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POST-TRAUMATIC STRESS DISORDER INTERVENTIONS FOR CHILDREN AND ADOLESCENTS AFFECTED BY WAR IN LOW- AND MIDDLE-INCOME COUNTRIES IN THE MIDDLE EAST: A NARRATIVE REVIEW

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ABSTRACT

Background: War-related post-traumatic stress disorder (PTSD) represents a significant public health burden for children and adolescents in low- and middle-income countries (LMICs) across the Middle East. Despite protracted conflicts in Syria, Iraq, Yemen, and Palestine, the evidence base for effective interventions remains fragmented. This review aim to synthesize the literature on psychosocial and psychotherapeutic interventions for war-related PTSD in children and adolescents in Middle Eastern LMICs.

Methods: A narrative literature review with systematic search principles was conducted across PsycINFO, PubMed, Scopus, Cochrane Library, and Arabic-language indices. Studies published in English or Arabic between 2000 and 2026 that evaluated psychosocial or psychotherapeutic interventions for war-related PTSD in children and adolescents (≤18 years) in Middle Eastern LMIC settings were included. Findings were synthesised thematically by intervention modality.

Results: Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) and Narrative Exposure Therapy (NET) demonstrate the strongest evidence for PTSD symptom reduction, with effect sizes varying by fidelity and setting. School-based, group-based, and family-based interventions show promise but are limited by methodological weaknesses. Cultural adaptations—incorporating local idioms of distress, religious coping metaphors, community engagement, and participatory design—are essential for acceptability. Implementation is constrained by severe workforce shortages, financial instability, pervasive stigma, ongoing conflict, and ethical complexities around informed consent and re-traumatisation. The evidence base is characterised by small sample sizes, high attrition, heterogeneous outcome measures, and publication bias.

Conclusion: Scalable, ethically sound, and culturally integrated interventions delivered through strengthened health and education systems are urgently needed. Future research must prioritise rigorous randomised designs, long-term follow-up, effectiveness-implementation hybrid trials, and culturally validated outcome measures to inform policy and practice in conflict-affected settings.

Keywords: Post Traumatic Stress Syndrome, PTSD, Wars, Children Traumas, Sudan War

1 INTRODUCTION

Post-traumatic stress disorder (PTSD) is a debilitating psychiatric condition that can develop following exposure to actual or threatened death, serious injury, or sexual violence. In children and adolescents, PTSD manifests through intrusive memories, nightmares, avoidance of trauma-related stimuli, hyperarousal, negative alterations in cognition and mood, and concentration difficulties—though developmental stage significantly influences symptom presentation [1]. Younger children may exhibit regressive behaviours, somatic complaints, and separation anxiety, whereas adolescents more frequently display risk-taking behaviours, emotional dysregulation, and social withdrawal [2].

War and armed conflict represent profound threats to child mental health. Millions of children globally are exposed to the traumas of displacement, loss of family members, witnessing violence, and the destruction of homes and schools [3]. Such exposures substantially elevate the risk of PTSD, which in turn impairs emotional regulation, cognitive development, social functioning, and educational attainment—with consequences that can persist throughout the lifespan [4].

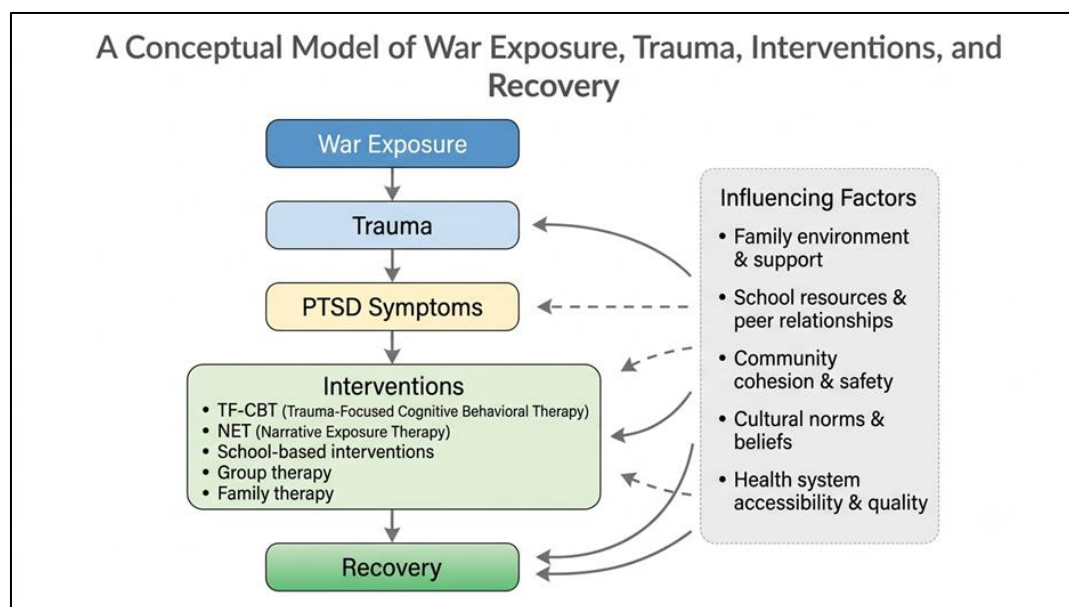


Figure 1: Conceptual Framework: Ecological Model of War-Related PTSD and Intervention Pathways

Children in low- and middle-income countries (LMICs) are disproportionately affected by armed conflict and face particular vulnerabilities [5]. These settings are characterised by limited mental health infrastructure, scarcity of trained professionals, and competing humanitarian priorities that often overshadow psychological needs [6]. The Middle East—encompassing protracted conflicts in Syria, Iraq, Yemen, Palestine, and Lebanon—represents a critical region for understanding and addressing war-related PTSD in children and adolescents. Conflict-related trauma in this region ranges from witnessing killings and bombings to forced displacement, torture, and the systematic destruction of community infrastructure [7].

