

Risk Factors for PTSD After Trauma Exposure: A Systematic Review

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ABSTRACT

Post-traumatic stress disorder (PTSD) can result from experiencing highly stressful events and can be quite common and incapacitating. Understanding what causes PTSD and complex PTSD (CPTSD) is helpful when it comes to prevention and early treatments. An extensive literature search was performed using Scopus, Web of Science, and Google Scholar, filtering results from 2016 to 2026. The search terms included “PTSD”, “risk factors”, “trauma exposure” and “CPTSD”. A total of 305 records were found while adhering to PRISMA guidelines. After applying the study selection criteria, this resulted in 7 studies that were included in the final synthesis. It was found that developmental trauma, repeated trauma exposure, and interpersonal trauma were the biggest predictors of PTSD and CPTSD. Rumination, dysregulation, and negative cognitive and emotional processes were all linked to symptom intensity. Low social support, loneliness, and post-trauma stress as social and environmental risk factors raised the odds of developing PTSD. Additionally, female gender was found to be a general demographic predictor. High comorbidity with depression, anxiety, suicidality, and somatic symptoms was also observed. CPTSD was more strongly linked to chronic, interpersonal, and developmental trauma compared to PTSD. Multiple trauma factors, personal cognitive-emotional traits, social circumstances, and some post-trauma factors will determine prospective PTSD risk. The chronic and type of trauma, as well as some cognitive and emotional processes, are factors leading you to risk chronic PTSD and CPTSD.

Keywords: Risk Factors, PTSD, Trauma Exposure, Systematic Review

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Introduction

Post-traumatic stress disorder (PTSD) is recognized as one of the most severe and disabling psychological consequences of exposure to traumatic events and has increasingly become a major public health concern worldwide. PTSD develops following exposure to events such as war, violence, accidents, disasters, occupational trauma, severe illness, or life-threatening experiences and is characterized by symptoms including intrusive memories, hyperarousal, emotional numbing, avoidance, and disturbances in cognition and mood (1, 2). Recent decades have witnessed a significant increase in traumatic experiences associated with social crises, pandemics, interpersonal violence, occupational hazards, and collective disasters, leading researchers to pay greater attention to the mechanisms underlying PTSD development and maintenance (3, 4). Contemporary trauma theories suggest that PTSD is not solely the product of trauma exposure itself, but rather emerges from the interaction between traumatic experiences, individual vulnerabilities, cognitive

processing patterns, social support systems, and emotional regulation capacities (5, 6). Consequently, identifying psychological, cognitive, and social risk factors associated with PTSD has become essential for developing effective prevention and intervention strategies.

The prevalence of PTSD varies considerably across populations and contexts, yet available evidence indicates that trauma-related psychological symptoms affect millions of individuals globally. Epidemiological studies have demonstrated that traumatic experiences are highly common among both clinical and non-clinical populations, although not all exposed individuals develop PTSD (7). This discrepancy has encouraged researchers to investigate the specific variables that increase susceptibility to trauma-related psychopathology. In recent years, scholars have emphasized the importance of multidimensional models that integrate biological, psychological, cognitive, and interpersonal mechanisms in explaining PTSD vulnerability (8). Such models argue that PTSD results from dynamic interactions among trauma severity, pre-existing mental health conditions, cognitive appraisals, social support deficits, emotional dysregulation, and maladaptive coping strategies (9). Therefore, a comprehensive understanding of PTSD requires attention not only to traumatic exposure itself but also to the broader psychological and social context within which trauma is experienced.

Research on occupational trauma has provided substantial evidence regarding the psychological burden associated with repeated exposure to stressful and life-threatening situations. First responders, healthcare professionals, interpreters working with traumatized populations, drivers involved in traumatic accidents, and individuals exposed to mass violence have all shown elevated rates of PTSD symptoms and related psychological disorders (10-12). For example, Padmanabhanunni and Pretorius reported that first responders exposed to repeated traumatic events frequently experienced severe levels of PTSD, depression, and anxiety, highlighting the cumulative psychological impact of occupational trauma (10). Similarly, Ruberl and colleagues demonstrated that interpreters with personal trauma histories were particularly vulnerable to secondary traumatic stress and PTSD symptoms due to repeated indirect exposure to traumatic narratives (11). Such findings indicate that trauma exposure can occur in both direct and indirect forms and that repeated encounters with traumatic material may significantly compromise emotional stability and psychological functioning.

Another important area of PTSD research concerns trauma resulting from accidents, medical crises, and large-scale societal events. Studies have shown that traumatic stress reactions may emerge following severe physical illness, motor vehicle accidents, natural disasters, pandemics, and mass shootings (1, 4). Sandhu and colleagues emphasized that acute cardiovascular events may trigger PTSD symptoms due to perceived threats to survival, uncertainty, and persistent physiological stress responses (1). Likewise, Olszańska et al. found that exposure to mass shootings was associated with elevated rates of PTSD and major depressive disorder, suggesting that collective trauma events can produce long-lasting psychological consequences (4). During the COVID-19 pandemic, pandemic-related stressors such as fear of death, social isolation, uncertainty, and economic instability also contributed to increased PTSD symptoms in many populations (3). These findings collectively demonstrate that PTSD can develop across diverse traumatic contexts and underscore the importance of understanding both universal and context-specific risk factors.

One of the central themes in contemporary PTSD literature is the role of cognitive processing and emotional regulation in shaping trauma outcomes. Cognitive models of PTSD propose that maladaptive

interpretations of traumatic experiences contribute significantly to the persistence of symptoms (13). Individuals with PTSD often exhibit distorted beliefs regarding safety, trust, control, and self-worth, which reinforce hypervigilance and avoidance behaviors. Warnock-Parkes and colleagues emphasized that cognitive change mechanisms, particularly those targeted through behavioral experiments in cognitive therapy, can substantially reduce PTSD symptoms by modifying dysfunctional appraisals and avoidance patterns (13). These findings align with broader evidence suggesting that trauma survivors who develop adaptive cognitive processing styles are more likely to recover successfully from traumatic experiences.

