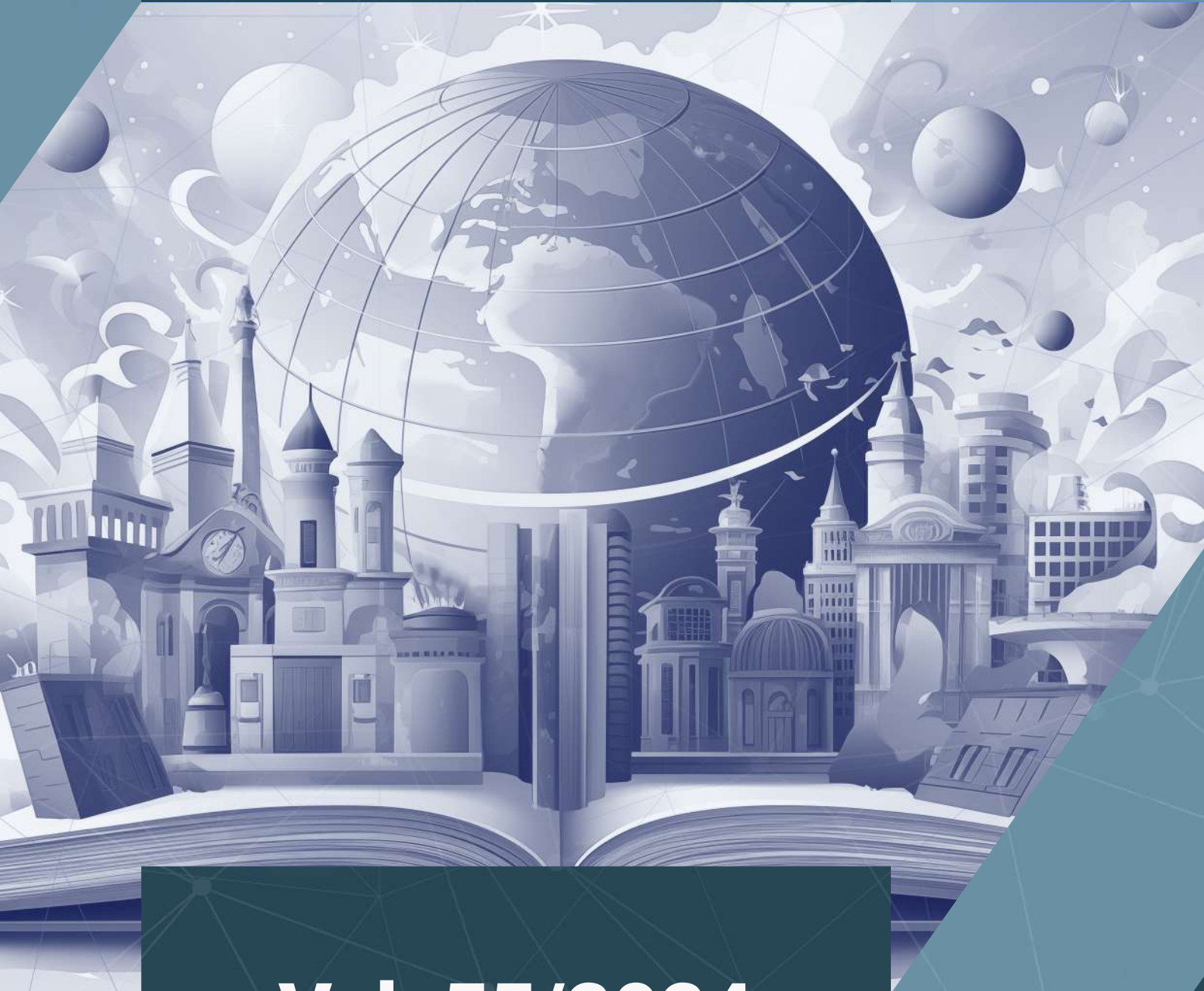




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PTSD in Children and Adolescents in the Educational Context. A Conceptual Approach

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Abstract. This paper explores the multifaceted aspects of Post-Traumatic Stress Disorder (PTSD) in children and adolescents within educational contexts. It investigates the complexity of diagnosing PTSD in this demographic, recognizing the role of cognitive function, expression barriers, and parental influence. Considering the diverse and unique presentations of PTSD symptoms in children, the study highlights the challenges in identifying and treating PTSD among school-age children and adolescents, especially among highly vulnerable populations such as refugees. Through an extensive review of existing literature, the paper compares and contrasts the criteria from DSM-5 and ICD-11 for PTSD diagnosis and evaluates the efficacy of treatment options such as EMDR, CBT, and school-based interventions. The impact of PTSD on academic performance and social integration is emphasized, underlining the implications for educators, mental health professionals, and policy makers. Furthermore, the study calls attention to the co-occurrence of PTSD with other mental health conditions and the significant effects beyond educational achievement, including developmental, social, and cognitive domains. Drawing on current research, it advocates for integrated intervention strategies that promote socio-emotional learning, and underscores the importance of a secure, supportive educational environment.

Keywords. PTSD, Children, Adolescent, Educational Context, Socio-Emotional Learning, Cognition

1. Introduction

PTSD among children and adolescents within the school setting is a notable problem with possible enduring consequences. Research has indicated that school students who experience traumatic events, such as bullying, natural disasters, or witnessing violence, may develop symptoms of post-traumatic stress disorder (PTSD) (Idsøe et al., 2012; Yu et al., 2019;

Fu et al., 2013). The occurrence of PTSD in children and adolescents has been linked to different demographic characteristics, including gender, age, and geographical location (Yu et al., 2019; Fu et al., 2013; Winston et al., 2003). Moreover, there is a correlation between post-traumatic stress disorder (PTSD) in young individuals and challenges in schooling, higher expenses in healthcare, and negative impacts on academic achievements (Mavranouzouli et al., 2019; Astitene et al., 2018; Astitene et al., 2020). The detrimental effects of PTSD on academic achievement and social integration highlight the necessity for efficacious therapies and support structures within educational environments (Astitene et al., 2020; Hussein et al., 2021). Furthermore, the potential resilience elements for kids dealing with trauma and post-traumatic stress disorder (PTSD) include the significance of school safety, connectivity, and positive school atmosphere, as noted by Yablon in 2015 and 2019.