This narrative review is guided by an ecological systems perspective, which situates individual-level interventions within the broader contexts of family, school, community, and policy [8]. This framework recognises that child mental health outcomes are shaped by multiple, interacting levels of influence, and that effective intervention must address not only individual symptoms but also the familial and environmental factors that sustain or ameliorate distress. The review aims to synthesise available evidence on psychosocial and psychotherapeutic interventions for war-related PTSD in children and adolescents across Middle Eastern LMICs, examine cultural adaptations and implementation challenges, and identify priorities for future research and practice. The conceptual framework guiding this review is presented in Figure 1.

2 METHODOLOGY

A narrative literature review with systematic search principles was conducted. The following databases were searched: PsycINFO, PubMed, Scopus, Cochrane Library, and Arabic-language indices including the ArabPsyNet and regional university repositories. Search terms combined variations of "PTSD" OR "post-traumatic stress disorder", "war" OR "armed conflict" OR "political violence", "child" OR "adolescent" OR "youth", "intervention" OR "treatment" OR "therapy" OR "psychosocial", "LMIC" OR "low-income" OR "middle-income", and "Middle East" OR specific country names (Syria, Iraq, Yemen, Palestine, Lebanon, Jordan, Turkey). Studies published in English or Arabic between 2000 and 2026 were eligible for inclusion if they evaluated a psychosocial or psychotherapeutic intervention for war-related PTSD in children and adolescents (aged ≤ 18 years) in Middle Eastern LMIC settings.

Inclusion criteria encompassed randomised controlled trials (RCTs), quasi-experimental studies, and pre-post intervention designs that reported PTSD symptom outcomes. Exclusion criteria comprised studies conducted exclusively in high-income countries, those focusing solely on adult populations, and non-intervention studies. Reference lists of previous reviews were also examined for additional relevant studies. Data were extracted on study characteristics (country, design, sample, intervention type, outcomes, effect sizes) and synthesised narratively. Given the heterogeneity of interventions, populations, and outcome measures, a meta-analytic synthesis was not feasible; instead, findings are presented thematically by intervention modality.

A 2022 systematic review by Alzaghoul and colleagues identified only three group-based interventions evaluated across six studies in this context: 'Teaching Recovery Techniques', 'Writing for Recovery', and 'Advancing Adolescents' [8]. This underscores the paucity of evidence characterising the current literature base.

3 PTSD AMONG WAR-AFFECTED CHILDREN AND ADOLESCENTS

3.1 Symptom Manifestations

PTSD symptoms in children and adolescents exposed to war manifest across multiple domains. Intrusive symptoms include recurrent, involuntary, and distressing memories of traumatic events, trauma-related nightmares, and dissociative reactions (e.g., flashbacks) in which the child feels or acts as if the traumatic event is recurring [1]. Avoidance symptoms involve deliberate efforts to avoid trauma-related thoughts, feelings, or external reminders, including people, places, or activities that trigger distress. Negative alterations in cognition and mood encompass inability to remember important aspects of traumatic events, persistent negative beliefs about oneself or the world, distorted blame of self or others, and diminished interest in significant activities [1]. Arousal and reactivity symptoms include irritable or aggressive behaviour, hypervigilance, exaggerated startle response, concentration difficulties, and sleep disturbances [1].

Developmental manifestations are particularly important in paediatric populations. Preschool children may exhibit repetitive trauma-related play, nightmares without identifiable content, and social withdrawal [2]. School-aged children commonly demonstrate academic decline, behavioural problems, and somatic complaints such as headaches and abdominal pain [4]. Adolescents are more likely to engage in high-risk behaviours, substance use, and interpersonal conflict, while also experiencing profound disturbances in identity formation and future orientation [2].

3.2 Prevalence

Prevalence rates of PTSD among war-exposed children and adolescents in the Middle East are alarmingly elevated. A systematic review and meta-analysis of Palestinian children exposed to political violence found a pooled PTSD prevalence of 36% (95% CI 30–41%), with rates ranging from 6% to 70% across individual studies [7]. Children in conflict zones show rates between 25% and 70% depending on exposure intensity. A cross-sectional study of 350 displaced Palestinian children and adolescents in Qatar estimated a PTSD prevalence of 41% [7]. In Gaza, research conducted by the Gaza Community Mental Health Programme found that among children living in areas of bombardment, 54% suffered from severe PTSD [7].

A systematic review and meta-analysis of conflict-affected populations in Palestine, Sudan, and Yemen reported that children and adolescents exhibited greater PTSD prevalence (42%) than adults (35%), with internally displaced persons and refugees showing higher rates than non-displaced civilians [7,16]. These figures contrast starkly with prevalence estimates in non-conflict populations, where general paediatric PTSD rates are typically below 5% [5].

3.3 Risk and Protective Factors

Risk factors for PTSD operate across multiple ecological levels. At the individual level, female sex, younger age at trauma exposure, pre-existing mental health conditions, and lower cognitive ability are associated with increased vulnerability [4]. At the family level, parental mental health difficulties, family separation, and harsh parenting practices elevate risk [9]. At the community level, displacement, loss of social networks, poverty, and ongoing insecurity are powerful predictors of poor mental health outcomes [7].

