cases, time elapsed between implementation of the concept in a school and the survey)
- Dependent variables, which are classified in terms of their target group into variables related to school staff, school, and class level, or students
- Summary of results

The concepts were then compared according to these dimensions and discussed in terms of their significance and comparability.

# 3 Results

A total of 41 documents and nine websites were identified, which are summarized and presented as an overview in Table 1. Most documents are journal articles describing concepts of trauma-sensitive schools descriptively (24%) or empirically (26%). Other document types include websites of trauma-sensitive school concepts (18%), informational and training materials (12%), project reports (12%), and monographs/manuals (6%). Additionally, one dissertation (2%) was included in the evaluation.

## 3.1 International concepts of trauma-sensitive schools

Based on the documents and websites listed, 17 concepts of trauma-sensitive schools were identified that met the inclusion criteria. 58.8% of these concepts were developed in the USA. Other trauma-sensitive school concepts originate from Australia (23.5%), the United Kingdom, Turkey, and Cambodia (5.9% each). In 58.8% of the cases, the programs are linked to at least one training intervention (Wolpow et al., 2009; Guarino and Chagnon, 2018; Maya Vakfı, 2019) and, in some cases, are accompanied by program staff during the implementation process (Grant and Francis, 2011; Brunzell et al., 2015a; Dorado et al., 2016; Washington State University, 2016, 2018; Wyatt et al., 2017; Demkowicz and Humphrey, 2019). The remaining 41.2% includes policies that may include informational materials for school staff and other stakeholders, as well as suggestions for their implementation in the school context, but do not include training or practical elements (Cole et al., 2005, 2013; Bloom, 2007; Brunzell et al., 2015b; Chafouleas et al., 2016; National Child Traumatic Stress Network Schools Committee (NCTSN), 2017; Alive and Well Community, 2019; Arora et al., 2021).

The implementation and realization of all concepts involve members of the school staff. In addition, implementation can involve collaborating entities, such as mental health services, as suggested in the concepts of Chafouleas et al. (2016), HTCL (Cole et al., 2005, 2013), TSSTP (Guarino and Chagnon, 2018), and implemented in HEARTS (Dorado et al., 2016), CLEAR (Washington State University, 2016), and HTL (Wolpow et al., 2009). In some cases, parents, usually those of the students in interest, are given the opportunity to attend training on trauma-sensitive approaches (Wolpow et al., 2009; Dorado et al., 2016). Among the programs, there are also some concepts in which the implementation process is accompanied by various offers by employees of these programs—often therapists or appropriately trained pedagogues—either as a fixed or an optional component of the concept (Bloom, 2007; Grant and Francis, 2011; Dorado et al., 2016; Washington State University, 2016; Wyatt et al., 2017; Demkowicz and Humphrey, 2019; Maya Vakfı, 2019). All of the above-mentioned concepts contain initial in-service training for school staff, supplemented by, for example, counseling (Bloom, 2007; Grant and Francis, 2011; Dorado et al., 2016; Washington State University, 2016; Wyatt et al., 2017) and supervision (Demkowicz and Humphrey, 2019). In addition, some programs offer the provision of therapy (Dorado et al., 2016; Maya Vakfı, 2019) or expand the program with the presence of project staff within the school (Dorado et al., 2016), as well as complementary offerings of training and/or materials (Bloom, 2007; Grant and Francis, 2011; Demkowicz and Humphrey, 2019). As described above, the American concepts account for the largest percentage of trauma-sensitive school concepts (58.8%). With the Sanctuary Model (Bloom, 2007), whose basic concepts were first transferred from TIC to the school concept before the turn of the millennium, and the HTCL (Cole et al., 2005, 2013), the oldest concepts are also available there. In the United States, the content of HTCL, in particular, has formed the basis for some of the more recent U.S. concepts, which have partially adopted and further developed elements of HTCL, including HEARTS (Dorado et al., 2016), TSSTP (Guarino and Chagnon, 2018), and HTL (Wolpow et al., 2009). Furthermore, the concepts behind HTL (Wolpow et al., 2009) and HEARTS (Dorado et al., 2016) were informed by the ARC framework (Kinniburgh et al., 2005) as well as CLEAR (Washington State University, 2016). The ARC framework is an approach to trauma-sensitive care that is transferred to concepts of trauma-sensitive preschools and kindergartens (Holmes et al., 2015); thus, it is only considered as a foundation for approaches based on it for the context of this review. The largest group within the American concepts are those that follow the rationale of MTSS. These concepts for trauma-sensitive schools, which were mostly developed from 2016 onwards, the tiered structure is almost identical (Chafouleas et al., 2016; Dorado et al., 2016; National Child Traumatic Stress Network Schools Committee (NCTSN), 2017; Guarino and Chagnon, 2018; Arora et al., 2021). In Australia, a total of four concepts of trauma-sensitive schools have been identified: BSEM (Brunzell et al., 2015a), TIPE (Brunzell et al., 2016), ReLATE (Diggins, 2021), and School's In for Refugees (Grant and Francis, 2011). Globally, a trend of transferring U.S. concepts to other regions can be observed. In particular, the *Sanctuary Model* (Bloom, 2007) is mentioned as the basis for three of the four concepts identified from Australia (Brunzell et al., 2015a,b; Diggins, 2021). The BSEM (Brunzell et al., 2015a), in turn, was transferred to a school in Cambodia through an Australian organization and adapted to local needs (Wyatt et al., 2017). It has been adapted in six other countries, including Canada, Ireland, Mexico, Ecuador, Scotland, Israel, and Northern Ireland (Millen and MacDonald, 2012; Bunting et al., 2018). The authors of the ReLATE concept (Diggins, 2021) also report incorporating elements from the frameworks of Chafouleas et al. (2016), HTCL (Cole et al., 2005), and the National Child Traumatic Stress Network Schools Committee (NCTSN) (2017) into their concept. The Turkish Trauma Informed

Schools concept (Maya Vakfı, 2019) also uses an MTSS structure that bears a strong resemblance to those of U.S. concepts (z. B. Guarino and Chagnon, 2018).

Three further concepts of trauma-sensitive schools were identified outside the United States and Australia, including one from England (Demkowicz and Humphrey, 2019), one from Turkey (Maya Vakfı, 2019), and one from Cambodia (Wyatt et al., 2017). In the United Kingdom, *Trauma Informed Schools UK* (TISUK) partners with various influential institutions, such as UNICEF, as well as various county governments and city councils to encourage schools across territories to participate in the programs. Beyond state borders, the organization provides training in Italy, China, and West Africa. The trainings are accompanied by supervision, conferences, and consultations for leaders (Demkowicz and Humphrey, 2019).

The *Trauma Informed Schools Program* (Maya Vakfı, 2019) is a collaborative project between the Istanbul-based Maya Vakfı organization and the United Kingdom-based *Theirworld* organization. In 2021, the program was awarded Qatar Foundation's WISE Award 2021 (Qatar Foundation, 2021), which is given annually to six successful and innovative projects worldwide that address global education challenges. Despite the three-tiered structure, which bears resemblance to the structure of the U.S. MTSS models, no references to these concepts are made within the publications or website (Maya Vakfı, 2019). Following early evaluations, the Trauma Informed Schools program is receiving government support from the Turkish Ministry of Education, and it is being expanded from its current implementation in two provinces to nine provinces, with a recommendation to participate in the program currently under review by the Turkish government (Maya Vakfı, 2019; Theirworld, 2021).

The origin of the Hagar model can be found in the BSEM (Brunzell et al., 2015a), which was supplemented by various approaches from psychology and social work and adapted to specific regional needs (Wyatt et al., 2018). Due to missing evidence for a scientific foundation of the concept beyond these included approaches and on the components and implementation, studies are currently conducted to determine these elements (Wyatt et al., 2017, 2018).

## 3.2 Adaptation of content to the needs of students with a refugee background

At 82.4%, a majority of the concepts are designed to meet the needs of students with nonspecific causes of trauma, most commonly referred to as trauma resulting from ACEs. However, the concept of Arora et al. (2021) refers to students with a migrant background in adolescence, which explicitly includes young people with a refugee background and traumatization. The concept of Maya Vakfı (2019) focuses primarily on traumatized students who have fled from Syria to Turkey. The School's In for Refugees (Grant and Francis, 2011) provides individualized concepts for schools serving traumatized refugee students. Accordingly, 17.6% of the identified concepts of trauma-sensitive schools contain specific measures for the group of traumatized students. In 35.3% of the concepts, traumatized students with a refugee background are explicitly mentioned as part of the target group (Cole et al., 2005; Bloom, 2007; Brunzell et al., 2015a; National Child Traumatic Stress Network Schools Committee (NCTSN), 2017; Guarino and Chagnon, 2018). 47.1% of concepts address trauma-related experiences that may occur among the group of traumatized students with a refugee background, although they are not explicitly listed as part of the target group (Brunzell et al., 2015b; Chafouleas et al., 2016; Dorado et al., 2016; Washington State University, 2016; Wyatt et al., 2017; Alive and Well Community, 2019; Demkowicz and Humphrey, 2019; Diggins, 2021).

Arora et al. (2021) designed their concept specifically for the group of potentially traumatized immigrant students in adolescence and, to adapt to this target group, focus on culturally sensitive interventions at all levels, family involvement, and implementation of interventions to treat trauma-related symptoms and other mental health problems in students who need such support. The concept of Maya Vakfı (2019) is specifically designed to meet the needs of refugee students from Syria who are educated in schools in Turkey. An adaptation to this group is present in program points of training for teachers, counselors, and school administrators that address concrete knowledge regarding trauma resulting from war and migration, loss and grief, and neglect and abuse. School's In for Refugees (Grant and Francis, 2011) provides several resources to support school-wide planning and change processes, such as background information on refugees' experiences and the impact of trauma on learning, development, and well-being. Furthermore, it provides case studies for school staff to gradually learn to appreciate the experiences of students with refugee backgrounds, to consider in the school context how trauma experienced by these children and youth can impact their learning, and to apply a whole-school approach to supporting them. The program's website offers a comprehensive and freely accessible collection of materials with information, strategies at different school levels for elementary and secondary schools, downloadable materials, and workshops and training. The complete program and the individualized set of measures and materials for the school's needs are free of charge, as the costs are fully covered by the State of Victoria (Australia).

## 3.3 Effectiveness of trauma-sensitive school concepts

A total of 12 studies were included in the evaluation of effectiveness, covering seven concepts (Table 2). One study is part of a dissertation (Delaney, 2020). Two studies are in a single document (Washington State University, 2016), so they are marked by a subscript number to distinguish them. Of the total, only three studies have been published in journals that include a peer-review process (Day et al., 2015; Dorado et al., 2016; Diggins, 2021). The remaining studies are freely available via the programs' websites without quality assurance measures (Stokes and Turnbull, 2016; Washington State University, 2016, 2018; Farrelly et al., 2019; Maya Vakfı, 2019; Stokes et al., 2019; Delaney, 2020).

About half of the studies cover evaluations in schools in the United States. Notably, five studies examined the effects of trauma-sensitive schools in Australia (Stokes and Turnbull, 2016; Farrelly et al., 2019; Stokes et al., 2019; Diggins, 2021; Stokes, 2022) and one each in Ireland (Delaney, 2020) and Turkey (Maya Vakfı, 2019). Both primary and secondary schools are represented in the samples. While the setting of the other studies included regular schools, the surveys in Day et al.'s (2015) and Diggins's (2021) study were conducted in special settings. The sample sizes of the quantitative surveys sometimes show large differences, with a minimum of $n = 18$ students (Diggins,

TABLE 2 Effects of trauma-sensitive school concepts.

| Reference | Population | Intervention | Comparison | Outcome | Study Design |
|---|---|---|---|---|---|
| *Day et al. (2015) | *Participants:*<br>Students: $n = 70$<br>*Specifics:*<br>Age: 14–18 years (no mean value and standard deviation reported)<br>Gender: only female<br>Other specifics: all participants are court-involved<br>School: $N = 1$ middle and high school of an institution for female students who are in court proceedings and have faced abuse or neglect in the past<br>Country: USA | *Intervention:*<br>Modified version of The Heart of Teaching and Learning: Compassion, Resiliency, and Academic Success (HTL; Wolpow et al., 2009)<br>*Intervention components:*<br>- School staff training: two half-day trainings and booster trainings occurring monthly over 2-h period<br>*Implementation:*<br>- Implementation period: eight months (October 2012–May 2013)<br>- Control of Implementation fidelity: Classroom and teacher performance observations as well as individual coaching by a therapist certified in trauma and attachment | No comparison group | *Measured outcomes:*<br>Student needs, post-traumatic symptoms, self-esteem, perceptions of school climate<br>*Main results:*<br>Significant reduction in post-traumatic symptoms with a low effect size ($d = 0.30$), no significant change in student needs, self-esteem, and school climate | *Study Design:*<br>Pre–post design without a control group<br>*Measures:*<br>Student Needs Survey (Burns et al., 2006), The Child Report of Post-traumatic Symptoms (Greenwald and Rubin, 1999), The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1989), six close-ended questions developed by the research team to gather information on student perceptions of school climate<br>*Analysis:*<br>Paired-sample t-tests (pre- and post-test), calculation of effect sizes (Cohen's $d$) |
| Delaney (2020) | *Participants:*<br>Quantitative assessment:<br>School staff (teachers, special needs assistants, the school principal, and the school psychologist):<br>$n_1 = 40$;<br>Qualitative assessment:<br>School staff: $n_2 = 14$ participants from the intervention group<br>*Specifics:*<br>Age: No information reported<br>Gender: No information reported<br>School: $N = 1$ primary school<br>Country: Ireland | *Intervention:*<br>Trauma-Sensitive Schools Training Package (TSSTP; Guarino and Chagnon, 2018)<br>*Intervention components:*<br>- School staff training: three sessions (90 min)<br>- Modules one and two of the TSSTP ("Understanding trauma and its impacts" and "Building trauma-sensitive schools")<br>*Implementation:*<br>- Training period: two months (September–October 2019)<br>- School staff training only, no implementation of trauma-sensitive practices | Waitlist control group<br>School staff: $n_2 = 19$ (teachers and the school principal)<br>School: $N = 1$ primary school | *Measured outcomes:*<br>Knowledge and understanding of trauma and its impact on students, general self-efficacy and self-efficacy in dealing with traumatized students, staff perspective on their role in dealing with traumatized students, attitudes toward trauma-sensitive practices<br>*Main results:*<br>Significant increase in knowledge and understanding of trauma and its effects on students in the intervention group ($g = 1.67$ to 2.26 pre–post effect in the subscales), significant group effects ($\eta^2 = 0.30$ to 0.49 in the subscales); significant increase in self-efficacy in dealing with traumatized students in the intervention group ($g = 0.64$ pre–post effect), significant group effect ($\eta^2 = 0.11$ group effect post-intervention); significant increase in the teachers' sense of efficacy in the intervention group ($g = 0.46$ pre–post effect), significant group effect ($\eta^2 = 0.09$); no interaction effect between group and time or main effect for time and staff attitudes toward trauma-sensitive practices, no significant changes in the control group as well as staff perceptions of their role in dealing with traumatized students in either group | *Study Design:*<br>2×2 quasi-experimental, non-equivalent waitlist control group design, and sequential explanatory mixed-methods design<br>*Measures:*<br>The Teaching Traumatized Students Scale (Crosby et al., 2016), Knowledge and Understanding of Trauma and its Impact Assessment (Dorado et al., 2016), Staff Perception of Role Survey (Reker, 2016), Attitudes Related to Trauma-Informed Care-10 Item Form (Baker et al., 2016), Attitudes Related to Trauma-Informed Care-35 Item Form: Self-Efficacy Subscale Form (Baker et al., 2016), Teachers' Sense of Efficacy Scale: Short Form (Tschannen-Moran and Hoy, 2001)<br>*Analysis:*<br>Pairwise comparisons and mixed between–within-subject ANOVAs, calculation of effect sizes (Hedges $g$; $\eta^2$) |
| * Diggins (2021) | *Participants:*<br>Students: $n = 18$<br>*Specifics:*<br>Age: 9–16 years (mean: 12.5, SD: 1.95)<br>Gender: 11% female, 89% male<br>Other specifics: many with diagnoses in the areas of autism spectrum disorder, ADHD, or anxiety disorders<br>School: $N = 1$ school (nongovernment alternate remedial school focusing on emotional and social development, P-12)<br>Country: Australia | *Intervention:*<br>Rethinking Learning and Teaching Environments (ReLATE; Diggins, 2021)<br>*Intervention components:*<br>- School staff training: two-day group training in the Sanctuary model (Yanosy et al., 2015); three-day group training in therapeutic crisis intervention<br>- Schoolwide trauma-specific interventions<br>- Community meetings (daily)<br>- Safety plans<br>- Therapeutic crisis intervention<br>- Life space interviews<br>- School staff debriefings to incidents<br>- Supervisions<br>- Clinical discussions with the psychologist (three times per term)<br>*Implementation:*<br>- Implementation period: 12 months (2019–2020)<br>- Control of Implementation fidelity: no information | No comparison group | *Measured outcomes:*<br>Emotional symptoms, behavioral problems, hyperactivity, peer problems, and prosocial behavior, impact of student's behavior on family, home life, friendships, learning, and leisure activities, PTSD symptoms<br>*Main results:*<br>Over 12 months: significant decrease in scores for conduct problems ($d = 0.88$), peer problems ($d = 0.40$), and total social difficulties, prosocial skills ($d = 0.35$); a decrease in emotional symptoms and hyperactivity ($d = 0.72$) did not reach significance; effect sizes are larger after 12 months than after six months; parents report positive effects of the concept on the home environment, friendships, learning, and leisure activities | *Study Design:*<br>Mixed-methods design (pre–post follow-up assessment without a control group and interviews)<br>*Measures:*<br>Parent report from Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001), PTSD Checklist (PCL-PR; Blanchard et al., 1996)<br>*Analysis:*<br>Analyses of variance (ANOVAs), calculation of the reliable change indicator and effect sizes (Cohen's $d$) |