Moreover, there is a correlation between symptoms of PTSD and reduced educational performance among student veterans, emphasizing the influence of PTSD on academic results (Morissette et al., 2021). The occurrence of discrimination has been associated with heightened post-traumatic stress disorder (PTSD) symptoms in Asian American adolescents and Latinx youth, as indicated by Ermis-Demirtas et al. (2022). The necessity for reliable assessment tools to evaluate PTSD in children is evident, with a particular emphasis on the significance of precise assessment within this demographic (Mevisen et al., 2016). Smith et al. (2013) have found theory-based trauma-focused cognitive behavioral therapy (TF-CBT) as an effective treatment for children and adolescents with PTSD. It has been suggested that routine primary care examinations, especially in mental health and school environments, should include the screening of PTSD symptoms in children (Perrin, 2014). Furthermore, the difficulties in diagnosing PTSD in youngsters have been recognized, emphasizing the intricacy of evaluating PTSD in this demographic (Cohen & Scheeringa, 2009). The relationship between symptoms of post-traumatic stress disorder (PTSD) and gender in South African schoolchildren has been investigated. The findings suggest that there are varied connections between different types of trauma and PTSD symptoms (Atwoli et al., 2013). The importance of providing assistance and understanding in educational environments for student veterans with PTSD has been acknowledged (Burke, 2022).

Furthermore, the correlation between PTSD and academic performance underscores the necessity for focused interventions to tackle the educational consequences of PTSD in teenagers (Zhou et al., 2022). The intricate interaction between trauma exposure, symptoms of post-traumatic stress disorder (PTSD), and academic performance emphasizes the significance of comprehensive strategies to address the mental health and educational requirements of children and teenagers impacted by PTSD in educational environments.

2. Post-Traumatic Stress Disorder (PTSD)

Psychological Trauma refers to an extraordinary incident that is outside the realm of ordinary life experiences and can induce significant distress and despair in the individual. Children may respond to alarming situations with psychological mechanisms that result in quick, intense, and occasionally persistent disorders. PTSD, a component of Trauma and stressor-induced disorders, is characterized as a syndrome that arises following exposure to a traumatic event, resulting in profound anxiety and emotions of hopelessness, abandonment, or panic. Nevertheless, it is not imperative for every person who undergoes such circumstances to manifest symptoms of PTSD. PTSD is a multifaceted condition characterized by several sets of symptoms. The primary features include distressing recollections, excessive sensory input, and

unfavorable emotional state. PTSD frequently co-occurs with other conditions, such as depression or anxiety disorders (Gkintoni et al., 2022a).

Clinical Symptoms

Following exposure to a stressful experience, children and adolescents have diverse reactions. It is essential to acknowledge that, in many cases, the symptoms of PTSD may not manifest immediately following a traumatic incident. This is known as delayed onset PTSD, where symptoms may emerge several months or even years after the traumatic experience (Connor et al., 2014). The primary responses include relapse, avoidance, and heightened arousal. Frequent occurrences involve involuntary and undesirable thoughts regarding the event. Arbitrary stimuli, such as a sound, might elicit the experience of reliving.

Nevertheless, it is not unusual for visual representations to arise in the child's consciousness at moments of tranquility, such as before falling asleep, which may disrupt their sleep patterns. Heightened susceptibility to stimulation frequently manifests as irritation, impaired focus, sleeplessness, agitated sleep, or excessive vigilance. Adolescent school performance may be impacted by heightened arousal and challenges in memory and focus.

The impact of trauma is primarily influenced by age and, to a lesser degree, by gender (Dyregrov & Yule, 2006). The unpredictable character of stressful experiences induces hopelessness (Wilmshurst, 2011). Generalized anxiety and phobias are frequently observed. Younger toddlers exhibit heightened aggression and destructiveness, as well as an increased tendency towards repetitive play or drawing that reflects the traumatic experience and its behavioral manifestations (Dyregrov & Yule, 2006). Children of a younger age who have been exposed to persistent stress may exhibit behavioral issues such as conduct problems or attachment disorders. Regression, a frequently observed symptom in younger children, refers to exhibiting behaviors characteristic of earlier stages of development. Such behaviors include nocturnal enuresis (bedwetting) or rapid decline in linguistic skills (Theodore, 2017). After reaching the age of 8 to 10 years, children's responses mimic adults' responses more closely. According to Dyregrov and Yule (2006), school-age children can comprehend and analyze a scenario more clearly. They also can grasp the potential long-term effects of trauma and contemplate their involvement in it. During adolescence, individuals tend to have a heightened focus on the long-term effects of trauma, as well as a significant emphasis on the social ramifications of trauma (Dyregrov & Yule, 2006).

Adults respond to trauma with emotions such as fear, terror, or despair, while children may exhibit disordered and disturbed behaviors as a result. Children typically struggle to exhibit avoidance behaviors due to their limited cognitive awareness. Loss of interest in youngsters can be challenging to detect, as it typically manifests as passive play, daydreaming, or an augmented engagement in imaginative play. It is frequently observed that children and adolescents who have undergone a traumatic event often encounter physical discomfort (Wilmshurst, 2011). Furthermore, aside from variations based on age, there appear to be gender disparities, with a higher number of girls meeting the criteria for a diagnosis of PTSD (Dyregrov & Yule, 2006).