Emotional dysregulation is another major factor associated with PTSD symptom severity and chronicity. Trauma exposure frequently disrupts individuals' capacity to identify, tolerate, and regulate emotional experiences, leading to heightened anxiety, irritability, emotional numbing, and impulsive coping behaviors (14). Individuals with low distress tolerance may become overwhelmed by trauma-related emotions and engage in avoidance strategies that paradoxically maintain PTSD symptoms over time. Research has demonstrated that deficits in emotion regulation are particularly pronounced among individuals with complex PTSD, which involves chronic trauma exposure and disturbances in self-organization (2, 15). Schöndorf and colleagues reported that individuals with complex PTSD exhibited greater impairments in cognitive functioning and emotional regulation compared to those with non-complex PTSD, suggesting that prolonged trauma exposure may intensify cognitive and affective difficulties (15). Therefore, examining emotional and cognitive regulation processes is essential for understanding variations in trauma responses.

Complex PTSD has emerged as an important extension of traditional PTSD frameworks and reflects the psychological consequences of prolonged, repeated, or interpersonal trauma. Unlike standard PTSD, complex PTSD includes disturbances in affect regulation, negative self-concept, and interpersonal functioning (2). Researchers have increasingly emphasized the importance of childhood trauma, attachment disruptions, and socio-interpersonal factors in the development of complex PTSD (5). Maercker and colleagues proposed a cascade model in which early maltreatment disrupts attachment security and emotional regulation capacities, thereby increasing vulnerability to later PTSD symptoms (5). Similarly, Kairyte et al. demonstrated that various forms of traumatic experiences, including emotional abuse, neglect, and interpersonal violence, were significantly associated with both PTSD and complex PTSD symptomatology (14). These findings suggest that trauma-related psychopathology is multidimensional and shaped by developmental as well as contextual influences.

The comorbidity between PTSD and other psychological disorders has also received considerable attention in recent years. Studies consistently indicate that PTSD frequently co-occurs with depression, anxiety disorders, sleep disturbances, and substance use problems (10, 16, 17). Claxton highlighted that trauma-exposed children and adolescents often experience simultaneous PTSD and depressive symptoms, with emotional dysregulation and environmental stressors acting as shared risk factors (17). Similarly, Abedi et al. found significant associations between depressive symptoms and poor sleep quality among taxi drivers exposed to occupational stress and trauma-related experiences (16). Such comorbidity patterns indicate that PTSD rarely occurs in isolation and that broader emotional and physiological dysfunctions often accompany trauma-related psychopathology.

Social and interpersonal variables also play a critical role in PTSD recovery and resilience. Social support has consistently been identified as one of the strongest protective factors against trauma-related

psychological distress (6). According to biopsychosocial models, supportive interpersonal relationships facilitate emotional processing, reduce isolation, and enhance coping resources following trauma exposure. Calhoun and colleagues emphasized that family cohesion, peer support, and community connectedness can significantly buffer the negative psychological effects of trauma (6). Conversely, individuals lacking adequate social support are more likely to develop chronic PTSD symptoms and related psychological impairments. Herd et al. similarly found that both individual and social protective factors predicted more favorable PTSD symptom trajectories among adolescents exposed to trauma (9). These findings demonstrate that PTSD development is influenced not only by intrapersonal vulnerabilities but also by broader relational and environmental contexts.

Gender differences in PTSD prevalence and symptom expression constitute another important area of investigation. Evidence suggests that women generally exhibit higher rates of PTSD than men despite often experiencing different forms of trauma exposure (18). Farhood and colleagues argued that gender differences in trauma types, emotional processing styles, and sociocultural expectations may contribute to disparities in PTSD prevalence (18). Women are more likely to experience interpersonal trauma and may exhibit greater internalizing responses, whereas men may show more externalizing coping behaviors. Understanding such gender-related variations is essential for designing culturally and clinically sensitive interventions for trauma survivors.

Recent trauma research has increasingly incorporated constructs related to self-concept, dissociation, and multisensory integration. Angill-Williams emphasized the relationship between dissociation and self-concept clarity in trauma-exposed individuals, suggesting that disrupted self-perception may contribute to PTSD symptom persistence (19). Dissociative responses may initially function as protective mechanisms during overwhelming experiences; however, chronic dissociation can interfere with emotional integration and adaptive coping. Trauma-related alterations in cognitive and sensory processing may therefore contribute to fragmented autobiographical memory, identity confusion, and impaired emotional regulation. These emerging perspectives highlight the complexity of trauma-related psychopathology and the need for integrative models encompassing cognitive, emotional, sensory, and interpersonal dimensions.

In addition to psychological vulnerabilities, contemporary studies emphasize the significance of environmental and situational stressors in predicting PTSD severity. Chen's comparative analysis of established PTSD risk factors demonstrated that variables such as prior trauma history, perceived threat, social support deficits, and maladaptive cognitive appraisals were significant predictors of PTSD symptom severity during the first six months following trauma exposure (8). Similarly, van Duinkerken et al. concluded that individual risk factors strongly predicted PTSD symptoms and reduced wellbeing following pandemic-related trauma exposure (3). Such findings reinforce the importance of examining trauma responses through multidimensional frameworks that account for cognitive, emotional, interpersonal, and environmental influences simultaneously.

Although substantial progress has been made in PTSD research, several important gaps remain in the literature. Many previous studies have focused primarily on isolated risk factors rather than examining the complex interactions among cognitive, emotional, and social mechanisms underlying PTSD development. Furthermore, much of the existing evidence originates from Western populations, while trauma experiences and psychological responses may vary significantly across sociocultural contexts (7). There is therefore a

need for further research examining PTSD risk factors and associated psychological mechanisms within diverse cultural settings. In addition, relatively limited research has comprehensively integrated variables such as emotional regulation, cognitive processing, interpersonal support, self-concept, and distress tolerance into unified explanatory models.

