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Posttraumatic stress and school-related behaviors in childhood: A scoping
review

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*Growth must be chosen again and again. Fear
must be overcome again and again.*

Abraham Maslow

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Abstract

A growing body of literature has demonstrated that childhood posttraumatic stress is associated with cognitive, emotional, social, and behavioral functioning of school-aged children. In this regard, the present study aimed at identifying and mapping the existing knowledge regarding the effects of childhood PTS on school-related behaviors as expressed within and beyond the school settings. For this purpose, a scoping review was conducted by searching for peer-reviewed and grey literature within 5 databases (ERIC, Scopus, PsycArticles, PubMed, and ScienceDirect) published between from 2016 and 2021. Following the search and data selection process, 9 studies were included as relevant to research question, charted, synthesized and collated. Results demonstrated a consistent and strong relationship between PTS and various educational outcomes, which seemed to be moderated by a series of mediating factors, both individual and environmental. However, findings were mostly derived by mixed samples of both children and adolescents, indicating that further research on school-aged children is needed.

Keywords: posttraumatic stress, childhood trauma, traumatic stress, school functioning, school-aged children

Περίληψη

Πλήθος ερευνών έχουν καταδείξει ότι το μετατραυματικό στρες της παιδικής ηλικίας συνδέεται με πολλαπλές επιπτώσεις στις γνωστικές, συναισθηματικές και συμπεριφορικές δεξιότητες. Υπό αυτό το πρίσμα, η παρούσα εργασία αποσκοπούσε στον εντοπισμό και τη χαρτογράφηση της υπάρχουσας επιστημονικής γνώσης αναφορικά με τις επιδράσεις του παιδικού μετατραυματικού στρες στις σχολικές, μαθησιακές και κοινωνικές συμπεριφορές παιδιών σχολικής ηλικίας εντός και πέραν του σχολικού πλαισίου. Προς το σκοπό αυτό, πραγματοποιήθηκε μια συστηματική ανασκόπηση πεδίου στο πλαίσιο της οποίας αναζητήθηκε δημοσιευμένη επιστημονική και γκρίζα βιβλιογραφία σε 5 ψηφιακές βάσεις δεδομένων (ERIC, Scopus, PsycArticles, PubMed, and ScienceDirect) με χρονικό εύρος δημοσίευσης μεταξύ 2016 και 2021. Από τη διαδικασία της αναζήτησης και της διαλογής των πηγών εντοπίστηκαν, περιγράφηκαν και συντέθηκαν 9 εγγραφές ως συναφείς με το σκοπό της έρευνας. Τα αποτελέσματα κατέδειξαν τη σημαντική σχέση ανάμεσα στο μετατραυματικό στρες και διάφορες σχολικές συμπεριφορές, που διαφοροποιείται υπό την επίδραση διαφόρων ενδιάμεσων παραγόντων, τόσο ατομικών όσο και περιβαλλοντικών. Ωστόσο, τα ευρήματα αντλήθηκαν ως επί το πλείστον από μεικτά και αδιαφοροποίητα δείγματα παιδιών σχολικής κι εφηβικής ηλικίας κι ως εκ τούτου απαιτείται η περαιτέρω διερεύνηση της παραπάνω σχέσης σε παιδιά σχολικής ηλικίας

Λέξεις-κλειδιά: μετατραυματικό στρες, παιδικό τραύμα, τραυματικό στρες, σχολικές συμπεριφορές, παιδιά σχολικής ηλικίας

Introduction

A consistent body of research has demonstrated that a large number of individuals have been exposed to at least one traumatic experience during childhood (Saunders & Adams, 2014; Xie et al., 2018). Such experiences may lead to complex stress responses that affect individuals differently (Kroll, 2003); some individuals develop only acute and short-term stress reactions, whereas others might suffer from intense and long-lasting symptoms of posttraumatic stress disorder (PTSD) which can affect both their psychological and physical functioning (De Bellis & Zisk, 2014; Robbie Rossman & Ho, 2000). Childhood PTSD, in turn, is associated with a wide range of poor school-related behaviors, including cognitive, emotional, social, and behavioral functioning (Alisic et al., 2018; De Bellis & Van Dillen, 2005; Overstreet & Chafouleas, 2016). Such outcomes, once identified, require appropriate support often encompassed in the trauma-informed approaches within the school settings (Mathews et al., 2009).

However, identifying and dealing with the school-related impact of childhood PTSD remains challenging for a variety of reasons, such as the insufficient training in trauma-informed approaches among the school personnel or misdiagnosing PTSD symptoms that might overlap with other childhood disorders, such as anxiety disorders or hyperactivity (Kataoka et al., 2012; Margolin & Vickerman, 2007). The existing literature, in addition, tends to be fragmented and often limited to the examination of specific types of traumatic experiences and their impact on specific areas of school functioning (e.g., academic achievement, peer relationships, etc). Against this background, the objective of this scoping review is to collect, synthesize, and map the existing evidence regarding the impact of post-traumatic stress on school-related behaviors during childhood. At a practical level, the present research attempts to provide a useful resource for schools and professionals by facilitating their understanding of the various outcomes and symptoms of traumatic stress in school-aged children, and through this to offer an insight into the areas where intervention would be most useful and meaningful.

1. Literature review

1.1. Childhood trauma: Concepts and definitions

1.1.1 *From traumatic events to trauma reactions*

Traumatic experiences are not uncommon. According to a study by Benjet et al. (2016) for the World Health Organization, about 70% of adults worldwide have been exposed to at least one traumatic event at some point in their lives, while 30,5% of them were exposed to four or more traumatic experiences with most of these events occurring during childhood. Childhood trauma could be defined as the experience of exposure to emotionally distressful events during childhood which may lead to multiple consequences in both the biological and psychological functioning of an individual (Butchart et al., 2006; De Bellis & Zisk, 2014).

1.1.1.1. **Typologies of traumatic events**

In understanding trauma, it is important to distinguish the exposure to traumatic events from the child's response to such an event. According to ICD-11, traumatic experiences refer to "an extremely threatening or horrific event or series of events" (WHO, 2019). The DSM-V of the American Psychiatric Association (2013) has provided a more thorough definition of traumatic events according to which an individual has been exposed to "death, threatened death, actual or threatened injury or sexual violence" by direct or indirect exposure.

Given the variability of such threatening events, several researchers have proposed different types of traumatic experiences that might vary in terms of severity, context, or duration of exposure, and might require different interventional approaches (Buchanan et al., 2020). Despite their slight differences, most of the proposed typologies provide a core classification of trauma events into two categories, namely *interpersonal* and *non-interpersonal trauma* (D'Andrea et al., 2012; De Bellis & Zisk, 2014; Woodward et al., 2015). Interpersonal trauma comprises events of human causalities, such as experiencing or witnessing domestic or community violence, warfare or terrorism, and violent personal attack, including child maltreatment, abuse, or neglect (D'Andrea et al., 2012; De Bellis & Zisk, 2014). On the other hand, non-interpersonal traumatic events include natural disasters or disasters of human design, unintentional accidents, or medical trauma exposure, such as severe or chronic illness

within the family context (De Bellis & Zisk, 2014; Haldane & Nickerson, 2016; Woodward et al., 2015).

Adverse childhood experiences (ACEs), as a set of hurtful childhood adversities introduced by Felitti et al. (1998), have been also thoroughly examined as potentially traumatic for individuals of 0-18 years old. ACEs include exposure to various kinds of abuse, neglect, or household dysfunction that range from physical or sexual abuse to incarceration of a parent or parental divorce (See Table 1) and may cause trauma (Pearce et al., 2019). In many cases, the impact of exposure to ACEs can follow an intergenerational pattern with chronic negative outcomes for both the victims and their descendants (Narayan et al., 2017).

Table 1. Types of Adverse Childhood Experiences (Felitti et al., 1998)

Abuse	<ul style="list-style-type: none"> ▪ Emotional abuse ▪ Physical abuse ▪ Sexual abuse
Neglect	<ul style="list-style-type: none"> ▪ Emotional neglect ▪ Physical neglect
Household dysfunction	<ul style="list-style-type: none"> ▪ Domestic violence ▪ Substance abuse in the household ▪ Mental illness ▪ Parental separation or divorce ▪ Incarceration of a family member

Other typologies have been also proposed by different national health systems regarding the prevalence of specific traumatic experiences or the extent to which some events are being recognized as traumatic within different cultural contexts (Buchanan et al., 2020). For example, UK's National Health System includes work-related traumatic experiences as a common type of trauma, which has not been included in other national typologies (Center for Substance Abuse, 2014). In this respect, the National Child Traumatic Stress Network of the US (2007) attempted to bridge the different proposed typologies by merging the overlapping categories of traumatic or

potentially traumatic events into 13 more detailed and less culturally-dependent categories, namely;

- *Bullying*, as the victimization by intentional misuse of power to harm or threaten someone perceived as vulnerable
- *Community violence*, as the exposure to intentional interpersonal violence committed in public spaces by groups or individuals who are not personally related to the victim
- *Complex trauma*, as the exposure to multiple traumatic events during childhood
- *Natural disasters*, that may cause multiple adversities for families, such as displacement, changes in school, loss of property, or injury
- *Early childhood trauma*, that includes exposure to traumatic experiences before the age of 6 and may affect the child development
- *Intimate partner violence*, which refers to exposure or witnessing domestic violence between partners within the family
- *Medical trauma*, that includes direct or indirect exposure to chronic, multiple, or severe illness
- *Physical abuse*, as the actions that cause physical harm by caregivers
- *Sexual abuse*, that refers to touching or non-touching interactions between a child and an adult or another child, where the victim is used for sexual stimulation
- *Sex trafficking*, which describes the sexual exploitation of children by offering anything of value, such as food, shelter, money, drugs, etc
- *Terrorism and violence*, that refers to exposure to mass violence
- *Refugee trauma*, as the exposure to community violence, warfare, or persecution that causes the relocation of the family
- *Traumatic grief*, which refers to the experience of losing a loved one.

1.1.1.2. Response to threatening and distressful experience

Though individuals tend to respond differently to similar threatening and distressful experiences, most of them will display intense physiological and psychological reactions in the aftermath of traumatic events, such as a sense of fear, helplessness, exhaustion, or alertness (Gersons & Olf, 2005). Such stress responses are generally defined as *traumatic stress symptoms* and refer to the various stress responses as normal

reactions to abnormal and threatening events (Roberts et al., 2010). Identifying these various short-term or long-lasting responses of trauma survivors holds a critical role in examining and understanding trauma.

For a long time, the '*fight-flight-freeze model*' was applied to describe a narrow repertoire of reactions to extremely stressful and potentially traumatic events, as instinctual attempts to avoid, diminish or ignore a fearful traumatic stressor (Thompson et al., 2014). Although this model appears to be valid when it comes to trauma reactions of animals, recent research reveals that peritraumatic responses of humans are greater in number and more intricate (Blanchard et al., 2001; Katz et al., 2021). That said, the immediate responses of individuals following a traumatic experience may be quite complex and influenced, among other things, by their own experiences, their coping skills, and the availability of social support (Jaffe et al., 2015; Olf, 2017). In DSM-V, the emotional and behavioral responses precipitated by the exposure to stressful and traumatic events during childhood have fallen into a wide category of *Trauma and Stressor-Related Disorders* which includes five common types of disorders as reactions to traumatic stressors (American Psychiatric Association, 2013):

- *Disinhibited Social Engagement Disorder (DSED)* refers to a complex attachment disorder that mostly occurs in young children as a result of severe neglect or abuse. Children with DSED appear to be overly friendly and actively approach strangers, both peers, and adults, with minimum hesitation or fear (also known as '*indiscriminate friendliness*'), while longing for intimacy and belonging that may expose them to unsafe situations (Guyon-Harris et al., 2018).
- *Reactive Attachment Disorder (RAD)* describes a set of disturbances in managing emotions, enacting social skills, and especially in forming social bonds and attachments with caregivers (Hanson & Spratt, 2000; Zeanah & Gleason, 2015). RAD mostly affects children in foster care with a history of exposure to ACEs, such as abuse and neglect within the family context (Guyon-Harris et al., 2019).
- *Acute Stress Disorder (ASD)* refers to the short-term stress reactions that occur within the first month following a traumatic experience. Dissociative symptoms, such as re-experiencing the traumatic event, arousal, or other disruptions of consciousness,

memory, and identity, hold a primary role in trauma survivors with ASD (De Bellis & Van Dillen, 2005).

- *Adjustment Disorder (AjD)* describes a behavioral disorder characterized by maladaptive responses to a traumatic experience, including mild depression, anxiety, or traumatic stress symptoms, that affect the individual's ability to cope with a stressful event. AjD is often short-term and occurs within the first six months after the disappearance of the traumatic event (Bachem & Casey, 2018; O'Donnell et al., 2016).
- *Posttraumatic Stress Disorder (PTSD)* refers to a state of persistent psychological and emotional stress that results from exposure to one or more severe traumatic experiences. It is usually followed by sleep disturbances and frequent vivid reliving of the traumatic event that seriously affects the psychological and physiological functioning of the trauma survivor. PTSD is a chronic condition related to a higher risk for intentional harm (Viana et al., 2017), suicide (Panagioti et al., 2015), or substance abuse (Simmons & Suárez, 2016).

It is worth noting that not all individuals will be negatively affected by trauma experiences in the long run. For some survivors, previous distressful experiences might serve as a catalyst for positive change and personal development (Jayawickreme & Blackie, 2014). In this regard, Tedeschi and Calhoun (2004) used the term "posttraumatic growth" to describe the positive psychological changes as reported by their patients in the aftermath of a severely traumatic event. Despite the lack of consensus among researchers on what posttraumatic growth is and how it manifests (Fleeson, 2014; Vloet et al., 2017), a body of evidence suggests that about 70% of trauma survivors experience positive transformations in at least one domain of their life and attitudes following a traumatic experience (Jansen et al., 2011; Linley & Joseph, 2004). Yet, previous research has documented that there is large heterogeneity in the prevalence of posttraumatic growth depending on the type of traumatic experience, the cultural context, and individual factors, such as gender and age (Wu et al., 2019). Considering the range of reported responses, understanding the underlying factors and the determinants of the development of posttraumatic growth needs to be further examined.

Notably, trauma, whether it is a single event or a series of different or repetitive events, affects people in different ways. Some survivors may display persistent symptoms of PTSD, whereas others will respond with resilience or short-term subclinical stress symptoms (Center for Substance Abuse, 2014). Importantly, as Pat-Horenczyk and Brom (2007) argued, the diverse responses to traumatic experiences reflect the survivor's attempt to form coping strategies to operate within the demands of the environment and their available resources.