Regarding children aged 6-12, past studies indicate that they typically do not have vivid recollections or memory loss due to the traumatic event. Nevertheless, individuals with this condition exhibit a disrupted perception of time (temporal asymmetry), meaning they cannot accurately remember the chronological order of events associated with the traumatic experience. Additionally, they may experience a belief in omens, perceiving that signs were foreshadowing the occurrence of the incident that affected them. This perception leads to a state of continual vigilance. Adults generally do not experience these symptoms (Wilmshurst, 2011).

According to Dyregrov and Yule (2006), children exhibit lower levels of emotional numbness than adults. Children in this age group engage in extensive 'post-traumatic play', which involves reenacting different aspects of the terrible incident they have gone through. This sort of play does not facilitate the child's emotional release, as it instead triggers a traumatic response that exacerbates feelings of anxiety and stress. They frequently recreate the incident by representing it through their paintings, plays, or other verbal and non-verbal communication forms (Hamblen, 2008). Manifestations may be seen both at school and at home. At home, sleep disturbances can manifest as several issues, such as nightmares, insomnia, sleepwalking, or bedwetting during the night. These symptoms typically manifest in the child during waking hours since the child anticipates their occurrence and may experience fear of sleeping alone or encounter other difficulties. During school hours, the youngster may exhibit signs of restlessness, heightened awareness, difficulty focusing, or encounter challenges with conduct or academic performance. The symptoms above exhibit a significant resemblance to the symptoms commonly associated with attention deficit-hyperactivity disorder (ADHD), frequently resulting in an incorrect diagnosis (Wilmshurst, 2011).

Regarding adolescents (12-18 years old), their clinical presentation closely resembles that of adults, albeit with a few distinctions. Adolescents who have undergone prolonged exposure to stressful situations or repeated traumatic occurrences may exhibit dissociative symptoms, outbursts of aggression, self-harming activities, or engage in substance misuse. Adolescents are a group of individuals in their teenage years who display a strong capacity for empathy and are particularly susceptible to the negative consequences of trauma (Koutsopoulou et al., 2024). The presence of the peer group and the significance of this stage of development can amplify hazardous behaviors and the enduring adverse effects of the condition (Wilmshurst, 2011). Adolescents are prone to replicating elements of trauma in their everyday lives, exhibiting behaviors akin to those of younger children. A notable characteristic of this age group is the heightened impulsivity and violence that typically arise following a traumatic incident (Hamblen, 2008); moreover, they have a greater tendency than other age groups to incorporate the trauma into their daily life by repeatedly reenacting it. When individuals perceive themselves as somewhat accountable for an event, they exhibit a psychological phenomenon known as 'survivor's guilt' (Wilmshurst, 2011). The impact of trauma on adolescents is mostly observed in their academic and social domains. Teenagers who have PTSD have a threefold higher likelihood of engaging in suicide attempts compared to teenagers who do not have PTSD (Theodore, 2017).

3. Criteria – Diagnosis of PTSD

The diagnostic criteria for PTSD have been revised by the fifth version of the DSM (Diagnostic and Statistical Manual of Mental Disorders), specifically the Diagnostic and Statistical Manual of Mental Disorders published by the American Psychiatric Association. PTSD has been reclassified under the category of 'trauma and stress-related disorders' instead of anxiety disorders. The diagnostic criteria for the illness, as outlined in DSM-V, apply to children aged six and above, adolescents, and adults.

Criterion A: Exposure to actual or potential death, severe harm, or sexual assault. According to this standard, a person can meet the criteria if they go through a traumatic event, witness a traumatic event happening to someone else, find out that a family member or close friend experienced a violent and accidental traumatic event, or are repeatedly exposed to disturbing details about the event.

Criterion B: This refers to the initial set of symptoms, known as re-life symptoms, which are involuntary, recurring, and distressing memories of the incident that might unexpectedly overpower the individual. The re-experiencing might manifest as dreams or dissociative episodes, such as flashbacks, in which the individual vividly relives the event as if it were occurring in the present moment. Alternatively, it can manifest as physiological reactions to stimuli that serve as reminders of the experience. Furthermore, the person experiences profound anguish when confronted with stimuli that bear resemblance or reflect some aspects of the psychologically traumatic incident, as well as any reminder of the traumatic event in a broader sense (American Psychiatric Association, 2013).

Criterion C: The second category of symptoms is avoidance symptoms, which refers to a strong avoidance of stimuli connected to the traumatic incident. The individual exhibits these symptoms through deliberate efforts to evade or excessively avoid distressing memories, thoughts, or emotions that are strongly associated with the traumatic incident. The individual actively avoids or goes to great lengths to avoid external stimuli that elicit distressing memories, thoughts, or emotions. This avoidance can lead to a sense of detachment from individuals, locations, discussions, activities, objects, and overall situations associated with the traumatic event (American Psychiatric Association, 2013).

Criterion D: Adverse alterations in cognitive processes and emotions. The individual may require assistance recollecting significant facets or particulars of the occurrence. However, the memory loss is attributed to dissociative amnesia rather than head trauma, alcohol, or other substance use. Cognitive impairment includes pessimistic views or expectations regarding oneself, others, or the world, as well as inaccurate perceptions of self, causality, or the aftermath of an incident, which prompt individuals to attribute blame to themselves or others. Furthermore, the individual may consistently experience unpleasant emotions, exhibit less interest or engagement in activities, withdraw from social interactions, experience heightened symptoms of anhedonia, and struggle to convey their emotions (American Psychiatric Association, 2013).