Another limitation of existing studies concerns the growing recognition of complex PTSD and the insufficient understanding of its cognitive and interpersonal correlates. While research has established associations between childhood trauma, attachment disturbances, and complex PTSD symptoms, further investigation is needed to clarify the pathways linking these variables (5, 15). Similarly, emerging constructs such as dissociation, multisensory integration, and cognitive flexibility require more extensive empirical examination within trauma research. Understanding how these mechanisms interact may contribute to more precise prevention strategies and individualized therapeutic interventions for trauma survivors.

Given the increasing prevalence of trauma exposure worldwide and the substantial psychological burden associated with PTSD, identifying the cognitive, emotional, interpersonal, and contextual mechanisms underlying trauma-related psychopathology is of critical importance. A comprehensive understanding of these factors may facilitate early identification of vulnerable individuals, improve trauma-focused interventions, and strengthen resilience-promoting strategies across diverse populations. Therefore, the present study aims to investigate the psychological and contextual factors associated with PTSD symptomatology and trauma-related psychological outcomes.

Methods and Materials

The present systematic review was conducted to identify and synthesize the major risk factors associated with the development of post-traumatic stress disorder (PTSD) following trauma exposure. A comprehensive literature search was performed in three major electronic databases, including Scopus, Web of Science, and Google Scholar. The search strategy included combinations of keywords and Medical Subject Headings (MeSH)-related terms such as “PTSD”, “post-traumatic stress disorder”, “risk factors”, “trauma exposure”, “predictors”, “CPTSD”, and “psychological trauma”. Studies published between 2016 and 2026 were considered eligible for inclusion in order to capture the most recent evidence regarding PTSD risk factors across diverse trauma-exposed populations.

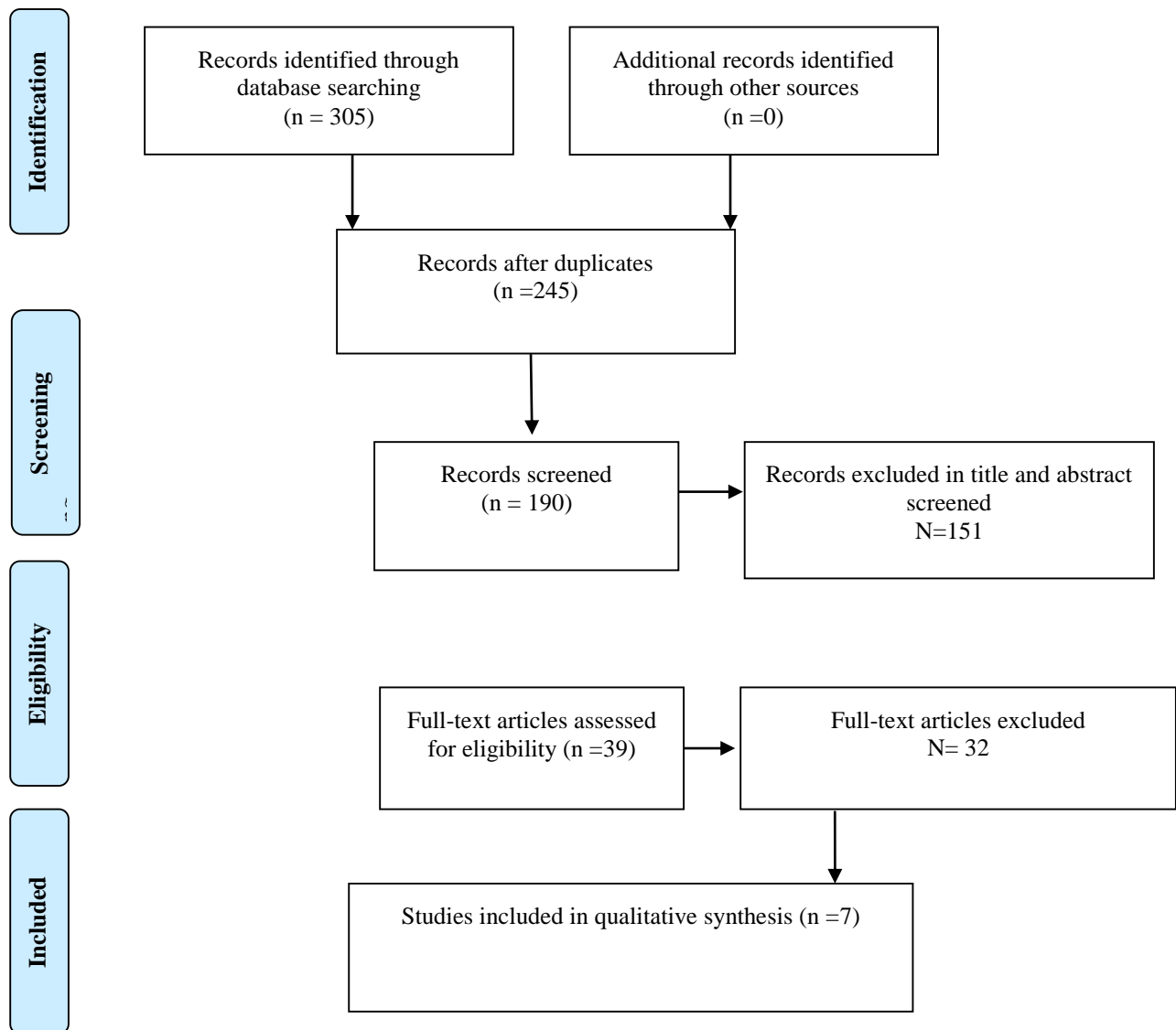


Figure 1. PRISMA Flowchart

Following the initial database search, a total of 305 records were identified. Duplicate articles were removed, and the remaining studies were screened based on titles and abstracts. Full-text articles were then assessed for eligibility according to predefined inclusion and exclusion criteria. The study selection process was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, and the PRISMA flowchart demonstrated the progression from the initial 305 identified studies to the final inclusion of 7 eligible articles (Figure 1).