1.1.2. The impact of childhood trauma

The impact of exposure to traumatic experiences, such as abuse and neglect, has been thoroughly investigated and well-documented over time. Although PTSD has been extensively examined as a main response and effect of trauma, it is neither single nor the most common psychiatric diagnosis of children with trauma backgrounds. Specific phobic disorders, mood disorders, separation anxiety disorders, attention deficit disorder, and/or hyperactivity have been also reported as common diagnoses in maltreated children (Gregorowski & Seedat, 2013; Van Der Kolk, 2007).

Intense stress in the early years of life has been consistently linked to adult psychopathology (Wingo et al., 2010). This increased risk for psychiatric sequelae of trauma has been explained in the context of constant sensitization of the central nervous system circuits due to prolonged or repeated exposure to stressful events experienced at early stages of development, when individuals have developed limited psychological coping mechanisms (Cross et al., 2017; Heim & Nemeroff, 2001). Thus, it is not surprising that children may also display cognitive disabilities that further affect emotional, social, and behavioral functioning, under the influence of cascading and intense neurobiological changes caused by excessive stress (Cross et al., 2017; Gersons & Olf, 2005). Mild or severe difficulties in cognitive functioning, including intellectual abilities, memory or attention deficits, poor cognitive flexibility, and executive functioning may affect school-related behaviors and lead to further educational consequences (Kira et al., 2012; Majer et al., 2010; Spann et al., 2012). As Perfect et al. (2016) noted, exposure to traumatic events has been associated with poor school-related outcomes and lower school functioning, including academic achievement, social-emotional competence, and behavioral functioning.

Early research on the long-term impact of severe traumatic experiences has demonstrated that such cognitive disabilities may also affect intrapersonal adjustment and regulation by contributing to altered emotionality, disrupted consciousness, distorted self-perception, and impaired self-reference (Briere & Runtz, 1993; Fingelkurts & Fingelkurts, 2018; Lanius, 2015; Marusak et al., 2015). Much more, cognitive changes constitute the neurobiological basis of major psychiatric disorders, such as depression and posttraumatic stress disorder (Majer et al., 2010). In this respect, a growing body of literature indicates that traumatic experiences and adversities at early ages not only affect all aspects of child development, but are also strongly associated with an increased risk of the first onset and the recurrence of multiple psychiatric disorders during both childhood and adulthood (Greeson et al., 2011; Hovens et al., 2015; Kira et al., 2012). Mood disorders, including major depressive disorder (MDD) and depressive disorder with comorbid anxiety, have been reported as one of the most frequent sequelae of childhood trauma in later life (Hovens et al., 2015; Schulz et al., 2014; Wingo et al., 2010). Paivio and McCulloch (2004) also report a link between early traumatic experiences and self-injuring behaviors, including hair pulling, scratching, cutting, or burning, among young adults. Much more, children exposed to trauma are at increased risk of suicidal ideation and suicidal attempts at youth ages (Fergusson et al., 2008).

In addition, multiple studies have shown that early trauma is associated with deleterious outcomes in interpersonal adjustment and psychosocial functioning (Erozkan, 2016; Putnam, 2006; Wang et al., 2018). Internalizing and externalizing behavior problems are common among child victims of complex trauma that are often noticed by caregivers and educators and may lead to further assessment and identification (Hébert et al., 2018). For instance, children with trauma histories are at higher risk of developing social anxiety disorder (Kuo et al., 2011; Somer & Herscu, 2017), poor social skills, and experiencing social isolation during adulthood (Copeland et al., 2018). Early trauma has been also linked to subsequent antisocial behaviors, substance abuse, and serious legal problems of youth (Armstrong & Kelley, 2008; Chamberlain & Moore, 2002; Smith & Saldana, 2013).

Beyond its psychological effects, trauma has been associated with chronic physical health issues in later life, such as diabetes, heart disease, and mortality (Maschi et al., 2013). Previous studies demonstrate that individuals with childhood trauma

backgrounds are also at an increased risk for higher and longer usage of psychotropic medication, poorer health status, and lower functioning in daily living (Mlinac & Feng, 2016; Mock & Arai, 2011). Other health-related factors include higher usage of psychotropic medications, reduced capacity in activities of daily living, and poorer ratings on self-reported health activities of daily living.

Taking into account the cumulative and long-term impact of childhood trauma over the life course of individuals, early identification and appropriate intervention of childhood maltreatment have been considered critical steps for the prevention of adult psychological and conduct disorders (Dye, 2018). Nonetheless, it should be noted that the specific effects of trauma vary since individuals tend to respond differently to similar threatening experiences in terms of a series of various mediating, risk, and protective factors.

1.1.3. Mediating, risk, and protective factors

Over the past two decades, empirical and theoretical knowledge regarding the impact of childhood trauma on various areas of child development has grown considerably. Previous research has documented a large heterogeneity in the consequences of early adversities that reflects the different levels of ability to cope and overcome trauma among traumatized individuals (Caffo et al., 2005). An increasing body of literature has attempted to explain such heterogeneity by examining the potential mediating factors that may have a protective or a risk effect on the relationship between traumatic events and trauma reactions (Caffo et al., 2005; Ellis et al., 2017; Paivio & McCulloch, 2004).

The identity of the perpetrator in terms of familiarity and closeness to the victim seems to play some role in the severity of the impact. For instance, intrafamilial physical and sexual abuse has been related to a higher risk of developing depression, PTSD, or other chronic and severe trauma-related disorders compared to children abused by perpetrators outside the family system (Bal et al., 2004; Bushnell et al., 1992; Faust et al., 1995). Moreover, sexual abuse by a parent, a sibling, or a caregiver, has been associated with more long-term consequences such as somatization, somatoform dissociation, and disrupted body self-representations in adulthood (Faust et al., 1995; Gekoski et al., 2016). However, the functioning of the family system may further influence the severity of trauma effects, such as the absence of the nonoffending parent, the lack of family support, and family dysfunction (Pintello & Zuravin, 2001). By

contrast, higher levels of family support have been related to fewer symptoms of adult psychopathology (McLaughlin et al., 2020) and shorter levels of disclosure that may prevent repeated exposure to abuse (Wallis & Woodworth, 2021).

In the absence of family support, the availability of other social allies is also considered as having a protective effect that may enhance resilience and perceived well-being, and prevent severe sequelae of trauma to some extent (Caffo et al., 2005; Giovanardi et al., 2018; McLaughlin & Lambert, 2017; Sippel et al., 2015; Tremblay et al., 1999). As Carlson et al. (2016) argue, social connections can facilitate the effective cognitive and emotional processing of traumatic experiences and, thus, prevent the development of PTSD, whereas social constraints may delay disclosure, discussion, and renegotiation of trauma.

The impact of trauma may also vary by the type of traumatic events. For example, traumatic events of interpersonal origins have been often related to more severe and long-lasting reactions, while non-interpersonal trauma events tend to mostly cause acute and short-term stress responses (De Bellis & Van Dillen, 2005; Forbes et al., 2014). Among the various types of interpersonal trauma, physical and sexual abuse have been associated with increased risk for persistent adult psychopathology, including more frequent and severe depressive symptomatology (Hovens et al., 2015).

As Schalinski et al. (2016) stated, the future vulnerability of individuals is being shaped by not only the specific type of ACEs or traumatic events in which they had been exposed but also by the timing and extent of their exposure to such childhood adversities. Indicatively, evidence suggests that individuals who were first exposed to traumatic and adverse experiences at an earlier age tend to display more severe, complex, and long-term psychopathology as adults (Dunn et al., 2017; Keiley et al., 2001; Ogle et al., 2013). The age of exposure has been further linked to different pathological sequelae. For instance, children who were exposed to trauma during early childhood are more prone to display persistent symptoms of depression during adulthood than individuals exposed to adversities during adolescence or later in life, whereas individuals who were first exposed to trauma during middle childhood or adolescence are at higher risk for PTSD (Dunn et al., 2017; Kaplow & Widom, 2007). Additionally, studies have demonstrated that there is an age-frequency relationship, suggesting that earlier exposure to traumatic events is related to more frequent reports

of complex trauma (Dunn et al., 2017). This finding is of great importance since early multiple traumatic experiences have been linked to a wider range of psychiatric disorders and symptoms (i.e. obsessive-compulsive disorder, anxiety disorders, chronic fatigue, and pain) later in life compared to the exposure to a single time or a single type of traumatic event (Park et al., 2014).

Despite their potential influence, gender and personality have been poorly investigated as the main individual factors that may differentiate the trauma responses among individuals. First, individuals tend to be more vulnerable in terms of probability to different types of traumatic experiences regarding their gender. For instance, research suggests that females tend to report more frequently previous exposure to sexual abuse than males, whereas all seem to be equally exposed to physical abuse during childhood (Comacchio et al., 2019). Although people exposed to childhood trauma, regardless of their gender, are more likely to deal with complex mental challenges throughout their lifetime (Carlson et al., 2016), males and females tend to rely on different protective factors to foster resiliency (Hartman et al., 2008). For example, religiosity seems to operate more as a protective factor for females than males and mediates trauma and posttraumatic growth in adulthood (Hartman et al., 2008). In this regard, it is not surprising that females are more likely to develop posttraumatic growth (Laceulle et al., 2015; Vishnevsky et al., 2010). However, this finding has been subject to further criticism according to which it is not the gender but the gender role adherence that differentiates the probability of posttraumatic growth between males and females (Barlow & Hetzel-Riggin, 2018). Such findings are of great importance since they underline the need for early recognition and guide the design of targeted interventions to prevent or eliminate the negative consequences of childhood trauma.

1.2. Posttraumatic stress in children

1.2.1. Definition and diagnostic criteria of childhood PTSD

Posttraumatic stress disorder (PTSD) describes a complex psychiatric disorder common among individuals who have experienced or witnessed one or more extremely stressful and distressful events that involve threatened or actual death, injury, or physical integrity (APA, 2013; De Bellis & Van Dillen, 2005). These experiences operate as extreme traumatic stressors that cause intense emotional responses such as horror, helplessness, disorganized behaviors which may further lead to chronic and serious

psychopathology. Although PTSD usually develops soon after exposure to the traumatic event (Greenberg et al., 2015), the onset can be delayed and, thus, the symptoms may appear after the first month following the traumatic experience (Utzon-Frank et al., 2014). Posttraumatic stress can affect individuals across age range, yet its manifestation differs among the different age groups, with more implicit and internalizing symptoms in young children, which may further affect the diagnostic procedure (Scheeringa et al., 2011). In general, DSM-5 provides a detailed set of diagnostic criteria to identify PTSD in individuals younger or older than 6 years old.

DSM-V (APA, 2013, pp. 180-184) provides the following diagnostic criteria for PTSD in individuals in early childhood, as demonstrated in Table 2.

Table 2.

DSM-V diagnostic criteria for PTSD in children younger than 6 years old

Trauma	Actual or threatened death, serious injury, or sexual violence
A. Exposure	<p>In one or more of the following ways:</p> <ol style="list-style-type: none"> 1. Directly experiencing the traumatic event(s). 2. Witnessing, in person, the event(s) as it occurred to others, especially primary caregivers. 3. Learning that the traumatic event(s) occurred to a parent or caregiving figure. <p><i>Note: Witnessing does not include events that are witnessed only in electronic media, television, movies, or pictures.</i></p>
Symptoms Group B to D	(associated with the traumatic event(s), beginning after the traumatic event(s) occurred)
B. Intrusion	<p>≥ 1 symptom of intrusion:</p> <ol style="list-style-type: none"> 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s) (may not necessarily appear distressing and may be expressed as play reenactment) 2. Recurrent distressing dreams in which the content and/or effect of the dream are related to the traumatic event(s). 3. Dissociative reactions (e.g., flashbacks) in which the child feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Such trauma reenactment may occur in play. 4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s). 5. Marked psychological reactions to reminders of the traumatic event(s).
C. Avoidance	<p>≥ 1 symptom of avoidance:</p> <p><u>Persistent avoidance of stimuli</u></p> <ol style="list-style-type: none"> 1. Avoidance of or efforts to avoid places or physical reminders that arouse recollections of the traumatic event(s). 2. Avoidance of or efforts to avoid people, conversations, or interpersonal situations that arouse recollections of the traumatic event(s). <p><u>Negative alterations in cognitions</u></p> <ol style="list-style-type: none"> 3. Substantially increased frequency of negative emotional states (e.g., fear, guilt, sadness, shame, confusion). 4. Markedly diminished interest or participation in significant activities, including constricted play

	5. Social withdrawn behavior 6. Persistent reduction in expression of positive emotions
D. Arousal and reactivity	≥ 2 symptoms of alterations of arousal and reactivity: 1. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep). 2. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects (including extreme temper tantrums). 3. Problems with concentration. 4. Hyper-vigilance. 5. Exaggerated startle response.
Additional criteria	
E. Duration	> 1 month
F. Disturbance	Clinically significant distress or impairment in relationships with parents, siblings, peers, or other caregivers or with school behavior
Specify	Specify whether the symptoms are accompanied with: Dissociative symptoms 1. Depersonalization 2. Derealization <i>Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts) or another medical condition (e.g., complex partial seizures).</i> and/or 3. Delayed expression (the full diagnostic criteria are not met until at least 6 months after the event)

According to DSM-V (APA, 2013, pp. 176-180), the following criteria, as demonstrated in Table 3, apply to adults, adolescents, and children older than 6 years.

Table 3.