Criterion E refers to the third set of symptoms, signs of overstimulation. These symptoms involve noticeable fluctuations in a person's level of arousal, which can be seen as irritation and sudden bursts of rage, even in response to little stimuli. The conduct can manifest as either verbal aggression or physical violence, impulsivity, self-destructive behavior, hyperarousal, excessive startle reaction, difficulties concentrating, and sleep disruptions (American Psychiatric Association, 2013).

Criterion F requires investigating and verifying the coexistence of symptoms stated in criteria A, B, C, D, and E for more than one month (American Psychiatric Association, 2013).

Criterion G: The presence of considerable distress or impairment in various essential areas of daily functioning, such as social, occupational, personal, and other vital aspects (American Psychiatric Association, 2013).

Criterion H: The symptoms and decline in functioning mentioned above are not caused by the physical effects of medication, addictive substances, or any other medical condition (American Psychiatric Association, 2013).

To achieve a full diagnosis, it is necessary to determine particular concerns. Therefore, it is essential to note whether there are any dissociative symptoms or not (American Psychiatric Association, 2013).

Aside from the DSM-V, diagnosis can also be established using the criteria outlined in the ICD-11. Unlike the DSM-V, which has expanded the range of symptoms for PTSD to highlight its variety, the ICD-11 criteria for PTSD consist of only two fundamental symptoms

in each of the three symptom categories: re-experiencing, avoidance, and hyperarousal. Diagnosis requires the presence of at least one symptom from each set of symptoms. Contrary to the DSM-V, the ICD-11 acknowledges both simple PTSD and complicated PTSD, as noted by Sachser et al. (2017).

To diagnose PTSD, it is essential to confirm the occurrence of a psychotraumatic incident that precipitated the disease. Identifying stressful situations or accompanying symptoms in youngsters can complicate this approach. Hence, it is advantageous to inquire directly with the youngster regarding the occurrence and manifestations of the event. Nonetheless, the mental health practitioner responsible for diagnosing must attentively heed the child, adolescent, or parent, as they may not always be aware that an experience has been distressing for them, or they may be hesitant to reveal it (Connor et al., 2014).

The assessment often involves a clinical conversation with the kid while the parents or caregivers are present. When there are instances of domestic violence or abuse occurring within the family, the interview is carried out with the non-offending parent or another caregiver responsible for the child. When conducting interviews, it is essential to utilize language suitable for the child's stage of development (Ventouratou, 2009). Utilizing sketching and play as diagnostic instruments helps facilitate the expression of younger children. When conducting diagnoses on children, it is essential to bear in mind that youngsters are vulnerable to the influence of their parents' responses. Children often refrain from mentioning the trauma and its consequences if they are aware that it distresses their parents.

This may elucidate why parents frequently underestimate the magnitude of symptoms their children endure. Parents often prioritize conduct while disregarding their children's emotions and anxieties. It is prudent to utilize sources other than parental reports for formulating diagnoses, notwithstanding the potential usefulness of information provided by parents. Often, parents may lack awareness of the traumatic incident. However, they may observe sudden alterations in their child's behavior or functioning, which research indicates is very likely to be connected to the experience of trauma (Connor et al., 2014). In addition, a significant number of adults fail to recognize the profound influence of trauma on children due to the misconception that children are too young and immature to experience the emotional consequences of an event over a prolonged duration (Wilmshurst, 2011).

Over the past few years, multiple self-report scales have emerged to diagnose PTSD. Some of these assessment tools include the Children's Posttraumatic Cognitions Inventory (CPTCI), which evaluates maladaptive beliefs in children and young individuals who have experienced a traumatic event (McKinnon et al., 2016). Another tool is the Clinician-Administered PTSD Scale for Children and Adolescents (CAPS-CA), which is considered one of the fundamental scales for diagnosing PTSD. Additionally, there is the Anxiety Disorders Interview Schedule - Child and Parent Versions PTSD module (ADIS-C/P), the Child Posttraumatic Symptoms Scale (CPSS) specifically designed for children aged 8-15 years, and the Children Revised Impact of Events Scale (CRIES), which comprises two versions: CRIES-8 and CRIES-13, among others. (Leigh et al., 2016).

4. Diagnostic Difficulties in Children and Adolescents

Diagnosing PTSD in children and adolescents has unique challenges that do not arise in the diagnosis of adults. Challenges arise at several stages of the diagnostic process, such as determining the nature of a traumatic incident in children and adolescents or establishing the expected manifestation of symptoms. In youngsters, cognitive impairments and difficulties in expressing or verbalizing thoughts may hinder their comprehension of the psychotraumatic

incident (Wilmshurst, 2011). Children frequently encounter difficulties in accurately reporting specific reactions. For instance, they may struggle to express or comprehend avoidance reactions that are too intricate to be conveyed verbally. These reactions necessitate a more sophisticated cognitive introspection (Dyregrov & Yule, 2006). Furthermore, it is not unusual for them to refrain from discussing the incident due to their apprehension that it may distress their parents, leading to potential rejection or lack of comprehension.

However, it is widely recognized that children possess a remarkable imagination, which they utilize to enhance their accounts of their experiences. There is a propensity to confuse the pragmatic with the "seeming". Although a circumstance may not be overtly violent or menacing, it can still result in considerable stress for children. Examples of such situations include getting separated from caregivers in a throng of unfamiliar people or experiencing unwanted sexual contact (Wilmshurst, 2011).