Studies were included if they: (1) examined risk factors associated with PTSD or CPTSD following trauma exposure, (2) involved trauma-exposed populations, (3) were original empirical studies, (4) were published in English between 2016 and 2026, and (5) reported sufficient data regarding psychological, social, cognitive, emotional, or environmental predictors of PTSD. Both cross-sectional and longitudinal study designs were included to provide a broader understanding of PTSD risk factors across different populations and trauma contexts.

Studies were excluded if they: (1) were review articles, meta-analyses, case reports, conference abstracts, editorials, or dissertations, (2) did not specifically investigate PTSD-related risk factors, (3) lacked sufficient

methodological information or full-text availability, or (4) focused primarily on treatment outcomes rather than predictors of PTSD development. After applying these criteria, 7 studies met the eligibility requirements and were included in the final qualitative synthesis.

Findings and Results

The characteristics, study design, trauma exposure types, PTSD assessment measures, and main risk factors identified in the seven included studies are summarized in Table 1. The findings showed that PTSD and CPTSD risk factors were multidimensional and included trauma-related, cognitive-emotional, social-environmental, demographic, and post-trauma variables.

Table 1. Characteristics of Included Studies and Extracted Risk Factors

Author/year	Country / Population	Study Design	Sample Size	Trauma Exposure	PTSD Measure	Main Risk Factors Identified
Hyland et al., 2021	Republic of Ireland general adult population	Cross-sectional national survey	N = 1020	Lifetime exposure to traumatic events; interpersonal trauma; multiple trauma exposure across developmental periods	Self-report measures assessing PTSD and CPTSD	Interpersonal trauma; cumulative trauma exposure; trauma across developmental stages
Farhood et al., 2018	Civilians from South Lebanon after 2006 war	Cross-sectional study	N = 991	War-related trauma; witnessed trauma; domestic violence	Arabic version of the Harvard Trauma Questionnaire	Low social support; stressful life events; witnessed trauma; domestic violence
Karatzias et al., 2019	United Kingdom trauma-exposed adults	Cross-sectional retrospective study	N = 1051	Childhood and adulthood interpersonal trauma; recent traumatic exposure	ICD-11 diagnostic criteria for PTSD and CPTSD	Female gender; younger age; interpersonal childhood trauma; interpersonal adulthood trauma; urban upbringing; recency of trauma
van Duinkerken et al., 2025	Netherlands youth and adults exposed to pandemic-related traumatic events	Longitudinal panel survey	5,782 observations over time	COVID-19-related traumatic experiences, including severe illness, loss of loved ones, and pandemic stressors	PTSD Checklist for DSM-5	Loneliness; stress; somatic symptoms; gender; education level
Chen, 2024	Trauma patients recruited from an Emergency Department	Prospective follow-up study	N = 178	Recent traumatic event	PTSD symptom severity assessed at six-month follow-up	Cognitive attributions; trauma history; emotional response/regulation; poor sleep quality; self-perceived pain; socioeconomic factors
Claxton, 2018	Trauma-exposed children and adolescents	Empirical cross-sectional study	N = 280 adolescents	Childhood and adolescent trauma exposure	PTSS and depression symptom measures	Comorbid PTSD; negative cognitive appraisals; cognitive avoidance; rumination; post-trauma environmental factors
Ruberl et al., 2024	Germany interpreters working with refugees	Cross-sectional online survey	N = 83	Personal traumatic experiences and exposure to traumatic refugee content	PTSD and STS symptom severity measures	Number of primary traumatic events experienced

Type of Trauma Exposure

The findings indicated that the type of trauma exposure was an important determinant of PTSD and CPTSD symptom severity. Interpersonal, developmental, and repeated traumatic exposures were more consistently associated with severe PTSD-related outcomes than single-event or acute trauma. Studies on general adult and trauma-exposed populations showed that interpersonal trauma across developmental stages was strongly associated with both PTSD and CPTSD. Childhood and adolescent trauma exposure was also linked to greater psychological vulnerability, particularly when accompanied by maladaptive cognitive and emotional responses.