DSM-V diagnostic criteria for PTSD in individuals older than 6 years old

Trauma	Actual or threatened death, serious injury, or sexual violence
A. Exposure	In one or more of the following ways: 1. Directly experiencing the traumatic event(s). 2. Witnessing, in person, the event(s) as it occurred to others. 3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental. 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). <i>Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures unless this exposure is work-related.</i>
Symptoms Group B to E	(associated with the traumatic event(s), beginning after the traumatic event(s) occurred)
B. Intrusion	≥ 1 symptom of intrusion:

	<ol style="list-style-type: none"> 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed. 2. Recurrent distressing dreams in which the content and/or effect of the dream are related to the traumatic event(s). Note: In children, there may be frightening dreams without recognizable content. 3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Note: In children, trauma-specific reenactment may occur in play. 4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s). 5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
C. Avoidance	<p>≥ 1 symptom of avoidance:</p> <ol style="list-style-type: none"> 7. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s). 8. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
D. Cognition and moods	<p>≥ 2 symptoms of alterations of mood and cognition:</p> <ol style="list-style-type: none"> 1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia, and not to other factors such as head injury, alcohol, or drugs). 2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world 3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others. 4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame). 5. Markedly diminished interest or participation in significant activities. 6. Feelings of detachment or estrangement from others. 7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
E. Arousal and reactivity	<p>≥ 2 symptoms of alterations of arousal and reactivity:</p> <ol style="list-style-type: none"> 2. Irritable behavior and angry outbursts (with little or no provocation), typically expressed as verbal or physical aggression toward people or objects. 3. Reckless or self-destructive behavior. 4. Hypervigilance. 5. Exaggerated startle response. 6. Problems with concentration. 7. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
Additional criteria	
E. Duration	> 1 month
F. Disturbance	Clinically significant distress or impairment in relationships with parents, siblings, peers, or other caregivers or with school behavior
Specify	<p>Specify whether the symptoms are accompanied with: Dissociative symptoms 1. Depersonalization 2. Derealization <i>Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts) or another medical condition (e.g., complex partial seizures).</i> and/or 3. Delayed expression (the full diagnostic criteria are not met until at least 6 months after the event)</p>

1.2.2. Prevalence, epidemiology, and risk factors

Rates of PTSD prevalence among children vary considerably as a function of a series of factors both socioeconomic and situational or interpersonal and intrapersonal (McLaughlin et al., 2018). Indicatively, the literature reports a 62% of children and adolescents in the U.S. are exposed to at least one traumatic experience (McLaughlin et al., 2013), while it also reports 31% of the children in the UK experience trauma (Lewis et al., 2019). Moreover, in clinical or in-service populations the prevalence of exposure to childhood trauma and serious adversities may be as high as 80-90% (Saunders & Adams, 2014)

Clearly, not all children exposed to traumatic events will develop PTSD as a chronic traumatic response. It has been estimated that around 10-25% of individuals with traumatic experiences during childhood will display persistent symptoms of PTSD by the age of 18 (Alisic et al., 2018; Hitchcock et al., 2021). Moreover, about one out of three children with PTSD will also meet the diagnostic criteria for one or more other chronic psychiatric disorders, such as anxiety or depressive disorder (Astitene & Barkat, 2021; McLaughlin et al., 2018). Exposure to multiple traumatic experiences during childhood has been also found to increase significantly the risk of PTSD accompanied by complex psychiatric comorbidity in adulthood (McLaughlin et al., 2013) which may reflect the need for early identification and intervention to prevent repeated exposure to trauma.

Risk factors for developing childhood PTSD can be classified into several categories. Focusing on socioeconomic factors, the rates of children and adolescents exposed to traumatic events tend to be significantly lower in high-income countries (Rosen et al., 2018) and, thus, there is a lower prevalence of childhood PTSD too compared to low-income countries (Benjet, 2010; Perkonigg et al., 2000). In addition, following McLaughlin et al. (2018), the type of traumatic experiences, the child's characteristics, and the availability of family support are important factors, too.

First, exposure to specific types of traumatic events that involve interpersonal violence, life or injury threats at a higher degree tends to increase the risk for PTSD among children (Trickey et al., 2012). Evidence indicates that 30-70% of children exposed to sexual or physical abuse will develop long-term posttraumatic stress symptoms (Lewis et al., 2019; McLaughlin et al., 2013), with increased

symptomatology of relational PTSD in children witnessing intimate partner violence (Levendosky et al., 2013). Community violence and exposure to warfare have been also found to operate as critical risk factors, with previous studies indicating that a high percentage of children witnessing or involved in committing violence are suffering from PTSD (Derluyn et al., 2004; Thabet & Vostanis, 1999).

Second are the individual risk factors. Gender has been linked to higher frequency and intensity of posttraumatic stress symptoms (Contractor et al., 2013), with females being more likely to develop childhood PTSD compared to their male peers (Alisic et al., 2018; Kilpatrick et al., 2003; McLaughlin et al., 2013). Moreover, children with histories of psychopathology are at an increased risk for developing PTSD after exposure to traumatic experiences by early adulthood (Koenen et al., 2008).

Third, the quality of family functioning is also related to the risk for PTSD (Dorrington et al., 2019). Family background, parents' psychopathology, and caregivers' reactions towards the child's traumatic experiences are factors that may affect the risk for developing PTSD (Telman et al., 2016). In general, previous findings suggest that greater family and social support is associated with lower rates of childhood PTSD among children exposed to trauma (Trickey et al., 2012).

1.2.3. Supporting children with PTSD within the school settings

The high prevalence of exposure to traumatic experiences among children and adolescents has been a great public health concern. A consistent body of literature has demonstrated that traumatic experiences are usually followed by a wide range of negative psychiatric sequelae, including long-lasting posttraumatic stress symptoms (Dye, 2018; Maschi et al., 2013; Putnam, 2006; Van Der Kolk, 2007). Traumatic stress has been also found to affect school functioning and efficacy in many ways (Hébert et al., 2018; Perfect et al., 2016). Evidence suggests that children exposed to traumatic experiences tend to display lower reading ability, poorer academic achievement, and higher absenteeism than their non-traumatized peers. Childhood trauma has been also related to lower levels of social and emotional competence (Hébert et al., 2018; Holt et al., 2007) and a higher risk for early school dropout (Dyregrov, 2004; Porche et al., 2011). As children spend more of their awake hours in school, the school settings may hold a critical role in identifying and supporting students with symptoms of PTSD. Furthermore, taking into account the long-term and multiple consequences of childhood

trauma, early identification and therapeutic support can contribute to the prevention of re-exposure to trauma and decrease the risk for adult psychopathology (Bartlett & Smith, 2019; Kataoka et al., 2012; Oral et al., 2016).

Recognizing and supporting children with PTSD can be quite tricky and challenging due to the nature of posttraumatic stress manifestations during childhood. For example, many of the symptoms are highly internalized and hence difficult to be observed in young children (Hébert et al., 2018; Scheeringa et al., 2011). On the other hand, the observable indications often overlap with other syndromes, such as MDD or ADHD in which poor impulse control and inattention are also highly prevalent (Daud & Rydelius, 2009; Gros et al., 2012). To some extent, childhood trauma is also accompanied by comorbid disorders with complex manifestations that may further inhibit the effective identification of traumatic stress symptoms and the application of appropriate trauma-care interventions (Daud & Rydelius, 2009; Linning & Kearney, 2004). As Scheeringa et al. (2011) noted, the variability of symptoms at different ages may also obstruct the identification procedures of professionals and educators. In this regard, a detailed protocol of age-appropriate symptomatology and trauma-care interventions is much needed, especially when it comes to the youngest groups of students, such as toddlers and young children (De Young & Landolt, 2018).

The lack of knowledge and expertise about childhood trauma among educators constitutes another barrier to the early identification of children with PTSD or other trauma-related disorders. Much research indicates that teachers worldwide mostly lack the efficient knowledge and skills to recognize and address trauma within the school (McIntyre et al., 2019; Rahimi, 2021). That said, professional training and support to enhance teachers' skills and awareness for trauma-informed education are needed (Loomis & Felt, 2021). Additionally, the relationship between child PTSD, as a long-term result of trauma, and school functioning should be further investigated to facilitate the recognition of warning signs of childhood trauma.

1.3. Aim and research questions

During the last two decades, there has been a growing demand for trauma-informed schools and trauma-sensitive education, following high numbers of children with

adverse and/or stressful experiences that can be traumatic. An increasing body of research is dedicated to the symptoms of trauma and its effects on all aspects of the children's school functioning, development, and behavior (Alisic et al., 2018; Overstreet & Chafouleas, 2016). As research suggests, trauma and especially, post-traumatic stress reactions have been associated with poor school-related outcomes, including academic, emotional, social, and behavioral issues (Frieze, 2015; Kataoka et al., 2012; Liberty et al., 2016; Thompson & Massat, 2005). Such outcomes require appropriate support typically encompassed in the trauma-informed approaches applied in school settings (Mathews et al., 2009).

However, the existing literature tends to be fragmented and often limited to the examination of specific types of traumatic experiences and their impact on specific areas of school functioning (e.g., academic achievement, peer relationships, etc). In this respect, the objective of this scoping review was to collect and synthesize the existing evidence regarding the impact of post-traumatic stress on school-related behaviors during childhood. Moreover, the present research attempted to provide a useful resource for schools and professionals by facilitating their understanding of the various outcomes and symptoms of traumatic stress in school-aged children, and through this to offer an insight into the areas where intervention would be most useful and meaningful. In line with these, the main objective of the scoping review study was to map and synthesize the existing evidence regarding the impact of post-traumatic stress on school-related behaviors during childhood. As a result, the following review question was applied to guide the mapping of the existing literature:

1. What is known from the literature about the impact of post-traumatic stress school on school-related behaviors of school-aged children (6-12 years old), including learning, academic, emotional, social, and behavioral functioning within the school context?

2. Methods

2.1. Research design

This study was based on a scoping review research design. Scoping review refers to a modern descriptive approach for evidence mapping and synthesis that aims at providing a thorough overview of the existing evidence (Kastner et al., 2012). However, in contrast to traditional systematic reviews, scoping review does not focus on drawing conclusions and summarizing answers to narrow and well-specified research questions (Munn et al., 2018). The present study followed the Tricco et al. (2018) paradigm including the PRISMA Protocol for Scoping Review (PRISMA-ScR) based on seven steps and subsections for conducting scoping reviews.

To focus on the latest findings, our search strategy included sources of evidence published between 2016 and 2021. The selection of the publication date range and a starting point for the present scoping review was the systematic review by Perfect et al. (2016), examining the school-related outcomes of traumatic exposure and traumatic stress symptoms, containing sources from 1990 to 2015.

2.2. Protocol and registration

At the beginning of the research process, a detailed protocol, including the objectives, the search strategy, and eligibility criteria, was developed and registered at Open Science Framework (www.osf.io) on November 17th, 2021 (Beloyianni, 2021). The protocol design followed the PRISMA-ScR paradigm as proposed by Tricco et al. (2018).

2.3. Eligibility criteria

For the purposes of this study, “post-traumatic stress” (PTS) was operationalized as both the acute and the long-time distress in response to the experience of a stressful or unpleasant event (Engel-Yeger et al., 2013; Meentken et al., 2017). In particular, *PTS* was investigated as a wide term including post-traumatic stress symptoms (PTSS) as “the wide range of distressing physical and emotional reactions to traumatic experiences” (Meentken et al., 2017, p.2) and post-traumatic stress disorder (PTSD) as a long-term and persistent stress reaction to trauma (Summerfield, 2018).

“*School-related behaviors*” described a variety of areas that may affect school success, namely (a) academic or learning, (b) emotional, (c) social, and (d) behavioral functioning.

Based on the inclusion criteria of this study, studies reviewed:

- included school-aged children (6-12 years old) with symptoms of post-traumatic stress,
- focused on trauma-related outcomes as reported within school settings,
- were published in the English language between 1 January 2016 – 17 November 2021.

By contrast, the exclusion criteria of this study led to the removal of studies that:

- were based on a literature review that did not provide new and original findings,
- focused on samples younger or older than the target group of school-aged children (6-12 years old).
- were published in a language other than English or beyond the aforementioned time-frame.

2.4. Data sources

Considering the *types of studies reviewed*, this scoping review examined quantitative, qualitative, and mixed-method studies, including handbooks, journals, and conference papers. For a further examination of potentially relevant grey literature, the search strategy included all publication types, such as reports, guidelines, and dissertations. Studies had to contain original findings. Regarding the *information sources*, to identify potentially relevant sources of evidence, a thorough search had been conducted in the following databases: ERIC, Scopus, PsycArticles, PubMed, and ScienceDirect. The references of All studies included were also screened for potentially relevant grey literature.

Outcomes included any evidence regarding the potential effect of post-traumatic stress on the aforementioned areas of school-related behaviors. Data related to the different manifestations of school-related behaviors associated with post-traumatic stress and potential mediators that may affect the relationship between these variables were further investigated and synthesized.

2.5. Search strategy

The scoping review process followed the Levac method (Levac, Colquhoun & O'Brien, 2010) in line with PRISMA-ScR protocol (Tricco et al., 2018) through a six-step process:

(1) Identifying the research question

This step contained the identification of the key elements of the research question that clarify the review focus. In this study, the main research question followed the PCC framework (Population, Concept, Context) where:

- P:** school-aged children of 6-12 years old,
- C:** post-traumatic stress and school-related behaviors,
- C:** school settings.

In this regard, the research question was formulated as follows:

1. *What is known from the literature about the impact of post-traumatic stress symptoms or post-traumatic stress disorder on school-related behaviors of school-aged children (6-12 years old), including learning, academic, emotional, social, and behavioral functioning within the school context?*

(2) Identifying relevant studies

A comprehensive and explicit search strategy was developed with a research librarian and disseminated in Open Science Framework. A thorough and iterative search -limited to abstract, title, and keywords- was applied to the following databases; ERIC, Scopus, APA PsycArticles, PubMed, and ScienceDirect. Our scoping review included studies published from January 1st, 2016 to November 17th, 2021 in the English language. Reference lists and grey literature were also examined. Abstracts were included to elaborate on primary outcomes.

The search process included different combinations of keywords that led to the selection of a combination that was considered the most appropriate, as follows: TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND school AND educat* AND (academic OR social OR emotion* OR learning)) AND PUBYEAR > 2015 AND PUBYEAR

< 2022 AND (LIMIT-TO (LANGUAGE, "English")). The structure of the Boolean search queries varied in terms of the specific limitations of each database included. The exact combinations of search keywords and operators are presented in Appendix A.

(3) Study selection

Titles, abstracts and full-texts were screened regarding their relevance to the core research question and the predefined inclusion criteria, using EndNote v.9 (REFS). The main researcher reviewed each document by assessing the relevance of their title, abstract and full-text using a 3-point scale (0 = “no relevance”, 1 = “dubious/limited relevance” or 2 = “high relevance”). To ensure the validity of the study selection, all sources had been assessed by a second reviewer. Disagreements between reviewers were resolved by discussion and consensus. Data selection was followed by the data extraction. A detailed presentation of the sources’ evaluation matrices is provided in Appendix B. All the records included in the final sample for qualitative analyses were further screened for relevant references that could potentially match the inclusion criteria.

(4) Charting the data

Data has been extracted, charted, and compiled into a Microsoft Excel spreadsheet by the main researcher. All the extracted and charted data were further reviewed by a second reviewer, following an agreed data charting guidelines form. Disagreements were resolved by consensus and discussion. The researchers ensured that the extracted data were relevant to the research question. Charting the data was iterative and formative. The form of data charting was frequently updated during the continuous data extraction and was finalized by the end of the extraction process. An adapted version of the ‘JBI template source of evidence details, characteristics and results extraction instrument’ (Aromataris & Munn, 2020) was applied for the charting of the data by providing a structured and descriptive summary of the results aligned with the objectives and the research question of the scoping review.