Protective factors include social support from family and peers, family cohesion, community resilience, access to education, and religious or spiritual coping [2]. The presence of supportive caregivers who can buffer the impact of trauma is consistently identified as one of the strongest protective factors across diverse cultural contexts [9]. Community-level factors such as collective efficacy, social cohesion, and the availability of safe spaces for children also mitigate risk [8]. The operation of risk and protective factors across multiple ecological levels underscores the need for multilevel, integrated interventions that address not only individual symptoms but also familial and community determinants of mental health [8].

4 BURDEN OF WAR EXPOSURE IN THE MIDDLE EAST: CONTEXTUAL HETEROGENEITY

4.1 Types of War-Related Trauma

War-related trauma in the Middle East encompasses a wide spectrum of experiences. Children may witness killings, bombings, and artillery fire; experience the loss of parents, siblings, or peers; endure displacement from homes and communities; suffer physical injuries; and, in some cases, be subjected to torture, abduction, or recruitment as child soldiers [10]. The nature and intensity of trauma exposure vary substantially across settings, influencing both the psychological sequelae and the types of interventions that are feasible and appropriate.

4.2 Refugee and Internally Displaced Populations

The Middle East hosts some of the world's largest refugee and internally displaced populations. Syrian refugees in Turkey, Lebanon, and Jordan face cumulative stressors including limited access to education, poverty, insecure housing, and precarious legal status [11]. Palestinian refugee populations in the occupied territories, Lebanon, and Jordan experience multigenerational displacement, ongoing political violence, and restricted access to resources [12]. Internally displaced children within Iraq, Yemen, and Syria confront the added challenges of ongoing insecurity and disrupted service provision [7]. These cumulative stressors compound the psychological impact of direct trauma exposure and create additional barriers to intervention access and engagement.

4.3 Cross-Country Variations

The implementation context for mental health interventions differs markedly across Middle Eastern settings. Syrian refugee camps in Turkey benefit from relatively established humanitarian infrastructure and government coordination, yet face challenges related to scale and sustainability [13]. The occupied Palestinian territories are characterised by prolonged occupation, recurrent escalations of violence, and severe restrictions on movement and access [14]. Post-conflict Iraq struggles with fragile security, political instability, and a depleted health workforce [15]. Yemen, experiencing one of the world's worst humanitarian crises, has extremely limited mental health services and ongoing active conflict [16]. These contextual variations profoundly influence the feasibility, acceptability, and effectiveness of interventions, and must be carefully considered in both research and practice.

4.4 Long-Term Developmental and Societal Consequences

The consequences of war-related PTSD extend far beyond individual symptomatology. Chronic PTSD in childhood is associated with impaired academic achievement, disrupted peer relationships, and compromised developmental trajectories [4]. Longitudinal studies indicate that untreated childhood trauma increases the risk of adult mental health disorders, substance use, and impaired occupational and relational functioning [5]. At the societal level, the cumulative mental health burden of conflict undermines human capital development, economic productivity, and social cohesion—perpetuating cycles of poverty and instability across generations [8]. The overall pathway from identification of trauma to selection and implementation of evidence-based interventions is summarised in Figure 2.

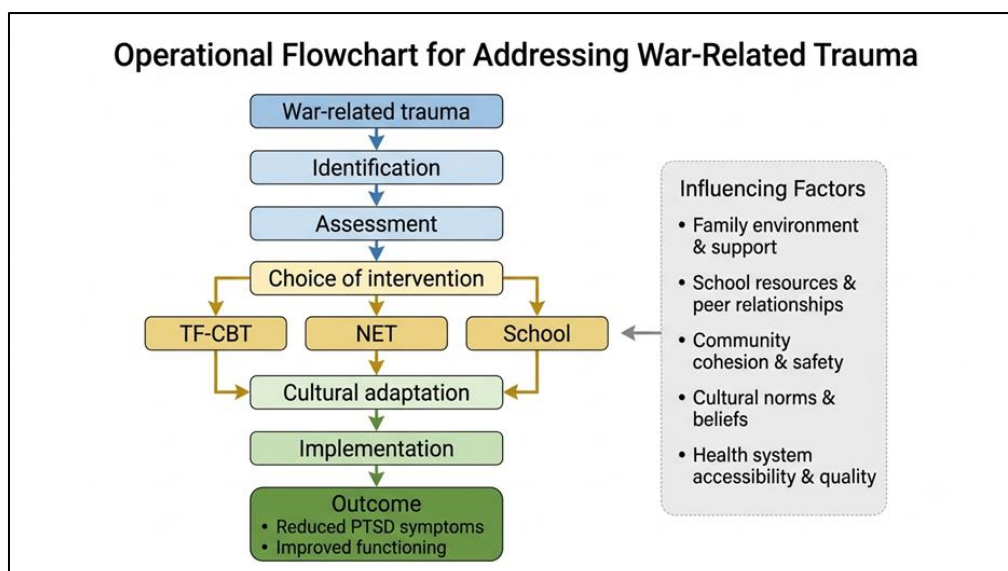


Figure 2: Clinical pathway for selecting and implementing PTSD interventions for war-affected children and adolescents.

5 PTSD INTERVENTIONS: TYPES, EVIDENCE, CULTURAL ADAPTATION, AND IMPLEMENTATION CHALLENGES

5.1 Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)

Trauma-Focused Cognitive Behavioral Therapy is an evidence-based (**Table 1**), components-based treatment model designed for children and adolescents who have experienced trauma [17]. TF-CBT integrates trauma-sensitive cognitive-behavioural principles with family therapy and developmental considerations, typically delivered over 12–16 sessions covering psychoeducation, parenting skills, relaxation, affective modulation, cognitive processing, trauma narrative development, and in vivo mastery of trauma reminders [18].