*(Continued)*

TABLE 2 (Continued)

| Reference | Population | Intervention | Comparison | Outcome | Study Design |
|---|---|---|---|---|---|
| *Dorado et al. (2016) | *Participants:*<br>School staff (teachers, principals, social workers, special educators, counselors): $n_1 = 175$;<br>Students $n_2 = 1{,}243$, including 67 students who received adjunctive therapy through HEARTS<br>*Specifics:*<br>Age: No information was reported for the total samples<br>Gender: 47% female, 63% male<br>Schools: N = 4 HEARTS schools (three elementary schools, one school with kindergarten through 8th grade)<br>Country: USA | *Intervention:*<br>Healthy Environments and Response to Trauma in Schools (HEARTS; Dorado et al., 2016)<br>*Intervention components:*<br>- MTSS<br>- School staff training and consultation<br>- Schoolwide trauma-specific interventions (Tiers 1–3)<br>- Trauma-specific, culturally congruent therapy for trauma-impacted students by HEARTS clinicians (Tier 3)<br>*Implementation:*<br>- Implementation period: school A: five continuous years, school B: four years with short interruptions, school C: two years, school D: one and a half years (2009–2014)<br>- Control of Implementation fidelity: no information | No comparison group | *Measured outcomes:*<br>School staff: knowledge about trauma and its effects on children, understanding how to help traumatized children learn in school, knowledge about trauma-sensitive practices, knowledge about burnout and vicarious traumatization, use of trauma-sensitive practices;<br>Students: ability to learn, time on task in the classroom, time spent in the classroom, school attendance, number of disciplinary office referrals and suspensions over time, and clinical and psychosocial needs and strengths<br>*Main results:*<br>School staff: significant increase in perceived knowledge and its effect on children ($d = 1.72$), understanding of how to help traumatized children learn in school ($d = 1.56$), knowledge about trauma-sensitive practices ($d = 1.67$), knowledge about burnout and vicarious traumatization ($d = 1.43$) and use of trauma-sensitive practices ($d = 1.28$)<br>Students: significant increase in students' ability to learn ($d = 0.89$), time on task in the classroom ($d = 0.86$), time spent in the classroom ($d = 1.00$), and school attendance ($d = 0.54$);<br>Reduction in total negative incidents by 32% at one year and 87% at five years ($d = 2.42$) | *Study Design:*<br>Quantitative retrospective pre–post assessment<br>*Measures:*<br>HEARTS Evaluation Survey (Dorado et al., 2016), Child and Adolescent Needs and Strengths scale (CANS; Dorado et al., 2016)<br>*Analysis:*<br>Within-subjects paired t-tests (pre- and post-test), calculation of effect sizes (Cohen's *d*) |
| Farrelly et al. (2019) | *Participants:*<br>School staff: $n_1 = 4$;<br>Students: $n_2 = 7$;<br>Darebin Community Renewal Officer: $n_3 = 1$;<br>Berry Street trainers: $n_4 = 2$<br>*Specifics:*<br>Age: No information reported<br>Gender: No information reported<br>School: $N = 2$ primary school<br>Country: Australia | *Intervention:*<br>Berry Street Education Model (BSEM; Brunzell et al., 2015a)<br>*Intervention components:*<br>- School staff training: four days over two years<br>- Three tiers of therapeutic learning: repairing the student's regulatory abilities (Tier 1), repairing the student's disrupted attachments (Tier 2), and increasing the psychological resources (Tier 3)<br>*Implementation:*<br>- Implementation period one to two years (2017–2019)<br>- Control of Implementation fidelity: high implementation fidelity while adapting strategies to contextual needs | No comparison group | *Measured outcomes:*<br>School staff: teachers' teaching practices, school-wide practices;<br>Students: student well-being, engagement, and achievement<br>*Main results:*<br>School staff: use of new classroom strategies, teacher confidence, and well-being; Positive effects on teacher understanding of student behavior, improved communication, and relationships between teachers and students;<br>Students: no significant effects on student well-being, engagement, and achievement | *Study Design:*<br>Qualitative design<br>*Measures:*<br>Individual and focus group interviews<br>*Analysis:*<br>No information reported |
| Maya Vakfı (2019) | *Participants:*<br>Quantitative assessment:<br>School staff (teachers and school counselors): $n_1 = 63$;<br>Qualitative assessment:<br>School staff: $n_2 = 7$ teachers from the intervention group<br>*Specifics:*<br>Age: 21–59 years (mean: 39.18, SD: 10.43)<br>Gender: 74% female, 27% male<br>School: $N = 4$ primary schools<br>Country: Turkey | *Intervention:*<br>Trauma-Informed Schools (Maya Vakfı, 2019)<br>*Intervention components*<br>- MTSS<br>- School staff training: two modules over a 6-h training period<br>- School counselor training: two modules over<br>- Schoolwide trauma-specific interventions (Tiers 1–3)<br>- Individual therapy sessions in the Maya Vakfı field office (Tier 3)<br>*Implementation:*<br>- Training period: No information reported<br>- School staff training only, no implementation of trauma-sensitive practices | No comparison group | *Measured outcomes:*<br>Beliefs and knowledge of trauma and child abuse<br>*Main results:*<br>Significant increase in beliefs and knowledge; perceived increased level of awareness and sensitivity in understanding trauma | *Study Design:*<br>Mixed-methods design (quantitative pre–post assessment and interviews)<br>*Measures:*<br>Self-developed scales, semi-structured in-depth interviews<br>*Analysis:*<br>Paired-sample t-tests (pre- and post-test) |

*(Continued)*

TABLE 2 (Continued)

| Reference | Population | Intervention | Comparison | Outcome | Study Design |
|---|---|---|---|---|---|
| *Stokes (2022) | *Participants:*<br>Quantitative assessment: School staff (leadership, teachers, educational support staff): $n_1 = 35$ (2019); $n_1 = 30$ (2020); $n_1 = 34$ (2021); Students: $n_2 = 192$ (2019); $n_2 = 256$ (2020); $n_2 = 260$ (2021);<br>Qualitative assessment: School staff (leadership, teachers, educational support staff): $n_3 = 12$; Students: $n_4 = 20$<br>*Specifics:*<br>Age (students): 7–12 years (no mean value and standard deviation reported)<br>Gender: No information reported<br>School: $N = 1$ school (low socio-economic index)<br>Country: Australia | *Intervention:*<br>Trauma Informed Positive Education (TIPE; Brunzell et al., 2016)<br>*Intervention components*<br>- School staff training: four whole days and further master classes<br>- Coaching program for teachers<br>- Development of a trauma-informed instructional model by the school leadership<br>- Implementation of TIPE strategies in the classroom<br>- Non-punitive behavior management system<br>*Implementation:*<br>- Implementation period: one and a half years (2019–2021); the study is part of a larger four-year longitudinal study<br>- Control of Implementation fidelity: implementation guided by the TIPE trainer | No comparison group | *Measured outcomes:*<br>School staff: Understanding of trauma and its impact on students, effective teaching methods, learning environment, collaboration of school staff in school planning;<br>Students: student attitudes to school, student behavior<br>*Main results:*<br>School staff: greater understanding of trauma and its impact on students by the school staff, individualization of TIPE strategies for their school, increase in perceived collaboration among school staff in school planning, and a more positive perceived learning environment after three years;<br>Students: fewer punishments, positive changes in school policies and instructional practices that support their learning, improvements in student-teacher relationships, and an improvement in social interaction | *Study Design:*<br>Mixed-methods design (quantitative pre–post assessment and interviews)<br>*Measures:*<br>School Staff Survey (Victorian State Government Department of Education and Training, 2021), Student Attitudes to School Survey (Victorian State Government Department of Education and Training, 2022); in-depth interviews<br>*Analysis:*<br>Interview analysis using the framework of Miles and Huberman (1994); total scores for quantitative measures |
| Stokes et al. (2019) | *Participants:*<br>Quantitative assessment: Students: $n_1 = 911$;<br>Qualitative assessment: School staff and training staff (principals, assistant principals, BSEM leaders, well-being leaders): $n_2 = 17$; Students: $n_3 = 51$<br>*Specifics:*<br>Age (students): years 5–9 (no specific age, mean value and standard deviation reported)<br>Gender: No information reported<br>Schools: $N = 3$ (two primary schools, one P-9 school, low socio-economic index)<br>Country: Australia | *Intervention:*<br>BSEM (Brunzell et al., 2015a)<br>*Intervention components*<br>- School staff training: four whole days and further master classes<br>- Design of a developmental curriculum Focused on Five domains: Body, relationship, stamina, engagement, and character<br>- Implementation of classroom strategies from the BSEM curriculum<br>- On-going professional development and advice by the Berry Street training team<br>- Train-the-trainer model<br>*Implementation:*<br>- Implementation period: three years (2015–2017)<br>- Control of Implementation fidelity (part of the research question): different implementations of the concept at the three schools with some commonalities | Three schools with the same intervention | *Measured outcomes:*<br>School staff: training effectiveness, understanding of trauma and its impact on students, implementation of the BSEM, teacher practice, social relationships;<br>Students: understanding and use of BSEM strategies, social relationships, psychological functioning, student attitudes to school, critical incidents and suspension, school attendance<br>*Main results:*<br>School staff: greater understanding of trauma and its impact on students by the school staff, identifying students' triggers, support students to regulate their behavior, positive impact on student-teacher and peer relationships; in interviews, teachers report changes in their teaching practice by providing a BSEM toolkit of activities and strategies, improving their ability to regulate themselves in dealing with difficult situations;<br>Students: positive changes in self-perception, behavioral regulation, and peer and teacher-student relationships over time and across all schools; in interviews, students report that BSEM has provided them with helpful strategies to shape their relationships, behavior, and learning, | *Study Design:*<br>Mixed-methods design (quantitative measurements two times per year); focus group interviews<br>*Measures:*<br>Self-report online survey for students (not specified); Student Attitudes to School Survey (Victorian State Government Department of Education and Training, 2022); focus group interviews with individual representatives of all groups<br>*Analysis:*<br>No information was provided for the analysis of interviews, descriptive analysis of quantitative data |
| Stokes and Turnbull (2016) | *Participants:*<br>Quantitative assessment: Students: $n_{total} = 2050$; $n_1 = 150$ (school 1), $n_2 = 615$ (school 2, intervention group), $n_3 = 1,285$ (school 2, control group);<br>Qualitative assessment: School staff (teachers and school leadership): $n_3 = 9$ (school 1), $n_4 = 19$ (school 2), $n_5 = 26$ (school 1); Students: $n_6 = 26$ (school 2)<br>*Specifics:*<br>Age (students): years 5–8 (no specific age, mean value and standard deviation reported)<br>Gender: No information reported<br>Schools: $N = 2$ (one primary school, one P-9)<br>Country: Australia | *Intervention:*<br>BSEM (Brunzell et al., 2015a)<br>*Intervention components*<br>- School staff training: sequence of professional development workshops, seminars, training sessions, and follow-up sessions<br>- Design of a developmental curriculum focused on five domains: body, relationship, stamina, engagement, and character<br>- Implementation of classroom strategies from the BSEM curriculum<br>*Implementation:*<br>- Implementation period: one year (2014–2015)<br>- Control of Implementation fidelity: different implementations of the concept at the two schools (whole school vs. one area) | Two schools with the same intervention, school 2 split into an intervention and a control group (control group: $n_3 = 1,285$) | *Measured outcomes:*<br>Student well-being, student achievement, student engagement, student attitudes to school, critical incidents, and suspension<br>*Main results:*<br>Improvement in student wellbeing, achievement, student engagement, and attitudes to school decrease in suspensions and critical incidents | *Study Design:*<br>Mixed-methods design (quantitative pre–post assessment with control group); focus group interviews<br>*Measures:*<br>Student Attitudes to School Survey (Victorian State Government Department of Education and Training, 2022); focus group interviews<br>*Analysis:*<br>No information was provided for the analysis of interviews, descriptive analysis of quantitative data |

*(Continued)*

TABLE 2 (Continued)

| Reference | Population | Intervention | Comparison | Outcome | Study Design |
|---|---|---|---|---|---|
| Washington State University (2016) | *Participants:*<br>$n_{total}$ = 11,651 students ($n_1$ = 2,585 in intervention schools, $n_2$ = 9,065 in comparison schools)<br>*Specifics:*<br>Age: Years 3–5 (no specific age, mean value and standard deviation reported)<br>Gender: No information reported<br>Schools: $N_1$ = 6 intervention schools, $N_2$ = 20 comparison schools without CLEAR interventions<br>Country: USA | *Intervention:*<br>Collaborative Learning for Educational Achievement (CLEAR; Washington State University, 2016)<br>*Intervention components*<br>- MTSS<br>- School staff training: three-year progressive training process; cumulative 1-h trainings: nine trainings in year 1, six trainings in year 2, four trainings in year 3<br>- Progressive elaboration of best-practice trauma principles<br>- Whole-school actions and instructional practices to improve learning outcomes<br>- Individual or small group consultation support, participation in the monthly professional development (PD) trainings<br>*Implementation:*<br>- Implementation period: one year (2014–2015)<br>- No information reported regarding control of Implementation fidelity: No information reported | Three independently selected matched comparison groups of schools without CLEAR intervention | *Measured outcomes:*<br>School performance in English language and math<br>*Main results:*<br>English Arts Standardized Test: significant increase in English language proficiency for the CLEAR intervention group, with the percentage of tests passed increase for the intervention group and no change for the control group.<br>Math State Test: average increase of two percentage points in the intervention group, consistent with slightly decreased average percentage points in the control group | *Study Design:*<br>Pre–post design with three control groups<br>*Measures:*<br>English Arts Standardized Test, Math State Test<br>*Analysis:*<br>Repeated measures analyses of covariance |
| Washington State University (2016) | *Participants:*<br>School staff: $n$ = 432<br>*Specifics:*<br>Age: No information reported<br>Gender: No information reported<br>School: $N$ = 12 (10 elementary schools, one middle school, and one high school)<br>Country: USA | *Intervention:*<br>CLEAR (Washington State University, 2016)<br>*Intervention components*<br>- MTSS<br>- School staff training: three-year progressive training process; cumulative one-hour trainings: nine trainings in year 1, six trainings in year 2, four trainings in year 3<br>- Progressive elaboration of best-practice trauma principles<br>- Whole-school actions and instructional practices to improve learning outcomes<br>- Individual or small group consultation support, participation in the monthly professional development (PD) trainings<br>*Implementation:*<br>- Implementation period: one year (44% of the sample), two years (27% of the sample), three years (29% of the sample)<br>- Control of Implementation fidelity: significant variation across participating schools in the level of reported integration of the six CLEAR practices, significant variation across staff | No comparison group | *Measured outcomes:*<br>Implementation of CLEAR principles, impact of CLEAR on their practice, school climate; student behavior, student–teacher engagement, shift in school policies and practices, predictors of change<br>*Main results:*<br>Significant increase in all areas of CLEAR principles, significant increases in the implementation of TIC methods and school characteristics, significant increases in the areas of school climate, student behavior, and staff–student collaboration; effects often stronger the longer CLEAR was implemented | *Study Design:*<br>Pre–post design without a control group (retrospective baseline reporting strategy)<br>*Measures:*<br>Web-based survey to assess the implementation of the CLEAR principles<br>*Analysis:*<br>Repeated-measure ANOVAs with implementation year (first, second, or third program year), linear regression analysis of predictors of change in practice or perception of school characteristics |
| Washington State University (2018) | *Participants:*<br>School staff: $n$ = 432<br>*Specifics:*<br>Age: No information reported<br>Gender: No information reported<br>Schools: $N$ = 13 (13 elementary schools)<br>Country: USA | *Intervention:*<br>CLEAR (Washington State University, 2016)<br>*Intervention components*<br>- MTSS<br>- School staff training: three-year progressive training process; cumulative 1-h trainings: nine trainings in year 1, nine trainings in year 2, six trainings in year 3<br>- Progressive elaboration of best-practice trauma principles<br>- Whole-school actions and instructional practices to improve learning outcomes<br>- Individual or small group consultation supports, participation in the monthly professional development (PD) trainings<br>*Implementation:*<br>- Implementation period: nine schools with an implementation period of one year (2017–2018), three schools with an implementation period of three years<br>- Control of Implementation fidelity: different quality of implementing conditions across communities | No comparison group | *Measured outcomes:*<br>Implementation of CLEAR principles, impact of CLEAR on their practice, school climate; student behavior, student–teacher engagement, shift in school policies and practices, predictors of change<br>*Main results:*<br>Significant increase in all variables related to school staff, stronger effects in all areas after three years of implementation than after one year; no significant effects related to physical safety for students and school staff and respectful behavior on the part of students | *Study Design:*<br>Pre–post design without control group (retrospective baseline reporting strategy)<br>*Measures:*<br>Web-based survey to assess the implementation of the CLEAR principles<br>*Analysis:*<br>No information reported |

Asterisks mark a publication in peer-reviewed journals.

2021) and a maximum of $n = 11{,}651$ students (Washington State University, 2016). In addition, unlike all other studies that examined members of the school staff and, in some cases, students, Diggins (2021) conducted a parent survey.

Within studies, a variety of study designs are used, including mixed-methods designs (Stokes and Turnbull, 2016; Maya Vakfı, 2019; Stokes et al., 2019; Delaney, 2020; Diggins, 2021; Stokes, 2022), quantitative pre–post surveys (Day et al., 2015; Dorado et al., 2016; Washington State University, 2016, 2018), of which two studies used non-randomized control groups. The Washington State University study used three control group clusters, and the Delaney (2020) study used an asymmetric waitlist control group design. In addition, Farrelly et al. (2019) have chosen a qualitative design. Within the mixed-methods surveys and the isolated quantitative surveys, there are sometimes major methodological differences, especially regarding the sample size and the only partially standardized test procedures used to collect the data.

The independent variables naturally vary about the concepts evaluated. Three studies have examined the impact of CLEAR (Washington State University, 2016, 2018). Data on the effects of the concept were collected in a study one year after implementation of the concept (Washington State University, 2016). In each of the two other studies, data are collected in schools at different intervals from the time of implementation (Washington State University, 2016; Washington State University, 2018). In one study (Day et al., 2015), the effects of using HTL (Wolpow et al., 2009) on court-involved female students who have faced abuse or neglect in the past are examined. This is a modified version of the concept, supplemented by two additional interventions. The time interval between the implementation of the concept and the survey is eight months. Dorado et al. (2016) assessed the effects of the HEARTS program in four different schools where the concept was implemented for varying periods of time, ranging from one and a half to five continuous years. In most of the studies, no indication has been reported regarding the realization of the concepts in schools. In the studies regarding BSEM (Stokes and Turnbull, 2016; Farrelly et al., 2019; Stokes et al., 2019; Stokes, 2022), the schools' implementation of the concept is part of the surveys, so it is presented as results. In two studies, only the impact of training on teachers and the effect of implementing the concept were examined (Maya Vakfı, 2019; Delaney, 2020).