From each source included, the following data have been charted:

1. Author names and affiliations
2. Year of publication

3. Location of the study
4. Population – Concept – Context
5. Sample size and characteristics
6. Study design
7. Key-findings

(5) Collating, summarizing, and reporting the results

Descriptive tables, summaries, and narrative synthesis had been produced to report and describe the findings derived from data extraction as compiled into the MS-Excel spreadsheet. Results had been categorized by (a) the main characteristics of the conceptual framework and methodology for each study, and (b) the specific school-related outcomes of post-traumatic stress. Any findings that did not fit along these two axes, were presented under the term “residuals”.

(6) Consultation

For further consultation, data charts, synthesis, and interpretations had been reviewed by two independent researchers of Panteion University. Their feedback had been used to facilitate a further understanding of the results and their potential utility in trauma-sensitive educational practice. Their review has been also included in the discussion of this study.

3. Results

3.1. Identification of relevant studies

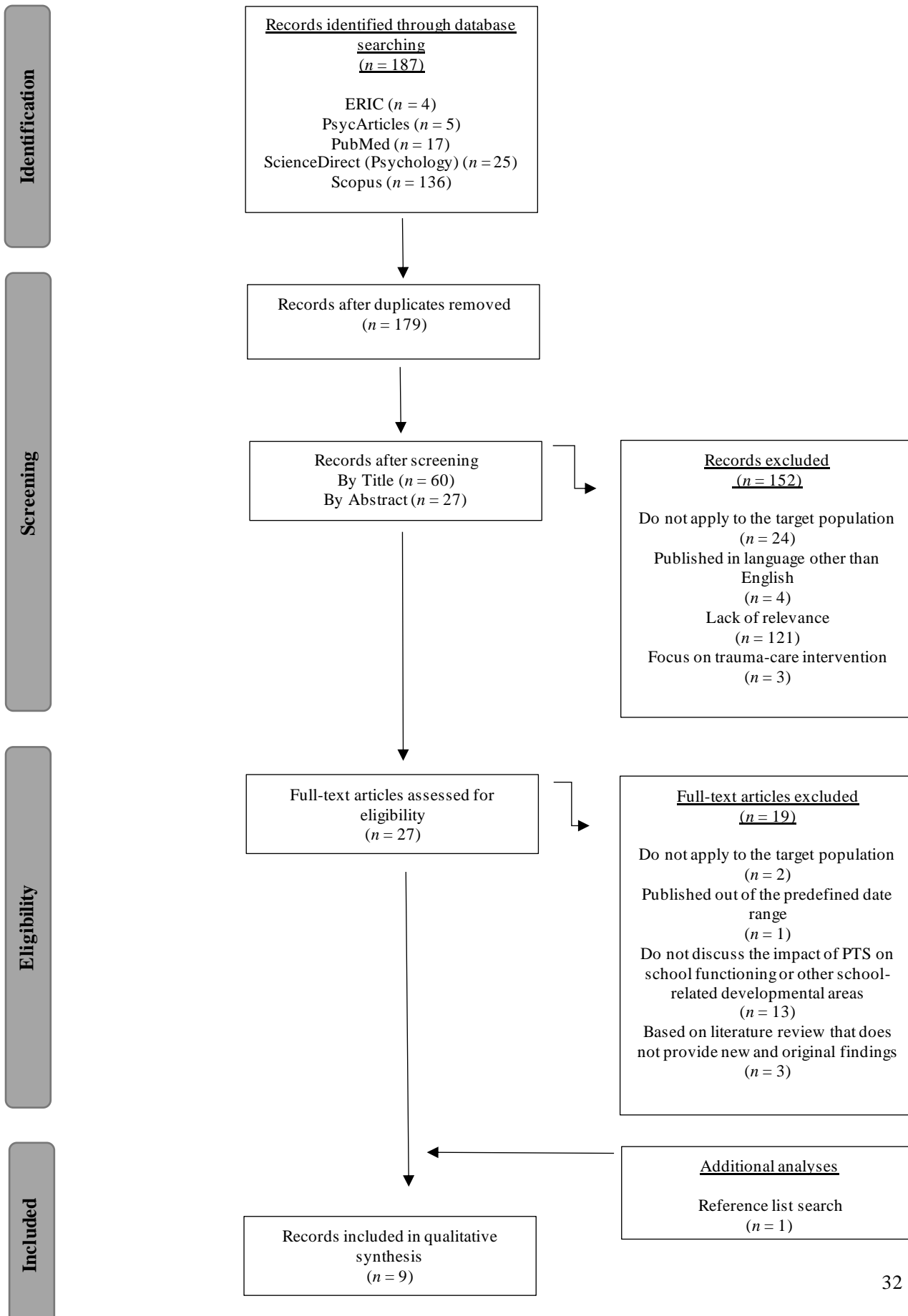
After the initial search, a total of 187 records were retrieved by the electronic databases. These records were further screened by two reviewers in three consequent stages, a) by title, b) by abstract and c) by full-text review. At the first level 8 duplicate entries were removed and 60 out of 187 studies were found to meet the inclusion criteria. Furthermore, following the review of the abstracts, 27 of the remaining 60 studies were included for a full-text review stage. The agreement between reviewers in the first stages in screening records -by title and abstract- reached 88.82%. Subsequently, at the final stage of full-text review, only 9 out of 27 records were found to match the inclusion criteria. In addition, the full references list of the 27 records included in the study were further screened for potentially relevant studies. One relevant record was identified through this process. At the final stage, the level of agreement between reviewers reached 81.48%. All disagreements were thoroughly discussed and resolved by reaching consensus.

The full body of the studies comprising final sample consisted of journal articles. No other types of publications or records of grey literature were identified as relevant based on the inclusion criteria. Table 4 provides a basic report of the 9 records of the final sample.

Figure 1 provides a detailed description of the flow of records at each stage of the review. To ensure transparency, an elaborated description of the sources evaluation process has been also uploaded at Open Science Framework (Beloyianni et al., 2022)

Figure 1.

Flow diagram for the scoping review regarding post-traumatic stress and school-related behaviors in childhood as adapted by the PRISMA Statement (Page et al., 2021)



3.2. Description of included studies

The final sample of studies was thoroughly screened and data relevant to the research question were extracted and charted based on an adapted version of the ‘*JBI template source of evidence details, characteristics, and results extraction instrument*’ (Aromataris & Munn, 2020). The second reviewer also reviewed the data charts to ensure their relevance to the research question and any disagreements were resolved by discussions and reaching consensus. To enable a comprehensive account, the description of data the extracted were classified into five descriptive categories, namely a) Settings, b) Population-Concept-Context, c) Participants, d) Study design, and e) Key-findings.

Table 4.

Final sample of records included for a scoping review qualitative synthesis

Citation	Full reference
Aghajafari et al. (2020)	Aghajafari, F., Pianorosa, E., Premji, Z., Souri, S., & Dewey, D. (2020). Academic Achievement and Psychosocial Adjustment in Child Refugees: A Systematic Review. <i>Journal of Traumatic Stress, 33</i> (6), 908-916. doi: 10.1002/jts.22582
Çeri & Nasiroglu (2018)	Çeri, V., & Nasiroğlu, S. (2018). The number of war-related traumatic events is associated with increased behavioural but not emotional problems among Syrian refugee children years after resettlement. <i>Revista de Psiquiatria Clinica, 45</i> (4), 100-105. doi: 10.1590/0101-60830000000167
Khamis (2019)	Khamis, V. (2019). Posttraumatic stress disorder and emotion dysregulation among Syrian refugee children and adolescents resettled in Lebanon and Jordan. <i>Child Abuse & Neglect, 89</i> , 29-39. doi: https://doi.org/10.1016/j.chiabu.2018.12.013
Mullins & Panlilio (2021)	Mullins, C. A., & Panlilio, C. C. (2021). Exploring the mediating effect of academic engagement on math and reading achievement for students who have experienced maltreatment. <i>Child Abuse & Neglect, 117</i> . doi: 10.1016/j.chiabu.2021.105048
Nuttman-Shwartz (2017)	Nuttman-Shwartz, O. (2017). Children and adolescents facing a continuous security threat: Aggressive behavior and post-traumatic stress symptoms. <i>Child Abuse & Neglect, 69</i> , 29-39. doi: https://doi.org/10.1016/j.chiabu.2017.04.008
Hoffman et al. (2021)	Hoffmann, M. S., McDavid, D., Salum, G. A., Silva-Ribeiro, W., Ziebold, C., King, D., . . . Evans-Lacko, S. (2021). The impact of child psychiatric conditions on future educational outcomes among a community cohort in Brazil. <i>Epidemiology and Psychiatric Sciences, 30</i> . doi: 10.1017/S2045796021000561

Samara et al. (2020) Samara, M., El Asam, A., Khadaroo, A., & Hammuda, S. (2020). Examining the Psychological Well-Being of Refugee Children and the Role of Friendship and Bullying. *British Journal of Educational Psychology*, 90(2), 301-329.

Veronese et al. (2018) Veronese, G., Pepe, A., Almurnak, F., Jaradah, A., & Hamdouna, H. (2018). Quality of life, primary traumatisation, and positive and negative affects in primary school students in the Gaza Strip. *The Lancet*, 391, S14. doi: [https://doi.org/10.1016/S0140-6736\(18\)30380-5](https://doi.org/10.1016/S0140-6736(18)30380-5)

Graham et al. (2016) Graham, H. R., Minhas, R. S., & Paxton, G. (2016). Learning Problems in Children of Refugee Background: A Systematic Review. *Pediatrics*, 137(6). doi: 10.1542/peds.2015-3994

3.2.1. Settings

The total sample consisted of studies that were published as research articles in high-impact international journals. As seen in Table 5, the studies included were conducted in both low- and high-income countries, such as Israel, Palestine, Brazil, the United Kingdom, etc. Three of the studies were cross-cultural and, hence, had been conducted in more than one country ($N = 3$) (Aghajafari et al., 2020; Graham et al., 2016; Khamis, 2019). Only two of the studies had been conducted in European countries, namely the Netherlands, Germany, Italy, and Greece (Aghajafari et al., 2020) and, Britain (Samara et al., 2020).

Table 5.

Countries, cities, and specific areas of the research conduction

Source	Country	City/Area
Aghajafari et al. (2020)	Worldwide (Australia, Canada, Costa Rica, Eritrea, Ethiopia, Finland, Germany, Greece, Italy, Lebanon, Netherlands, South Korea, Sweden, Saudi Arabia, Thailand, Turkey, Uganda, UK, US)	Unspecified
Çeri & Nasiroglu (2018)	Turkey	Hatay
Khamis (2019)	Lebanon, Jordan	Beirut, Bekaa, Mount Lebanon & Amman, Zarqa, Balqa
Mullins & Panlilio (2021)	USA	National sample
Nuttman-Shwartz (2017)	Israel	Sderot, Israeli areas near Gaza
Hoffmann et al. (2021)	Brazil	Porto Alegre, Sao Paolo
Samara et al. (2020)	UK	London
Veronese et al. (2018)	Palestine	Bureij, Gaza Beach Camps, Jabalia, Rafah

For the majority of the studies ($N = 4$), the sample was derived from public formal school settings (Aghajafari et al., 2020; Hoffmann et al., 2021; Nuttman-Shwartz, 2017; Samara et al., 2020), educational organizations within refugee camps ($N = 3$) (Çeri & Nasiroglu, 2018; Graham et al., 2016; Veronese et al., 2017), or both ($N = 1$) (De Young & Landolt, 2018). In one study the sample was drawn from the National Child Protective Services (Mullins & Panlilio, 2021). Further information about the context is provided in the next section (See Table 6).

Table 6.

Description of the included studies regarding the settings of research conduction

Source	Settings
Aghajafari et al. (2020)	School settings
Çeri & Nasiroglu (2018)	School settings within refugees camps
Khamis (2019)	School settings, School settings within refugees camps
Mullins & Panlilio (2021)	Child Protection Services
Nuttman-Shwartz (2017)	School settings
Hoffmann et al. (2021)	School settings
Samara et al. (2020)	School settings
Veronese et al. (2018)	School settings within refugee camps
Graham et al. (2016)	School settings within refugee camps

3.2.2. Population – Concept - Context

Most of the studies ($N = 6$) examined the impact or the association of -confirmed or implied- posttraumatic stress symptoms with school-related behaviors among child and adolescent refugees (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Khamis, 2019; Samara et al., 2020; Veronese et al., 2017). A small number of studies focused on vulnerable children and adolescents experiencing a constant security threat (Nuttman-Shwartz, 2017), and displaying a high family risk for psychiatric conditions (Hoffmann et al., 2021), or had been previously involved with Child

Protection Services (Mullins & Panlilio, 2021). All the studies focused on both school-aged children and adolescents.

For many of the studies included ($N = 4$), the relationship between traumatic experiences and school-related behaviors was investigated (Aghajafari et al., 2020; Graham et al., 2016; Hoffmann et al., 2021; Mullins & Panlilio, 2021). These studies examined the relationship between learning capacity or academic achievement and traumatic experiences or PTSD. However, some of the studies ($N = 5$) focused on the social and emotional impact of trauma and long-lasting trauma reactions within and beyond the school settings (Çeri & Nasiroglu, 2018; Khamis, 2019; Nuttman-Shwartz, 2017; Samara et al., 2020; Veronese et al., 2017). These studies mostly explored the relationship between posttraumatic stress symptoms and socioemotional adjustment.

The majority of the sample ($N = 6$) examined long-lasting trauma reactions associated with war-related traumatic experiences only, such as forced displacement and witnessing or direct exposure to warfare violence (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Khamis, 2019; Samara et al., 2020; Veronese et al., 2017). Some of the studies focused on traumatic experiences related to maltreatment (Mullins & Panlilio, 2021) or a combination of both war-related and other types of trauma (Nuttman-Shwartz, 2017), and only one study examined symptoms of PTSD without clarifying the type of trauma source (Hoffmann et al., 2021) (See Table 7).

Table 7.