5.1.1 Evidence

TF-CBT has demonstrated strong efficacy in reducing PTSD symptoms in children across diverse settings. A network meta-analysis found that TF-CBT ranked highest among psychological interventions for treating paediatric PTSD from individual traumatic events, showing significant results across included studies [1]. In the Middle Eastern context, a single-blind, parallel-design RCT evaluated TF-CBT delivered by non-clinical facilitators to war-affected, sexually exploited girls, finding significant reductions in post-traumatic stress, depression, and anxiety [18]. A study of TF-CBT implementation in Jordanian culture demonstrated feasibility and acceptability, with most components positively evaluated by children, parents, and counsellors [19]. However, effect sizes vary considerably with fidelity and setting, and the evidence base specific to Middle Eastern LMICs remains limited [8].

5.1.2 Cultural adaptation

Adaptations of TF-CBT for Middle Eastern populations have included the use of local stories, incorporation of religious coping metaphors (particularly Islamic spiritual resources), and flexible family involvement that respects cultural norms around family hierarchy and gender roles [19]. The integration of spiritual resources into clinical practice has been proposed as a means of enhancing engagement and therapeutic effectiveness for traumatised Muslim children and their caregivers [19].

5.1.3 Challenges

Implementation of TF-CBT in conflict-affected settings faces substantial barriers. The model requires trained therapists, which are in critically short supply across the region [6]. Ongoing conflict can disrupt session continuity through displacement, school closures, and security incidents [8]. Financial constraints and fragmented funding mechanisms further limit sustainable implementation [6].

5.2 Narrative Exposure Therapy (NET)

Narrative Exposure Therapy is a short-term, trauma-focused psychotherapy developed for survivors of multiple and complex trauma [20]. The approach involves the construction of a chronological narrative of the individual's life, with

detailed exposure to traumatic memories within a therapeutic context that promotes habituation and cognitive integration. The child version, KIDNET, has been specifically adapted for younger populations [20].

5.2.1 Evidence

NET has been widely studied with refugee and internally displaced populations and is considered effective for multiple traumas [8]. A three-arm RCT comparing EMDR and KIDNET versus waitlist control for refugee children found both treatments effective in reducing PTSD symptoms, behavioural and emotional symptoms, and improving quality of life [20]. A multi-centre RCT of KIDNET for young refugees in Germany is currently underway. The brief format of NET makes it particularly suitable for low-resource settings [8]. A study of former child soldiers found that NET reduced PTSD symptoms, depression, suicidal ideation, and feelings of guilt [8].

5.2.2 Cultural adaptation

NET has been adapted for Middle Eastern populations through the integration of communal narratives and spiritual meaning-making [8]. The timeline exercise that forms a core component of NET has been used with Syrian refugee children in Lebanon, demonstrating cross-cultural applicability [14].

5.2.3 Challenges

Confronting trauma memories through narrative exposure can be distressing, and in insecure environments where ongoing threats persist, this may be particularly problematic [8]. Limited privacy in camp settings poses additional challenges for the confidential delivery of trauma-focused therapy [8]. The approach also requires trained facilitators, though the structured format facilitates training and supervision.

5.3 School-Based Interventions

School-based interventions represent a critical modality for reaching large numbers of conflict-affected children, particularly in settings where access to clinical services is limited [21]. These interventions can be categorised as universal prevention programmes (psychoeducation, stress management, resilience-building) or indicated interventions targeting children with elevated symptoms (group TF-CBT, coping skills training) [8].

5.3.1 Evidence

A meta-analysis of school-based preventive interventions found significant positive impacts on PTSD symptoms ($d=0.72$, 95% CI 0.65–0.79), anxiety ($d=0.68$), and depression ($d=0.64$) [21]. In Gaza, a school-based counselling programme reduced PTSD symptoms from 57.5% to 45.6% among children and adolescents exposed to war-traumatic events [21]. The Better Learning Program, a school-based intervention developed in collaboration with the Norwegian Refugee Council, has been implemented in Gaza and the West Bank to address trauma-related nightmares and psychological distress [8]. A teacher-delivered group CBT programme for Syrian refugee children in Istanbul demonstrated promise in reducing emotional distress and improving psychological functioning [8]. School-based interventions are particularly useful for de-stigmatising help-seeking, as they normalise mental health support within familiar educational settings [21].

5.3.2 Cultural adaptation

Cultural adaptations have included teacher training in locally relevant coping strategies and the incorporation of mental health content into existing curricula [8]. The integration of interventions into the school day reduces barriers to access and enhances acceptability among families who might otherwise be reluctant to seek formal mental health services [23].

5.3.3 Challenges

Schools in conflict zones are frequently closed or targeted in attacks, disrupting intervention delivery [8]. Teachers, who are often tasked with delivering school-based interventions, require substantial training, supervision, and ongoing support to implement programmes with fidelity [21]. Teacher burnout and turnover further compound these challenges [8].

5.4 Group-Based Psychosocial Interventions

Group-based interventions deliver therapeutic content to multiple participants simultaneously, offering efficiency and the added benefit of peer support [22]. These interventions are particularly well-suited to collectivist cultural contexts where group identity and social connectedness are highly valued [8].