The outcome variables examined can be divided into four groups that examine the effects of the intervention (implementation of the concept or participation in training) on school personnel, school- and/or classroom-level aspects, student-related dimensions, and trauma-related symptoms. Positive effects (see Table 2) have been reported at the student level in behavioral variables (Dorado et al., 2016; Stokes and Turnbull, 2016; Washington State University, 2016, 2018; Stokes et al., 2019; Diggins, 2021; Stokes, 2022), dimensions of well-being and (Stokes and Turnbull, 2016; Farrelly et al., 2019) relationship variables (Stokes et al., 2019; Stokes, 2022), as well as school performance (Washington State University, 2016). While all of these variables represent potential indicators of positive effects on sublevels of trauma-sensitive school concepts, they provide little insight into their comprehensive impact on the various dimensions of student impairment in the school setting and their complex interactions. The same applies to the reported results with regard to the school and class level. In terms of impact at the faculty level, findings related primarily to self-perceived implementation and use of trauma-sensitive practices (Dorado et al., 2016; Stokes and Turnbull, 2016; Washington State University, 2016, 2018; Farrelly et al., 2019; Stokes et al., 2019; Stokes, 2022), changes related to self-perceived knowledge of trauma-related issues and self-perceived skills related to appropriate handling and teaching of traumatized students (Dorado et al., 2016; Washington State University, 2018; Maya Vakfı, 2019; Delaney, 2020), and attitudes toward trauma-sensitive schools (Maya Vakfı, 2019; Delaney, 2020).

Since the two studies by Delaney (2020) and Maya Vakfı (2019) only conducted the trainings of the programs but did not implement the concepts and collect their effects, only effects regarding school staff can be taken from them. Delaney's (2020) dissertation reports significant increases in knowledge and understanding of trauma and its impact on students, perceived self-efficacy concerning this group, and attitudes regarding trauma-sensitive practices in the intervention group, with no change in the control group. Increases in teachers' self-perceived knowledge and skills are also reported in Maya Vakfı's (2019) study, but these values do not reach significance. None of the available studies evaluated the effects of trauma-sensitive school concepts on traumatized students with refugee backgrounds.

## 4 Discussion

Internationally, 17 concepts of trauma-sensitive schools meet the inclusion criteria of this review. Only a few of the existing concepts primarily refer to the target group of traumatized students with a refugee background. In 35.3% of the concepts, they are explicitly included in the target group, while in 47.1% of the concepts, they are not named as a target group. Three of the concepts available at the time of the research include specific measures for traumatized students with a refugee background (Grant and Francis, 2011; Maya Vakfı, 2019; Arora et al., 2021). Referring to the concept of Arora et al. (2021), it must be stated in a limiting way that traumatized students with a refugee background are only listed as a subgroup of adolescents with a migration background in the United States. Due to the drastic differences in migration history and the often associated increased exposure rate of children and adolescents with a refugee background to traumatizing events (Wood et al., 2020), it can be assumed that those student's needs regarding trauma-sensitive school concepts might be different from those of students with a migration background but without a refugee background. In addition to the three concepts mentioned above, six of the 17 concepts explicitly mention students with a refugee background as part of their target group. In eight cases, they were not explicitly mentioned in the concept descriptions. This deficit of concepts with specific adaptations to the group of traumatized students with a refugee background can be explained by the fact that trauma-sensitive concepts are still a comparatively recent development (Cohen and Barron, 2021); thus, concepts are initially developed and established with an unspecific target group but can be flexibly adapted to the individual starting situations and needs in schools.

Given the immense diversity of potentially traumatic experiences of children and adolescents with a refugee background (Wood et al., 2020), it can be assumed that concepts that address the needs of students with ACEs, in general, may nevertheless have intersections regarding the needs of traumatized children and adolescents with a refugee background. Therefore, it is possible that traumatized students with a refugee background can also benefit from concepts of trauma-sensitive schools that are primarily aimed at students with

ACEs. Some concepts, such as the TLPI's *flexible framework* (Cole et al., 2005, 2013), explicitly pointed out that the underlying concept is to be seen only as an orientation framework for the individual design of a trauma-sensitive school, whose concrete implementation is based on the individual needs of the student body and the conditions at the school. Accordingly, the frameworks have the inherent potential to be adapted to the specific and individual needs of traumatized students with a refugee background. The three approaches that take this subgroup into account include special cultural sensitivity, training of school staff and providing information on trauma resulting from war and migration (Maya Vakfı, 2019), as well as the experiences of refugees and building an appreciative attitude toward them (Grant and Francis, 2011) specifically for supporting refugee students in trauma-sensitive approaches (Arora et al., 2021). These elements can also be found in some concepts without explicit reference to students with a refugee background, these or similar elements can also be found. For example, the element of cultural sensitivity is included in the core principles of Substance Abuse and Mental Health Services Administration (SAMHSA) (2014) or transferred to the school context in the concept of Chafouleas et al. (2016), in the TSSTP (Guarino and Chagnon, 2018), in HEARTS (Dorado et al., 2016), and in the concept of National Child Traumatic Stress Network Schools Committee (NCTSN) (2017). Therefore, it cannot be discounted that these concepts implicitly include adaptations to the group of traumatized students with a refugee background, without explicitly mentioning them in the context of the present descriptions.

Concerning their worldwide distribution, the greatest diversity of concepts of trauma-sensitive schools is found in the United States, while several concepts are found in Australia and isolated concepts in Turkey, the United Kingdom, and Cambodia. The results of this study indicate that trauma-sensitive school concepts are largely developed and implemented in countries with high financial resources. Exceptions are the two concepts from Turkey and Cambodia, whose development was supported by organizations based in the United Kingdom and Australia, respectively. While these are also among the largest third host countries, a high number of children and adolescents with refugee backgrounds seek protection primarily in countries with low financial resources, including many African countries (United Nations High Commissioner for Refugees, 2022), which is why it can be assumed that concepts of trauma-sensitive schools sometimes do not reach the places where they are most needed under the current conditions.

Empirical studies on the effectiveness of trauma-sensitive school concepts are not available for all concepts and show considerable differences in terms of their research designs and data collection methods, as well as low significance. Furthermore, no concepts were identified for which effectiveness regarding students with a refugee background was reported. In terms of the effects of implementing trauma-sensitive school concepts in general, the study focused on the impact of the training and support provided by the programs, which in and of themselves provide few clues about the positive effects of trauma-sensitive school approaches on students or the various actors in the school context. For instance, increased knowledge and positive attitudes can potentially have an impact on changes in teaching practice (Baumert and Kunter, 2006). However, the studies do not contain any information about a concrete implementation of these aspects and the effect of this changed teaching practice.

In addition to these difficulties of comparability, many of the existing studies show deficiencies concerning their methodological quality; often, no control groups are included. Currently, there are only a few studies on the needs of the heterogeneous group of students who have experienced trauma resulting from their experience of flight concerning the school context and on the knowledge and competencies that teachers must have to be able to adequately support these students. There is a need for further research to develop high-quality teacher training that enables teachers to implement trauma-sensitive concepts in schools and to establish them in the long term. Altogether, it can be stated that the development of trauma-sensitive schools is still in its infancy (Simon et al., 2020; Cohen and Barron, 2021). The future spread of trauma-sensitive school concepts on a global level is currently difficult to estimate. Due to growing global migration movements, the need will undoubtedly also grow concerning children and adolescents with a refugee background.

The establishment of trauma-sensitive concepts in schools underlines the importance of teachers as social caregivers (Popham et al., 2023), and it emphasizes their importance in supporting social integration and, thus, the psychosocial development of students (Boda et al., 2023). Social integration supports refugee students' well-being, psychosocial development, and academic success (Stadtfeld et al., 2019). Conversely, poor social integration constitutes a risk factor for these outcomes (Wolke et al., 2013). Given that refugee students often experience poor social integration and lack friendly peer relationships (Boda et al., 2023), promoting social integration should be viewed not only as a supportive but also as a mandatory component in teacher behavior. Social support not only affects direct trauma-related issues but is also significantly correlated with behavioral, emotional, and cognitive engagement in school, which are considered crucial determinants of students' educational success (Wang and Eccles, 2012, 2013). In this context, schools are social organizations that offer the potential to promote social integration and the closely related social–emotional learning of students in a systematic way (Eccles and Roeser, 2011).

Concerning the methodological limits of the present study, it must be noted that false negatives cannot be ruled out due to the methodological approach and the restrictions concerning access to the content of possible further trauma-sensitive school concepts. On the one hand, this relates to the selection strategy when searching via Google Scholar, where after 500 results under the algorithm preset by the search platform for sorting by relevance, a content saturation of the search results was observed, as a result of which the titles were screened with less care. On the other hand, non-English-language concepts, if present, were not considered due to the selection strategy. This also applies to articles with regional access restrictions and commercialized programs whose content can only be accessed after paying a fee. This has a particularly limiting effect on the results for questions one to three.

The research and selection were conducted by a single person. Although the involvement of a second scientist in the literature search can certainly help to ensure the reliability and completeness of the search and minimize possible bias, this was not done here, as the search was conducted in a highly standardized manner. The results of the present study provide an important insight into trauma-sensitive school concepts available worldwide with a focus

on the special needs of refugee students. Above all, they show how these concepts should be developed and empirically evaluated in an evidence-based manner.

There is an increasing number of children and young people on the run, which additionally implies a considerable need for research into the effects of refugee-related traumatic experiences of students as well as their mechanisms of action within families and the resulting needs. This is elementary to be able to respond effectively and in a targeted manner to the educational and socio-political challenges associated with the inclusion of traumatized students with a refugee background.

## Data availability statement

The original contributions presented in the study are included in the article; further inquiries can be directed to the corresponding author.

## Author contributions

EL: Writing – original draft, Writing – review & editing. FL: Project administration, Supervision, Writing – review & editing. GC: Project administration, Writing – review & editing.

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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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# The mediating role of self-control on the relations between adverse childhood experiences and substance use among adolescents in Uganda

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**Objective:** Adverse childhood experiences (ACEs) are established risk factors for undesirable consequences in adolescence and early adulthood, including substance use and a lack of self-control. Based on the Social Bonds Theory (SBT), this study aims to expand our knowledge of the pathways from ACEs and self-control to substance use in adolescence and early adulthood.

**Methods:** The extent to which self-control mediates the association between ACEs and substance use was examined in a cross-sectional survey of 358 adolescents and young adults ($N = 234$, 65.5% girls, mean age 17.7, $SD$ 0.58, *range* 15–18). Data were gathered using the Adverse Childhood Experiences (ACE-10) questionnaire, the Drug Abuse Screening Test (DAST-10), and the 10-item self-control scale to assess childhood adversity, substance use, and self-control, respectively.

**Results:** ACEs were widely reported and significantly associated with substance use and a lack of self-control. Self-control strongly predicted substance use, independent of ACEs. Among those reporting no ACEs, one to two, three to four, and five or more, there were significant variations in the respondents' substance use ($F_{(3,\ 400)} = 12.69$, $p = 0.001$). Self-control explained 51.2% (95% confidence interval [CI]: 41, 61%) of the associations between ACEs and substance use as assessed by linear regression.

**Conclusion:** Self-control is key to understanding why adolescents and young adults with a history of childhood adversity indulge in substance use. Therefore, there is a need to advocate for psychological interventions such as cognitive and behavioural therapy that have demonstrated efficacy in promoting self-control in adolescents and young adults.

KEYWORDS

**adverse childhood experiences, substance use, self-control, adolescents, Uganda**

## Introduction

In sub-Saharan Africa, including Uganda, substance use is a major public health concern with 41.6 percent of adolescents and young adults using substances (Olawole-Isaac et al., 2018). Substance use is defined as the use of specific substances, such as alcohol, tobacco products, inhalants, and other chemicals that could be absorbed by the body through injection, inhalation, or other means that may cause dependence or other negative effects [National Center for Health Statistics (US), 2023, p. 26]. A study in Uganda found that substance use is common and widespread among adolescents and young adults, particularly those in secondary and tertiary education institutions (Kaggwa et al., 2022). Moreover, the study found that the most popular substances used included the alcoholic beverage vodka (23.3%), Kuber (10.8%), Khat (10.5%), aviation fuel (10. 1%), cannabis (9.2%), and cigarettes (5.9%), in that order (Abbo et al., 2016; Kaggwa et al., 2022).

Early age of onset (e.g., early adolescence) of any drug and substance is known to be associated with elevated risk and faster transition to substance use disorders (Behrendt et al., 2009). Moreover, adolescents and young adults who use substances are at risk for long-term problems such as dropping out of school, criminal behaviours, and a life of poverty (Olawole-Isaac et al., 2018). Additionally, substance use exposes adolescents and young adults to risky behaviours as well as a variety of illnesses [e.g., HIV/AIDS, Sexually Transmitted Infections (STIs), motor accidents, and self-harm; Breet et al., 2018a,b; Kaggwa et al., 2022; Kwagala et al., 2022; Mavura et al., 2022]. A variety of developmental abnormalities in neurotransmission have also been linked to substance use in adolescents and young adults, as well as long-lasting neurobiological alterations in the Hypothalamus-Pituitary-Adrenocortical (HPA) axis development and function that is related to stress control and regulation (Thorpe et al., 2020).

Further, it is well documented that there are gender and sex differences in substance use, with men using drugs and substances at higher rates than women (McHugh et al., 2019). Gender and sex differences are mostly the result of two factors: socio-cultural and biological. While socialisation and access to drugs and substances are major drivers of gender variations in drug and substance use in the socio-cultural domain, biological factors such as brain structure and function, endocrine systems, and metabolic processes are important determinants of biological differences in men and women (McHugh et al., 2019). In Sub-Saharan Africa, substance use behaviour is more prominent in males than females (Fentaw et al., 2022). The lifetime and current substance use were 3.2 and 2.8 times higher among males compared to females (Fentaw et al., 2022). Furthermore, sex and gender variations in substance use are known to exist with more use in men than women (McHugh et al., 2019; Nishimura et al., 2022; Oguntayo et al., 2022). Two major factors underlie sex and gender differences: biological and sociocultural. Biologically, brain structure and function, endocrine functions, and metabolic functions are key determinants of biological differences (McHugh et al., 2019) while socialisation and access to drugs and substances are key drivers of gender variations in drug and substance use (Oguntayo et al., 2022).

Therefore, understanding drug and substance use among the adolescent subpopulation is essential for guiding practice and policy. Additionally, the evidence base for targeted preventative interventions aimed at reducing substance use and abuse may be provided by knowledge of substance use in this subpopulation.

Substance abuse has been associated with several factors, such as temperament, neighbourhoods, and ACEs (Ludick and Amone-P'Olak, 2016; Oguntayo et al., 2022). One factor that needs to be explored further is exposure to adverse childhood experiences (ACEs) about substance abuse. A variety of other familial characteristics have been recognised as drivers of substance use in adolescents and young adults. These characteristics include a history of mental health problems in the family, familial substance use, separations and divorce, emotional and physical abuse and neglect, sexual abuse, violence towards mother or stepmother, incarceration of a family member, and other psychosocial challenges linked to family instability and dysfunction (Abbo et al., 2016; Mongale and Amone-P'Olak, 2019; Engebretsen et al., 2020; Ramotuana and Amone-P'Olak, 2020; Rukundo et al., 2020; Kaggwa et al., 2022). These negative familial characteristics are generally categorised as "Adverse Childhood Experiences" (ACEs).

ACEs have also been linked to impaired self-control or ability to self-regulate and the inability to anticipate the long-term effects of one's actions (Gottfredson and Hirschi, 1990). The inability to self-regulate is manifested by characteristics such as "impulsiveness," "self-centeredness," "risk-seeking," and "pursuit of instant rewards and benefits" (Gottfredson and Hirschi, 1990). This lack of competence to self-regulate is a result of the characteristics the person may carry as a result of negative familial characteristics occasioned by ACEs. Often, a person who lacks self-control prefers instant pleasure, easy activities with little to no planning, without anticipation of negative consequences of their actions, little to no empathy for other people, and is prone to deviant behaviours (Gottfredson and Hirschi, 1990). As a result of these characteristics, many adolescents and young adults are more likely to abuse drugs and substances. In addition, ACEs can alter brain morphology and function, particularly in the medial prefrontal and hippocampal regions, which can impact the ability for self-regulation (Lackner et al., 2018). For adolescents and young adults to resist urges to engage in deviant behaviours like substance use, self-regulatory abilities are essential.

Prior research has mostly focused on the connections between ACEs and substance use in the subpopulation of adolescents and young adults without taking into account the possibility that various ACEs and cumulative trauma may have diverse effects on substance use (Shin et al., 2018; Rogers et al., 2022). It is unclear, for instance, which ACE categories have a more harmful influence or whether it is the confluence of the ACEs that are associated with drug and substance use. Even though ACEs are known to impact substance use, similar connections are known to exist between ACEs and self-control (Meldrum et al., 2020). The ability to put off immediate gratification in favour of long-term gains is a common indicator of self-control and the primary motivator of deviant activity (Gottfredson and Hirschi, 1990).

Adolescents and young adults are more likely to engage in behaviours that result in immediate rewards and benefits, such as substance abuse, when they exhibit signs of poor self-control, such as impulsivity, self-centeredness, and risk-taking (Gottfredson and Hirschi, 1990). As a result, adolescents and young adults with greater degrees of self-control are less likely to abuse substances (Meldrum

et al., 2020). Consequently, we hypothesise that exposure to various childhood adversities may be linked to substance use in adolescence and early adulthood.

The specific objectives were fourfold: (1) to evaluate the students' reports of ACEs, substance use, and self-control, (2) to assess the differential influence of individual, categorical and cumulative ACEs on substance use in univariable regression models, (3) to assess the influence of self-control on substance use in a univariable regression model, and (4) to evaluate the mediating effect of self-control in the relationship between ACEs and substance use in multivariable regression models.

## Theoretical underpinning

According to the Social Bonds Theory (SBT), if people are not controlled, they will engage in abnormal behaviours (Hirschi, 1969a,b). This idea contends that people who have close ties to their families, schools, or other institutions are less likely to participate in inappropriate behaviours (Hirschi, 2002). These social bonds are anchored on four social pillars, namely: *attachment*, *commitment*, *involvement*, and *belief*. Attachment is the psychological respect and regard that a person has for institutions and others (Hirschi, 1969a,b). Additionally, *attachment* strengthens moral character and prevents people from engaging in antisocial behaviour (Stewart, 2003). Likewise, the ability to pursue objectives, such as those related to school or employment, shows *commitment*, the second anchor of the SBT (Hirschi, 1969a,b). As a result, commitment to these goals will prevent a person from engaging in actions that will impede the achievement of such goals. Besides, devoting one's time and energy is what is referred to as *involvement*, which is the third anchor of the Social Bonds Theory (Hirschi, 1969a,b). An individual is less likely to participate in deviant behaviours or be negatively influenced by others if they invest more time and effort into an activity, such as schoolwork (Hoeben and Weerman, 2016). *Belief* is the final tenet of SBT proposed by Hirschi, which is the conviction that rules and regulations are morally valid. People who strongly believe that an institution's rules and regulations are ethically valid and need to be obeyed are less likely to engage in behaviour that differs from that of the institution. Positive perceptions of institutional norms, rules, and regulations consequently influence their compliance with the institution's rules and regulations and law-abiding and prosocial behaviour.