Description of included studies by Population, Concept, Trauma Type, and Context

Source	Population	Key concept	Trauma type	Context
Aghajafari et al. (2020)	Child and adolescent refugees	Academic achievement Psychosocial adjustment	War-related trauma	Within and beyond school settings
Çeri & Nasiroglu (2018)	Child and adolescent refugees	Socioemotional adjustment	War-related trauma	Within and beyond school settings
Khamis (2019)	Child and adolescent refugees	Emotional dysregulation Coping strategies	War-related trauma	Within and beyond school settings
Mullins & Panlilio (2021)	Children involved with Child Protection Services	Academic engagement Math and reading achievement	Maltreatment	School settings
Nuttman-Shwartz (2017)	Children at a security threat	Security threat Aggressive behavior	War-related trauma Various types of trauma	Within and beyond school settings
Hoffmann et al. (2021)	Children at risk for psychiatric conditions	Family risk for psychopathology	Unspecified	School settings

		Educational outcomes		
Samara et al. (2020)	Child and adolescent refugees	Psychological well-being Friendship Bullying	War-related trauma	Within and beyond school settings
Veronese et al. (2018)	Children and adolescents exposed to ongoing military violence	Positive and negative affectivity Perceived quality of life	War-related trauma	Within and beyond school settings
Graham et al. (2016)	Child and adolescent refugees	Refugee background Learning problems	War-related trauma	Within and beyond school settings

3.2.3. Participants

The total of the studies included a large sample of 22,737 children and adolescents between 5-20 years old. However, in most cases ($N = 6$), the findings were reported for the whole sample, and no information about different age groups was provided (Aghajafari et al., 2020; Hoffmann et al., 2021; Khamis, 2019; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017; Veronese et al., 2017). Only a few studies ($N = 5$) had taken into account the age variable in the applied analyses (Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021; Nuttman-Shwartz, 2017; Samara et al., 2020), and only three of these studies had analyzed part of the data by grouping participants in terms of their age (Çeri & Nasiroglu, 2018; Graham et al., 2016; Samara et al., 2020). Other types of grouping in terms of gender (Hoffmann et al., 2021; Samara et al., 2020), the place of residence (Khamis, 2019), the refugee/native background (Samara et al., 2020) had been also applied.

The total sample was of various origins, such as Eastern Europe, Africa, the Middle East, the USA, Asia, etc. Further details about the ethnic and cultural origins of the participants are provided in Table 8.

Table 8.

Description of the included studies by participants' number and demographic characteristics

Source	Participants	Grouping	Place of origin
Aghajafari et al. (2020)	11,997 child refugees and asylum seekers (5-12 years old)	None	Various origins (Africa, Asia, Middle East, Eastern Europe)
Çeri & Nasiroglu (2018)	77 child and adolescent refugees (7-17 years old)	Grouped by gender and age (47 children 7-12 years old, 30 adolescents 13-17 years old)	Syria

Khamis (2019)	1,000 child and adolescent refugees (7-18 years old)	Grouped by the host country (500 individuals from Lebanon and 500 individuals from Jordan)	Syria
Mullins & Panlilio (2021)	583 children and adolescents with a history of maltreatment (11-15 years old)	None	USA, Other
Nuttman-Shwartz (2017)	1,065 children and adolescents at security threat (10-17 years old)	None	Israel (areas near the Gaza strip)
Hoffmann et al. (2021)	2,551 children and young adolescents (6-14 years old) with a high family risk for psychiatric disorders from a pool of 8,012 caregivers	Grouped by gender	Brazil, other
Samara et al. (2020)	269 children and adolescents with and without refugee background	Grouped by age, gender, and refugee background (79 child refugees 6-10 years old, 70 adolescent refugees 11-16 years old, 120 native children as a control group 6-10 years old)	Afghanistan, Africa, UK
Veronese et al. (2018)	1,276 children and adolescents exposed to ongoing military violence (6-11 years old)	None	Palestine (Gaza Strip)
Graham et al. (2016)	3,919 child and adolescent refugees (5-20 years old)	Grouped by age (preschoolers, school-aged children, adolescents, both children, and adolescents)	Various origins (Sub Saharan and North Africa, Sudan, Eastern Europe, Middle East, Asia, North Korea, Latin America)

3.2.4. Study design

As demonstrated in Table 9, most of the studies in this review followed a quantitative research approach based on a correlational study design (Çeri & Nasiroglu, 2018; Nuttman-Shwartz, 2017), a cross-sectional design (Samara et al., 2020; Veronese et al., 2017), or a mixed cross-sectional and complex correlational research approach (Khamis, 2019). Two of the studies were based on a longitudinal cohort study design with a 3-year follow up of two (Hoffmann et al., 2021) or three waves of measurement (Mullins & Panlilio, 2021) at (a) 6-14 and (b) 9-17 years of age, and (a) 11-15, (b) 13-17 and 14-19 years of age, respectively. Only two of the studies used systematic analysis of peer-reviewed literature with a close-ended date range (Graham et al., 2016) or peer-reviewed and grey literature with an open starting date until 2015, April 10th (Aghajafari et al., 2020).

With regards to the instruments used, the total sample included at least one parent-, teacher-, or student-reported structured questionnaire. The two systematic reviews (Aghajafari et al., 2020; Graham et al., 2016) incorporated studies using questionnaires and other sources of data collection. However, in some cases, some or all the questionnaires were administered by researchers as a structured interview for practical reasons, such as the age or the level of literacy of participants (Hoffmann et al., 2021; Khamis, 2019; Samara et al., 2020). In these cases, the researchers read the questionnaires and filled the answers as reported verbally by participants. Semi-structured clinical interviews administered to children (Khamis, 2019) or parents (Hoffmann et al., 2021) for generating clinical diagnoses were employed in two of the studies in this review.

For many of the studies, student-reported instruments were used and school-age or adolescent students were the main informants (Khamis, 2019; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017; Veronese et al., 2017). Some studies included both student- and parent-reported (Çeri & Nasiroglu, 2018; Samara et al., 2020) and/or teacher-reported data (Aghajafari et al., 2020; Graham et al., 2016; Hoffmann et al., 2021). One study used mixed reports with parent-reported data for participants under 11 years old and student-reported data for older children and adolescents (Samara et al., 2020).

Table 9.

Description of the includes studies in terms of study design, measures, and measured outcomes

Source	Study design	Measures	Outcomes	Sources of reports
Aghajafari et al. (2020)	Systematic review	Literature and grey literature until 2018, April 10 th (45 records)	-Academic performance -School outcomes (adjustment to school) -Psychosocial well-being (psychosocial functioning, and mental health) -Determinants of psychosocial, emotional, and behavioral difficulties	Students, parents, teachers, experts
Çeri & Nasiroglu (2018)	Correlational study	-Strengths and Difficulties Questionnaire (Arabic parent-reported version) -Sociodemographic form	-Demographics (age, gender, parents' educational and economic status) -Language skills for the skills of the host country -Satisfaction with life in the host country -War-related traumatic experiences -Behavioral and emotional problems	Parents, students
Khamis (2019)	Cross-sectional and complex correlational study	-Demographic form -Trauma Exposure Scale -Clinical interview for PTSD symptoms according to DSM-IV -Difficulties in Emotion Regulation Scale – Short Form -Kidcope Scale for Coping Strategies -Family Environment Scale -School Environment Scale	-Demographics (age, gender, time spent in the host country) -PTSD symptoms -Emotional dysregulation (lack of awareness of emotional responses, lack of clarity of emotional responses, non-acceptance of emotional responses, limited access to effective emotional regulation strategies, difficulties controlling impulses, and engaging goal-directed behaviors when under negative emotions) -Positive and negative coping strategies (cognitive restructuring, problem-solving, emotional regulation, social support, distraction, withdrawal, resignation, blaming others, etc) -Perceived family relationships (cohesion, expressiveness, conflict) and family representation -Perceived school environment (social support received by teachers, peers, and friends)	Students
Mullins & Panlilio (2021)	Cohort study in 3 waves (when participants were a. 11-15, b. 13-17, and c. 14-19 years old)	-Parent-Child Conflict Tactics Scale -Trauma Symptoms Checklist for Children -Academic Engagement Questionnaire -Woodcock-Johnson III Tests of Achievement	-Child maltreatment experiences and chronicity -Traumatic symptoms (anxiety, depression, PTSD, sexual concerns, dissociations, anger) -Students' experiences and feelings towards school -Math and Reading achievement	Students

			-Indirect effect of academic engagement on academic achievement	
Nuttman-Shwartz (2017)	Correlational study	-Sociodemographic Questionnaire -Objective and Subjective Exposure Scale -Subjective Fear Scale -Sense of Belonging Scale -PTSD Children's posttraumatic stress reaction index -School Violence Questionnaire	-Demographics (age, gender, place of residence, school grade) -Exposure to war-related and other traumatic events -Number and proximity of missile attack events -Subjective fear of attack -Community and school sense of belonging -PTSD symptoms (arousal, intrusion, avoidance) -Extent of being a victim or an aggressor of school violence -Relationship between security threat, PTSS and aggression	Students
Hoffmann et al. (2021)	Cohort study in 2 waves (when participants were a. 6-14 and b. 9-17 years old)	-Semi-structured interview Protocol for Parent report of the Development and Well-being Assessment -Parents' Reports of Children's Future Educational Outcomes -School Achievement Test -Close-ended interview for Bullying Perpetration	-Prevalence and impact of fear-related (e.g. panic, social anxiety disorder, specific phobia), distress-related (e.g. PTSD, depression, bipolar disorder), or externalizing-related conditions (e.g. hyperactivity, attention deficit, conduct disorder) on future educational outcomes (e.g. dropout, grade repetition, bullying perpetration, literacy)	Students, parents, teachers
Samara et al. (2020)	Cross-sectional study	-Demographic form -Satisfaction with Life Scale -Coopersmith Self-Esteem Inventory -PTSD Symptom Scale -Cambridge Hormones and Mood Friendship Questionnaire -Popularity Questionnaire -Bullying and Victimization Questionnaire -Strengths and Difficulties Questionnaire -Psychosomatic and Health Questionnaire	-Demographics (age, grade, school, family structure, birth order, number of siblings) -Life satisfaction -Self-esteem (general, academic, social self-peers, and home/parents' self-esteem, lie scale) -PTSD symptoms (functional impairment, DSM-IV symptoms) -Satisfaction with peer relationship and friendship -Popularity (levels of peer acceptance or rejection) -Bullying and/or victimization -Behavior and emotional problems -Physical and psychosomatic health problems -Differences in terms of gender or refugee background	Students, parents
Veronese et al. (2018)	Cross-sectional study	-Multidimensional Students' Life Satisfaction Scale -Positive and Negative Affect Scale for Children -Children's Impact of Event Scale	-Life satisfaction (school, friends, family, living environment, self) -Positive and negative affectivity -Traumatic responses after experiencing traumatic events related to violence or warfare -Influence of gender and age on traumatic outcomes	Students
Graham et al. (2016)	Systematic review	Peer-reviewed literature from 1996 to 2015	-Prevalence of learning problems -Academic performance and refugee background -Relationship between trauma and cognitive functioning -Externalizing and internalizing problems of child refugees -Perceived school environment	Students, parents, teachers

3.3. Posttraumatic stress and school-related behaviors: Key findings

The findings of the included studies were screened, sorted, and charted to describe the existing knowledge about the impact of child PTS on school-related behavior. To ensure a better understanding of the existing literature, published from 2016 to 2021, the key findings were grouped into four descriptive categories, namely (a) *Identification of child PTSS*, (b) *Determinants and moderators of child PTS symptomatology*, (c) *Child PTS, academic, learning, and cognitive functioning*, and (d) *Child PTS, social, emotional, and behavioral functioning*.

3.3.1. Identification of child posttraumatic stress symptoms

The researchers used various methods and measures to identify potential symptoms of child PTS among participants. A consistent body of the included studies ($N = 5$) used questionnaires and standardized tests to identify PTS symptomatology (Çeri & Nasiroglu, 2018; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017; Samara et al., 2020; Veronese et al., 2017). However, not all instruments used focused on the same aspects. For example, three of the studies used questionnaires that measure symptoms of trauma and PTSD (Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017; Samara et al., 2020) and one study measured specific posttraumatic stress reactions, such as intrusion and avoidance, towards war-related traumatic experiences (Veronese et al., 2017). Çeri and Nasiroglu (2018) used the measurement of the number and type of traumatic experiences and their relationship with persistent behavioral and emotional problems as an indicator of child and adolescent PTSD. Many of the questionnaires and standardized tests used ($N = 4$) were child-reported (Çeri & Nasiroglu, 2018; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017; Veronese et al., 2017). Only in one study, the questionnaires were filled out by parents for the group of participants aged under 11 years old (Samara et al., 2020).

On the one hand, two of the studies used clinical interviews based on the DSM-IV criteria that were conducted by trained psychologists to identify any PTSS among participants (Hoffmann et al., 2021; Khamis, 2019). On the other hand, the two systematic reviews incorporated studies employing various methods for identifying PTS symptomatology (Aghajafari et al., 2020; Graham et al., 2016). In particular Graham et al. (2016) encompassed studies based on both clinical interviews and

questionnaires, whereas the specific methods for defining PTSS remained unspecified in the research sample of Aghajafari et al. (2016).

Most of the studies ($N = 5$) included data regarding the prevalence of PTSS in specific research populations or samples (Aghajafari et al., 2020; Graham et al., 2016; Hoffmann et al., 2021; Khamis, 2019; Samara et al., 2020). The two systematic reviews demonstrated a high prevalence of PTS symptoms among child and adolescent refugees but provided limited specific qualitative data to support these findings (Aghajafari et al., 2020; Graham et al., 2016). One study has also indicated that almost half of the child and adolescent refugees may suffer from PTSD with $\frac{1}{4}$ of them displaying a delayed onset of longtime trauma symptoms (Khamis, 2019). Another study focusing on underage refugees demonstrated that children with a refugee background are more prone to developing symptoms of PTSD related to functional impairment compared to their non-refugee peers (Samara et al., 2020). A 10.9% of children at high family risk for psychiatric conditions were also found to have persistent symptoms of PTSD (Hoffmann et al., 2021). Hoffmann et al. (2021) estimated that 17% of participants with distress-related conditions had also symptoms of PTSD. The other four studies used data related to PTS symptoms to examine their relationship with other variables without specific information about the percentage of the sample that may fall into a borderline or clinical range of PTS symptomatology (Çeri & Nasiroglu, 2018; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017; Veronese et al., 2017).

The majority of the included studies ($N = 5$) provided some preliminary data regarding the comorbidity or other conditions related to child PTSD (Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017). Various emotional and behavioral difficulties have been consistently found to relate to child PTSD (Çeri & Nasiroglu, 2018) and especially conduct problems and hyperactivity (Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021). Moreover, in the study of Hoffmann et al. (2021), child PTSD appeared to be the distress-related condition with the highest cross-category comorbidity for 60.9% of the participants with distress-related difficulties. Many of the studies incorporated in the systematic review of Graham et al. (2016) also underlined the persistent relationship of child PTSD with symptoms of ADHD with about 90% of children with PTSD matching the criteria for an ADHD diagnosis, too. Notably, as aforementioned, for most of the included studies, the key findings were derived from

unified samples of both children and adolescents, which undermines the attempt to draw clear, consistent, and safe conclusions for the age group of school-aged children between 6-12 years old.