5.4.1 Evidence

The 2022 systematic review by Alzaghouli and colleagues identified three group-based interventions evaluated in Middle Eastern LMIC settings: 'Teaching Recovery Techniques' (TRT), 'Writing for Recovery', and 'Advancing Adolescents' [8]. TRT was the only programme associated with a statistically significant reduction in PTSD scores, though the evidence base is limited and requires further rigorous evaluation [8]. A study of TRT with Palestinian children in Nablus found effectiveness in changing dream characteristics and reducing PTSD and depressive symptoms [22]. Writing for Recovery, developed by the Children and War Foundation, has shown efficacy in reducing traumatic grief symptoms in bereaved adolescents [8]. Advancing Adolescents, a 15-session group-based, culturally adapted TF-CBT intervention for youth affected by the Syrian crisis, demonstrated small to medium effect sizes for psychosocial outcomes [8]. Peer support and resilience-building interventions have been shown to improve social connectedness and symptom outcomes, and are scalable with lay facilitators [8].

5.4.2 Cultural adaptation

Adaptations have included gender-segregated groups in accordance with cultural norms, the use of traditional storytelling, and the involvement of community elders [8]. These adaptations enhance acceptability and engagement while respecting cultural values around gender and authority.

5.4.3 Challenges

High participant turnover due to displacement disrupts group cohesion and intervention completion [8]. Maintaining fidelity with non-specialist delivery requires robust training, supervision, and quality assurance systems [6]. The heterogeneity of trauma experiences within groups can complicate the delivery of standardised content [8].

5.5 Family-Based Interventions

Family-based interventions recognise that child mental health is inextricably linked to family functioning and caregiver well-being [9]. These approaches involve caregivers in the therapeutic process, addressing parenting practices, family communication, and the broader family system [8].

5.5.1 Evidence

Caregiver-child interventions have been shown to strengthen relationships, improve emotional regulation, and support long-term recovery in trauma-affected children [8]. The World Health Organization's Early Adolescent Skills for Emotions (EASE) programme, a task-sharing intervention targeting internalising disorders in 10–15 year olds and their caregivers, has been evaluated with Syrian refugees in Jordan [8]. A controlled trial of EASE in Jordan found improvements in psychological distress, and a 12-month follow-up demonstrated sustained benefits [8]. Process evaluations have explored facilitators and barriers to scaling EASE for Syrian refugees [8].

5.5.2 Cultural adaptation

Family-based interventions in Middle Eastern settings have employed multigenerational approaches that respect familial hierarchies and incorporate religious and cultural values [8]. Engaging extended family members, including grandparents, aligns with cultural norms around family decision-making and support.

5.5.3 Challenges

Reunification difficulties in separated families present major obstacles to family-based interventions [8]. Caregiver mental health burden—compounded by their own trauma exposure, displacement-related stress, and economic hardship—can limit their capacity to participate meaningfully in interventions [9]. High rates of caregiver psychological distress also undermine the protective role that parents might otherwise play in child recovery [8].

5.6 Pharmacological Interventions

Pharmacological interventions for paediatric PTSD are used less frequently than psychotherapeutic approaches and are generally recommended only when psychosocial treatments are insufficient or unavailable [1]. Selective serotonin reuptake inhibitors (SSRIs) are sometimes prescribed for severe paediatric PTSD, though evidence for their efficacy in children is less robust than in adults [1].

In Middle Eastern LMIC settings, pharmacological interventions face significant barriers including limited availability, high cost, inadequate monitoring capacity, and the absence of child psychiatrists trained in psychopharmacology [6]. WHO guidelines emphasise psychosocial treatments as first-line interventions for PTSD in humanitarian settings [6]. The mhGAP Humanitarian Intervention Guide provides guidance for non-specialist health providers on the

management of mental health conditions in emergency settings [6]. A comparative summary of the relative strength of evidence supporting the major intervention approaches reviewed in this article is presented in Figure 3.

Table 1: Summary of PTSD Interventions

Intervention	Target population	Delivery setting	Evidence strength	Advantages	Limitations
TF-CBT	Children/adolescents	Clinic/School	High	Strong evidence	Requires trained therapists
NET	Refugees	Community/Clinic	Moderate-High	Brief and scalable	Exposure may be distressing
School-based	Students	Schools	Moderate	Large reach	School disruption
Group psychosocial	Community	Groups	Moderate	Cost-effective	High attrition
Family-based	Child + caregiver	Home/Clinic	Moderate	Improves family functioning	Caregiver burden
Pharmacotherapy	Severe PTSD	Hospitals	Low	Useful adjunct	Limited evidence

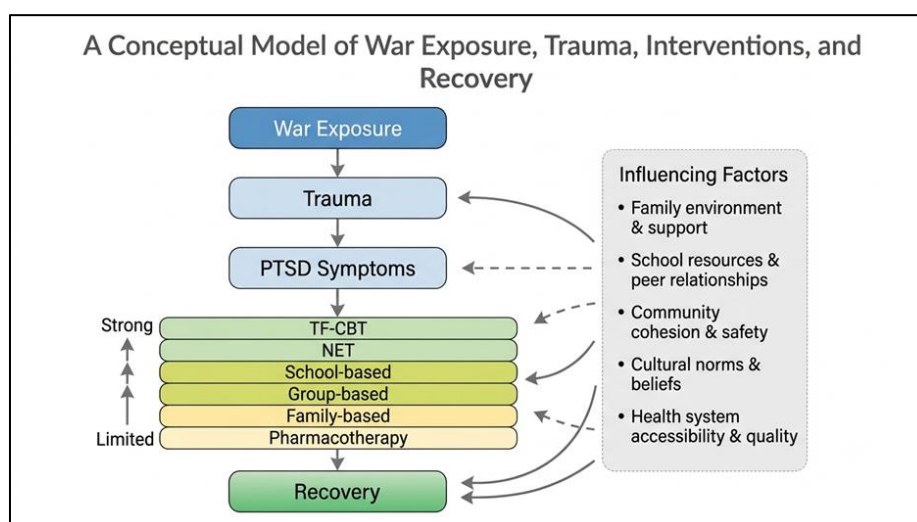


Figure 3: Relative strength of evidence supporting psychosocial and psychotherapeutic interventions for war-related PTSD in children and adolescents.