In summary, SBT can offer a conceptual framework for explaining the links between ACEs, substance use, and the possible mediating effect of self-control in the relations between ACEs and substance use. This is made possible by the focus on the value of social relationships (attachment, commitment, engagement, and belief) and how ACEs can weaken these bonds, raising the likelihood of indulging in substance use. Poor self-control erodes the capacity of adolescents and young adults to resist instant gratification and uphold stronger social bonds. Consequently, we hypothesised that self-control mediates the associations between ACEs and substance use in adolescence and early adulthood.

# Methods

## Design and sample

This study utilised a cross-sectional design. The sample size was computed based on regression statistical analyses using G*Power 3.1.9.2 software (Faul et al., 2009). With an effect size of 0.8, a significance level of $\alpha = 0.05$, and a statistical power of $1\text{-}\beta = 0.8$, the power analysis showed a sample size of 350 respondents. The sample size was determined *a priori*. A random cluster sampling technique was employed to select respondents from a group of adolescents enrolled in eight secondary schools located in Kampala, the capital city of Uganda. Each cluster comprised boarding and day schools. The schools were selected in a ratio of one-to-one (1:1) as recommended by Cone and Foster (2008). Students in the third through fifth years of study (9th through 12th grade of formal school) were chosen at random from eight secondary schools in three clusters: boarding schools (one boarding and 1 day); secondary schools for boys only (one boarding and 1 day); mixed schools (one boarding and another day); and secondary school for girls only (one boarding and another day). Within the schools, we used a sampling frame to draw 60 male and female respondents from each class in a ratio of one to one (1:1). Subsequently, a total of 358 respondents were invited to participate in the study.

## Instruments

The questionnaire for this study was made up of three sections: a list of sociodemographic characteristics, ACEs, social control, and substance abuse.

*Socio-demographic characteristics*: Age, academic year, gender, and place of upbringing (such as a rural or urban environment) were among the socio-demographic factors measured.

*Adverse Childhood Experiences (ACEs) questionnaire*: The ACEs questionnaire assesses past experiences of emotional abuse, physical abuse, emotional neglect, physical neglect, sexual assault, household substance abuse, household mental illness, parental separation or divorce, violent treatment of the mother, and incarceration of a household member (Felitti et al., 1998; Finkelhor et al., 2015). Examples of questions on the ACEs questionnaire are "Were your parents ever divorced or separated?" and "Were you ever hit, beat, kicked, or physically hurt in any way by a grown-up in your life, excluding spanking on your bottom?" The responses were dichotomously scored as "yes" (= 1) for occurrence and "no" (= 0) for non-occurrence. The scores on individual items of the ACEs questionnaire were summed to indicate an aggregate score for the variable ACEs. A higher score on the ACEs questionnaire indicated severe adversity (score *range* = 0–10). The reliability of the 10-item questionnaire and internal consistency calculated using the Kuder–Richardson Formula 20 (KR-20) were acceptable in this study at $\boldsymbol{\alpha} = 0.75$. The 10-item ACE questionnaire has been utilised in the past in this population and others with acceptable levels of internal consistency (Naicker et al., 2017; Manyema and Richter, 2019; Amone-P'Olak and Letswai, 2020).

*Substance use*: The Drug Abuse Screening Test (DAST-10) developed by Skinner in 1982 was used to evaluate the use of a variety

of substances, including cocaine, cannabis (marijuana, hashish), solvents (petrol, paint thinner), tranquillizers (Valium), barbiturates, speed, methamphetamines, and hallucinogens (LSD), as well as narcotics (heroin) and tranquillizers (Valium). Previous studies (Yudko et al., 2007; Benschop et al., 2015) have established the psychometric properties of the DAST-10 questionnaire. The internal consistency in this study, as determined by the Kuder–Richardson Formula 20 (KR-20), was $\alpha = 0.73$. Questions about alcohol and cigarette usage were added to the DAST-10 survey.

*Social Control Questionnaire:* The 10-item social control questionnaire developed by Tangney et al. (2004) was used to measure self-control among adolescents and young adults. Items were scored on a Likert-type scale with response options ranging from 1 to 5 with 1 = "very much like me" to 5 = "not at all like me" for the items 1, 2, 3, 7, 8, 9, and 10, while the remaining items were reverse-scored. Individual item scores were summed up and divided by 10. The maximum score on the scale is 5 (extremely self-controlled) and the minimum score is 1 (not at all self-controlled). The internal consistency reliability was acceptable at $\alpha = 0.78$ (based on the data so far entered).

To ascertain the validity of the instruments, Principal Component Analyses (PCA) were utilised as the extraction method. The best fit for the data was a one-factor solution for each of the instruments that explained 69.1, 65.7, and 63.5% of the variance for the ACE-10, DAST-10, and Social Control Questionnaire, respectively. The best-fit parameters were obtained from a PCA based on a direct obliging rotation technique with a cut-off of 0.30 using Kaiser's (1960) criterion of eigenvalues.

## Procedure

To obtain authorization to gather data from students while they were in class, school officials and teachers from different schools were approached. Classes were chosen at random from each school's teaching timetable before reaching out to administrators and teachers. Before gathering data, the student's consent or assent was sought. The study's goal, the student's right to decline or withdraw at any time, and the confidential nature of their participation were all explained to them before they gave their consent. The students were asked not to provide any identifying information on the questionnaire to remain anonymous. In the presence of a research assistant in the class to address any questions the students may have; it took the students between 10 and 15 min to complete the questionnaire. A total of 400 students who were enrolled in various schools at various stages of the study took part in the study. Some questionnaires were disregarded from the analyses due to their respondents' advanced ages (students older than 18 years, for example). Finally, analysis was performed on data from 358 students (65.5% female, $n = 234$) with a mean age of 16.3 years (SD = 0.88, Range = 15–18).

## Ethical considerations

Lira University Research Ethics Committee gave its ethical approval for the study (LU/2023/0029). To obtain authorization to gather data from students while they were in class, school officials and teachers from different schools were approached. Classes were chosen at random from each school's teaching timetable before reaching out to administrators and teachers. Before gathering data, the student's consent or assent was sought. The study's goal, the student's right to decline or withdraw at any time, and the confidential nature of their participation were all explained to them before they gave their consent. The students were asked not to provide any identifying information on the questionnaire to remain anonymous. In case of any psychological problems experienced during the research, the students were immediately notified of the availability of free psychological services at *Safe Places* and *Mental Health Uganda*, both of which are based in Kampala.

## Data analysis

Data from secondary school students taking part in the ongoing project "Childhood Adversity and Substance Use in Adolescence and Early Adulthood in Uganda" were used to examine the impact of both total and categorical ACEs on substance use. From this data, the students' reports of ACEs, substance use, and self-control were assessed using descriptive statistics (mean, SD, and range). Next, univariable regression models were fitted to ascertain the extent to which individual and cumulative ACEs and self-control predicted substance use. Further, while controlling for sociodemographic factors including age and sex, a multivariable regression model was fitted to examine whether ACEs predicted substance use individually and cumulatively to ascertain their unique and independent influences. In addition, the extent to which self-control (a continuous variable) predicted substance use was assessed in a multivariable regression analysis while adjusting for sociodemographic characteristics like age and sex. Finally, different categories of ACEs scores (i.e., "0," "1–2," "3–4," and "5″ and above) were used as the independent variable in a one-way analysis of variance (ANOVA), and substance use (i.e., "0," "1," "2–3," and "4″ and above) as the dependent variable. Additionally, the cumulative score on ACEs in the multivariable analysis was computed, and the effect sizes of each ACE in univariable and multivariable models were calculated using Eta squared ($\eta^2$), where $\eta^2 \geq 0.01$, $\eta^2 \geq 0.06$, and $\eta^2 \geq 0.14$ were considered to represent small, moderate, and large effect sizes in that order. To check for differences between levels of ACEs severity, the Tukey HSD test for multiple comparisons was utilised.

The framework developed by Baron and Kenny (1986) was used to determine the extent to which self-control (a continuous measure) mediated the associations between ACEs (a continuous measure) and substance use (an aggregate score). Mediation analysis is appropriate for this study since the ACEs assessed occurred before the age of 18, and self-control and substance use were evaluated for their current occurrence. As a result, this study's temporal order of events—a requirement for mediation analyses—meets the criteria for mediation analyses. Both predictor and mediator variables were standardised to a mean of zero ("0") and a standard deviation of one ("1") [Z scores]. In addition, bootstrapping methods were run to obtain 95% confidence limits (95% Confidence Interval [CI]) for the mediated effects. Confidence intervals based on bias-corrected bootstrapping are generally preferred (Cheung, 2007). Next, mediation was assessed by determining the degree of attenuation in the relation between ACEs and substance use after including self-control as a covariate. The attenuation was scaled as the relative decrease in the regression

TABLE 1 Prevalence of individual ACEs and the total number of ACEs reported by participants ($N = 358$).

| | Total | | Male | | Female | | T-test | Cohens D |
|---|---|---|---|---|---|---|---|---|
| Variables | *M (± SD)* | *N or n (%)* | *M (±SD)* | *N or n (%)* | *M (±SD)* | *N or n (%)* | | |
| **Prevalence of individual ACEs** | | | | | | | | |
| 1. Emotional abuse | | 150/357 (42) | | 50/123 (40.7) | | 100/233 (42.9) | ns | |
| 2. Emotional neglect | | 129/353 (36.5) | | 35/122 (28.7) | | 94/230 (40.9) | **−2.32, $p < 0.05$** | **0.38** |
| 3. Physical abuse | | 115/356 (32.3) | | 49/122 (40.2) | | 66/233 (28.3) | **2.27, $p < 0.05$** | **0.33** |
| 4. Separation/ Divorce | | 89/352 (25.3) | | 31/121 (25.6) | | 58/230 (25.2) | ns | |
| 5. Household substance abuse | | 77/357 (21.6) | | 28/123 (22.8) | | 49/233 (21.0) | ns | |
| 6. Incarcerated household member | | 70/349 (20.1) | | 25/120 (20.8) | | 45/228 (19.7) | ns | |
| 7. Mother treated violently | | 50/357 (14.0) | | 21/123 (17.1) | | 29/233 (12.4) | ns | |
| 8. Household mental illness | | 50/357 (14.0) | | 13/123 (10.6) | | 37/233 (15.9) | ns | |
| 9. Sexual assault | | 48/354 (13.6) | | 8/122 (6.6) | | 40/234 (17.3) | **−3.20, $p < 0.01$** | **0.42** |
| 10. Physical neglect | | 24/354 (6.8) | | 12/121 (9.9) | | 12/232 (5.2) | ns | |
| **Number of ACEs reported** | | | | | | | | |
| 0 | | 66/358 (18.4) | | 27/123 (22.0) | | 38/234 (16.2) | | |
| 1 | | 78/358 (21.8) | | 24/123 (19.5) | | 54/234 (23.1) | | |
| 2 | | 75/358 (20.9) | | 24/123 (19.5) | | 51/234 (21.8) | | |
| 3 | | 59/358 (16.5) | | 19/123 (15.4) | | 40/234 (17.1) | | |
| 4 | | 36/358 (10.1) | | 14/123 (11.4) | | 22/234 (9.4) | | |
| ≤ 5 | | 44/358 (12.3) | | 15/123 (12.2) | | 22/234 (12.4) | | |
| Total number of ACEs reported | 2.24 (±1.83) | | 2.21 (±1.88) | | 2.27 (±1.81) | | ns | |

ACEs, adverse childhood experiences; M, mean; N, total number of participants; n, sub-population; SD, Standard deviation; %, percent. Significant results are indicated in bold.

coefficient for ACEs. IBM SPSS statistical software, version 29.0 (IBM Corp, 2021), was used for all statistical analyses. Associations were deemed statistically significant if their $p$-value was less than 0.05.

# Results

## Sociodemographic characteristics

Tables 1, 2 summarise the overall sociodemographic characteristics of the participants in the study. Data were gathered from 358 students ($n$,%) with an average age of 16.3 (±0.88, range: 15–18). Male (Mean age = 17.26, 0.76) students were significantly older than their female (Mean age = 16.83 ± 0.90) counterparts ($t = 4.57$, $p < 0.01$).

The majority of the students ($n = 292$, 81.6%) reported at least one or more ACEs. The total number of ACEs reported showed no gender differences. However, the reporting of particular ACEs, such as sexual abuse, emotional neglect, and physical abuse, differed by gender. Male students reported more physical abuse than female students, but female students reported significantly more emotional neglect and sexual abuse (Table 1). The most frequently reported ACEs were: emotional abuse, emotional neglect, physical abuse, separation and divorce, and household substance abuse, in that order.

The majority of the students ($n = 237$, 66.2%) surveyed admitted using one or more substances. The most often reported substance use ($n = 187$, 52.5%) was alcohol followed by cigarettes, cough syrup containing codeine, and marijuana, in that order. There were no differences in the use of alcohol, cocaine (white powder or crack), and inhalants (such as jet fuel, petrol, diesel, glue, or thinner) between male and female students. Compared to male students, female students used benzodiazepines, valium, codeine, and cough syrup significantly more than male students. On the contrary, male students significantly used more cigarettes, mairungi (also known as khat), marijuana, and opium than female students (Table 2).

Overall, male students reported using substances significantly more frequently than their female counterparts ($t = 4.57$, $p < 0.01$). However, regarding ACEs and self-control, there were no significant differences between male and female students. In summary, increased substance use and higher ACEs, low self-control, and being a boy were generally associated with substance use.

The bar graph shows substance use stratified by various categories of ACEs reported (categories include "0" for no ACEs, "1–2," "3–4"

TABLE 2 Prevalence of individual Substance stratified by gender ($N = 358$).

| | Total | | Male | | Female | | T-test | Cohens D |
|---|---|---|---|---|---|---|---|---|
| Variables | *M* (±*SD*) | *N* or *n* (%) | *M* (±*SD*) | *N* or *n* (%) | *M* (±*SD*) | *N* or *n* (%) | | |
| **Prevalence of individual substance use** | | | | | | | | |
| Alcoholic drink | | 187/358 (52.5) | | 66/123 (53.7) | | 121/232 (52.2) | ns | |
| Codeine or Cough syrups | | 114/358 (31.8) | | 25/123 (20.3) | | 88/234 (37.6) | **−3.57, $p < 0.01$** | **0.44** |
| Cigarette or tobacco | | 49/357 (13.7) | | 25/122 (20.5) | | 24/234 (10.3) | **2.68, $p < 0.05$** | **0.36** |
| Marijuana, weed, or cannabis or banghi? | | 33/356 (9.3) | | 16/123 (13.0) | | 17/232 (7.3) | **2.00, $p < 0.05$** | **0.30** |
| Inhalants, e.g., jet fuel, petrol, diesel, thinner, glue, etc. | | 25/355 (7.0) | | 7/123 (5.7) | | 18/231 (7.8) | ns | |
| Cozepam, Benzho, Diazepam, Valium, etc., | | 21/356 (5.9) | | 4/123 (3.3) | | 17/232 (7.3) | **−2.05, $p < 0.05$** | **0.33** |
| Mairungi, Khat, or Miraa | | 20/356 (5.6) | | 11/122 (9.0) | | 9/233 (3.9) | **2.02, $p < 0.05$** | **0.32** |
| Opium or heroin | | 7/356 (2.0) | | 5/122 (4.1) | | 2/233 (0.9) | **2.03, $p < 0.05$** | **0.32** |
| Cocaine, White powder, or Crack | | 15/357 (4.2) | | 6//123 (4.9) | | 9/233 (3.9) | ns | |
| Other drug(s) | | 25/331 (7.6) | | 11/118 (9.3) | | 14/212 (6.6) | ns | |
| **Number of drug use reported** | | | | | | | | |
| 0 | | 121/358 (33.8) | | 40/123 (32.5) | | 81/234 (34.6) | | |
| 1 | | 106/358 (29.6) | | 38/123 (30.9) | | 67/234 (28.6) | | |
| 2 | | 62/358 (17.3) | | 18/123 (14.6) | | 44/234 (18.8) | | |
| 3 | | 38/358 (10.6) | | 14/123 (11.4) | | 24/234 (10.3) | | |
| ≤ 4 | | 31/358 (8.7) | | 13/123 (10.5) | | 18/234 (7.7) | | |
| Total number of drug use reported (*M*, ± *SD*) | 1.66 (±1.51) | | 1.78 ± 1.51 | | 1.52 (±1.51) | | **1.99, $p < 0.05$** | **0.30** |

ACEs, adverse childhood experiences; M, mean; N, total number of participants; n, sub-population; SD, Standard deviation; %, percent. Significant results are indicated in bold.

ACEs, and "5" ACEs). Overall, as more ACEs were reported, the number of substance use reported gradually increased (Figure 1).

## The influence of ACEs on substance use in univariable and multivariable regression models

Generally, the total number of ACEs significantly predicted substance use as a continuous measure ($\beta = 0.41$, 95% confidence interval [CI]: [0.30, 0.52]). Household mental illness, sexual abuse, household substance abuse, incarceration of household members, and physical abuse and neglect, in separate univariable regression models, significantly predicted substance use (Table 2). Similarly, the three categories of ACEs: household dysfunction, abuse, and neglect, in separate univariable regression models, also significantly predicted substance use (Table 3). The regression model yielded a significant fit ($R^2 = 0.16$, $F_{(2, 356)} = 56.43$, $p < 0.001$). However, the regression model did not improve with the inclusion of sex as a variable. Each regression coefficient is the ratio of the SD change in the predictor variable to the SD change in the outcome variable. For instance, the regression of substance use on the total number of ACEs is indicative of a change of 1 SD related to a change of 0.41 SD in substance use.

Only household mental illness, household substance use, and sexual abuse remained significant when all the ACEs were concurrently added to a single regression model to evaluate their unique influences on substance abuse (Table 4). Similarly, for the three categories of ACEs (neglect, abuse, and abuse), only abuse and household dysfunction remained significant predictors of substance use (Table 3).