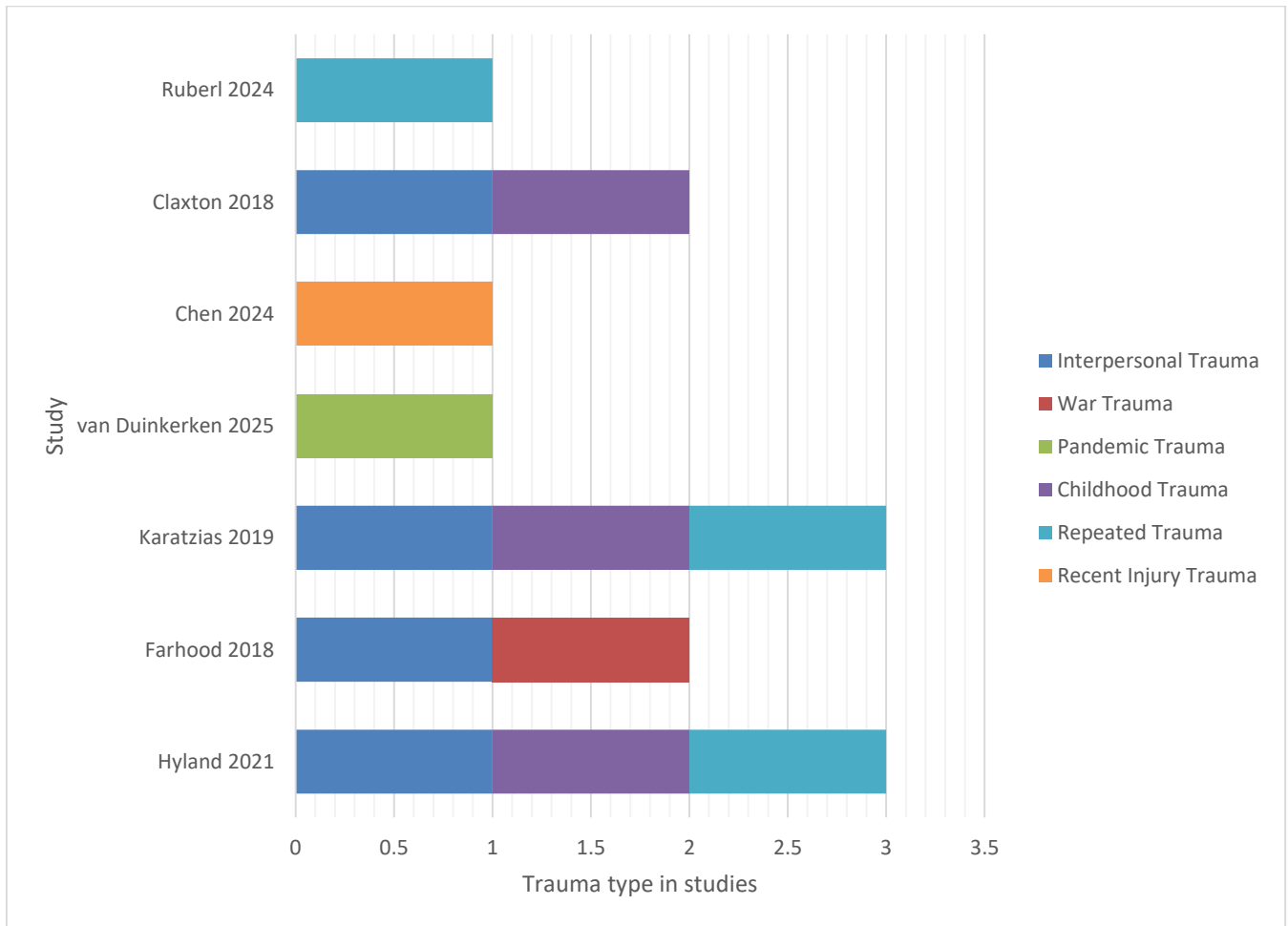


Figure 2. Comparison of Trauma Types Across Included Studies

Cumulative Trauma Exposure

Cumulative trauma exposure emerged as a repeated risk factor across the included studies. Individuals exposed to multiple traumatic events across time, especially across childhood and adulthood, showed greater vulnerability to PTSD and CPTSD symptoms. In occupational and clinical samples, prior traumatic experiences also increased PTSD and secondary traumatic stress symptoms. Overall, the findings indicated a dose–response pattern, in which higher levels of trauma exposure were associated with greater psychological impairment.