6 CROSS-CUTTING IMPLEMENTATION BARRIERS AND ETHICAL CONSIDERATIONS

6.1 Limited Mental Health Workforce

The Middle Eastern LMICs face severe shortages of trained mental health professionals, including child psychiatrists, clinical psychologists, and specialised trauma therapists [6]. In many settings, there are fewer than one psychiatrist per 100,000 population, and child mental health specialists are even rarer [5]. This scarcity necessitates task-shifting approaches, in which non-specialist providers (teachers, community health workers, lay counsellors) are trained to deliver evidence-based interventions [6]. The Early Adolescent Skills for Emotions (EASE) programme exemplifies this approach, with non-specialist delivery forming a core component of the intervention model [8]. However, task-shifting requires careful attention to training quality, ongoing supervision, and fidelity monitoring (Table 2) [6].

6.2 Financial Constraints and Sustainability

Mental health interventions in humanitarian settings are chronically underfunded [5]. Competing priorities—food, shelter, physical health, and security—often overshadow psychological needs in humanitarian response planning [6]. Funding for mental health is typically short-term and project-based, undermining the sustainability of interventions and the retention of trained staff [8]. Sustainable financing mechanisms, including the integration of mental health into primary healthcare budgets and humanitarian funding streams, are urgently needed [5].

6.3 Cultural Stigma and Help-Seeking Patterns

Stigma associated with mental health problems remains pervasive across Middle Eastern societies. Mental illness is often attributed to supernatural causes, personal weakness, or family shame, leading to concealment of symptoms and avoidance of formal services. Parents may fear that seeking mental health care for their children will bring stigma to the family or affect marriage prospects [14]. Lebanese and Syrian refugee parents in Lebanon have described how stigma creates significant barriers to accessing care, with parents often concealing their help-seeking activities [11].

Engaging community and religious leaders in mental health promotion has been identified as a key strategy for reducing stigma and enhancing help-seeking [8]. Religious frameworks—including Islamic concepts of spiritual coping, community responsibility, and the value of seeking healing—can be leveraged to normalise mental health support [19].

6.4 Ongoing Conflict, Instability, and Safety Risks

Ongoing violence and insecurity represent fundamental barriers to intervention delivery [8]. Conflict disrupts service provision, displaces populations, and compromises the safety of both beneficiaries and providers [14]. Schools, which serve as key platforms for child mental health interventions, are frequently closed or targeted in attacks [8]. Follow-up and continuity of care are severely compromised in contexts of recurrent displacement and instability [14]. The profound impact of war on children's mental health, as observed in occupied Palestinian territories and Palestinian refugee camps, underscores the urgency of targeted interventions while also highlighting the extreme difficulties of delivery [7].

6.5 Ethical Issues

Ethical challenges in conducting research and delivering interventions in conflict settings are substantial [8]. Obtaining genuine informed consent from minors in crisis settings is challenging, particularly when parental capacity may be compromised by trauma or when children are unaccompanied [8]. The distinction between research and therapeutic intervention can become blurred, creating the risk of therapeutic misconception—participants' belief that research participation is equivalent to receiving clinical care [8].

The risk of re-traumatisation through trauma-focused interventions must be carefully managed, particularly in insecure environments where ongoing threats may prevent the consolidation of safety and recovery [8]. Mandatory reporting requirements for child protection concerns may conflict with principles of confidentiality and may expose children to additional risks in contexts where child protection systems are weak or compromised [8].

Task-shifting to trained non-specialists requires careful ethical and fidelity oversight [6]. Non-specialist providers must be adequately trained, supervised, and supported to prevent harm and ensure quality of care [6]. The mental health and well-being of providers themselves must also be considered, as they are often members of the same affected communities and may be experiencing their own trauma-related distress [8].

Table 2: Implementation Barriers and Suggested Solutions

Barrier	Effect	Potential solution
Workforce shortage	Limited service delivery	Task-shifting
Funding instability	Unsustainable programs	Long-term financing
Stigma	Low uptake	Community education
Ongoing conflict	Interrupted treatment	Mobile/community services
Ethical concerns	Difficult research	Strong ethical protocols

7 CULTURAL ADAPTATION: CROSS-CUTTING THEMES

7.1 Language and Metaphor Adaptation

Effective cultural adaptation moves beyond surface-level translation to integrate local idioms of distress and culturally resonant metaphors [8]. In Arabic-speaking populations, concepts such as *kasr al-nafs* (broken spirit) and *hamm* (worry or burden) may better capture experiences of distress than Western psychiatric terminology (**Table 3**) [19]. The use of local stories, proverbs, and metaphors enhances the accessibility and acceptability of interventions [8].

7.2 Incorporation of Local Explanatory Models

Culturally adapted interventions incorporate local explanatory models of distress and coping [8]. In many Middle Eastern contexts, psychological distress is understood through both biomedical and spiritual frameworks [19]. Effective interventions acknowledge and work within these frameworks rather than dismissing them [19]. Islamic concepts of *sabr* (patience), *tawakkul* (trust in God), and community-based coping practices can be integrated into therapeutic approaches.