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5. Special Population Groups: Refugees

Specific demographic cohorts exhibit a higher propensity for developing post-traumatic stress disorder (PTSD) due to the specific environmental conditions in which they reside. One of these distinct categories is refugees. In 2004, a minimum of 42 wars and/or armed conflicts occurred globally. The estimated global refugee population in 2005, according to the UNHCR, was 19.2 million. Recently, there has been a significant increase in the number of forcibly displaced individuals, reaching the level of a 'refugee crisis'. In 2015, around 65 million people were forced from their homes, with over half of them being under the age of 18 (Benson et al., 2018). A refugee is compelled to evacuate their nation of origin due to apprehension (Gwozdziwycz & Mehl-Madrona, 2013).

Refugees encounter numerous distressing circumstances, including torture and sexual abuse, while undertaking their journey (Benson et al., 2018). Adolescent migrants exhibit a higher propensity for developing mental disorders compared to older individuals. Approximately 40% of individuals satisfy the diagnostic criteria for either an anxiety disorder or post-traumatic stress disorder (PTSD). The prevalence rates of post-traumatic stress disorder (PTSD) in refugees range from 15% to 50% (Gwozdziwycz & Mehl-Madrona, 2013).

Research conducted in Germany indicates that almost 50% of refugees residing in a camp have been diagnosed with mental health issues, such as post-traumatic stress disorder (PTSD).

Furthermore, a study focusing on a group of Syrian refugees aged 7-14 years living in a German camp revealed that 33% of them met the diagnostic criteria for PTSD (Wilker et al., 2020). We can systematically classify the elements that contribute to the development of PTSD in this group into three distinct categories: Grief resulting from the death of loved ones, displacement from homes, and distressing encounters such as violence and torture, as well as challenges faced in the new country such as economic hardships, phobias, and discrimination. Refugee populations have shown a correlation between post-traumatic stress disorder (PTSD) and the effects of war trauma, as well as anxiety related to resettlement, declining health, and mental health issues among refugee moms (Gwozdziwycz & Mehl-Madrona, 2013).

PTSD has profound ramifications on individuals' overall well-being, manifesting as difficulties in attention, disruptions in sleep patterns, and diminished engagement in activities, among other symptoms. It can lead to neurodevelopmental abnormalities that affect cognitive capacities and decrease academic performance in children and adolescents. Instances of linguistic impairments have been observed in individuals affected by trauma associated with war or forced displacement. For instance, research conducted in Sri Lanka, including children who experienced trauma connected to conflict, discovered that this particular group of children exhibited decreased language proficiency. PTSD can also impair an individual's social aptitude and interpersonal connections. Refugees face a specific challenge as it exacerbates the struggle to adjust to the host nation (Wilker et al., 2020).

Refugees face several challenges when it comes to addressing their problems. These challenges include limited access to mental health professionals, a lack of therapy that is suitable for their language and culture, issues of mistrust, and the presence of stigma (Benson et al., 2018). Refugees tend to relocate frequently and have a transient nature, particularly during their initial settlement in the host country. Their main objective is to ensure their survival and establish optimal circumstances for themselves and their families. Consequently, the pursuit of treatment may be considerably postponed.

Nevertheless, even if individuals actively pursue assistance, the treatment must be suitable for challenging circumstances and surroundings, such as floods, as this can potentially impact its efficacy. Refugees, being a distinct group, require appropriate and tailored assistance. Specifically, the therapy should be tailored to the cultural background of the individuals receiving treatment while also being efficient and cost-effective. Trauma-focused therapies are the prevailing methods of treatment for DMD. Narrative exposure therapy is a prominent therapeutic option for migrants with DMD, as shown by research (Wilker et al., 2020). Narrative exposure treatment has been specifically designed for implementation in regions undergoing crises. It is concise, pragmatic, and easily comprehensible, making it accessible even to individuals without specialist expertise in psychology. Research indicates that therapy outcomes were notably more favorable when administered by a suitably trained refugee. Nevertheless, therapists must possess sufficient training to effectively identify and comprehend issues such as depression, abuse, substance misuse, and other related concerns (Oikonomou et al., 2024). However, it is essential to establish a thorough and organized program that facilitates appropriate referrals when needed (Gwozdziwycz & Mehl-Madrona, 2013).

Based on the meta-analysis conducted by Gwozdziwycz & Mehl-Madrona (2013) and the study conducted by Morkved et al. (2014), narrative exposure therapy is considered the preferred treatment for refugees. While narrative exposure therapy remains widely regarded as the most suitable, efficient, and highly recommended treatment for post-traumatic stress

disorder (PTSD) in refugees, a recent review conducted by Wilker et al. (2020) suggests that the current body of evidence is inadequate to make definitive conclusions due to the limited number of studies available on PTSD in refugee children and adolescents.

Refugee treatment systems have been modified to cater to their specific requirements. The objective is to offer a complete array of culturally tailored services to meet the specific needs of refugees. The emphasis lies not solely on the person but also encompasses the entire community, focusing on diminishing general stigmatization and implementing group programs at the school level. The efficacy of this method with refugees is substantial (Benson et al., 2018). Child-centered play therapy (CCPT) is another effective treatment for managing PTSD. This treatment modality has received favorable reviews due to its flexibility to adapt to different cultures and its emphasis on humanistic ideals, which can progressively guide individuals toward recovery. Play therapy is suitable for minority groups as it provides children with the opportunity to overcome cultural and linguistic obstacles that may be present (Davis & Pereira, 2014).

Researching refugee communities poses challenges that are occasionally encountered when investigating specific groups. The dropout rates for studies involving refugees are high; their living arrangements are also more unstable, and they frequently require more secure housing. Conducting research with refugees necessitates the utilization of research personnel who have received specialized training due to the cultural disparities and unique conditions involved (Wilker et al., 2020).