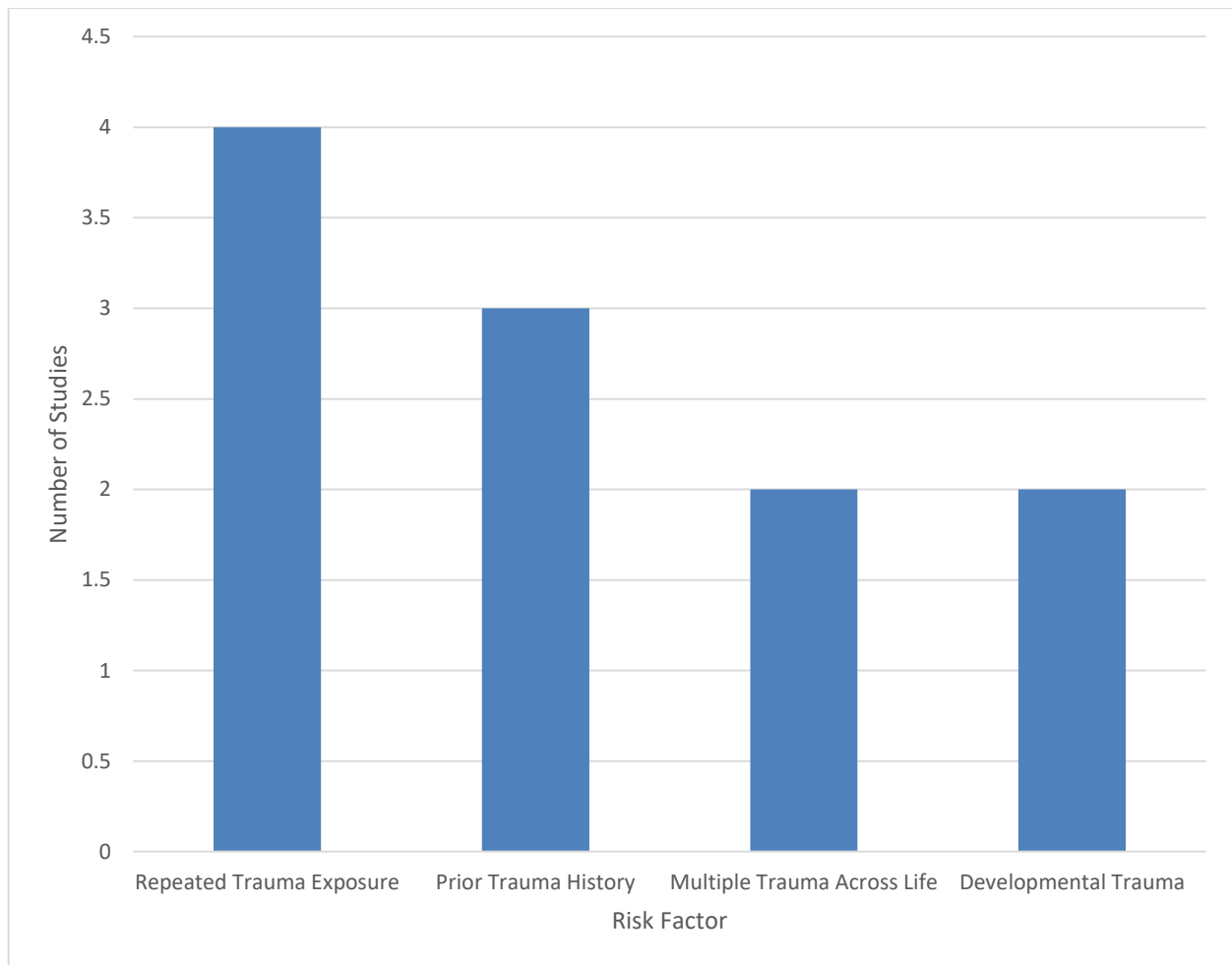


Figure 3. Frequency of Key PTSD Risk Factors Across Included Studies

Cognitive and Emotional Risk Factors

Cognitive and emotional risk factors were repeatedly identified across the reviewed studies. Negative cognitive appraisals, rumination, cognitive avoidance, emotional dysregulation, poor sleep quality, and pain perception were associated with higher PTSD symptom severity. Post-trauma cognitive factors appeared particularly important among adolescents and recently trauma-exposed individuals. These findings showed that PTSD severity was shaped not only by trauma exposure but also by the way individuals cognitively and emotionally processed traumatic experiences.

Social and Environmental Factors

Social and environmental factors were also prominent predictors of PTSD outcomes. Low social support, loneliness, stressful life events, domestic violence, and adverse post-trauma environments were associated with higher PTSD symptom severity. In pandemic-related trauma, loneliness and stress were among the strongest predictors of PTSD symptoms. In trauma-exposed adolescents, post-trauma environmental stressors contributed to psychological distress.

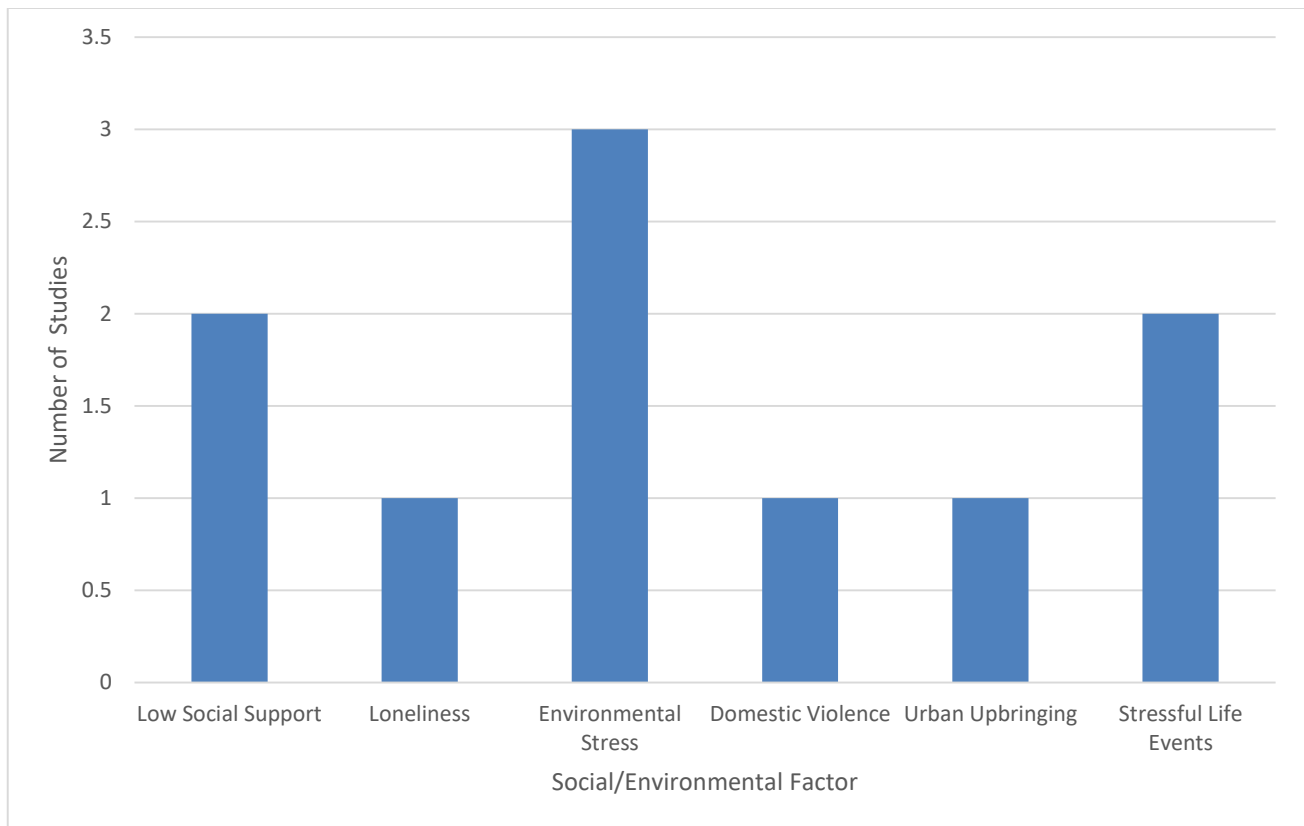


Figure 4. Social and Environmental Factors

Gender Differences

Gender differences were observed in several included studies. Female gender was repeatedly associated with higher PTSD and CPTSD symptom severity. This pattern was reported in war-exposed civilian populations, trauma-exposed adults, and individuals exposed to pandemic-related traumatic stressors. The findings indicated that gender should be considered an important demographic factor in PTSD risk assessment.

PTSD Versus CPTSD

The findings showed that CPTSD was more strongly associated with chronic, interpersonal, and developmental trauma than PTSD alone. Studies that differentiated PTSD from CPTSD reported that CPTSD was linked to repeated trauma exposure and broader disturbances in emotional regulation, self-concept, and interpersonal functioning. These findings supported the importance of distinguishing PTSD from CPTSD in trauma-related assessment.