7.3 Community and Religious Leader Engagement

The engagement of families, elders, and community gatekeepers is essential for enhancing acceptability, retention, and effectiveness [8]. Religious leaders—imams, sheikhs, and community elders—can play a crucial role in reducing stigma, promoting help-seeking, and supporting intervention delivery [23]. Their endorsement of mental health interventions can legitimise psychological care within communities where formal mental health services may be viewed with suspicion [8].

7.4 Participatory Design and Iterative Adaptation

Participatory adaptation processes that involve community members, service users, and local practitioners in the design and refinement of interventions improve cultural fit without compromising core therapeutic components [8]. Iterative adaptation—in which interventions are piloted, evaluated, and modified in response to community feedback—allows for ongoing refinement that reflects the evolving needs and preferences of target populations [19]. This approach has been used in the adaptation of TF-CBT for Jordanian culture [19] and the development of culturally adapted digital interventions for Arabic-speaking populations [24].

Table 3: Cultural Adaptations Across Interventions

Adaptation	Example	Purpose
Religious coping	Islamic concepts of <i>sabr</i> and <i>tawakkul</i>	Increase acceptability
Local idioms	Arabic expressions of distress	Improve communication
Community involvement	Religious/community leaders	Reduce stigma
Family participation	Extended family	Enhance support
Participatory design	Community consultation	Improve cultural fit

8 CRITICAL APPRAISAL OF THE EVIDENCE BASE

8.1 Study Design Quality

The evidence base for PTSD interventions in Middle Eastern LMICs is characterised by limited high-quality studies. A 2022 systematic review identified only three group-based interventions evaluated across six studies [8]. Of these, only TRT was associated with statistically significant PTSD reduction [8]. The predominance of quasi-experimental and pre-post designs, rather than RCTs, limits the certainty of causal inferences [8]. Blinding of participants and outcome assessors is rarely achieved in intervention research in these settings, introducing risk of performance and detection bias [8].

8.2 Risk of Bias

Multiple sources of bias affect the available evidence. Selection bias may arise from non-random sampling and high refusal rates [8]. Performance bias is difficult to avoid given the nature of psychological interventions, though active control conditions (rather than waitlist or treatment-as-usual) would strengthen study designs [8]. Attrition bias is particularly problematic in mobile refugee populations, where high dropout rates compromise the validity of findings

[8]. A systematic review of Palestinian children found that PTSD prevalence estimates decreased when only representative samples or low-risk-of-bias studies were included, suggesting that methodological quality substantially influences observed outcomes [7].

8.3 Heterogeneity of Outcome Measures

Outcome measures used across studies are highly heterogeneous, limiting comparability and meta-analytic synthesis [8]. Many instruments have not been validated for local populations or in Arabic translation [8]. The Child PTSD Symptom Scale (CPSS) has been used in some studies and has shown higher prevalence estimates than other measures, raising questions about measurement equivalence [7]. Culturally validated and standardised outcome measures are urgently needed [8].

8.4 Publication Bias

Publication bias likely inflates observed effect sizes, as studies with positive findings are more likely to be published than those with null or negative results [8]. The small number of studies and the predominance of small sample sizes exacerbate this problem [8]. Pre-registration of trials, which is rare in this context, would help address publication bias and selective outcome reporting [8].

8.5 Fidelity Assessment and Comparison Conditions

Fidelity assessment—the systematic evaluation of whether interventions are delivered as intended—is inconsistently reported [8]. Without fidelity data, it is difficult to determine whether null findings reflect intervention ineffectiveness or implementation failure [8]. Comparison conditions are often weak (waitlist or treatment-as-usual) rather than active controls, limiting the ability to attribute effects specifically to the intervention [8].

9 RESEARCH GAPS

9.1 Limited Long-Term Follow-Up

Knowledge about the durability of treatment gains beyond short-term symptom reduction is sparse [8]. Most studies report outcomes at post-treatment or short-term follow-up, with few examining outcomes beyond six months [8]. Long-term follow-up is essential for understanding whether interventions produce sustained improvements in mental health and functional outcomes, or whether gains decay over time [8].

9.2 Lack of Standardised, Culturally Validated Outcome Measures

The absence of standardised, culturally validated outcome measures limits the validity and comparability of research findings [8]. Instruments developed in Western contexts may not capture culturally specific manifestations of distress or may have different psychometric properties when translated and administered in Arabic-speaking populations [8]. The development and validation of culturally appropriate measures should be a research priority [8].

9.3 Underrepresentation of Certain Countries

Certain countries and regions—particularly Yemen, Iraq outside Kurdistan, and parts of Syria—are underrepresented in the literature [8]. The extreme humanitarian crises in these settings make research particularly challenging, yet they are precisely the contexts where evidence is most needed [16]. Research capacity building in these settings should be prioritised alongside intervention development [8].

9.4 Digital, Scalable, and Self-Help Interventions

Digital mental health interventions show promise for increasing reach and scalability in resource-constrained settings. A systematic review of digital mental health interventions for conflict-affected children and adolescents in the Middle East and North Africa found that ten studies on digital games, telehealth, and online interventions showed significant reductions in PTSD, anxiety, and depression, with medium to large effect sizes [24]. Facilitators of effectiveness included cultural adaptation and integration into schools or clinical settings [24]. Digital interventions such as gamified apps and telephone-delivered therapy (e.g., t-CETA for Syrian refugee children in Lebanon) offer particular promise [24]. However, these approaches are under-evaluated in Middle Eastern LMIC settings, and barriers including limited digital access, low digital literacy, and stigma must be addressed [24].