6. Risk Factors

According to the description of the illness, individuals get PTSD when they undergo an event that poses a threat to their own life, physical well-being, or that of another person (Hamblen, 2008). The primary triggers for the onset of post-traumatic stress disorder (PTSD) in children and adolescents include witnessing the death or injury of a person, receiving news of the sudden death or accident of a third person, experiencing war, extreme weather events, and natural disasters. Other triggers may include accidents, particularly traffic accidents, violent assaults, kidnappings, sexual and physical abuse, physical abuse and violence at home, serious illnesses such as cancer, extended stays in hospitals or intensive care units, exposure to images of injured or murdered individuals, artificial disasters or human errors, and the suicide of a friend or classmate.

The prevalence of PTSD in the overall population of children and adolescents is contingent upon the type of traumatic incident they have encountered and the temporal closeness to that event. The factors that can influence the impact of a traumatic event on a child include the parents' response to the event, the family's relationship with the community, the severity and type of the event (such as abuse), the child's proximity to the event, and whether the event was accidental or intentional. During instances of highly distressing psychotraumatic incidents, such as the abduction of 26 children in California, the prevalence of the illness was seen to be 100%. In a separate investigation, the significance of the factors above is commonly exemplified by a case where a sniper attack occurred at a California school. The incident resulted in the death of one student and a passerby, while 13 other students sustained injuries. Among the children who were present in the playground and directly witnessed the event, the occurrence of psychological disorder symptoms was observed in approximately 94.3% of cases.

Nonetheless, children who were present inside the school building during the incident had a post-traumatic stress disorder (PTSD) incidence of 88.9%. However, pupils who were absent on that day exhibited symptoms at a rate of 45%. Even after 14 months, a significant

proportion of children who were directly affected by the attack continued to exhibit severe or moderate symptoms, with 74% of them still having such symptoms. In contrast, 19% of the remaining children still reported experiencing severe or moderate symptoms.

Therefore, it is not inevitable that a youngster will get PTSD simply because they have encountered a stressful event. The manifestation of the disorder is influenced not only by the attributes of the circumstance but also by the attributes of the individual. Confident children may develop post-traumatic stress disorder (PTSD) as a result of an experience that typically does not cause the disorder in the majority of people. This is due to the inherent traits that render them susceptible (Yahyavi et al., 2014). Several factors contribute to an individual's susceptibility to the disorder, including gender (with research indicating that girls are more prone to developing PTSD than boys), prior traumatic experiences, the presence of a mental illness, particularly anxiety disorder or depression, parental pathology, and lack of parental support.

Chronic and recurrent exposure to stressors is crucial in the formation of PTSD or other disorders such as depression. It can also lead to personality changes and the emergence of suicidal or self-harming behaviors. High-risk categories encompass those who have experienced physical and sexual abuse, war, or harassment, as illustrated by Dyregrov and Yule (2006). Typically, the recurrence of an event, such as through media exposure, can amplify its impact, even if the occurrence is not persistent. A single occurrence of a traumatic incident is classified as Type I trauma, but a repetitive event that spans a prolonged duration is classified as Type II trauma. Varying responses are anticipated for each category. Specifically, while Type I trauma elicits the characteristic symptoms of PTSD, such as avoidance, reliving, and overstimulation, Type II trauma can elicit behaviors of disorganization, hostility, or denial. High-risk populations also encompass children exhibiting diminished self-worth, children who experienced early parental separation, and children from poor socio-economic status (SES) households. Studies indicate that the incidence of post-traumatic stress disorder (PTSD) is elevated among teenagers who engage in substance use (Wilmschurst, 2011).

Ultimately, age is crucial in determining the child's specific developmental stage. The earlier a child experiences trauma, the more likely it is to contribute to the development of interpersonal difficulties in their life. When the traumatic experience happens at a later time, the disorder has been associated with difficulties in academic settings (Wilmschurst, 2011). Furthermore, the experience of a traumatic incident in early life can also impact the development of the central neurological and neuroendocrine systems (Dyregrov & Yule, 2006).

Vulnerability to trauma is a multifaceted condition influenced by both biological and psychological elements, which in turn impact one another. Psychological aspects encompass personality features, including an individual's protective systems and resilience (Gkintoni, 2023; Halkiopoulos et al., 2021b). On the other hand, biological factors encompass the regulation of many biological processes, such as the levels of hormones and neurotransmitters and the operation of the autonomic nervous system (Yahyavi et al., 2014).

7. Regulatory and Protective Factors

Aside from the elements that can heighten the likelihood of developing PTSD, it is essential to consider the aspects that can safeguard children and adolescents and mitigate the negative consequences of trauma. Typically, a child's temperament, less genetic susceptibility, mental fortitude, self-regulation, personal characteristics, and proficiency in employing efficient problem-solving techniques can aid in efficiently coping with traumatic circumstances. The handling of trauma and the response of the kid and their environment can have a substantial

impact on the development of the disease. One may argue that the event's significance lies to a certain degree in how it is processed and the immediate reaction it elicits rather than the event itself. Various factors influence the trajectory of post-traumatic stress disorder (PTSD). Factors such as minimal stress and conflict within the family, a positive relationship with at least one parent, a supportive environment outside the family (such as school or peer group), the child's maturity, successful coping with past challenges, and the use of effective strategies to handle stress or prepare for traumatic events all appear to have a notably beneficial impact. Family attributes such as a solid marital relationship and a high level of education can also alleviate the impact of trauma (Wilmshurst, 2011). Typically, the family can play a crucial role in providing protection.

Family Influences

Similar to other diseases, children's responses are significantly impacted by their parents' responses. The intensity of the disorder's symptoms is connected with both family support and the coping mechanisms employed by parents to deal with trauma. According to Hamblen (2008), there is a direct correlation between parental support and the severity of their children's symptoms. The more support parents provide, and the less upset they display, the less severe their children's symptoms tend to be. It is widely recognized that children tend to imitate their parents' actions.