Beyond the comorbidity of child PTSD, many other variables and conditions were reported as determinants or moderators to the development of PTSD symptomatology. Those findings are further discussed in the next section.

Table 10.

Description of included studies in terms of methods and key findings regarding the identification of posttraumatic stress of participants

Source	Methods of identification / Measures	Key findings
Aghajafari et al. (2020)	Unspecified	<ul style="list-style-type: none"> High prevalence of PTSD among child and adolescent refugees
Çeri & Nasiroglu (2018)	Questionnaire / Number and type of traumatic experiences	<ul style="list-style-type: none"> The relationship between number and type of traumatic experiences with behavioral and emotional difficulties as an indication of PTSD
Khamis (2019)	Clinical interview based on DSM-IV criteria	<ul style="list-style-type: none"> The 45.6% of the sample had symptoms of current PTSD, 25.6% displayed delayed onset
Mullins & Panlilio (2021)	Questionnaire / Traumatic symptoms and PTSS	<ul style="list-style-type: none"> Significant and positive correlation between maltreatment experience and trauma symptoms including PTSS
Nuttman-Shwartz (2017)	Questionnaires / PTSD symptoms, Number and proximity of specific warfare traumatic experiences	<ul style="list-style-type: none"> Significant and positive correlation of PTSD symptoms with number and proximity to warfare events, and sense of fear in different life events
Hoffmann et al. (2021)	Clinical interview based on DSM-IV criteria	<ul style="list-style-type: none"> PTSD included into a broad category of distress-related conditions 10.9% of participants had symptoms of PTSD 17% of children with distress-related conditions had PTSD symptoms 60.9% of children with PTSD displayed cross-category comorbidity
Samara et al. (2020)	Questionnaire / PTSD symptoms (parent-reported for children younger than 11 y.o.)	<ul style="list-style-type: none"> Higher PTSD symptoms related to functional impairment among refugees compared to non-refugees
Veronese et al. (2018)	Questionnaire / Traumatic reactions to people exposed to traumatic events (violence or warfare)	<ul style="list-style-type: none"> A consistent relationship between symptoms of PTSD (intrusion, avoidance), affectivity, and life satisfaction
Graham et al. (2016)	Various methods, including standardized tests	<ul style="list-style-type: none"> High prevalence of PTSD symptoms among refugees (33% of underage refugees in some studies) The 90% of participants with PTSD also matched overlapping criteria for ADHD

3.3.2. Potential mediating, protective, and risk factors of child PTS

A consistent body of evidence indicated a large heterogeneity in the prevalence and manifestations of PTS among children exposed to traumatic experiences. This variability was explained to some extent by various risk or other factors, or mediators (See Table 11). For example, many of the included studies ($N = 4$) reported direct exposure or proximity to traumatic events -mostly war-related- as a critical factor that may increase the risk for long-lasting PTSD symptoms (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017). In five of the studies, peri-traumatic factors, such as the number of traumatic events (Çeri & Nasiroglu, 2018; Graham et al., 2016; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017), witnessing of maltreatment of a parent (Çeri & Nasiroglu, 2018), or having a familiar person left behind (Çeri & Nasiroglu, 2018) were found to be associated with both the level of PTSS and the trauma effects in childhood, including more mental health problems (Aghajafari et al., 2020) and higher emotional, behavioral and conduct problems (Çeri & Nasiroglu, 2018). In this regard, some of the included studies ($N = 3$) demonstrated that the refugee background has been frequently associated with traumatic experiences and was reported as a potential predictor of functional impairment as a PTSD symptom (Aghajafari et al., 2020; Samara et al., 2020). In general, child refugees tended to display a higher risk for PTSD and other related physical and psychosomatic health issues (Samara et al., 2020) compared to their non-refugee peers.

Other demographic variables were found to further influence the childhood PTSD prevalence or PTS manifestation. For instance, in a few of the included studies ($N = 3$) the current age was found to be positively correlated to levels of PTSS and, thus, older child refugees tended to display higher traumatic responses and more symptoms of long-lasting traumatic stress, including intrusion and avoidance, compared to younger child refugees (Nuttman-Shwartz, 2017; Samara et al., 2020; Veronese et al., 2017). However, Samara et al. (2020) demonstrated that younger child refugees were more likely to fall into the borderline/clinical range for PTSS symptoms regarding functional impairment than adolescent refugees or non-refugee children. Other mediators potentially relating to age, such as social adjustment, may further explain these findings. For example, young child refugees with war-related trauma experience were found to had higher prosocial skills compared to adolescent refugees

(Çeri & Nasiroglu, 2018) and higher social self-esteem compared to their non-refugee peers or older child refugees (Samara et al., 2020).

Furthermore, the manifestations of PTSS may include various secondary symptoms for children of different ages. One of the included studies indicated that younger children with refugee backgrounds were more likely to display persistent physical health problems or relational aggression, including all types of bullying than adolescent refugees or school-aged children without a history of war-related trauma (Samara et al., 2020). However, all these studies focused on the current age of participants and none of them examined the role of the age of exposure.

Gender was another demographic characteristic that was reported as related to PTS symptomatology in some studies ($N = 4$) (Çeri & Nasiroglu, 2018; Hoffmann et al., 2021; Nuttman-Shwartz, 2017; Veronese et al., 2017). In general, females were found to display significantly higher levels of negative affectivity and avoidance as symptoms of PTSS (Veronese et al., 2017), but lower levels of aggression (Nuttman-Shwartz, 2017) and conduct problems (Çeri & Nasiroglu, 2018) compared to their male peers. Although, PTS was found to relate to poor school-related behaviors for both male and female students, the exact domains that were affected differed by gender. For example, males with distress-related conditions including PTSD tended to display lower academic performance and had higher odds for school dropout or grade repetition (Hoffmann et al., 2021). However, comorbidity was also reported as a mediator that may further moderate the relationship between gender and PTSD impact (Samara et al., 2020). Other factors related to family background and a history of trauma seemed to hold also a critical role in the prevalence and manifestations of PTSD, with higher emotional expressiveness within the family (Khamis, 2019) and higher father's educational capital (Çeri & Nasiroglu, 2018) being associated with lower PTSS and emotional difficulties, respectively.

Additionally, as stated before, time spent in the host country (Khamis, 2019), life satisfaction in the current place of residence (Çeri & Nasiroglu, 2018; Veronese et al., 2017), and educational engagement (Mullins & Panlilio, 2021) were reported as factors that may facilitate psychological adjustment and decrease the impact of PTSD and the symptoms of PTS in childhood. In this regard, a sense of belonging in both school and community may operate as a protective factor. Higher coping strategies were

also reported as related to lower PTSS in children (Khamis, 2019). As mentioned before, for most of the studies, results were drawn by a mixed and unified sample of both children and adolescents, with no differentiation in terms of age.

Table 11.

Description of included studies regarding the potential determinants and mediators of PTS prevalence, manifestation, and effects

Source	Determinants/mediators	Key findings
Aghajafari et al. (2020)	Refugee background Exposure to war-related trauma	<ul style="list-style-type: none"> ▪ Increased risk for PTSD, emotional, and behavioral difficulties regarding school adjustment in underage refugees ▪ Exposure to war-related traumatic experiences was associated with a high number of mental health problems, predominantly PTSD in child refugees
Çeri & Nasiroglu (2018)	Age Gender Education capital of the father Proximity to traumatic events Number of traumatic events Parents' maltreatment Satisfaction in the host country	<ul style="list-style-type: none"> ▪ Children's (7-12 years old) mean prosocial behavior was significantly higher compared to adolescents ▪ Males displayed significantly higher conduct problems compared to their female peers ▪ Fathers of children with higher emotional difficulties were significantly less educated compared to children with fewer emotional problems – Father's level of education predicted the development of emotional problems ▪ The number of traumatic events was positively correlated to the total score of emotional and behavioral difficulties and conduct problems Children with higher scores of behavioral and emotional difficulties had more commonly reported having a close relative with a history of maltreatment or torture, having a familiar person left behind, or had seen corpses or body parts during warfare – History of parents' maltreatment was a significant predictor of the total difficulties score ▪ Children with lower scores of prosocial behavior had more commonly reported maltreatment during warfare, witnessing killings or serious injuries of other people, or having a parent with a history of torture during the war ▪ Children with higher conduct problems reported more commonly lower life satisfaction in the host country
Khamis (2019)	Time spent in the host country Coping strategies Family expressiveness	<ul style="list-style-type: none"> ▪ The prevalence of PTSD symptoms was lower among children who had spent more time in the host country or had reported higher scores of coping strategies and family expressiveness
Mullins & Panlilio (2021)	Number of traumatic experiences Academic engagement	<ul style="list-style-type: none"> ▪ The number of maltreatment experiences was associated with higher trauma symptoms ▪ Academic engagement significantly mediated the effect of trauma symptoms on academic performance
Nuttman-Shwartz (2017)	Number of traumatic events Direct exposure to traumatic events Sense of fear	<ul style="list-style-type: none"> ▪ The number of missiles the students were exposed to were associated and predicted PTSS

	Gender Age	<ul style="list-style-type: none"> ▪ Being a victim and a sense of fear was significantly related to PTSS ▪ Being a victim had a positive effect on aggressive behavior ▪ Females displayed lower levels of aggression mediated by a lower sense of being a victim compare to their male peers ▪ PTSS was found to be higher for older students
Hoffmann et al. (2021)	Comorbidity Gender Comorbidity x Gender	<ul style="list-style-type: none"> ▪ Children with a comorbid condition had higher odds for poor educational outcomes ▪ Males with distress-related conditions had lower educational attainment and were more likely to experience school dropout or grade repetition ▪ Females with a comorbid condition of fear-related and distress-related problems had higher odds for school dropout and age-grade distortion ▪ Males with a comorbid condition of fear-related and distress-related problems had higher odds for low literacy scores and bullying perpetration
Samara et al. (2020)	Refugee background Refugee background x age	<ul style="list-style-type: none"> ▪ Participants with a refugee background were more likely to have health issues and higher functional impairment compared to their non-refugee peers ▪ Younger child refugees had more peer problems and were more likely to fall into borderline/clinical range for PTSS (functional impairment), physical and psychosomatic health problems, and bullying than older child refugees and non-refugees ▪ Young refugees had significantly higher social-peers self-esteem than older refugees and non-refugees ▪ Older child refugees had significantly lower academic self-esteem, but higher general self-esteem than their peers. They also had lower PTSS (functional impairment) than younger refugees, but higher than non-refugees
Veronese et al. (2018)	Age Gender Life satisfaction	<ul style="list-style-type: none"> ▪ Older child refugees displayed higher traumatic responses, including intrusion and avoidance compare to younger child refugees ▪ PTSS (intrusion and avoidance) were positively correlated to age ▪ Females had higher levels of negative affectivity and avoidance as a symptom of PTSS ▪ Higher life satisfaction predicted lower levels of negative affectivity and higher levels of positive affectivity. It also predicted lower levels of PTS response controlling for affectivity
Graham et al. (2016)	Level of exposure to traumatic experiences Type of trauma IQ	<ul style="list-style-type: none"> ▪ Positive correlation between exposure to trauma and PTSD symptoms ▪ Some studies reported a positive correlation between levels of exposure to trauma and academic performance ▪ Different types of trauma were found to have different effect on various developmental areas involved in learning ▪ Lower IQ was a risk factor for PTSD

3.3.3. Child posttraumatic stress, and academic, cognitive, and learning functioning

More than half of the included studies ($N = 5$) did not contain findings regarding the potential relationship between child PTS and cognitive, learning, or academic functioning. One of the studies demonstrated lower scores in executive functioning, including inhibitory control, and working memory in children with PTSD (Aghajafari et al., 2020). In line with these findings, another study on refugee adolescents who had experienced trauma during childhood found that they tended to display lower scores on cognitive tests, although different types of trauma seemed to affect different kinds of cognitive and learning abilities (Graham et al., 2016). For example, abandonment trauma was found to have a large and negative impact on the main cognitive domains involved in learning, such as reasoning, working memory, and processing speed. Moreover, post-migration traumatic experiences had a greater impact on learning and could negatively predict future academic failure in adolescence (Graham et al., 2016). However, in the same study, based on a systematic review, secondary trauma was found to be positively correlated to all cognitive domains. Graham et al. (2016) reported various studies that demonstrated a positive effect of war-related PTSD on school outcomes, such as higher academic expectations, lower truancy, and higher academic performance later in adolescence. By comparison, three of the included studies reported a negative relationship between academic achievement and PTSD (Aghajafari et al., 2020; Hoffmann et al., 2021; Mullins & Panlilio, 2021). For instance, symptoms of long-lasting trauma in children with a history of maltreatment were found to negatively predict academic achievement controlling for academic engagement (Mullins & Panlilio, 2021). Furthermore, as Hoffman et al. (2021) stated, the symptoms of distress-related conditions, including PTSD, were found to predict a series of negative educational outcomes, such as school dropout, grade repetition, and grade-age distortion for both school-aged and adolescent males and females.

In their study, Aghajafari et al. (2020) reported some of the potential covariates that may explain the heterogeneity of such a relationship for traumatized child refugees, including prevalent cultural values regarding formal education, time spent in the host country, and availability of intercultural educational approaches. These findings about the relationship between PTSD and cognitive, learning, and academic functioning, as

summarized in Table 12, were derived from mixed samples of both children and adolescents.

Table 12.