Psychiatric Comorbidity

Psychiatric comorbidity was common across the reviewed studies. PTSD and CPTSD frequently co-occurred with depression, anxiety, suicidality, somatic symptoms, and sleep-related problems. In adolescent samples, PTSD symptoms were closely associated with depressive symptoms. In adult and pandemic-exposed populations, somatic symptoms and psychological stress were also related to PTSD severity.

Post-Trauma Factors

Post-trauma factors played an important role in PTSD symptom persistence. Sleep disturbance, loneliness, rumination, cognitive avoidance, pain perception, and environmental stressors were identified as important post-trauma predictors. These findings showed that trauma-related outcomes were shaped not only by the traumatic event itself but also by ongoing psychological, physiological, and environmental conditions after trauma exposure.

Discussion and Conclusion

The present review aimed to identify and synthesize the major risk factors associated with PTSD and CPTSD across diverse trauma-exposed populations. The findings demonstrated that PTSD vulnerability is a multidimensional phenomenon shaped by the interaction of trauma characteristics, cumulative exposure, cognitive-emotional processes, social and environmental contexts, gender-related variables, psychiatric comorbidity, and post-trauma experiences. Overall, the reviewed evidence suggests that PTSD and CPTSD cannot be understood solely as direct reactions to traumatic events, but rather as outcomes emerging from complex interactions among psychological, interpersonal, developmental, and contextual factors.

One of the major findings of the present review was the strong relationship between interpersonal and chronic trauma exposure and PTSD/CPTSD severity. The findings indicated that repeated interpersonal trauma, especially trauma occurring across developmental periods, was associated with more severe psychological outcomes than isolated or acute traumatic experiences (2, 7). This finding is highly consistent with trauma-developmental theories suggesting that chronic interpersonal trauma disrupts emotional regulation, attachment security, and self-organization over time (5). Exposure to interpersonal trauma such as domestic violence, childhood abuse, or prolonged victimization may undermine an individual's sense of safety and trust, thereby increasing long-term vulnerability to trauma-related psychopathology. The reviewed findings also align with the ICD-11 conceptualization of CPTSD, which emphasizes disturbances in self-organization resulting from prolonged or repeated trauma exposure (2).

The results also demonstrated that cumulative trauma exposure significantly increased PTSD symptom severity and vulnerability. Several reviewed studies showed that individuals exposed to multiple traumatic events across different life stages experienced higher rates of PTSD and CPTSD symptoms (7, 11). This finding supports the cumulative stress and trauma sensitization models, which propose that repeated trauma progressively weakens psychological coping capacities and increases physiological stress reactivity. Repeated exposure to trauma may alter emotional processing systems and increase sensitivity to subsequent stressors, thereby intensifying psychological vulnerability. These findings are also consistent with previous research showing that cumulative trauma exposure predicts greater emotional dysregulation, anxiety, and functional impairment among trauma survivors (14). Furthermore, cumulative trauma may contribute to chronic hypervigilance and maladaptive cognitive schemas that persist long after trauma exposure.

Another important finding of the present review was the significant role of cognitive and emotional risk factors in PTSD development and maintenance. Maladaptive cognitive appraisals, rumination, emotional dysregulation, cognitive avoidance, and poor sleep quality were repeatedly associated with PTSD severity (8, 17). These findings strongly support cognitive models of PTSD, which emphasize the importance of trauma-related interpretations and maladaptive information processing in sustaining symptoms (13). Individuals

who interpret traumatic experiences as ongoing threats may experience persistent hyperarousal, intrusive memories, and heightened fear responses. Rumination and cognitive avoidance may further interfere with adaptive emotional processing, preventing integration of traumatic memories and prolonging psychological distress.

The role of emotional dysregulation identified in the reviewed studies is also theoretically meaningful. Emotional dysregulation may impair individuals' capacity to tolerate distress, regulate physiological arousal, and cope adaptively with trauma-related emotions. The findings indicating indirect relationships between emotional dysregulation, sleep disturbance, and PTSD severity suggest that trauma-related psychopathology involves interconnected emotional and physiological mechanisms (8). These findings are highly compatible with broader evidence linking emotional dysregulation to anxiety disorders, depressive symptoms, and chronic stress responses (10, 16). Sleep disturbance, in particular, may exacerbate emotional instability and impair cognitive recovery processes, thereby contributing to symptom persistence over time.

The reviewed findings also highlighted the substantial influence of social and environmental factors on PTSD outcomes. Low social support, loneliness, stressful life events, and adverse post-trauma environments emerged as significant predictors of PTSD symptom severity (3, 18). These findings support the social buffering hypothesis, which proposes that supportive social relationships reduce the psychological impact of trauma by enhancing emotional resilience and coping capacity (6). Individuals who receive emotional support, practical assistance, and interpersonal validation following trauma exposure may be better able to process traumatic experiences and regulate distress. Conversely, social isolation and loneliness may intensify feelings of vulnerability, helplessness, and perceived threat.

The importance of social and environmental variables is particularly evident in contexts involving war trauma, pandemic-related stressors, and post-trauma adversity. The reviewed studies suggest that traumatic exposure alone does not fully determine PTSD outcomes; rather, ongoing social and environmental conditions substantially influence recovery trajectories. Individuals exposed to chronic stressors, unstable living conditions, or interpersonal conflict may remain psychologically vulnerable long after the original traumatic event. These findings are consistent with biopsychosocial perspectives emphasizing that trauma recovery depends on interactions between psychological functioning and environmental resources (6). In addition, environmental stressors may contribute to sustained hypervigilance and emotional dysregulation, further complicating recovery processes.