## The influence of ACEs on self-control in univariable and multivariable regression models

The total number of ACEs generally significantly predicted self-control as a continuous measure ($\beta = -0.35$, 95% Confidence Interval

TABLE 3 Univariable regression analyses of the influence of individual and total number of ACEs based on a continuous measure of the total number of reported substance use in the past year and current Self-control.

| | Drug and substance use | | Self-control | |
|---|---|---|---|---|
| Variables | $\beta$ [95% CI] | $\eta^2$ | $\beta$ [95% CI] | $\eta^2$ |
| **Individual ACEs** | | | | |
| 1. Household mental illness | **0.20 (95% CI: 0.09, 0.30)** | **0.05** | **−0.12 (95% CI: −0.22, −0.02)** | **0.01** |
| 2. Sexual assault | **0.14 (95% CI: 0.04, 0.25)** | **0.02** | **−0.15 (95% CI: −0.25, −0.05)** | **0.03** |
| 3. Incarcerated household member | **0.14 (95% CI: 0.04, 0.25)** | **0.02** | 0.03 (95% CI: −0.08, 0.13) | 0.00 |
| 4. Physical neglect | **0.13 (95% CI: 0.02, 0.23)** | **0.02** | −0.03 (95% CI: −0.13, 0.08) | 0.00 |
| 5. Physical abuse | **0.13 (95% CI: 0.02, 0.23)** | **0.02** | **−0.16 (95% CI: −0.27, −0.06)** | **0.03** |
| 6. Emotional neglect | 0.10 (95% CI: −0.01, 0.21) | 0.01 | **−0.18 (95% CI: −0.28, −0.07)** | **0.04** |
| 7. Household substance abuse | 0.10 (95% CI: −0.01, 0.21) | 0.01 | −0.09 (95% CI: −0.20, 0.01) | 0.00 |
| 8. Emotional abuse | 0.10 (95% CI: −0.01, 0.20) | 0.01 | **−0.17 (95% CI: −0.27, −0.07)** | **0.04** |
| 9. Mother treated violently | 0.05 (95% CI: −0.06, 0.15) | 0.00 | **−0.14 (95% CI: −0.24, −0.04)** | **0.02** |
| 10. Separation/Divorce | 0.04 (95% CI: −0.09, 0.22) | 0.00 | −0.03 (95% CI: −0.13, 0.08) | 0.00 |
| **Three categories of ACEs** | | | | |
| 1. Household dysfunction | **0.19 (95% CI: 0.09, 0.29)** | **0.04** | **−0.12 (95% CI: −0.23, −0.02)** | **0.01** |
| 2. Abuse | **0.19 (95% CI: 0.08, 0.29)** | **0.04** | **−0.24 (95% CI: −0.34, −0.14)** | **0.06** |
| 2. Neglect | **0.14 (95% CI: 0.03, 0.24)** | **0.03** | **−0.16 (95% CI: −0.26, −0.05)** | **0.03** |
| Total number of ACEs | **0.24 (95% CI: 0.14, 0.34)** | **0.06** | **−0.23 (95% CI: −0.33, −0.13)** | **0.05** |

$\beta$, Standardised beta; CI, Confidence Intervals; $\eta^2$, Eta Squared (a measure of effect size). All significant associations are in bold.

[CI]: [−0.31, −0.08]). Except for physical abuse, household substance abuse, divorce/separation, and incarceration of a family member, every individual ACE strongly predicted self-control, albeit, differently (Table 3). The regression model produced a significant fit ($R^2 = 12.25$, $F_{(2, 356)} = 24.04$, $p < 0.001$). Only household dysfunction, out of the three ACE categories of abuse, neglect, and dysfunctional households, significantly predicted self-control, upholding the hypothesis that ACEs cumulatively predicted substance use (Table 3). Again, including sex as a variable had no beneficial effect on the regression models. Each regression coefficient is the ratio of the SD change in the predictor variable to the SD change in the outcome variable. For instance, the regression of substance usage on the overall number of ACEs indicates a change of 1 SD associated with a change of 0.35 SD in substance use.

When all the ACEs were simultaneously included in a single regression model to assess their individual effects on self-control, only family mental illness, household substance use, and sexual abuse remained significant (Table 4). Similarly, only household dysfunction persisted as a significant predictor of self-control for the three ACE categories (neglect, abuse, and abuse; Table 4).

## The mediating effect of self-control in the relationship between ACEs and substance use in multivariable regression models

There was a statistically significant direct relationship between the total number of ACEs (as a continuous measure) and substance use when assessing the mediation model. The total number of ACEs as well as substance use were both significantly associated with self-control. Self-control mediated the relationship between ACEs and substance use, with a statistically significant indirect path ($\beta = 0.21$ [95% CI 0.12 to 0.22]) explaining 51.2 percent of the effect of ACEs on substance use. After the inclusion of self-control in the model, the effects of ACEs on substance use were considerably attenuated ($\beta = 0.20$ [95% CI: 0.10 to 0.30]), indicating partial mediation. Adding self-control to the mediation model improved the proportion of explained variance from $R^2 = 0.06$ ($F_{(1, 537)} = 30.91$, $p < 0.001$) for the model with only ACEs to $R^2 = 0.11$ ($F_{(2, 536)} = 28.42$, $p < 0.001$) for the model with both ACEs and self-control as predictors. In the present study, VIF were all less than 3.0, demonstrating that multi-collinearity had little effect on the outcomes.

# Discussion

## Main findings and corroboration with previous studies

Data from adolescent students in secondary schools in Uganda were analysed to determine the degree to which ACEs were linked to substance use. In agreement with the results of previous studies, more than 81 percent of adolescents reported experiencing one or more ACEs, and about 22 percent of them indicated that they experienced four or more ACEs (Amone-P'Olak, 2022). Further, the results of the current study generally concur with earlier research results on the prevalence and gender distribution of substance use (Dube et al., 2003; Fagan et al., 2015; Abbo et al., 2016; Rich et al., 2016; Olawole-Isaac et al., 2018; Amone-P'Olak and Letswai, 2020; Olashore et al., 2022). The most frequently reported types of ACEs were: physical abuse, emotional abuse and neglect, separation and divorce, and household substance abuse, in that order. Female students reported emotional

TABLE 4 Multivariable regression analyses of the unique influence of individual ACEs on the total number of reported substance use in the past year based on a continuous scale.

| | Substance use | | Self-control | |
|---|---|---|---|---|
| | $\beta$ [95% CI] | $\eta^2$ | $\beta$ [95% CI] | $\eta^2$ |
| Individual ACEs (Entered simultaneously) | | | | |
| 1. Separation/Divorce | ns | | ns | **0.30** |
| 2. Emotional abuse | ns | | ns | |
| 3. Emotional neglect | ns | | **−0.13 (95% CI: −0.24, −0.01)** | |
| 4. Physical abuse | ns | | Ns | |
| 6. Household mental illness | **0.13 (95% CI: 0.03, 0.23)** | | | |
| 5. Household substance abuse | **0.12 (95% CI: 0.02, 0.22)** | | ns | |
| 8. Sexual assault | **0.11 (95% CI: 0.01, 0.22)** | | **−0.14 (95% CI: −0.24, −0.03)** | |
| 7. Mother treated violently | ns | | ns | |
| 9. Incarcerated household member | ns | | ns | |
| 10. Physical neglect | ns | **0.27** | ns | |
| Three categories of ACEs (Entered simultaneously) | | | | |
| 3. Household dysfunction | **0.13 (95% CI: 0.02, 0.24)** | | ns | **0.26** |
| 2. Abuse | **0.12 (95% CI: 0.01, 0.23)** | | **−0.21 (95% CI: −0.31, −0.10)** | |
| 1. Neglect | **ns** | **0.24** | **−0.11 (95% CI: −0.21, −0.02)** | |

$\beta$, Standardised beta; CI, Confidence Intervals; $\eta^2$, Eta Squared (a measure of effect size). All significant associations are in bold.

and sexual abuse at rates that were significantly higher than those of male students, while male students reported significantly more physical abuse than their female peers (Amone-P'Olak and Letswai, 2020; Amone-P'Olak, 2022).

Furthermore, alcohol, codeine (cough syrup), cigarettes, khat, and marijuana were the most frequently used substances, in that order, according to the results of the current study. The number of female youths using substances is increasing, with potential sex differences being attributed more to chance rather than susceptibility (Etten et al., 1999; Etten and Anthony, 2001). For instance, a prior study of young adults also reported no significant difference in alcohol use between male and female students (Ludick and Amone-P'Olak, 2016). In the current study, there were no significant variations in alcohol, cocaine, and inhalant use by gender. However, male students reported significantly higher levels of tobacco, Khat, and opium use than their male peers female students used codeine (cough syrup) and Cozepam (Benzo Diazepam or Valium) significantly more than their male colleagues.

On the relationship between ACEs and substance use, only a few ACEs significantly predicted substance use in univariable analyses, suggesting that it may be exposure to multiple ACEs that are especially linked to substance use in young people (Shin et al., 2018). According to the results of the mediation model, self-control accounted for 51 percent of the associations between ACEs and substance use in support of the hypothesis that exposure to various childhood adversities may be linked to substance use in adolescence and early adulthood. The partial mediation implies that there may be additional contributing factors that lead adolescents and young adults to engage in substance such as peer pressure, the lack of adult supervision, poor stress management, and a poor school climate, among others. These factors will be addressed in future as they were outside the purview of the current study.

Previous studies showed that ACEs were associated with deficits in self-control (Shin et al., 2018; Meldrum et al., 2020). Consequently, both ACEs and self-control significantly predicted the use of substances (Tables 3, 4). After the addition of self-control in the mediation model, the relationships between prior ACEs and current substance use attenuated but remained significant. The current study adds to the literature on the effects of childhood maltreatment a growing corpus of research on correlates of substance use to include self-control and further supports the hypothesis that self-control mediates the associations between ACEs and substance use in adolescence and early adulthood.

According to the results of the mediation model, self-control accounted for 51 percent of the associations between ACEs and substance use (Figure 2). The effects of ACEs on substance use attenuated but remained statistically significant, implying that there may be additional contributing factors that lead adolescents and young adults to engage in substance use. Substance use among adolescents and young adults may be influenced by a variety of other factors, including peer pressure, the lack of adult supervision, poor stress management, and a poor school climate, among others. These factors will be addressed in future as they were outside the purview of the current study.

## Meaning and implications of the results

In adolescents and young adults, there are two major possible pathways to substance use: psychosocial and neurobiological. Regarding psychosocial, indicators of ACEs, which include familial

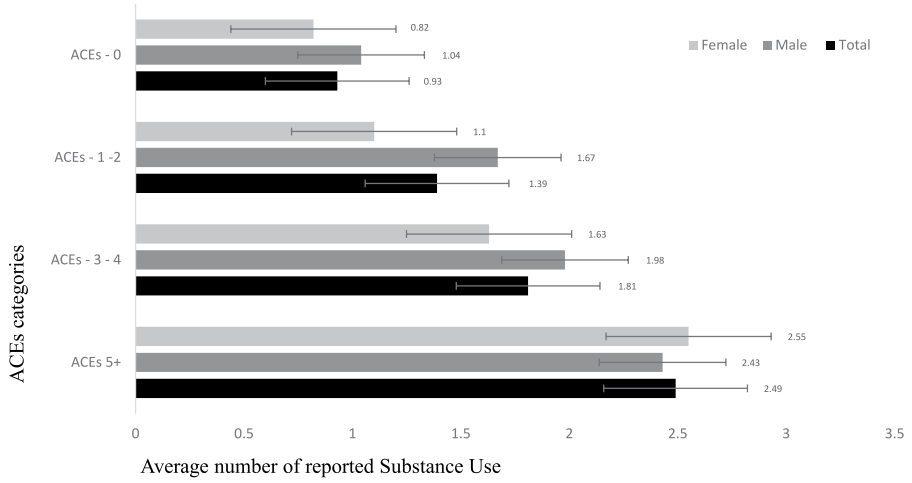


FIGURE 1
Reports of substance use stratified by ACEs categories.

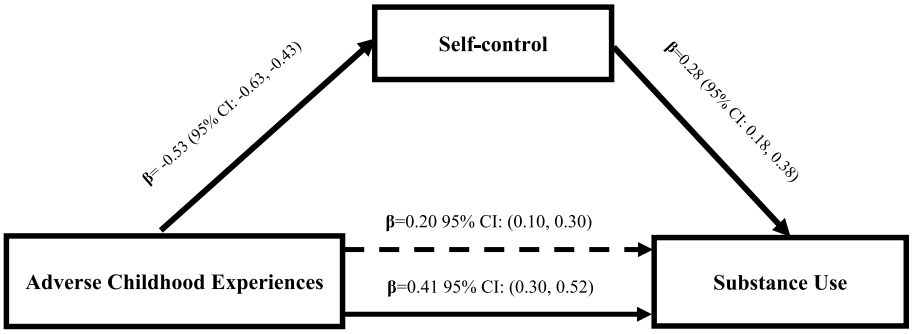


FIGURE 2
Mediation by Self-control of the relations between adverse childhood experiences and substance use. The coefficient immediately above the continuous line is before the mediator was added to the model and the one above the dotted line is after the mediator was added to the model. Indirect effect: (mediated effect) = $\beta$ = 0.21, 95% CI: (0.11, 0.31). The proportion of total effect = 0.21/0.41 = 0.51.2 (or 51.2%). The ratio of indirect to direct effect = 0.21/0.20 = 1.05. The ratio of total to direct effect = 0.41/0.20 = 2.05. Bootstrap results = $\beta$ = 0.63, 95% CI: (0.50, 0.76).

mental illness, substance abuse, and separation/divorce, can impair parental child-rearing practices, thus impairing offspring's self-regulation and making it difficult for them to foresee the adverse long-term consequences of their behaviours. Consequently, the offspring will likely be prone to impulsiveness, self-centeredness, risk-seeking, and instant gratification, all typically deficient dysregulation that may easily predispose them to substance use (Gottfredson and Hirschi, 1990). Moreover, a family climate fraught with emotional neglect and abuse, physical abuse, and household substance abuse is often associated with poor rearing practices, poor parental control and monitoring, and a climate where rules and regulations are inconsistently enforced (Amone-P'Olak et al., 2009; Mongale and Amone-P'Olak, 2019; Phillip and Amone-P'Olak, 2019). For example, about 25 percent of the adolescents and young adults in this study reported parental separation or divorce. Separation and divorce are linked to poverty, stress, conflicts, and dysfunction, which ultimately results in deprivation, affects child-rearing practices, and makes young people vulnerable to future stress (Karatekin, 2018). Moreover, abuse, neglect, violence, substance abuse, and familial mental illness undermine social bonds in households fraught with ACEs. Young people raised in such households may lack self-control and may turn to substance use to relieve stress (Moitlakgola and Amone-P'Olak, 2015; Kgatitswe and Amone-P'Olak, 2017). This agrees with the SBT theory, which hypothesises that a breakdown of social bonds may predispose children to deviant behaviours (Hirschi, 1969a,b).

The neurobiological pathway may be another pathway from ACEs to substance use (Beers and De Bellis, 2002; Anda et al., 2006). According to the neurobiological theory, adverse childhood experiences result in dysfunctional brain development and suboptimal stress regulation (Beers and De Bellis, 2002; Anda et al., 2006). Stress is also known to hamper neurogenesis, which hinders brain maturation and development and may be linked to the dysregulation of the Hypothalamic–Pituitary–Adrenocortical (HPA) system (Beers and De Bellis, 2002; De Bellis et al., 2002; Anda et al., 2006; Thorpe et al., 2020) leading to adverse reactions to stress (Breedlove and Watson, 2013), which, in turn, make adolescents and young adults

prone to substance use to cope with the stress (Kgatitswe and Amone-P'Olak, 2017).

## Limitations and strengths

The results of this study should be viewed in light of several limitations. First, retrospective reports are prone to recall bias (Fisher et al., 2011; Amone-P'Olak and Letswai, 2020). Nonetheless, only the number and not the timing of the ACEs or substance use were taken into account to reduce the likelihood of recall bias. The memory of when such events occurred is more prone to bias than the memory of whether they occurred at all. Second, because ACEs and substance use are stigmatised, it is probable that respondents found it difficult to report them leading to underreporting. Third, it is difficult to extrapolate the results to the larger non-school-going adolescents and young adults since the respondents were a homogenous group of school-going adolescents and young adults. Fourth, a comprehensive list of early childhood adversities such as HIV/AIDS disease, experiencing wars, bullying, community violence, poverty, or being orphaned, may not have been covered by the ACE-10 employed in this study. Furthermore, the DAST-10 list of substances was far from comprehensive, too. Last, but not least, it was not possible to establish cause and effect in this study due to the cross-sectional survey design. Likewise, the data source for ACEs, self-control and substance use were the same leading to the limitations of same-source variance. Same-source variance can lead to an underestimation of correlations in reliability estimates, which, in turn, may be artificially inflated (Fuller et al., 2016). Nevertheless, the current study checked for VIF, which was within normal ranges.

The strengths of the study may include the following: first, not many studies have been conducted on drug and substance use among adolescents in sub-Saharan Africa. Yet, the experience of childhood maltreatment and cumulative trauma is widespread in sub-Saharan Africa and exposes adolescents to the risk of drug and substance abuse. Second, the results of the current study add to the evidence base for practice and interventions in the sub-population of adolescents and young adults. Finally, we were able to study self-control as one of the factors that explain the relationship between ACEs and substance abuse and offer opportunities for intervention.

## Implications

Notwithstanding the limitations of the current study, the results may have several research, policy, and practice implications. First, there is an urgent need for research with longitudinal designs, and large samples from diverse subpopulations of adolescents and young adults to delineate the long-term consequences of childhood maltreatment and identify young people at risk of substance abuse (Amone-P'Olak and Letswai, 2020). Such studies would not only inform practice but provide the much-needed evidence to support interventions to reduce substance use in the subpopulations of adolescents and young adults. Second, although it was not a variable of the study, creating a supportive school environment that encourages healthy and adaptive coping with childhood adversity, reduces student stress, and offers guidance and counselling to decrease substance use is recommended. Finally, childhood maltreatment is a major concern that requires public health intervention. At the public health level, more health workers, psychologists, and social workers could be employed to continuously assess and monitor the well-being of children. For instance, as part of a child protection programme in primary health care, public health professionals could conduct assessments of every child in school once or twice a year until they are 16 years old (Amone-P'Olak and Letswai, 2020). This would enable early detection and remedy of any possible childhood maltreatment.