Description of included studies regarding the relationship between PTS and cognitive, learning, or academic functioning within and beyond school settings

Source	Cognitive/learning/academic domains	Key findings
Aghajafari et al. (2020)	Executive functions Academic performance	<ul style="list-style-type: none"> ▪ Child and adolescent refugees displayed lower scores on executive functions (inhibitory control, working memory) ▪ Refugee background was associated with academic performance in different ways depending on covariates such as time spent in the host country, cultural attitudes towards formal education, availability of intercultural curricula, etc
Çeri & Nasiroglu (2018)	No data available	-
Khamis (2019)	No data available	-
Mullins & Panlilio (2021)	Academic engagement Academic performance	<ul style="list-style-type: none"> ▪ Symptoms of persistent trauma symptoms predicted negatively academic performance controlling for academic engagement
Nuttman-Shwartz (2017)	No data available	-
Hoffmann et al. (2021)	School dropout Grade repetition Grade-age distortion	<ul style="list-style-type: none"> ▪ Distress-related conditions, including PTSD, predicted negative educational outcomes, such as grade repetition, school dropout, and grade-age distortion
Samara et al. (2020)	No data available	-
Veronese et al. (2018)	No data available	-
Graham et al. (2016)	General cognitive abilities Cognitive abilities x type of trauma Processing speed Learning capacity Academic expectations & attitudes towards school Academic performance	<ul style="list-style-type: none"> ▪ Students with a history of traumatic experiences during childhood had lower scores on cognitive tests in adolescence ▪ The impact of trauma on cognitive skills differed in terms of the trauma type. ▪ PTSD or war exposure was associated with better school outcomes, including higher academic expectations, lower truancy, and higher academic performance) ▪ Pre-migration trauma during childhood predicted academic failure in adolescence

3.3.4. Child posttraumatic stress and social, emotional, and behavioral functioning

As demonstrated in Table 13, child PTS was also related to various aspects of socioemotional and behavioral functioning within and beyond the school context for the majority of the included studies ($N = 8$) (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021; Khamis, 2019; Nuttman-Shwartz, 2017; Samara et al., 2020; Veronese et al., 2017).

Seven of the studies demonstrated that symptoms of PTSD and exposure to traumatic experiences during childhood were associated with a wide impact on mood and mental health (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021; Khamis, 2019; Nuttman-Shwartz, 2017; Veronese et al., 2017). In particular, exposure to war-related trauma was related to a higher risk for depression, anxiety, and mental distress (Aghajafari et al., 2020). PTSD -and other distress-related conditions- had high cross-category comorbidity with other persistent fear-related or externalizing conditions, such as social anxiety, disruptive behaviors, hyperactivity, and attention deficit (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021).

Many of the studies ($N = 4$) reported also the existence of a strong and consistent relationship between PTS and persistent emotional difficulties (Çeri & Nasiroglu, 2018; Khamis, 2019; Nuttman-Shwartz, 2017; Veronese et al., 2017). In their study, Çeri and Nasiroglu (2018) had estimated that almost half of the underage refugees exposed to war-related trauma displayed high emotional difficulties. According to three of the included studies, such difficulties may include emotional dysregulation further related to socioemotional difficulties, such as social withdrawal (Khamis, 2019), a lower sense of school belonging (Nuttman-Shwartz, 2017), and lower subjective well-being (Veronese et al., 2017).

The existing findings suggested that peer relationships are also affected by PTSD in childhood and adolescence (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Nuttman-Shwartz, 2017; Samara et al., 2020). Çeri & Nasiroglu (2018) indicated that about 64.9% of child and adolescent refugees exposed to PTSD were dealing with peer problems. School-aged refugees were found to report more peer problems and a higher risk for bullying perpetration compared to their non-refugee peers and adolescent refugees (Samara et al., 2020). It is worth noting that students with PTS with repeated exposure to trauma tended to display significantly higher levels of aggression than their non-traumatized peers (Aghajafari et al., 2020; Nuttman-Shwartz, 2017).

Symptoms of PTS were also associated with various behavioral and conduct problems (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016). As reported by Çeri and Nasiroglu (2018), more than $\frac{1}{4}$ of child refugees had conduct problems, with children and male students being at higher risk compared to adolescents

and females (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018). In line with poor peer relationships, conduct problems were positively correlated to repeated trauma exposure (Graham et al., 2016).

Table 13.

Description of included studies regarding the relationship between PTS and social, emotional, and behavioral functioning within and beyond school settings

Source	Social/emotional/behavioral domains	Key findings
Aghajafari et al. (2020)	Mood and anxiety Poor peer relationships Conduct problems Disruptive behavior	<ul style="list-style-type: none"> ▪ Refugee background and exposure to war-related traumas during childhood were associated with higher levels of depression, anxiety, and mental distress ▪ Having a post-migration experience of staying in detention predicted symptoms of psychopathic behavior and severe behavioral problems within and beyond school settings ▪ Child refugees had higher levels of aggressiveness, more conduct, and peer problems than their non-refugee peers ▪ Child refugees displayed more difficulties in school adjustment, including disruptive behaviors, inattention, and hyperactivity compared to their non-refugee peers
Çeri & Nasiroglu (2018)	Poor peer relationships Emotional problems Conduct problems Hyperactivity	<ul style="list-style-type: none"> ▪ The 64.9% of child and adolescent refugee participants were facing problems in their peer relationships ▪ The 45.5% of participants reported potential persistent emotional difficulties ▪ The 27.3% of participants had conduct problems ▪ The 19.5% of participants had persistent hyperactivity ▪ Males had significantly more conduct problems than their female peers ▪ Females had significantly higher emotional problems compared to their male peers ▪ Child refugees had lower levels of peer, conduct, and emotional problems compared to adolescent refugees controlling for prosocial behavior
Khamis (2019)	Emotional dysregulation	<ul style="list-style-type: none"> ▪ Children who met the criteria for PTSD had higher levels of emotional dysregulation compared to children without PTSD. ▪ Emotional dysregulation was further associated with coping styles like social withdrawal, blaming others, self-criticism, wishful thinking, resignation.
Mullins & Panlilio (2021)	No data available	-
Nuttman-Shwartz (2017)	Aggression	<ul style="list-style-type: none"> ▪ Aggression was positively correlated to the level of exposure to trauma. ▪ PTSD symptoms and exposure to various types of trauma were associated with higher levels of aggressive behavior within and beyond school settings ▪ Females displayed lower levels of aggression compared to males.

Hoffmann et al. (2021)	Cross-category comorbidity	<ul style="list-style-type: none"> ▪ Direct exposure to trauma was negatively correlated to a sense of belonging at school and community ▪ Distress-related conditions, including PTSD, had the higher cross-category comorbidity (50.3%) with externalizing conditions, such as hyperactivity, and fear-related conditions, such as specific phobias. ▪ Symptoms of distress-related conditions predicted bullying perpetration for both male and female students
Samara et al. (2020)	Poor peer relationships Bullying perpetration Self-esteem	<ul style="list-style-type: none"> ▪ Child refugees were more likely to fall into the clinical/ borderline range for peer problems and bullying perpetration for all types of bullying within the family or school settings compared to adolescent refugees and non-refugee children. ▪ Child and adolescent refugees exposed to war-related trauma displayed significantly higher general self-esteem compared to their non-refugee peers
Veronese et al. (2018)	Subjective well-being	<ul style="list-style-type: none"> ▪ Levels of PTS reactions (avoidance and intrusion) were negatively correlated to subjective well-being ▪ Higher satisfaction with life, school, and peer relationships was associated with lower levels of trauma reactions controlling for positive affectivity
Graham et al. (2016)	Behavioral problems Conduct problems Hyperactivity and inattention	<ul style="list-style-type: none"> ▪ Post-migration trauma could positively predict potential behavioral problems ▪ Repeated exposure to trauma during childhood was associated with higher PTSS and conduct problems in adolescence ▪ The 90% of children with PTSD also met the diagnostic criteria for ADHD

Discussion

Common findings

Exposure to trauma may affect many of the traumatized children with persistent symptoms, both internalized and externalized, over time and therefore lead to chronic posttraumatic stress symptoms (De Bellis & Van Dillen, 2005; Kroll, 2003). Symptoms and effects of childhood trauma have been linked to a wide-ranging impact on most of the areas of development that are involved in learning capacity, socioemotional functioning, and behavioral adjustment of school-aged individuals (Caffo et al., 2005; Cross et al., 2017; Dye, 2018). The data extracted by the studies included in the present scoping review were in line with findings reported in the literature regarding the wide impact of childhood trauma on school functioning (Caffo et al., 2005; Dunn et al., 2017; Dye, 2018; Hoffmann et al., 2021).

Although poor academic achievement has been previously consistently identified as a common school-related outcome of trauma (Larson et al., 2017; Perfect et al., 2016; Thompson & Massat, 2005), the findings of the present scoping review led to more complex conclusions. For some individuals, higher exposure to war-related trauma and higher symptoms of PTS was associated with improved educational outcomes, such as higher academic expectations, lower truancy, and higher academic achievement in early adolescence (Graham et al., 2016). The development of posttraumatic growth, a set of positive psychological changes following severely traumatic experiences (Tedeschi & Calhoun, 2004), may explain this positive school-related effect of trauma. By contrast, in most cases, PTSD was found to negatively predict academic achievement for both children and adolescents (Aghajafari et al., 2020; Hoffmann et al., 2021; Mullins & Panlilio, 2021). Such a negative impact of trauma on academic achievement could be explained to some extent as a result of the various trauma effects on cognitive processing and executive functioning, that are highly involved in learning and self-regulation (Aghajafari et al., 2020; Cross et al., 2017; Marusak et al., 2015; Spann et al., 2012). Yet, the exact relationship between child PTSD and academic outcomes needs to be further investigated by examining the potential mediators and determinants that may lead to an academic aspect of posttraumatic growth.

Socioemotional and behavioral functioning of children with long-lasting symptoms of traumatic stress within and beyond school settings were also examined in the studies comprising the sample of this scoping review. Findings indicated a negative impact of traumatic experiences and PTS on several aspects of socioemotional and behavioral skills and abilities (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Hoffmann et al., 2021; Khamis, 2019). However, both the exact socioemotional and behavioral areas affected and the impact rates varied as a function of a host of variables including age (Çeri & Nasiroglu, 2018; Nuttman-Shwartz, 2017; Samara et al., 2020; Veronese et al., 2017), gender (Hoffmann et al., 2021; Samara et al., 2020; Veronese et al., 2017), and the level of exposure to trauma (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017). Many of these trauma-related effects may be internalized (Hoffmann et al., 2021) and, thus, difficult to identify within the classroom, or externalized and misinterpreted as symptoms of other conditions similar or comorbid to PTS, such as ADHD (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021). Conduct problems, bullying perpetration, aggression, and difficulties in peer relationships were reported as common externalizing behaviors related to PTS in the school context (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; De Young & Landolt, 2018; Samara et al., 2020) that may reflect a poor coping mechanism for social and school adjustment due to the cognitive sequelae of trauma (Khamis, 2019). Such findings are in line with previous literature regarding the socioemotional and behavioral impact of childhood trauma (Forbes et al., 2014; Marusak et al., 2015; Nuttman-Shwartz, 2017).

However, the relationship between PTS and school-related behaviors is not linear. Instead it is influenced by various covariates that may lead to negative effects, such as poor educational outcomes and difficulties in school adjustment, or positive effects, such as posttraumatic growth and higher academic expectations (Graham et al., 2016). The level and proximity of exposure to traumatic events (Çeri & Nasiroglu, 2018; Graham et al., 2016; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017), the trauma type (Graham et al., 2016), family factors like expressiveness within the family (Khamis, 2019), and demographics, such as age and gender (Çeri & Nasiroglu, 2018; Hoffmann et al., 2021; Nuttman-Shwartz, 2017; Samara et al., 2020; Veronese et al., 2017), are only some of these covariates that were found to mediate the effects of PTS during childhood. Previous research has consistently demonstrated that PTS

manifestations and effects tend to vary by gender and age and, therefore, it suggests different diagnostic criteria for children in early childhood and older individuals. Other variables have been also identified as potential risk or protective factors for the development of PTSD in children exposed to adverse or traumatic experiences (Comacchio et al., 2019; Contractor et al., 2013; De Bellis & Van Dillen, 2005; Forbes et al., 2014).

Despite the differences in the prevalence, manifestations, and effects of PTS in terms of age, evidence of the included studies demonstrated that traumatized individuals are affected by PTS both in childhood and later in adolescence (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Samara et al., 2020). In this regard, the early identification of PTSS can be critical for designing and applying appropriate interventions to support children with PTS and may decrease the impact of trauma.

Gaps in the literature

The majority of the studies included examined the effects of PTS on mixed samples consisting of both school-aged children and adolescents (Aghajafari et al., 2020; Hoffmann et al., 2021; Khamis, 2019; Mullins & Panlilio, 2021; Nuttman-Shwartz, 2017; Veronese et al., 2017). Only a few of these studies provided a grouping of participants by age and analyzed results by contrasting the different age groups (Çeri & Nasiroglu, 2018; Graham et al., 2016; Hoffmann et al., 2021; Nuttman-Shwartz, 2017; Samara et al., 2020). Therefore, the extent to which the findings reflect the impact of PTS on school-aged children remains unclear. A limited focus on samples of school-aged children is also considered as a limitation of previous literature beyond the date range of this scoping review. Such a literature gap may affect the accuracy of the existing knowledge regarding the relationship between childhood PTS and school-related behaviors.

Although the samples of underage children with PTS were mostly derived within various educational settings, most of the included studies did not examine the manifestations of the teacher-reported school-related behaviors as expressed within the school context and identified by educational professionals. In this regard, the extent to which the reported difficulties of children and adolescents with PTSD are perceived by teachers as such is also unclear.

In addition, the research samples of the included studies consisted mostly of children and adolescents with a refugee background and, thus, mostly examined the effects of PTS caused by war-related trauma (Aghajafari et al., 2020; Çeri & Nasiroglu, 2018; Graham et al., 2016; Khamis, 2019; Nuttman-Shwartz, 2017; Samara et al., 2020; Veronese et al., 2017). This focus on the refugee population may reflect the influence of the current historical and political context on academic research and research interests, in the light of the ongoing 21st century refugee crisis. That said, the investigation of PTS caused by different types of traumas may underline the complexity of their relationship and lead to novel and more elaborated conclusions.

Limitations and recommendations for future research

A growing body of literature is currently available to provide critical information and suggestions for the identification and appropriate support of children with PTS within and beyond the school context. In the present scoping review, 9 studies from 2016 to 2021 were included as relevant to the examination of the relationship between PTS and school-related behaviors during childhood. The qualitative synthesis of these studies led to valuable and useful conclusions, and, yet further questioning regarding the impact of PTS on school functioning also emerged.

Most of the studies included focused on mixed samples of both children and adolescents as a unified group of students with similar vulnerability and manifestations of PTS. However, specific findings indicated that children may process differently trauma and, thus, the effects of PTS on their school functioning might differ compared to traumatized adolescents. Moreover, as stated by other researchers (e.g. Dunn et al., 2017; Kaplow & Widom, 2007, Wu et al., 2019), the impact of trauma may differ in different stages of development during childhood or by the age of trauma exposure. Therefore, further research should investigate the impact of PTS in school-aged children considering the various substages of childhood and the potential role of the age of the exposure to trauma experiences.