Gender differences represented another important finding of the present review. Female gender was repeatedly associated with higher PTSD and CPTSD symptom severity across several studies (2, 3, 18). This finding is consistent with previous literature reporting greater PTSD vulnerability among women following trauma exposure. Several mechanisms may explain this pattern. Biological differences in stress reactivity, fear conditioning, and hormonal regulation may contribute to heightened emotional sensitivity among females. In addition, women are more frequently exposed to interpersonal forms of trauma, including domestic violence and sexual victimization, which are strongly associated with PTSD severity (18). Sociocultural expectations regarding emotional expression and caregiving responsibilities may also influence how women process and report traumatic experiences.

The reviewed studies also emphasized the distinction between PTSD and CPTSD. Individuals with CPTSD were more likely to have experienced chronic interpersonal and developmental trauma, whereas PTSD alone

was more commonly associated with discrete traumatic events (2, 7). This finding supports contemporary trauma theories suggesting that prolonged trauma exposure disrupts not only fear-processing systems but also broader aspects of emotional regulation, identity formation, and interpersonal functioning. CPTSD therefore reflects a more pervasive psychological disturbance involving emotional dysregulation, negative self-concept, and relational difficulties. The reviewed findings further suggest that trauma chronicity and interpersonal betrayal may play particularly important roles in CPTSD development.

The distinction between PTSD and CPTSD has important clinical implications. Traditional PTSD interventions often focus primarily on fear extinction and trauma memory processing; however, individuals with CPTSD may require broader interventions targeting emotional regulation, self-identity, and interpersonal functioning. The reviewed findings therefore support the need for trauma-informed treatment approaches tailored to the complexity and chronicity of traumatic experiences. Furthermore, recognizing CPTSD as a distinct condition may improve diagnostic accuracy and facilitate more individualized therapeutic planning.

Another major finding of the present review was the high prevalence of psychiatric comorbidity among trauma-exposed individuals. PTSD symptoms frequently co-occurred with depression, anxiety, suicidality, somatic symptoms, and sleep disturbances (7, 17). These findings support transdiagnostic models of psychopathology suggesting that trauma exposure affects multiple psychological systems simultaneously. Emotional dysregulation, maladaptive cognitive processing, and chronic physiological stress activation may contribute not only to PTSD symptoms but also to broader psychological dysfunctions. Depression and anxiety may intensify emotional distress and impair coping resources, thereby exacerbating PTSD severity.

The reviewed evidence regarding psychiatric comorbidity also underscores the importance of comprehensive mental health assessment among trauma survivors. Focusing exclusively on core PTSD symptoms may overlook clinically significant depression, anxiety, somatic complaints, or suicidality that substantially affect functioning and treatment outcomes. In adolescent populations, the strong relationship between PTSD and depressive symptoms further suggests that trauma-related psychopathology may emerge early in development and persist across time if left untreated (17). Similarly, the association between PTSD and somatic symptoms identified in pandemic-related trauma research indicates that trauma exposure may influence both psychological and physical health outcomes (3).

The findings of the present review additionally demonstrated the importance of post-trauma factors in shaping PTSD symptom persistence. Sleep disturbances, loneliness, rumination, chronic stress, cognitive avoidance, and pain perception emerged as important post-trauma predictors (8, 17). These findings suggest that PTSD is not determined solely by pre-trauma vulnerabilities or trauma exposure itself, but also by the individual's subsequent psychological and environmental experiences. Persistent sleep problems may interfere with emotional recovery and memory consolidation, whereas rumination and cognitive avoidance may maintain intrusive memories and emotional distress over time.

The identification of post-trauma factors as modifiable influences on PTSD outcomes has significant practical implications. Early interventions targeting emotional regulation, sleep quality, social connectedness, and maladaptive cognitive processing may reduce the likelihood of chronic PTSD symptoms. The reviewed evidence therefore highlights the importance of ongoing monitoring and psychosocial support

following traumatic exposure. Trauma recovery should be conceptualized as a dynamic process influenced by both immediate trauma characteristics and longer-term psychological adaptation.

Overall, the findings of the present review provide strong evidence that PTSD and CPTSD are multifactorial conditions shaped by complex interactions among trauma exposure, cognitive-emotional vulnerabilities, interpersonal processes, environmental stressors, and post-trauma adaptation. The reviewed studies collectively support integrative models of trauma-related psychopathology that move beyond simplistic event-based explanations and emphasize the broader psychological and social contexts within which trauma occurs. Understanding these interacting risk factors may contribute to more effective prevention strategies, improved early identification of vulnerable individuals, and development of trauma-informed interventions tailored to diverse trauma-exposed populations.

One limitation of the present review is that the included studies varied substantially in study design, assessment tools, and sample characteristics, which may limit direct comparability of findings. In addition, most studies relied on self-report measures of PTSD symptoms and trauma exposure, increasing the possibility of response bias and subjective reporting errors. The reviewed studies also differed in cultural and demographic contexts, which may influence the generalizability of the findings across populations. Furthermore, several included studies used cross-sectional designs, limiting the ability to establish causal relationships between risk factors and PTSD outcomes.

Future research should employ longitudinal and prospective designs to better clarify causal pathways linking trauma exposure, cognitive-emotional processes, and PTSD development. Additional studies are also needed to examine protective factors and resilience mechanisms that may buffer against trauma-related psychopathology. Future investigations should further explore cultural differences in trauma responses, particularly in non-Western populations where sociocultural experiences of trauma may differ substantially. Moreover, research integrating biological, psychological, and social variables simultaneously may provide a more comprehensive understanding of PTSD and CPTSD mechanisms.

From a practical perspective, the findings of the present review suggest that trauma-informed interventions should adopt multidimensional approaches addressing emotional regulation, maladaptive cognitive processing, social support enhancement, and post-trauma stress management. Early identification of high-risk individuals, particularly those exposed to repeated interpersonal trauma, may improve prevention and treatment outcomes. Mental health professionals should also consider gender-related vulnerabilities, psychiatric comorbidities, and environmental stressors when designing trauma-focused interventions. In addition, strengthening social support systems and reducing post-trauma isolation may play important roles in promoting psychological recovery and resilience among trauma-exposed populations.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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