According to the Social Bonds Theory (SBT), ACEs reduce young people's ability to self-regulate by weakening the SBT's core tenets of attachment, commitment, engagement, and belief. Adolescents and young adults with a history of ACEs are thus more vulnerable to substance use as their social bonds are weakened by a plethora of ACEs. Subsequently, adolescents and young adults who are unable to maintain stronger social connections become impulsive, self-centred, risk-taking, and develop a desire for constant gratification, all of which erode their self-control rendering them susceptible to substance use.

# Conclusion

This study's results indicate a link between ACEs and substance use. This link is partially mediated by self-control. Therefore, the risk for substance use in adolescents and young adults is partly explained by self-control. Overall, the results indicate that interventions that promote self-control may help to contribute to a reduction in substance use in adolescents and young adults exposed to ACEs.

# 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 humans were approved by the Ethics Committee of Lira University Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

# Author contributions

JN: Conceptualization, Data curation, Formal analysis, Writing – review & editing. KA-P'O: Conceptualization, Data curation, Formal analysis, Writing – review & editing, Methodology, Writing – original draft. CN: Conceptualization, Formal analysis, Writing – review & editing. HK: Writing – review & editing. NM: Writing – review & editing. JS: Conceptualization, Formal analysis, Methodology, Writing – review & editing. BO: Conceptualization, Formal analysis, Methodology, Writing – review & editing.

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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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# Navigating foster care: how parental drug use and caregiver attitudes shape children's mentalization processes—an exploratory longitudinal follow-up study: study protocol

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**Background:** The current research concept of mentalization is used in the study to clearly identify affective and cognitive abilities of the caregiver-child dyad with the aim of compensating deficits on both sides with psychological-psychotherapeutic strategies.

**Methods:** The objective of this explorative, longitudinal intervention study is to provide an in-depth understanding of the psycho-social background of 30 children aged 6–12 years living in institutional or family-centered foster care. Data will be collected at three time points: before, after and 12 months after participating in the newly developed group intervention, which intends to address the particular needs of children of drug abusing parents living in foster care in the latency period. The study is conducted at the Faculty of Psychology of the University of Vienna in collaboration with the Association "Dialogue" (Verein Dialog). The treatment duration spans 5 months, during which two specifically trained psychotherapists conduct 10 group sessions for children and three group sessions for foster caregivers. All statistical analyses will consider the type of data available. Therefore, the primary outcome of the study will be assessed via the Friedman test due to the ordinal dependent variable as it is the non-parametric alternative to the one-way ANOVA for repeated measures. In addition, the Mann–Whitney U test is used to compare differences between two independent groups (children living in institutional foster care vs. family foster care). To assess potential correlations regarding the child and caregivers' capacity to mentalize, Spearman correlations (ρ) are conducted. To examine the secondary outcome, apart from the methods previously outlined, we will also utilize qualitative thematic analysis.

**Discussion:** The present study uses the current research concept of mentalization to identify affective and cognitive abilities of the caregiver-child dyad with the aim of compensating deficits on both sides with psychological-psychotherapeutic strategies. There are some limitations of the study to mention: the small sample size does not allow to generalize the results. Due to the lack of a comparison group, a randomized control study (RCT) was not conducted. The authors are aware of these limitations. However, the studies' findings, will help to deduce research questions for further studies.

KEYWORDS

mentalization-based treatment, reflective functioning, foster care, substance use disorder, parenting

## 1 Introduction

Foster care is government-subsidized and -regulated temporary care for children who have been removed from their families for reasons of abuse and neglect. Children can be placed either in family or residential care. While family foster care includes arrangements of children living with unrelated foster parents (nonrelative foster care), with relatives (kinship care), or with families who plan to adopt them (foster/adopt homes), residential programs encompass a type of living in out-of-home care placement in which specialized services for youth with emotional and behavioral problems or other special needs are provided in a highly structured environment. It was estimated that in 142 countries about 2.7 million children aged 0–17 could be living in institutionalized care worldwide (Petrowski et al., 2017).

In Austria, in 2021 a total of 12,871 minors were living in foster care (of which 31.5% only in Vienna): 61.3% of the children and adolescents were placed in institutional group care, while 38.7% were accommodated with foster families (Österreich, 2022). In terms of age, 44.3% of children in foster care, were between the ages of 6 and 14. Children placed into institutional care usually live together with 8–10 other children, cared for by a team of social pedagogues, each of them having one main contact person, called "caregiver."

Although estimates vary widely, a detailed literature search suggests that parental substance use disorder plays a major role in the child welfare system (Seay, 2015).

Maltreatment, such as neglect, and placement into foster care are considered as traumatic affecting children's immediate and future psychosocial development and mental health (Cicchetti and Toth, 1995; Bowlby, 1998; Cicchetti et al., 2006). Children placed in foster care might have experienced distressing feelings such as confusion, anxiety and sadness, due to the unfamiliar or previously experienced situation to which they are adapting as a result of their placement (Bruskas, 2008). High rates of internalizing problems (e.g., anxiety, depression), externalizing problems (e.g., aggression, impulsivity), poorer social skills, and lower adaptive functioning were also reported among foster children compared to children who did not experience replacement (Webb et al., 2010; Jones Harden et al., 2014).

Specifically, those children who experienced trauma frequently revealed underdeveloped mentalizing capacities (Ostler et al., 2010). Muller et al. (2012) specified that their ability to cope with physical, or emotional traumas highly correlated with the perceived quality of their current relationships, and that traumatic experiences had a major impact on attachment behaviors of out-of-home children toward their foster caregivers. As a result of the children's adverse experiences with parental care, they may be inclined to avoid forming new and supportive relationships. This creates a complex situation for all individuals involved, including both the foster caregiver and the children. On the other side, foster parents and institutional caregivers know that foster care is mostly not permanent. This issue may interfere with attachment formation to the foster parents/caregivers (Åkerman et al., 2020).

The ability to mentalize plays a crucial role in individuals' coping abilities with traumatic events (Pecora et al., 2005; Szilagyi et al., 2015). Mentalization can be understood as "the ability to understand the actions by both other people and oneself in terms of thoughts, feelings, wishes and desires" (Bateman and Fonagy, 2016, p. 3). By involving the internal regulation of emotions through thoughts, children as well as adults who are able to mentalize are more resilient and able to tolerate feelings of anger, fear, shame, and distress resulting from adversity and trauma (Allen et al., 2008; Brockmann and Kirsch, 2010; Ostler et al., 2010; Ensink et al., 2017; Giusti et al., 2021).

Research revealed a strong association between insecure attachment representations and struggles of drug addicted parents in responding to their children's emotional cues (Grienenberger et al., 2005; Slade et al., 2005), which in turn interfere with the ability to form secure attachments and mentalizing skills in children (Madigan et al., 2007; Bammens et al., 2015). However, most studies have focused mainly on the characteristics of the child, neglecting the parents' variables (Schmidt and Schimmelmann, 2015).

Pediatricians reported that children of drug-using families were often distressed by their parents' substance use. They often had to take on parental roles, due to their parents' incapacity. As they usually have blamed themselves for their parents' behavior and felt responsible for their wellbeing (Smith and Wilson, 2016), they tended to keep the situation secret and not show their distress in public (Morrison et al., 1996; Hoffmann and Su, 1998). They also tended to self-stigmatize and live in fear of "failing" in the same way as their parents did (Matthews et al., 2017). Within addiction care, children of drug abusing parents are not always seen as individuals in need due to the fact, that the focus stays on the consuming adult. Nevertheless, detecting problems in children early as well as prompt implementation of prevention or treatment programs, would increase the likelihood of the child growing up safely (Van de Meer et al., 2019). Moreover, children of parents with Substance Use Disorder (SUD) experience a notably higher incidence of physical, emotional, and sexual abuse, as well as emotional or physical neglect (McGlade et al., 2009; Altshuler and Cleverly-Thomas, 2011). Therefore, foster care children of drug abusing families, place an additional strain on the healthcare system, thus more research identifying factors enabling children and adolescents to enhance their mental wellbeing and healthy development, as well as cost-effective treatment options, is needed.

Parental attitudes represent the primary social influence encountered by the child during their formative years (Zunich, 1966). As Farmakopoulou and Baltsioti (2024, p. 319–320) emphasize clearly: "Foster carers play a crucial role in this institution, and their experiences, perceptions, and relationships are vital for the wellbeing and development of the children under their care. Understanding foster carers' views on factors that support or hinder successful fostering is essential for grasping the dynamics of foster care."

Children's ability to mentalize can be best observed during the latency period in child development. The latency period takes place between the age of 6 and 12 and is characterized by a number of new

developmental challenges, such as finding a place in a peer group, realizing cognitive activities, and compliance to the rules of the family and the community. Individuals' ability to cope with these challenges largely depends on the ego-function development, reflected, e.g., in emotional control, ability to deal with frustration and being able to reflect on the other's perspective (Akhtar, 2009; Dejko et al., 2016).

Studies reported that a parent's ability of reflective functioning (RF), as mentalization is operationalized, predicted children's attachment security and mentalization ability (Grienenberger et al., 2005; Slade et al., 2005; Allen et al., 2008), and various aspects of a child's short- and long-term development (Fonagy et al., 1991; Slade, 2002; Steele and Steele, 2008). Improvements in RF related to mothers with SUD were associated with improvements in caregiving quality (Åkerman et al., 2020). The studies mentioned above looked in samples of biological or foster parents. The majority of interventions that have been developed to support foster carers has been criticized for their lack of focus on improving the capacity of carers to respond to the child's related needs while it is obvious that keeping the needs of a child in mind is the best support for every child's development RF and social skills, such as reflexibility and social orientation, help every carer to understand behavior as a respond to emotional needs instead of just seeing "naughty" or "bad" behavior and the child itself feels understood and valued (Adkins et al., 2018; Midgley et al., 2019).

RF is defined as the ability to mentalize in the context of close, interpersonal relationships. With the words of Fonagy et al. (1998), RF helps us "to distinguish inner from outer reality, pretend from "real" modes of functioning as well as intra-personal mental and emotional processes from interpersonal communications" (Fonagy et al., 1998, p. 4). A recent study, showed that a group of brief psychoeducational parenting intervention increased RF in foster parents and improved parental sensitivity while decreasing children s' internalizing behavior (Adkins et al., 2022).

Research on attachment and mentalization in substance-abusing families is emerging. While studies exist on mentalization in substance abusing mothers (e.g., Suchman et al., 2006; Pajulo et al., 2012; Suchman, 2016), research on mentalization or reflective functioning in children of substance-abusing parents is still lacking, and evidence suggest the specific need for interventions aimed to address experiences and feelings associated with foster care in children (Ostler et al., 2010).

Mentalization-based treatment (MBT) programs to increase ego-functions have been developed and implemented for multiple indications such as borderline personality disorders, drug addiction, and for children with parents suffering from mental health disorders (e.g., Bateman and Fonagy, 2008, Bruskas, 2008; Suchman et al., 2010). They aimed to understand and improve the individual's ability to reflect upon their own and others' feelings, thoughts, and desires. When applied to children and their caregivers, MBT focus on replacing destructive habitual ways of feeling and acting by improving mentalizing abilities, together with the individual's emotional wellbeing, and interpersonal skills (Mayes, 2012).

A Narrative Systematic Review (Midgley et al., 2021) examined the range of mentalization-based interventions for children in middle childhood (6–12 years). According to this review, a relevant number of mentalization-based interventions have been conducted in the context of fostering and adoption, but the childrens' mentalizing capacity was hardly ever assessed as an outcome and children from drug abusing families are still lacking as target group. This lack was already mentioned in previous publications (Jacobson et al., 2015; Midgley et al., 2017), but did not change so far.

# 2 Methods/design

## 2.1 Aims

The first aim of this study is to explore the development longitudinally of the children's mentalization ability at three measure time points: before, after and 12 months after attending a newly developed group MBT-intervention. It is an adapted version of Midgley et al. (2017). Mentalization-Based Treatment for Children (MBT-C), which addresses the particular needs of children of substance using parents, who live in foster care during middle childhood, integrating the psycho-social background of children living in foster care. Second, we will explore the mentalization capacity of the caregivers, their attitudes on drugs and drug addiction, and their social skills (e.g., social orientation and reflexibility) with regard to the impact on the children's mentalization at the beginning of the intervention to better understand whether it influence the development of mentalization over time.

## 2.2 Participants

In the study 30 children living in foster care (institutional or foster home) and their actual main foster caregiver will be included ($N = 60$).

Children's inclusion criteria for participation are: (1) age between 6 and 12 years, (2) stable mental health status (e.g., no psychotic state), (3) living in foster care for at least 6 months. A minimum of time in a stable and persistent placement needs to be considered to assure the children's ability to reorganize their internal world and behavioral outcomes (Cassibba et al., 2023). Caregiver's inclusion criteria are (1) child lives in the same household and (2) 18 years of age or older. Children are excluded from the study if presenting neurological, cognitive, and/or psychiatric problems, and/or difficulties reported by their caregiver.

Children in middle childhood, aged between 6 and 12, are very common as primary target of mentalization-based treatments. However, middle childhood has received only limited attention regarding the ability to mentalize (Midgley et al., 2021).

## 2.3 Measures

Relevant biographical data are collected at baseline within a clinical interview. They included the children's age at the first out-of-home placement, substance use dependency syndrome of biological parents and the number of caregivers since out-of-home placement. Data Research Topic is conducted by specifically trained clinical psychologists and psychotherapists.

### 2.3.1 Primary outcome

Caregiver and child Reflective Functioning (RF) are assessed by a licensed coder using the Reflective Functioning Scale (RFS) (Fonagy et al., 1998; Shmueli-Goetz et al., 2011) to interpret predefined sections of the Adult Attachment Interview (AAI) (George et al.,

1985), and using the Child Reflective Functioning Scale (CRFS) (Target et al., 2001) to interpret the Child Attachment Interview (CAI) (Shmueli-Goetz et al., 2008) transcripts. The AAI and the CAI, semi-structured clinical interviews focus on the subject's attachment experiences with their parents during childhood. Some questions in the AAI (e.g., "Why did your parents behave as they did during your childhood?," "Do you think your childhood experiences have an influence on who you are today?") and some questions in the CAI (e.g., "Do your parents sometimes argue? How do they feel? Why do you think they do that?" or "What happens when your mum gets cross with you or tells you off? How do you feel?") require reflective functioning (RF), while others allow it. According to Fonagy et al. (1998), RF occurs when the interviewee shows (1) awareness of the nature of mental states, (2) an explicit effort to tease out the mental states underlying one's own and others' behavior and (3) the tendency to recognize developmental aspects of mental states over time or (4) mental states in relation to the interviewer. After rating each identified passage of the AAI, an overall score is assigned to each interview ranging from −1 (negative RF) to 9 (exceptional RF) (Taubner et al., 2013). The same procedure will be conducted for the CAI.

After rating each identified passage of the CAI, an overall classification is assigned to the interview, using a hierarchical approach, and distinguishing between 10 levels of RF, ranging from −1 (negative RF) to 9 (exceptional RF) (Ensink et al., 2013).

Validation studies of the RFS (Fonagy et al., 1998; Ensink et al., 2015) proved discriminant and predictive validity and good interrater reliability. Temporal stability of children's RF was shown to be high over a 3-month period and adequate over 12 months (Ensink, 2004).

### 2.3.2 Secondary outcomes

To investigate the children's mental health, their clear-thinking ability, and their dynamic personality structure, as well as the caregiver's attitudes on drugs and drug addiction and their social skills (e.g., social orientation and reflexibility) the following measures are chosen:

- The Child Behavior Checklist (CBCL/6-18R) is a parent report form to screen for emotional, behavioral, and social problems in children, based on the DSM-IV (Esser and Hänsch-Oelgart, 2018). A DSM-5 oriented version is not yet available. For the aim of the present study the presence of the following psychiatric disorders from the Diagnostic and Statistical Manual of Mental Disorders IV (American Psychiatric Association, 1994) were assessed: anxiety, oppositional defiant disorder, conduct problems, somatic problems, affective problems, and attention deficit disorder. The profiles show raw scale scores derived by the sum of each item. The scales are quantitatively scored in terms of gender- and age-specific t-scores with cut points for normal (t-scores from 50 to 64), borderline (t-scores from 65 to 69), and clinical (t-scores from 70 to 100) ranges (Döpfner et al., 2014). The CBCL is widely used in clinical research and diagnostical practice and shows good results regarding reliability and validity (Nakamura et al., 2009).
- Raven's Colored Progressive Matrices (RCPM) measures clear-thinking ability and is designed for young children aged 5–10 years and older adolescents. The RCPM is internationally recognized as a culture-fair test of nonverbal (fluid) intelligence. The test consists of 36 items clustered in 3 sets (A, Ab, B), with 12 items per set. Most items are presented on a colored background to make the test visually stimulating for participants. The RCPM produces a single raw score that can be converted to a percentile based on normative data, designating the following categories: Performance Level 1 "well above average" (>95 percentile); Performance Level 2 "above average"(percentiles 75–95); Performance Level 3 "average" (percentiles 25–75); Performance Level 4 "well below average" (percentiles 5–25); Performance Level 5 "intellectual disability" (percentiles <5) (Bulheller and Häcker, 2002). In daily clinical practice, RCPM test is used as one of the best general intelligence measures (Smirni, 2020).
- The social orientation and Reflexibility subscales of the 33 items-Inventory of Social Competences (ISK; Inventar sozialer Kompetenzen) by Kanning (2009) is used to assess the caregiver's social skills. The raw-data analysis is standardized by means of an evaluation form. The 17 raw scores of the primary scales and the four total raw scores of the secondary scales are transformed into stanine scores with the help of standard tables (Kanning, 2009). The reliability of the instrument can be rated as satisfactory to good. Numerous results from several individual studies on convergent and discriminant validity are reported (Scherp, 2010). For this study, we focus on the two subscales social orientation and reflexibility.
- The Patte-Noire ("black paw") -Test is a French thematic-projective test for children from 6 to 12 years: a storytelling test through the character of the little pig Patte Noire, used in children's clinical assessment, to elicit themes related to the child's perceptions of the relationships between parents and children, and siblings and to obtain unconscious material. The test is administered according to Corman (1972) criteria in two main parts: telling a story and identifications. The child is asked to look at 17 different panels that show pigs in social situations, to choose one or more of them, to tell a story about "Patte Noire" and also to tell with which character on the panels he/she identifies—if possible. While working on the story, the child has to put him/herself in the situation described by the panels. In each panel one little pig is marked with a black paw. Every panel stimulates one of the following themes: orality, anality, oedipal issues, aggression, dependency-independence, guilt, black spot, inverted sexes, nurturing father, ideal mother. For the purposes of this study, 7 sheets out of the total 17 comprising Corman's Patte Noire Test have been selected to take a look at the identifications in terms of attachment relations as it was already conducted and published by Ballus et al. (2019). The 7 selected pictures express clearly attachment relations in terms of attachment theory (Corman, 1977; Ainsworth et al., 1978; Bowlby, 1982; Yarnoz, 1993) and were selected in order to elicit information about the children's attachment experiences, for example panel N°4: "the Cart." Patte Noire (PN) dreams that a farmer is taking some piglets away in a cart. PN's parents and two other piglets watch the scene. Theme of separation and loss. The childrens' identifications on panel N°4 ("the cart") in relation to the foster care situation has our special interest looking at the children's identifications with the little pig ("Patte Noire") or with "No One" or with somebody outside the scenery on the panel. This test is highly recommended by child psychoanalysts and is frequently used for clinical psychological diagnosis in addition to clinical psychological tests.