Moreover, apart from imitating their parents' responses, genetic factors may also influence children's reactions to negative experiences (Dyregrov & Yule, 2006). It is widely recognized that parents can pass on numerous psychological traits to their offspring as predispositions and that many of our behaviors have a biological basis. Hence, from a biological perspective, parents have a distinct influence on the potential manifestation of PTSD. For instance, susceptibility to traumatic circumstances is a heritable characteristic, as it is biologically regulated by the hypothalamic-pituitary-adrenal axis, which governs the release of stress chemicals, such as cortisol. The levels of cortisol during the occurrence of a traumatic incident have been linked to the later development of post-traumatic stress disorder (PTSD) (Yahyavi et al., 2014).

The response to a distressing incident can significantly affect its consequences, which is why the reactions of parents play a crucial part in the progression of the disease. Research has revealed that youngsters, especially those with moms who employ an elaborative rather than a limited narrative style, tend to provide more comprehensive descriptions of events. Hence, the communication style employed by parents plays a pivotal part in determining how a child deals with traumatic experiences. Parents frequently refrain from discussing their child's trauma due to their adverse emotions. Additionally, they may avoid such discussions due to cultural traditions, taboos, or the belief that they safeguard the child. These actions can diminish parents' capacity to assist their children (Dyregrov & Yule, 2006). Research has established a strong correlation between parental support and favorable results. The influence of parents is so substantial that it can effectively reduce the symptoms associated with the disease (Wilmshurst, 2011). Interactions between children and their parents, as well as other vital adults in their lives, play a crucial role in correcting any children's misunderstandings, helping them effectively handle and communicate their emotions, and supporting them in developing effective coping mechanisms. Occasionally, the child's nurturing environment can undergo significant changes due to the traumatic events that lead to the condition (Antonopoulou et al., 2023). These occurrences may include the death of a parent or sibling, for instance. This can result in an intricate amalgamation of pain and sorrow (Dyregrov & Yule, 2006). When parents have also

experienced a traumatic incident, they may become less attuned to their children's needs and provide less assistance as a result of their distress (Wilmshurst, 2011).

8. Effects of Trauma Outside the PTSD

Post-traumatic stress disorder frequently co-occurs with other psychiatric conditions. PTSD commonly coexists with a mood illness or an anxiety condition in over 50% of cases (Shalev et al., 2017). *Significant depression* is the primary comorbid disorder associated with PTSD. Studies indicate that the existence of depressive symptoms is linked to a higher probability of developing post-traumatic stress disorder (PTSD) following exposure to trauma (Knutsen et al., 2018). PTSD appears to be linked to several other illnesses, including substance misuse and anxiety disorders such as panic disorder, separation anxiety, and generalized anxiety disorder. Additionally, externalizing disorders like enantiomers-challenging disorder and PTSD are associated with each other (Hamblen, 2008). A significant percentage of teenagers who have developed post-traumatic stress disorder (PTSD) because of sexual abuse also exhibit comorbidity with limbic personality disorder, as indicated by Ventouratou (2009).

Children and adolescents who have undergone traumatic experiences may develop additional complications alongside post-traumatic stress disorder (PTSD). Childhood and adolescence are pivotal stages in an individual's development, encompassing numerous emotional, physical, and social transformations. Hence, being subjected to a stressful incident can result in substantial and enduring consequences (Theodore, 2017). Regarding this subject, further investigation has been conducted primarily on the ramifications of child abuse. Research indicates that children are prone to developing a range of issues, including fear-phobias, anxiety, depression, anger, hostility, aggression, sexually inappropriate behavior, self-destructive behavior, feelings of loneliness, stigma building, low self-esteem, confidence issues, physical distress, and substance abuse. Common issues include difficulties in forming and sustaining relationships with family or peers, academic challenges, and impairments in memory and focus (Hamblen, 2008).

Childhood trauma has significant and enduring effects, both on the individuals affected and on society at large. Research suggests that traumatic experiences during childhood are linked to substance misuse, juvenile delinquency, and criminal behavior (Mash & Barkley, 2003). Ultimately, the expenses associated with healthcare for those suffering from PTSD are significantly elevated because of the condition itself and the subsequent impact it has on their lives (Barrera et al., 2013).

9. Children and Adolescents with PTSD in the Educational Context

PTSD in children and adolescents within the educational context is a multifaceted problem that necessitates a complete approach to cater to their mental health requirements and academic performance. Research has indicated that post-traumatic stress disorder (PTSD) might manifest in distinct ways in children and adolescents as opposed to adults, underscoring the importance of customized methods for evaluating and addressing the condition within educational environments. The study conducted by Bartels and colleagues in 2019. Moreover, PTSD throughout adolescence has been linked to suicide, substance addiction, inadequate social support, scholastic difficulties, and compromised physical health (Nooner et al., 2012), underscoring the extensive and varied consequences of PTSD in this demographic. The research has focused on studying the occurrence of post-traumatic stress disorder (PTSD) in children and adolescents with congenital heart abnormalities, as well as identifying the factors that are associated with or influence the development of PTSD in this susceptible population (Meentken

et al., 2017). Furthermore, research has examined the influence of war trauma on symptoms of post-traumatic stress disorder (PTSD) in children and adolescents. This has provided insights into the various circumstances in which trauma can damage young individuals and highlighted the importance of interventions that are sensitive to cultural and contextual factors (Gkintoni & Ortiz, 2023; Smeeth et al., 2022).