Moreover, in the present scoping review, since the search strategy was conducted through known academic databases, no records of grey literature were identified and included. A further search into other formal sources of data may enrich the recent findings and the knowledge regarding childhood PTS. This study attempted to map the existing literature regarding childhood PTS and its relationship with school

functioning without examining the potential benefits of different targeted and appropriate school-based interventions in preventing or decreasing the long-lasting impact of trauma. That said, the extension of the focus of future research on both identifying and dealing with PTS in the school context may add to the existing knowledge and guide the educational practice towards age-appropriate and efficient trauma-informed approaches.

Conclusion

The findings of the present study provided a structured and consistent insight on the special academic, socioemotional and behavioral challenges of refugee children with a history of war-related and other traumatic experiences in the school settings. Recent evidence has further demonstrated the commonality of externalizing posttraumatic stress symptomatology in school-aged children, which is often misinterpreted or overlapping with other developmental disorders by education professionals. Such findings can enrich the existing knowledge and guide the design of trauma-informed educational policies and practices towards a better understanding and support of traumatized students. Much more, identifying the trauma background of children and considering their special educational needs could lead to more holistic, student-centered, and efficient approaches within schools.

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Appendix A – Scoping Review Search Strategy

Database: Scopus <January 1, 2016 to November 17, 2021> AND <Language, English>

Search Strategy:

1 TITLE-ABS-KEY ("post-traumatic stress" OR "posttraumatic stress") AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (28,345)

2 TITLE-ABS-KEY ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (29,932)

3 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND child*) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (6,253)

4 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student*) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (7,153)

5 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND school) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (886)

6 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND (school OR "school functioning" OR "school behavior*" OR "school-related")) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (886)

7 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND (school OR educat*) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (1,451)

8 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND school AND educat*) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (197)

9 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND school AND educat* AND (academic OR social OR emotion* OR learning)) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (137)

10 TITLE-ABS-KEY (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND ("school age" OR "school-aged") AND school AND educat* AND (academic OR social OR emotion* OR learning)) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (15)

11 (("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child* OR student) AND ("school age" OR "school-aged") AND school AND educat*) AND PUBYEAR > 2015 AND PUBYEAR < 2022 AND (LIMIT-TO (LANGUAGE , "English")) (2,427)

Search Strategy:

1 post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. (1,015)

2 post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw. (1,282)

3 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab.) (143)

4 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or student*.ab.) (196)

5 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or student*.ab.) and (school*.kw. or school*.ti. or school*.ab.) (12)

6 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or student*.ab.) and (school*.kw. or school*.ti. or school*.ab. or educat*.ti. or educat*.ab. or educat*.kw.) (25)

7 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or student*.ab.) and (school age.ti. or school age.kw. or school age.ab. or school-aged.ti. or school-aged.ab. or school-aged.kw) and (school*.kw. or school*.ti. or school*.ab. or educat*.ti. or educat*.ab. or educat*.kw.) (2)

8 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or

student*.ab.) and (school age.ti. or school age.kw. or school age.ab. or school-aged.ti. or school-aged.ab. or school-aged.kw.) and (school*.kw. or school*.ti. or school*.ab. or educat*.ti. or educat*.ab. or educat*.kw.) and (academic.ti. or academic.kw. or academic.ab. or learning.ti. or learning.kw. or learning.ab. or social.ti. or social.kw. or social.ab. or emotion*.ti. or emotion*.kw. or emotion.ab.) (0)

9 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or student*.ab.) and (school*.kw. or school*.ti. or school*.ab. or educat*.ti. or educat*.ab. or educat*.kw.) and (academic.ti. or academic.kw. or academic.ab. or learning.ti. or learning.kw. or learning.ab. or social.ti. or social.kw. or social.ab. or emotion*.ti. or emotion*.kw. or emotion.ab.) (5)

10 ((post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or student*.ab.) and (school*.kw. or school*.ti. or school*.ab. or educat*.ti. or educat*.ab. or educat*.kw.) and (academic.ti. or academic.kw. or academic.ab. or learning.ti. or learning.kw. or learning.ab. or social.ti. or social.kw. or social.ab. or emotion*.ti. or emotion*.kw. or emotion.ab.)) or (school functioning.ti. or school functioning.ab. or school functioning.kw. or school behavior.ti. or school behavior.ab. or school behavior.kw.) (7)

11 (post-traumatic stress.ti. or post-traumatic stress.ab. or post-traumatic stress.kw. or posttraumatic stress.ti. or posttraumatic stress.ab. or posttraumatic stress.kw. or ptsd.ti. or ptsd.ab. or ptsd.kw.) and (child*.kw. or child*.ti. or child*.ab. or student*.kw. or student*.ti. or student*.ab.) and (school*.kw. or school*.ti. or school*.ab. or educat*.ti. or educat*.ab. or educat*.kw.) and (school functioning.ti. or school functioning.ab. or school functioning.kw. or school behavior.ti. or school behavior.ab. or school behavior.kw.) (0)

Database: ERIC <January 1, 2016 to November 17, 2021>

Search Strategy:

1 ("post-traumatic stress" OR "posttraumatic stress") pubyearmin:2016 pubyearmax:2021 (274)

2 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) pubyearmin:2016 pubyearmax:2021 (278)

3 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child) pubyearmin:2016 pubyearmax:2021 (68)

4 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child OR student) pubyearmin:2016 pubyearmax:2021 (169)

5 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child OR student) AND (school?age) pubyearmin:2016 pubyearmax:2021 (1)

6 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child OR student) AND ("school age" OR "school-aged") pubyearmin:2016 pubyearmax:2021 (6)

7 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child OR student) AND ("school age" OR "school-aged") AND (school OR education) pubyearmin:2016 pubyearmax:2021 (6)

8 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child OR student) AND ("school age" OR "school-aged") AND (school OR education) AND (academic OR social OR emotion OR learning) pubyearmin:2016 pubyearmax:2021 (4)

9 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child OR student) AND ("school age" OR "school-aged") AND (school OR education) OR (academic OR social OR emotions OR learning) pubyearmin:2016 pubyearmax:2021 (6)

10 ("post-traumatic stress" OR "posttraumatic stress" OR ptsd) AND (child OR student) AND ("school age" OR "school-aged") AND (school OR education) AND ("school functioning" OR "school behavior" OR "school-related") AND (academic OR social OR emotions OR learning) pubyearmin:2016 pubyearmax:2021 (4)

Database: ScienceDirect <January 1, 2016 to November 17, 2021>

Search Strategy:

- 1 ("post-traumatic stress" OR "posttraumatic stress") (5,155)
- 2 ("post-traumatic stress" OR "posttraumatic stress" or ptsd) (4,476)
- 3 "post-traumatic stress" (2,383)
- 4 ("post-traumatic stress" OR "posttraumatic stress") OR (child OR children OR childhood) (823)
- 5 ("post-traumatic stress" OR "posttraumatic stress") OR (child OR childhood) (666)
- 6 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age" OR "school-aged") (406)
- 7 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age") (406)
- 8 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age") AND (school OR education) (55)
- 9 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age") AND (school) (45)
- 10 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age") AND (school OR education OR educational) (58)
- 11 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age") AND (school OR education OR educational) AND ("school functioning" OR "school behavior") (2)
- 12 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age") AND (school OR education OR educational) AND ("school functioning" OR behavior) (20)
- 13 ("post-traumatic stress" OR "posttraumatic stress) AND (children OR "school age") AND (school OR education) AND (academic OR social OR emotion) (25)

Database: PubMed <January 1, 2016 to November 17, 2021> AND <Language, English>

Search Strategy:

- 1 "post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] (17,298)
- 2 "post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd[Title/Abstract] (19,344)
- 3 ("post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd)[Title/Abstract] AND (child*)[Title/Abstract] (4,771)
- 4 ("post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd)[Title/Abstract] AND (child*[Title/Abstract] OR student*)[Title/Abstract] (4,363)
- 5 ("post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd)[Title/Abstract] AND (child*[Title/Abstract] OR student*)[Title/Abstract] AND (school[Title/Abstract] OR educat*)[Title/Abstract] (961)
- 6 ("post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd)[Title/Abstract] AND (child*[Title/Abstract] OR student*)[Title/Abstract] AND (school[Title/Abstract] OR educat*)[Title/Abstract] AND ("school functioning"[Title/Abstract] OR "school behavior*"[Title/Abstract] OR "school-related")[Title/Abstract] (10)
- 7 ("post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd)[Title/Abstract] AND (child*[Title/Abstract] OR student*)[Title/Abstract] AND (school[Title/Abstract] OR educat*)[Title/Abstract] AND ("school functioning"[Title/Abstract] OR "school behavior*"[Title/Abstract] OR "school-related")[Title/Abstract] AND (academic[Title/Abstract] OR social[Title/Abstract] OR emotion*[Title/Abstract] OR learning)[Title/Abstract] (7)
- 8 ("post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd)[Title/Abstract] AND (child*[Title/Abstract] OR student*)[Title/Abstract] AND (school[Title/Abstract] OR educat*)[Title/Abstract] AND (academic[Title/Abstract] OR social[Title/Abstract] OR emotion*[Title/Abstract] OR learning)[Title/Abstract] (448)
- 9 ("post-traumatic stress"[Title/Abstract] OR "posttraumatic stress"[Title/Abstract] OR ptsd)[Title/Abstract] AND (child*[Title/Abstract] OR student*)[Title/Abstract] AND (school[Title/Abstract] OR educat*)[Title/Abstract] AND ("school age"[Title/Abstract] OR

"school-aged")[Title/Abstract] AND (academic[Title/Abstract] OR social[Title/Abstract] OR emotion*[Title/Abstract] OR learning)[Title/Abstract] (18)

Appendix B – Data Selection and Evaluation Criteria

Level 1: Title evaluation

Point 0:

- The title refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences, but focuses on an age group other than children (6-12 yo)
- The title refers to a specific category of mental health issues of children or an unspecified age group that differs and do not include PTS, PTSD, PTSS, or trauma
- The title refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children or an unspecified age group, but explicitly focuses on the prevalence and not on the impact of such issues
- The title is written in a language other than English

Point 1:

- The title refers to PTS, PTSD, PTSS, or trauma of an unspecified age group, with no clear reference to the impact of such issues
- The title refers to a category of mental health issues that might contain PTS, PTSD, PTSS, or trauma of children or an unspecified age group with or without a clear reference to the impact of such issues
- The title refers to the impact of potentially traumatic experiences of children or an unspecified age group
- The title refers to school-based interventions for trauma care, PTS, PTSD, or PTSS with no explicit reference to the impact of such issues
- The title refers to PTS, PTSD, PTSS, or trauma of an unspecified age group and the impact of such issues on school functioning (academic, learning, social, behavioral, emotional functioning)
- The title refers to PTS, PTSD, PTSS, or trauma of an unspecified age group and the impact of such issues on other developmental areas (social, emotional, social, behavioral functioning) with no clear reference to the school settings

Point 2:

- The title refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children (6-12 yo) and the impact of such issues on school functioning (academic, learning, social, behavioral, emotional functioning)
- The title refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children (6-12 yo) and the impact of such issues on other developmental areas (cognitive, social, emotional, social, behavioral functioning) with no clear reference to the school settings
- The title refers to the characteristics of children (6-12 yo) with PTS, PTSD, PTSS, trauma, or potentially traumatic experiences within the school settings

Level 2: Abstract evaluation

Point 0:

- The abstract refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences, but focuses on an age group other than children (6-12 yo)
- The abstract refers to a specific category of mental health issues of children or an unspecified age group that differs and do not include PTS, PTSD, PTSS, or trauma
- The abstract refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children or an unspecified age group, but explicitly focuses on the prevalence and not on the impact of such issues
- The abstract refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children or an unspecified age group, but focuses on their impact on areas other than the school functioning or school-related developmental areas
- The abstract refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children (6-12 yo), but focuses on their impact on significant others (parents, teachers, siblings)
- The abstract is written in a language other than English

Point 1:

- The abstract refers to PTS, PTSD, PTSS, trauma, or a relevant category of mental health issues of an unspecified age group, with no clear reference to the impact of such issues

- The abstract refers to the impact of potentially traumatic experiences of children or an unspecified age group
- The abstract refers to school-based interventions for trauma care, PTS, PTSD, or PTSS with no explicit reference to the impact of such issues on school functioning or school-related developmental areas
- The abstract refers to PTS, PTSD, PTSS, or trauma of an unspecified age group and the impact of such issues on school functioning (academic, learning, social, behavioral, emotional functioning)
- The abstract refers to PTS, PTSD, PTSS, or trauma of an unspecified age group and the impact of such issues on other developmental areas (cognitive, social, emotional, social, behavioral functioning) with no clear reference to the school settings

Point 2:

- The abstract refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children (6-12 yo) and the impact of such issues on school functioning (academic, learning, social, behavioral, emotional functioning)
- The abstract refers to PTS, PTSD, PTSS, trauma, or potentially traumatic experiences of children (6-12 yo) and the impact of such issues on other developmental areas (cognitive, social, emotional, social, behavioral functioning) that might be relevant to school-related behaviors, but with no clear reference to the school settings
- The abstract refers to the characteristics of children (6-12 yo) with PTS, PTSD, PTSS, trauma, or potentially traumatic experience within the school settings

Level 3: Full-text evaluation

Point 0:

- The study refers to PTS, PTSD, PTSS or trauma, but focuses on an age group other than children (6-12 yo)
- The study examines the impact of potentially traumatic experiences of children (6-12 yo) with adverse childhood experiences who have not been diagnosed as having PTS, PTSD, or PTSS with formal or informal assessments

- The study describes a school-based intervention for children (6-12 yo) with PTS, PTSD, PTSS, or trauma with no reference to the impact of such issues on school functioning or other school-related developmental areas
- The study focuses exclusively on the prevalence of PTS, PTSD, PTSS, or trauma of children (6-12 yo)
- The study is written in a language other than English

Point 1:

- The study refers to the impact of PTS, PTSD, or PTSS on school functioning or school-related developmental areas of a large age group including children (6-12 yo) without examining potential differences in the impact among different age groups
- The study refers to the impact of PTS, PTSD, and PTSS of children (6-12 yo) on developmental areas that might relate to school functioning
- The study refers to the impact of PTS, PTSD, or PTSS of children (6-12 yo) on school functioning or school-related developmental areas, but offers unclear or questionable evidence of PTS, PTSD, PTSS diagnosis of the sample

Point 2:

- The study examines the impact of PTS, PTSD, or PTSS of children (6-12 yo) on school functioning
- The study examines the impact of PTS, PTSD, or PTSS of children (6-12 yo) on school-related developmental areas (cognitive, social, emotional, social, behavioral functioning) that have been assessed outside the school settings