- Attitudes to Drug Use (ADU) (Harmon, 1993). A German version, translated and retranslated by expert native speakers, of a non-standardized 12-items paper-pencil-questionnaire is used to assess the caregiver's attitudes to drug use on a 5-point-rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questions are formulated as statements such as "using illegal drugs can be pleasant" or "trying drugs is losing control of your life." Computation of Indices: Items (a), (d), (e), (i), (k), were scored "5" for "strongly agree" to "1" for "strongly disagree," while the other items (−) were scored in the opposite way (1 for "strongly agree" to "5" for "strongly disagree"). To obtain an attitude score for each individual, the scores for each item were summed and divided by the number of items answered. A score of 5.00 indicates a completely positive attitude toward drugs while a score of 1.00 indicates a completely negative attitude. In accordance with Hulin et al. (2001), the internal reliability of this scale is within a very good range ($\alpha = 0.89$).

## 2.4 Procedure

The study is conducted by the Faculty of Psychology of the University of Vienna in collaboration with the NGO Dialog.[1] The study was approved by the Ethical Committee of the University of Vienna (#00295). All procedures performed in the study follow the ethical standards of the institutional and/or national research committee and are in agreement with the Helsinki Declaration and its later amendments or comparable ethical standards. Written informed consent is obtained from the foster parents or legal guardians, and assent from children is gained as well.

Officially registered with the DRKS (German Clinical Trials Register) #DRKS00027868, the trial is displayed on the public website. It has been submitted to the WHO and is searchable through its meta-register.[2] Caregiver and child Reflective Functioning (RF) are assessed by a licensed coder using the Reflective Functioning Scale (RFS) (Fonagy et al., 1998; Shmueli-Goetz et al., 2011) to interpret predefined sections of the Adult Attachment Interview (AAI) (George et al., 1985), and using the Child Reflective Functioning Scale (CRFS) (Target et al., 2001) to interpret the Child Attachment Interview (CAI) (Shmueli-Goetz et al., 2008) transcripts.

The trial site is the outpatient center of the NGO Dialog in Vienna (A), where the mentalization-based group intervention was developed and takes place. This NGO specializes in prevention and treatment of substance use disorders for more than 40 years.

Participants follow a 20-week mentalization-based group intervention aiming at increasing knowledge about drug addiction and at enhancing social and affective skills in children (6–12 years) of drug abusing families living in foster care. The participation in the study is voluntary. Data are collected at baseline (T1), within 1 month after treatment termination (T2) and at 12 months follow-up (T3) (Figure 1).

## 2.5 Mentalization-based group intervention

Findings from a cross-European study conducted in 2007 on Domestic Violence and Abuse among Adolescents from Alcohol-affected Families indicated that adolescents expressed the value of being in relation with others who have undergone similar experiences or have faced similar challenges within their families. They perceived these interactions beneficial specifically in realizing that they were not alone in these circumstances (Velleman et al., 2008). The mentalization-centered group model offers a secure and contained environment, akin to a *relational laboratory*, in which children can safely investigate their thoughts and emotions regarding their real-life situations and emotional challenges (Malberg, 2012).

The Mentalized-Based Group Intervention (MBGI) was adapted from the MBT-C by Midgley et al. (2017) to the particular needs of children of drug abusing parents living in foster care in middle childhood. In accordance with other short-term interventions, such as "SMART" (Fearon et al., 2006) or "Trampolin" (Wiedow et al., 2011), ten group sessions for children and three group sessions for the foster caregivers are provided by specifically trained psychotherapists in a period of 5 months (school semester). The facilitators have attended trainings at the Anna Freud Centre in London (UK) on *"Mentalizing and Mentalization Based Treatments with Children, Young People and Families (MBT CYP)"* as well as *"Reflective Parenting (MBT-RP)."* Each session lasts about 90 min. The first encounter with the caregivers takes place after the first children's group session to get to know each other, to obtain a first impression of the group by the psychotherapists, and to introduce mentalization processes to the caregivers in order to make them part of the children's support. The second caregiver session is, scheduled halfway through the intervention. It is used to reflect on the ongoing treatment and its impact on the children's daily lives. The final group session with the caregivers serves as a review of the experience and a preview of future intervention opportunities. The three caregiver sessions include information on parental licit/illicit drug abuse background focusing on the caregiver-child-interaction, along the process described by Fonagy and Allison (2014): (1) development of a therapeutic context in which the children/caregivers feel understood to reduce the sense of epistemic trust; (2) reemergence of the participants' capacity to mentalize, as they "find their mind in the mind of the therapist"; (3) being aware of and interested in the content of the psychoeducational work of the therapists and to benefit from the group as a place to share experiences.

For the children, the 10 group sessions follow a ritualized procedure: there are predefined contents, such as drug addiction in general, the children's situation in foster care, their feelings toward their biological parents and their foster caregivers. Since group dynamics in the sessions are never predictable, there is always time for "open topics," brought up by the children. Group sessions are always conducted in the same room, which does not contain too many distracting elements but is large enough to allow for physical games like throwing and catching a ball or play "Emotion-Charade," where children try to nonverbally pantomime a pre-selected emotion to each other. The material provided to the children involved painting, drawing and sketching tools. Children are invited to talk or to express themselves and their feelings by using available materials. Drawing is particularly useful, feels to be less intrusive and threatening than the request to talk about one's experiences (Gardner and Harper, 1997).

1 www.dialog-on.at

2 https://trialsearch.who.int/Trial2.aspx?TrialID=DRKS00027868

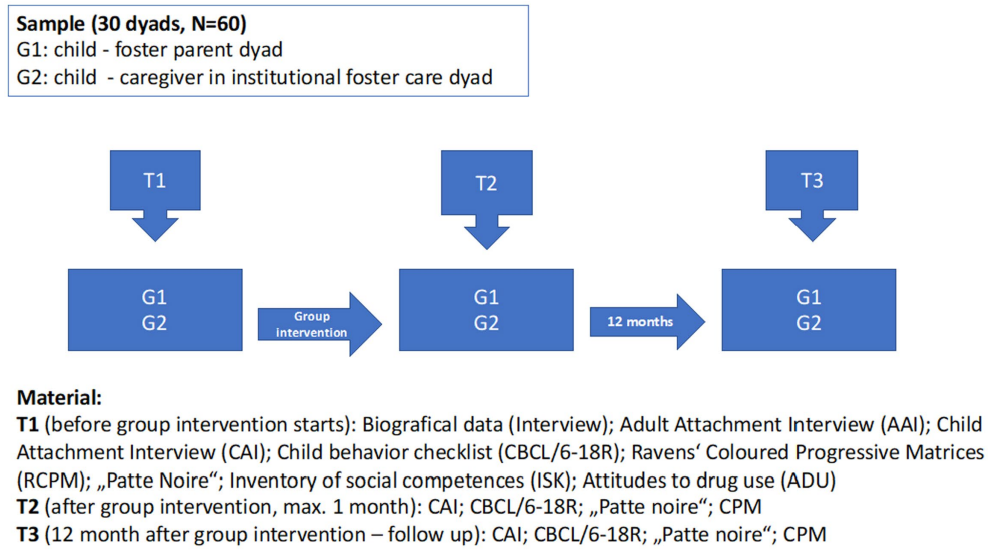


FIGURE 1
Study flow chart. Sequence of steps from T1 to T3.

The aims of the group sessions are (1) restoring the frame to think and talk about highly affective feelings such as anger, fear and shame, (2) building up a small and safe mentalizing community to explore mental states and giving sense to the behavior of oneself and others, (3) discussing the individual meaning and consequences of the experience of parental substance use or parents being "high" on licit/illicit drugs, and (4) providing new ego-strengthening skills.

The ritualized procedure contains a welcome circle that allows space for current events or feelings, planned psychoeducational inputs, and a special feedback method to recap what was discussed in each session and gather the children's opinions on it.

The psychoeducational input always contains an interactive play or method.

As outcome of this Mentalization-Based Group Intervention, we expect a decrease in children's psychiatric symptoms as there is evidence from previous studies on the effects of Mentalization-Based Interventions (Åkerman et al., 2020; Dalgaard et al., 2023). Furthermore, we expect an increase in the RF Score (capacity to mentalize). It has been shown that the RF Score can change as a result of psychotherapy, especially in psychodynamic oriented psychotherapy. These results have been observed, using the AAI to gain the RF Score (Katznelson, 2014).

## 2.6 Statistical plan and data analysis

Sociodemographic data will be used to characterize the sample and to provide an in-depth look into the participant's psycho-social background. Frequencies and means are derived for demographic variables.

Thresholds for the measures will be used to describe each case, and to provide descriptive statistics, such as frequencies, mean and standard variation (SPSS 27.0), for each group: caregivers, children living in foster families and children living in institutional foster care.

Analyses on quantitative data will be conducted using the statistical software SPSS (IBM, Version 27.0).

All statistical analyses will consider the type of data available. Therefore, the primary outcome of the study will be assessed via the Friedman test as it is the non-parametric alternative to the one-way ANOVA with repeated measures, to compare the changes in reflective functioning scores between the pre-intervention, post-intervention, and one-year follow-up assessments, with the group (family foster care vs. residential programs) as a between-subjects factor and the time of assessment (pre, post, follow-up) as a within-subjects factor. In addition, the Mann–Whitney U test is used to compare differences between two independent groups (foster family and institutional foster care). To assess potential correlations regarding the child and caregivers' capacity to mentalize, Spearman correlations (ρ) are conducted.

For the secondary outcome variables we choose a mixed-method approach for data analysis. Qualitative data from the "Patte-noir" will be processed via qualitative thematic analysis (Braun and Clarke, 2006). To provide an in-depth understanding of the psycho-social background of foster children and their foster caregiver, taking into account the caregivers' social competences, their attitudes to drugs and drug addiction and the children's mental state, quantitative methods, equal to the ones for the primary outcome variables, will be used.

This mixed-method approach was chosen to obtain different and multiple perspectives to validate the results and to build a comprehensive understanding.

# 3 Discussion

This study uses the concept of mentalization to identify affective and cognitive abilities of the caregiver-child dyad with the aim of compensating deficits on both sides with psychological-psychotherapeutic strategy. On the foster caregivers' side, social

structures and their anchoring in the social environment are addressed. Their prejudices are pointed out and questioned with the aim of providing suitable measures for change. Cassidy (2018) highlights that a foster caregiver of a traumatized child should be able to consistently empathize with the child, understanding that the child's challenging behaviors may be a result from the child's past experiences of abuse and neglect. As a further consequence, the child may be able to develop more secure and less disorganized attachment representations. On the children's side, the emotional and affective background is illuminated, which at the same time reveals the risks for their future emotional, cognitive and social development. According to Suchman et al. (2020), cited in Paris et al. (2023), to the implementation of mentalization based approaches in research and practice of SUD patients treatment is still missing.

Initial findings from our research indicate that certain institutional foster caregivers exhibit low levels of mentalization capacity. Consequently, in collaboration with the Institute for Drug Prevention of the Office of Addiction and Drug Policy of Vienna, we will start in the near future the development for a mentalization-focused training program for institutional foster caregivers. The primary aims will be the enhancement of their reflective functioning, defined as the ability to mentalize, and to heighten sensitivity in interpersonal communication with children experiencing complex PTSD. The comprehensive training regimen will span several days of training sessions, supplemented by at least one mandatory reflection meeting within the initial year. The evaluation of the program's effectiveness will rely on pre- and post-training measures of participants' reflective functioning, utilizing an adapted version of the Reflective Functioning Questionnaire (RFQ-8). The detailed methodology and further findings will be disseminated in a forthcoming publication. The continued availability of this training program is an example for the successful transfer of results from a scientific study into practice to actually provide support to the sensitive target group.

The aim of publishing this study protocol is to inform the scientific community about the ongoing research and its transfer to clinical practice, and further to reach out to the community for exchanging ideas and to increase the coordination of research efforts.

However, the authors are very aware of some limitations of the study to mention. The small sample size will not allow do draw any gentrifications out of the results. Taken into account that the study is no RCT, historical control data will be used for comparison (Bizzi et al., 2022). One of the critical aspects of RCT is that "Intervention fidelity refers to the reliability and validity of the clinical interventions that are used in the randomized trial" (Cook and Thigpen, 2019, p. 64). Even though each group intervention of this study follows a strong ritualized procedure, its intervention fidelity cannot be comparable with an RCT on dosage of medication or manual based interventions. Still, the amount of the studies' findings, due to the mixed-method design that is used, helps to deduce research questions for further studies. The study is carried out in a naturalistic setting. This can be considered as a strength as it increases its ecological validity.

As we are aware of the need for long-term support for this particularly sensitive group of subjects, all children have the option to attend the group intervention program more than once. Due to the third testing point after 12 months, the children who participate at the study will have to take a break until they attended the third measure time point before they can continue to participate at the group intervention.

## 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 humans were approved by the Ethical Committee of the University of Vienna (#00295). The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

## Author contributions

NS: Conceptualization, Data curation, Investigation, Methodology, Project administration, Resources, Writing – original draft. BL-S: Formal analysis, Supervision, Validation, Writing – review & editing.

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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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# Case Report: Trauma group therapy with karate-do for war-traumatized children and adolescents

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**Background:** From the viewpoint of health and education, traumatized children and adolescents who have fled from war and conflict zones to Switzerland represent a high-risk group, as they suffer from psychiatric symptoms to an above-average extent and on several levels: somatic, psychological, psychosomatic, and psychosocial.

**Objectives:** The complexity and severity of these problems overwhelm the existing school structures in many cases: There is a clear need for psychotherapeutic interventions here that goes beyond purely verbal conversational therapy and provides an holistic concept.

**Methods:** We propose the following novel approach: "Trauma group therapy with karate-do for war-traumatized children and adolescents" which integrates and applies the evidence-based methods of integrative Budo-Therapy, trauma-focused Cognitive Behavioral Therapy (TF-CBT), Narrative Exposure Therapy (NET) and Integrative Gestalt Therapy according to Dr. Hilarion Petzold (EAG-FPI) and validated it in a group of approximately 12 children from war and conflict zones who attend the public schools of the city of Zürich.

**Results:** Qualitative feedback received from the teachers is promising. They report that it is now better possible for the children who go to ouer "Trauma group therapy with karate-do for war-traumatized children and adolescents" to concentrate at school and also to better regulate their feelings.

**Conclusion:** Ouer approach seems to be a promising intervention for traumatized children and adolecents. Though it needs further evaluation.

KEYWORDS

**traumatization, migration, man-made trauma, group therapy, Karate-do, self-defense**

## 1 Introduction and background

### 1.1 Current situation of mental health of traumatized children and adolescents with a refugee background

War and flight often force children and adolescents and their families to leave everything in their home country, and plunges them into a completely new situation in the country of arrival. According to current figures, 100 million people worldwide are

currently on the run, about 42% of them are children and young people (UN Refugee Agency [UNHCR], 2023).

Turrini et al. (2017) carried out an overview article about the mental health of asylum seekers and refugees and found: Although there was substantial variability in prevalence rates, we found that depression and anxiety were at least as frequent as post-traumatic stress disorder, accounting for up to 40% of asylum seekers and refugees. In terms of psychosocial interventions, cognitive behavioral interventions, in particular narrative exposure therapy, were the most studied interventions with positive outcomes against inactive but not active comparators. This outcomes contains one study on Children, with depression and with PTSD (Bronstein and Montgomery, 2011) and one mixed sample (Lindert et al., 2009).

Fazel et al. (2012) conducted a systematic search and review of the evidence-base for individual, family, community, and societal risk and protective factors for the mental health outcomes of children and adolescents of a population of forcibly displaced refugees in both internally displaced and refugee populations (2012).

Their findings were (among others) that many different factors affect the mental health of forcibly displaced children in the presence of substantial life challenges. One we would like to highlighted here is that postmigration factors provide opportunities for high-income countries to intervene directly to achieve improved outcomes for vulnerable children.

### 1.2 Current situation in Switzerland of traumatized children and adolescents with a refugee background

According to the State Secretariat for Migration SEM (2024), 24,511 people applied for asylum in Switzerland in 2022 alone. Of these, 5,695 were children and adolescents under the age of 19 (SEM, asylum statistics, 2022). The number of asylum applications from unaccompanied young people has more than doubled in 2022 (compared to 2021) and has increased fivefold since 2020. In addition, 74,959 people, over a third of whom were minors, applied for protection status in the context of the Ukraine crisis (Save the Children, 2023).

In the current year 2023, 17,358 new asylum applications have already been submitted (SEM, asylum statistics, retrieved on 31.08.2023).

We do not have concrete figures on how many of these refugee children and adolescents are struggling with mental health problems in Switzerland. However, the Swiss Red Cross recently noted in a newspaper article that at the moment, out of about 200,000 people who have applied for asylum in Switzerland in the past, 40–50% are struggling with mental health problems due to trauma (Schmid and Leu, 2023). These percentages also include children and adolescents who have fled to Switzerland together with their parents as well as unaccompanied minors.

Fazel et al. (2012) make the statement, that: “Successful intervention with distressed refugee children requires not only psychotherapeutic skills, but also these in combination with structural interventions.” (2012). As such, the intervention of the School Psychological Service of the City of Zurich can be considered. We regard our group therapy as such a direct, protective intervention for refugee children in Switzerland.

### 1.3 Traumatized children and adolescents with a refugee background in the school system

In Switzerland, children and adolescents of school age are compulsorily enrolled in elementary school. According to the Elementary School Act of the canton of Kanton Zürich (2005), the support of traumatized children within a protected framework of group therapy with the aim that they then can get better involved in school is an important goal.