Furthermore, researchers have examined the connection between war-related trauma and symptoms of post-traumatic stress disorder (PTSD) in teenagers, emphasizing the necessity for specific interventions that target the mental health requirements of young individuals impacted by trauma (Qeshta et al., 2019). The proper diagnosis of PTSD in children and adolescents is difficult, highlighting the importance of specialist training and evaluation techniques to provide precise identification and care for affected individuals (Cohen & Scheeringa, 2009). Moreover, researchers have investigated the efficacy of cognitive-behavioral treatment and eye movement desensitization and reprocessing (EMDR) therapy as effective interventions for children and adolescents with post-traumatic stress disorder (PTSD). This emphasizes the significance of evidence-based treatments in addressing the mental health requirements of this specific group (Cabrera et al., 2020; Teke & Avşaroğlu, 2021). In addition, the examination of research on the use of drugs to treat post-traumatic stress disorder (PTSD) in children and adolescents has offered valuable information on prospective pharmacological treatments for alleviating PTSD symptoms in young individuals (Huemer et al., 2010). Overall, studying and addressing post-traumatic stress disorder (PTSD) in children and adolescents in educational settings is a crucial field of research and intervention. The extensive and wide-ranging consequences of PTSD in this group require a thorough and customized approach to evaluating, treating, and providing assistance within educational environments (Gkintoni et al., 2024a).

Furthermore, proficiency in leadership and digital skills is essential for providing assistance to children and adolescents suffering from post-traumatic stress disorder (PTSD) within an educational setting. The profound influence of trauma on young individuals mandates a holistic strategy to effectively address their mental health requirements and academic performance (Gkintoni et al., 2021b; Gkintoni et al., 2021c). Enhancing digital abilities and leadership skills can operate as protective factors and promote the well-being of children and adolescents impacted by PTSD. Throuvala et al. (2019) have demonstrated that implementing family-centered approaches, providing parental education, and fostering improved communication skills with adolescents can effectively prevent internet addiction. This underscores the significance of promoting healthy interaction and reducing dysfunctional family behaviors. Moreover, the importance of cultivating leadership attributes among educators and students in the field of healthcare education is emphasized in relation to promoting the psychological well-being and mental health of those impacted by trauma (Diggele et al., 2020; Gkintoni et al., 2024). Developing digital abilities is crucial for effectively addressing the needs of children and adolescents with PTSD, including leadership skills. Research has shown that digital treatments are successful in enhancing working memory, academic abilities, and social and behavioral aspects (Gkintoni et al., 2022b). This underscores the promise of digital tools in promoting the mental well-being and cognitive growth of young individuals (Halkiopoulos et al., 2023; Moreno et al., 2021). Furthermore, it is essential to cultivate digital skills among educators to establish communities that are digitally advanced and focused on productivity (Antonopoulou et al., 2021; Antonopoulou et al. 2022b). These communities can help bridge gaps and provide support to children who have experienced trauma (Andrade et al., 2020). Digital competencies refer to a collection of technological,

pedagogical, and communicational abilities that empower instructors to operate efficiently in educational settings, with a focus on incorporating digital literacy into instructional methods (Gkintoni et al., 2021a; Gkintoni et al., 2023d; Andrade et al., 2020; Sortwell et al., 2023).

In addition, mind-body skills groups have proven to be successful in treating PTSD symptoms in children and adolescents. This underscores the promise of holistic methods that integrate both digital and non-digital media to promote mental health and well-being (Staples et al., 2011). Specialized applications and smart learning ecosystems are recognized as tools for fostering creative thinking and promoting data-driven thinking in STEM education (Giannoulis et al., 2022a; Giannoulis et al., 2022b). These technologies play a crucial role in supporting cognitive and analytical skills among young individuals who have experienced trauma (Wang, 2022). Moreover, the use of robotics to improve the social, cognitive, and functional abilities of children and adolescents with disabilities highlights the capacity of technology to promote inclusive educational methods and cater to the varied requirements of students impacted by trauma (Gkintoni et al., Syriopoulou-Delli & Gkiolnta, 2021). Ultimately, fostering digital competences and leadership abilities is crucial for aiding children and adolescents with PTSD inside the school setting. By cultivating proficiency in digital skills, advocating for leadership attributes, and incorporating technology into educational methods, (Antonopoulou et al., 2019; Antonopoulou et al., 2020; Antonopoulou et al., 2021a; Antonopoulou et al., 2021b) educators and stakeholders can establish nurturing settings that cater to the psychological well-being and academic requirements of young individuals impacted by trauma (Tzachrista et al., 2023). The incorporation of digital technologies, the cultivation of leadership skills, (Antonopoulou et al., 2019; Antonopoulou et al., 2022a) and the implementation of novel educational strategies can enhance the mental and emotional strength of children and teenagers with post-traumatic stress disorder (PTSD), hence promoting their academic achievements and overall growth (Antonopoulou, 2023a; Antonopoulou, 2023b; Gkintoni & Dimakos, 2022; Gkintoni et al., 2023a; Gkintoni et al., 2023b; Gkintoni et al., 2023c; Gkintoni et al., 2023d).

10. Conclusion

In conclusion, the body of research reviewed in this paper underscores the profound effects of PTSD on the mental health, educational outcomes, and overall development of children and adolescents. Effective assessment measures and treatments such as TF-CBT and EMDR have demonstrated success in mitigating the symptoms of PTSD, while supportive school environments and family relationships play a critical role in fostering resilience among affected youth. Importantly, there is a need to address specific challenges such as diagnostic difficulties, especially among special populations like refugees, and the multifaceted nature of trauma exposure. Continued efforts to prioritize early intervention, develop tailored treatment approaches, and invest in emotional intelligence programming within educational settings are essential. Moreover, innovative educational strategies and leadership can enhance support for students experiencing trauma, ultimately aiding in their recovery and promoting their academic and socio-emotional well-being.

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