9.5 Effectiveness-Implementation Hybrid Designs

There is a pressing need for effectiveness-implementation hybrid designs that simultaneously test intervention effectiveness and implementation strategies [8]. Such designs would accelerate the translation of evidence into practice by identifying not only whether interventions work, but also how they can be successfully delivered in real-world

settings [8]. Research on implementation barriers and facilitators—such as the process evaluation of EASE in Jordan—is essential for informing scale-up [8].

9.6 Mechanisms of Change and Moderators of Treatment Response

Little is known about what works for whom and why in the context of war-affected children and adolescents [8]. Research on mechanisms of change—the processes through which interventions produce their effects—and moderators of treatment response—factors that predict differential outcomes—would enable more targeted and personalised approaches to intervention [8]. Such research requires larger sample sizes, more rigorous designs, and the collection of data on potential mediators and moderators [8].

Table 4: Research Gaps and Future Priorities

Gap	Why it matters	Recommended future research
Few RCTs	Weak evidence	Large multicentre RCTs
Short follow-up	Unknown durability	≥12-month follow-up
Limited countries	Poor generalizability	Yemen, Iraq, Syria
Non-standard outcomes	Difficult comparisons	Validated Arabic tools
Digital interventions	Understudied	Hybrid implementation trials

10 IMPLICATIONS FOR PRACTICE AND POLICY

10.1 Integration of Evidence-Based Interventions into Schools and Primary Healthcare

Governments and humanitarian actors should embed mental health care into existing service platforms, particularly schools and primary healthcare facilities [8]. School-based interventions offer a pathway to reach large numbers of children in a familiar, non-stigmatising setting [21]. Integration into primary healthcare enables early identification and referral of children with mental health concerns, while also addressing the physical health needs that often accompany displacement and conflict [6].

10.2 Capacity Building Through Task-Shifting and Scalable Training

Given the severe shortage of mental health professionals, task-shifting to trained non-specialists is essential for scaling up interventions [6]. Programmes such as EASE, TRT, and teacher-delivered CBT demonstrate the feasibility of non-specialist delivery [8]. However, task-shifting requires investment in training, supervision, and quality assurance systems [6]. Scalable training models—including digital training platforms, cascaded supervision, and peer support networks—should be developed and evaluated [6].

10.3 Sustainable Funding Streams

Sustainable funding for child mental health in humanitarian response is urgently needed [5]. Mental health should be integrated into humanitarian funding appeals and national health budgets, rather than relying on short-term, project-based funding [6]. Donors should commit to multi-year funding that enables the development and retention of a skilled workforce and the establishment of sustainable service delivery systems [5].

10.4 Ethical Guidelines for Intervention Delivery in Acute Conflict

Ethical guidelines specific to the delivery of mental health interventions in acute conflict settings are needed [8]. These guidelines should address informed consent in displacement, the management of re-traumatisation risk, mandatory reporting requirements, and the protection of both beneficiaries and providers [8]. The principle of 'do no harm' must guide all aspects of intervention delivery, from programme design to implementation and evaluation [8].

10.5 Culturally Adapted, Scalable, and Research-Informed Policy

Policy frameworks must prioritise culturally adapted, scalable, and research-informed approaches to child mental health [8]. Policies should be developed in consultation with communities, service users, and local practitioners, and should be grounded in the available evidence [8]. Ongoing monitoring and evaluation should be embedded within service delivery to generate evidence for policy refinement [8].

11 CONCLUSION

War-related PTSD represents a major, under-addressed public health challenge for children and adolescents in Middle Eastern LMICs. The prevalence of PTSD among conflict-affected youth is alarmingly high, with rates far exceeding those in non-conflict populations [7]. The consequences of untreated PTSD—impaired development, academic failure, social dysfunction, and intergenerational transmission of trauma—underscore the urgency of effective intervention [4,5].

Trauma-focused therapies, narrative exposure therapy, school-based programmes, group-based psychosocial interventions, and family-based approaches have demonstrated potential for reducing PTSD symptoms [8]. However, their effectiveness is moderated by cultural, contextual, and methodological factors [8]. Cultural adaptation—including language and metaphor adaptation, incorporation of local explanatory models, community engagement, and participatory design—is essential for enhancing acceptability and effectiveness [19].

Critical appraisal of the evidence base reveals significant methodological limitations, including small sample sizes, lack of blinding, high attrition, heterogeneous outcome measures, and publication bias [8]. The 2022 systematic review by Alzaghoul and colleagues highlighted a paucity of evidence for effective treatment options, with only TRT showing statistically significant PTSD reduction among the limited interventions evaluated [8]. There is a pressing need for more rigorous, long-term, and implementation-focused research [8].

Scalable, ethically sound, and culturally integrated interventions—delivered through strengthened health and education systems—offer a pathway to improving mental health outcomes for conflict-affected youth [8]. Digital interventions, including gamified apps, telehealth, and telephone-delivered therapy, show particular promise for increasing reach and scalability [24]. However, their evaluation in Middle Eastern LMIC settings remains limited [24].

Ultimately, addressing the mental health needs of war-affected children and adolescents in the Middle East requires a comprehensive, multilevel approach that combines evidence-based interventions, cultural adaptation, workforce development, sustainable financing, and ethical implementation. The ecological systems perspective that guided this review reminds us that individual healing cannot occur in isolation from family, community, and societal recovery [8]. Investments in child mental health are investments in the future resilience and prosperity of conflict-affected societies.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

All authors declare no competing interest to publish this paper.

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