Like Lic. Phil. Kohli (2021), the head of the Consultation Centre of Psychotraumatology of the Social Pediatric Centre of the Cantonal Hospital Winterthur writes that: "successful school integration... is difficult in children with a trauma-related disorder and often externalizing and internalizing behavioral abnormalities are major challenges for teachers" (2021).

## 2 Trauma reactions in children and adolescents

In his work with traumatized children at the Children’s Hospital Zurich, Professor Markus Landolt was able to identify frequently occurring reactions in children and adolescents (2021). These behavioral problems can also be observed in children and adolescents with a refugee background. The reactions are grouped in Table 1 into those for the clinical picture of PTSD (post-traumatic stress disorder) according to DSM-5 (American Psychiatric Association, 2013; American Psychiatric Association, 2018).

Against the background of these behavioral problems in traumatized children and adolescents, the School Psychological Service of the City of Zurich created the "group therapy for children and adolescents with traumatic experiences." This project was pioneered by the couple Celi and Vicky Reiff (Paterson et al., 2016) who have been working with refugee children from the city’s schools for now almost 30 years, using creative methods with a depth-psychological and psychoanalytical basis (Rumpel et al., 2022). Our second trauma group therapy with karate-do for war-traumatized children and adolescents, which has now been offered in the city of Zurich for two years (Straub and Ortiz, 2023; Stadt Zürich Schul- und Sportdepartement, 2023), is designed with a new approach on the foundations of the concept of football group therapy of the Social Pediatric Center of the Cantonal Hospital Winterthur (Bamert et al., 2020).

## 3 Methods

The children get to know and apply methods of self-defense with the experienced karate-do instructor Patricio Ortiz. In group therapy, they learn to use the defense techniques of karate-do to real-life situations. At the same time, the experienced

TABLE 1 Diagnostic criteria according to DSM-5 (American Psychiatric Association, 2013; American Psychiatric Association, 2018) for post-traumatic stress disorder for adults, adolescents, and children, Landolt (2021).

| | |
|---|---|
| Criterion A | Confrontation with actual or imminent death, serious injury or sexual violence in one or more of the following ways:<br>A1: Direct experience of one (type I) or more (type II) traumatic events<br>A2: Personal experience of traumatic events (type I or type II) in other people<br>A3: Learn that a family member or close friend has experienced traumatic events (type I or type II).<br>A4: Experience of repeated or extreme confrontation with aversive details of traumatic events (type I or type II) (e.g. first responder) |
| Criterion B | Intrusions<br>B1: Recurrent, involuntarily imposing stressful memories of the traumatic events (type I or type II)<br>B2: Recurring, distressing dreams that relate to the traumatic events (type I or type II) (in children also anxiety dreams without recognizable content)<br>B3: Dissociative reactions (in children also "traumatic play")<br>B4: Intense or persistent psychological distress by internal and external cues of the trauma<br>B5: Significant physical reaction to internal and external cues of the trauma |
| Criterion C | Avoidance<br>C1: Avoidance of distressing memories, thoughts and feelings of the traumatic events (type I or type II)<br>C2: Avoidance of environmental factors (people, places, conversations, activities, etc.) that are reminiscent of the traumatic events (type I or type II) |
| Criterion D | Negative change in cognition and mood<br>D1: Inability to remember one or more important aspects of traumatic events (type I or type II)<br>D2: Persistent and exaggerated negative beliefs or expectations that relate to one's own person, other people, or the world<br>D3: Persistent distorted cognitions regarding the cause and consequences of traumatic events (type I or type II), leading to attributing blame to oneself or others<br>D4: Persistently negative emotional state<br>D5: Significantly reduced interest or decreased participation in important activities<br>D6: Feelings of separation or alienation<br>D7: Persistent inability to feel positive emotions |
| Criterion E | Hyperarousal<br>E1: Irritability and outbursts of anger<br>E2: Risky and self-destructive behavior<br>E3: Excessive vigilance<br>E4: Exaggerated startle response<br>E5: Difficulty concentrating<br>E6: Sleep disorders |
| Criterion F | The disorder (criteria B, C, D, and E) lasts longer than 1 month |
| Criterion G | The disorder causes clinically significant suffering or impairment in social, occupational, or important functional areas |
| Criterion H | The disorder is not a consequence of the physiological effects of a substance |
| Determine whether | With dissociative symptoms<br>1: Depersonalization<br>2: Derealisation |
| Determine whether | With delayed onset |

psychotherapist Mirjam Straub Ortiz (MSc) teaches the children how to handle their traumatic experiences with care. She draws on methods such as trauma-focused cognitive behavioral therapy (TF-CBT), Narrative Exposure Therapy (NET), and Integrative Gestalt Therapy according to Dr. Hilarion Petzold (EAG-FPI).

## 3.1 Methods of Karate-do and integrative budo-therapy

Budo-Terapy is understood against the background of the concept of "martial arts" by Professor H. Petzold, as: "Peace work with its healing potential, as a work of life design with the aim of personal sovereignty and art of living..." (2017).

Several articles (Ludwig, 2021; Siegele, 2013; Siegele, 2018) prove that, quote: "Integrative Budo-Therapy primarily through the attitude and teaching of social skills and abilities, as well as through the promotion of psychophysical regulatory skills, (makes) an important contribution to the... integration." (Ludwig, 2021)

Budo includes the whole of the "martial arts", - in our therapy approach we have specifically chosen the martial arts of Karate-do.

Karate is a specific physical activity which focuses on self-regulation and self-development; therefore, it reduces impulsivity and improve self-control.

The scientific study by * Potoczny et al. (2022) showed how Self-Control and Emotion Regulation of Karate training had an important mediating impact on subjective well-being (2022).

Karate training can therefore be used as an important intervention strategy in shaping volitional and personality characteristics - specifically in children and adolescents whose personality is still developing and can contribute to increasing their well-being (Supplementary Figure 1).

## 3.2 Methods of trauma-focused cognitive behavioral therapy (TF-CBT)

The trauma group therapy with karate-do for war-traumatized children and adolescents draws on trauma-focused cognitive behavioral therapy too (Cohen et al., 2009).

We chose to work with trauma-focused cognitive behavioral therapy for children and adolescents (TF-CBT) as there were showed large improvements across all outcomes from pre- to post-treatment in a systematic review carried out on 4523 minor participants from 28 RCTs and 33 uncontrolled studies which Thielemann et al. (2022). carried out in 2022. Effects were even more pronounced for group settings. So we considered to include this therapy approach for our group therapy.

This skill- and resource-based model builds on a sequence of components. The ones adopted for group therapy include the following items: psychoeducation (P), relaxation (R), affect regulation (A) and cognitive coping and processing (C), trauma narration (T):

*Psychoeducation* (P) is about providing children with knowledge about the traumatic experience, typical reactions and symptoms, triggers and treatment. Objective: The children can identify triggers and know adequate words to classify and describe the symptoms.

In *relaxation* (R), the children learn individualized relaxation skills (imagination techniques such as safe place, focused breathing from tai-chi, relaxation exercises from karate). Objective: The children can use apply relaxation skills in response to their PTSD symptoms.

In *affect regulation* (A), the children are provided with skills to express, recognize and regulate feelings. Objective: The children can regulate their feelings related to PTSD symptoms.

In contrast to TF-CBT, *cognitive coping and processing* (C) is adopted in our group therapy through self-control of one's own body, using techniques from karate. Objective: The children and adolescents can perceive and control their own body and mind (self-control).

## 3.3 Narrative Exposure Therapy (NET)

In the "trauma narration" (T) part of the program, which is also used in the TF-CBT, we rely on the method of Narrative Exposure Therapy (NET) in the form of the Life-Line (Neuner et al., 2021). Since many traumatized children and adolescents in our group therapy can be assumed to suffer from "sequential traumatization" in the sense of Keilson and Sarphatie (1992), we have chosen as our approach to trauma exposure the form of a personal Life-Line and then a group life-line, to which all children and adolescents contribute and thus share one or more of their traumatic experiences in the group.

In the Life-Line, a biographical overview is interpreted spatially as an overall view in the form of a timeline on which lifetime periods, general and specific events are represented in a symbolical manner. Natural objects - such as flowers and stones - which symbolize positive and negative valence are often used to represent the events (Schauer et al., 2018).

In the group lifeline, a symbolic timeline is placed from the beginning of life to the present time on which each group member places a life event that is significant for him/her (usually a traumatic event is chosen) symbolized by a flower or a stone. In the following sequence a mutual "Sharing" i.e. Telling the group about the event takes place that deepens mutual trust and respect for the other group members.

## 3.4 Approaches of integrative gestalt therapy according to Hilarion petzold (EAG-FPI)—the tetradic system in integrative therapy

In his process model, Prof. Dr. mult. Hilarion Petzold has structurally combined the elements context/continuum, theme, and intersubjective constellation into a large whole (2003). The conception of his "Tetradic System" was influenced by considerations from other therapeutic phase and process models, such as Perls' Gestalt therapy, Moreno's psychodrama, and Iljine's therapeutic theatre. From the comparison of the "remembering, repeating, working through" of Freud's psychoanalysis, Lewin's "unfreezing, change, refreezing," and other dramatic, creative and problem-solving process approaches, Petzold developed the "dramatic curve" of his system (ibid., 2003). The ideal-typical course of a process comprises four phases in the "tetradic system" of integrative therapy: initial phase, action phase, integration phase, and reorientation phase (Leitner and Höfner, 2010).

In the trauma group therapy with karate-do for war-traumatized children and adolescents, the "tetradic system" according to Petzold is used to structure and thematically classify the process that the therapy undergoes. Since the context and the temporal continuum are often lost in the memory the traumatic event, this placement in space and time is of central importance in our group therapy.

### 3.4.1 Initial phase: differentiation—complexity

"The initial phase first serves to *perceive* the situation, the context in which, with which and about which I want to co-respond. Perception brings me into *contact* with others. In contact, there is a *grasping* that goes beyond perception, I experience the other, the other experiences me, I experience myself through the and with the other, a "chance to encounter" arises" (Petzold, 2003).

In the trauma group therapy with karate-do for war-traumatized children and adolescents, this first phase consists of the process of group formation: A process of becoming aware of oneself (self-consciousness) through karate exercises as well as of the other(s) through joint training and play. Mutual respect and adherence to rules in the group are central to this stage.

Hanna Wintsch, a rennomated trauma psychotherapist in Switzerland and leading psychologist at the Eastern Swiss Children's Hospital, has worked in war, post-war and crisis areas with children and adolescents. She developed her therapeutic group approach for children and adolescents locally in Bosnia in 1998, later tested, adapted and differentiated in Kosovo and Palestine under partly different framework conditions. Wintsch advocates that the building of trust should take place as the first prerequisite in a group therapy (initial phase), in order to create the fundament of a group so that in a second phase the traumatic experiences can be expressed and processed therapeutically (Wintsch, 2000).

Starting from this consistent initial phase, the themes of psychoeducation (P), relaxation (R), affect regulation (A), cognitive coping and processing (C), and trauma narration (T) are then worked on through the following phases: action (structuring—conciseness), integration (integration—stability), and finally reorientation (creation—transgression).

### 3.4.2 Action phase: structuring—conciseness

The action phase is about a struggle for different approaches to solving the theme perceived and grasped in the initial phase: "The synergistic events of the action phase are characterized by such disputes between perceptions, concepts, persons, and subgroups and accumulate at the moment of highly synergistic conciseness, which opens up the dimension of understanding beyond perception and grasping: in consensus (which can also consist in the fact that there is dissent at the given time)" (Petzold, 2003).

In the trauma group therapy with karate-do for war-traumatized children and adolescents, the second phase seeks to deal with the theme: e.g. the theme of "trauma" and the resulting symptoms, the topic of "safety" and relaxation, or the theme of "affects" and the affective expression. The children and adolescents are encouraged in the group to comment on these themes and also to create conciseness in the joint discussion, which

should lead to a better, deeper, as well as physically "embodied" understanding of the theme.

### 3.4.3 Integration phase: integration—stability

The integration phase focuses on the task of critical evaluation: "The evaluation aims to critically emphasize the meaning of the event, its significance, to critically assess what has been achieved and to move on to consequences for action. The solution(s) or central aspects of the... theme are symbolically – usually linguistically – captured in a concise way" (Petzold, 2003, p. 130). This stage of the process is about understanding and explaining.

In the trauma group therapy with karate-do for war-traumatized children and adolescents, the "embodied" understanding that has now been developed is taken up again and expressed individually. This is done not only linguistically, but also symbolically with creative media (e.g. a body chart for the representation and location of feelings in the body). An attempt is made to enact the meaningfulness of the theme – in the context of one's life.

### 3.4.4 Reorientation phase: creation–transgression

"In the reorientation phase, the consensus is worked out in its consequences for action, as *preparation* for cooperative action (e.g. through simulation procedures, planning and role-playing, socio-drama, behavior drama) and subsequently through *transfer* to... the everyday situation" (Petzold, 2003).

In the trauma group therapy with karate-do for war-traumatized children and adolescents, an attempt is made to go move from understanding into action. The children and adolescents are encouraged – by means of certain skills learned in the group – to try out alternative ways of behavior in everyday (school) life.

## 4 Setting

The setting is embedded in the School Psychological Service of the City of Zurich and the back office: Teachers register children with the school psychologist, i.e., the specialist for and head of trauma (lic. phil. Catherine Paterson, School and Sports Department of the City of Zurich). The specialist's management coordinates allocation to the group together with a secretary. Transport is also organized. Costs are covered by the school of the City of Zurich. Space is provided by the school. The therapy group accommodates up to fifteen 9–15 year old pupils from the city's public schools. Every child has the right and the chance provided by the School Psychological Service of the City of Zurich to participate for 3 years in the group. We will soon have our first participants leaving us – due to the 3 years our program is running.

### 4.1 Length, duration and session structure of group therapy

We always make two parts in the one and a half hours in which we have group therapy every week: A first unit with Karate-do training, then we have a break where we provide a healthy snack to our participating children and then we continue with a second unit of psychoeducation and therapy on trauma topics.

## 5 Results

Our group has been running for two years, in which we have focused primarily on the components of psychoeducation, relaxation, affect regulation, and self-control. It has become apparent that the process of group building particularly, of establishing an atmosphere of confidence and for expressing feelings in a constructive way, needs intense therapeutic work. Having evaluated the interaction of the children with each other, we can see a change of behavior in self-reflection (sharing own thoughts and experiences), better recognizing and expressing feelings as well as improved abilities to listen to each other's stories.

In 2021, we started working with a very heterogeneous group of children: Thy came from Iraq, Syria, Brazil, Peru, Eritrea and Somalia, among others. When the war in Ukraine started in 2022, many Ukrainian children came to the Swiss schools. Currently, we consider it useful to offer a separate group for these children with translation.

We offered back then both groups alternately every two weeks for 1,5 hours each.

Over time, it has been shown that there is a high fluctuation among Ukrainian families, and a large termination rate - the reason for which we do not yet know exactly. Also, the rhythm of group therapy only every two weeks seemed too little intense to us for the severity of the traumatization.

So in favor of better continuity the two groups were integrated for the school year 2023. They are now heterogenous about the country of origin, but we still have the privilege of a translation into Ukrainian for the possible language problems of Ukrainian children. Also, we now count up to 12 group members (before it was until 10).

## 6 Discussion

The therapy group is process-oriented, requiring constant reflection and evaluation. Working with traumatized children demands a highly sensitive perception of their needs in the moment and the ability to react in a prompt, flexible, and often creative way. Our trauma group therapy with karate-do for war-traumatized children and adolescents provides a nonverbal, embodied approach and is therefore offering different and more therapeutic possibilities. The group also creates the possibility for the children to be part of a group, which can represent a safe space and convey belonging.

Based on our behavioral observations and feedback from teachers, first experiences show positive results: We from the leading team of group therapy have the opportunity to exchange one hour per participating child with the teachers by phone about their progress over the year.

We have received good qualitative feedback from the teachers that it is now better possible for the children who go into therapy with us to concentrate at school and also to better regulate their feelings. We are also sometimes invited to meetings at school,

where the child himself, his parents, the teachers and sometimes a person for translation are present to evaluate the general school success. These sessions are an opportunity for to explain to the parents in detail how we work with their children in therapy. And in most cases, we experience great sympathy and approval from them. It must not be forgotten that the children usually come from traumatized family relationships, where the parents themselfes are often tramatized and cannot help their children well with this topic. This makes the school context all the more important in which the trained teachers notice such tramatization and then refer the child - always with the consent of the parents - to our group therapy.

In 2023, we were also able to make a short documentary film for schooling purposes about our group therapy and showed it to the children, parents, grandparents and teachers recently in a gathering in July 2024 at the end of the school year: The feedback was extremely positive.

An initial scientific testing and then evaluation of our program is planned, but unfortunately not yet approved by the school.

## Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

## Ethics statement

Written informed consent was obtained from the participant/patient(s) for the publication of this case report.

## Author contributions

MM: Writing – original draft. PM: Writing – original draft. FV: Writing – original draft.

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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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## Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2024.1301671/full#supplementary-material

SUPPLEMENTARY FIGURE 1
Karate training in Trauma group therapy for war-traumatized children and adolescents.

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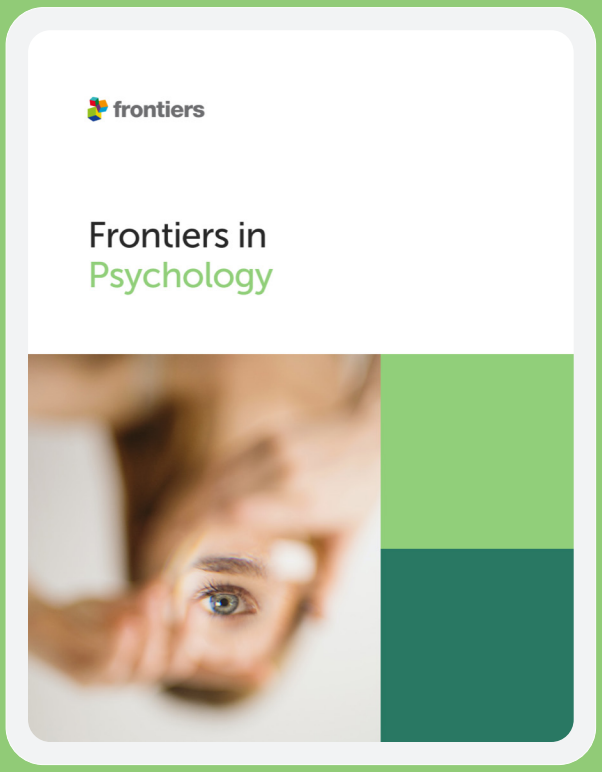


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