School-based MHPSS interventions in humanitarian contexts: a realist review

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ABSTRACT

Objective The aim of this review is to elucidate the characteristics of school-based mental health and psychosocial support (MHPSS) interventions in humanitarian contexts and the hypothesised mechanisms by which they influence well-being or learning outcomes.

Methods We conducted a realist review and searched PubMed, Embase, Global Health, CINAHL, PsychInfo, PILOTS and grey literature through January 2022. Eligible studies included children age 6–12 years, were conducted in humanitarian contexts in low-income or middle-income countries, and focused on universal MPHSS prevention in an educational setting, using any study design. Data were extracted and analysed using narrative synthesis and realist analysis techniques to create 'context–mechanism–outcome' configurations that were iteratively developed to modify, refine and substantiate programme theories.

Results Twenty-seven articles, representing 19 studies, were included in the review. We analysed data from 26 articles. Eleven evidenced-informed programme theories were developed at the levels of the child (n=4), teacher (n=3), caregiver (n=2), school environment (n=1) and school managers/administrators (n=1). At the child level, mechanisms related to strengthening coping skills, emotion regulation, interpersonal relationships led to improved psychosocial well-being or learning outcomes. At the teacher level, coping skills and the provision of support to students were linked to psychosocial well-being and learning outcomes. At the caregiver level, strengthening interpersonal bonds trigger improved psychosocial well-being, and at the school environment level, fostering feelings of security was linked to psychosocial well-being and learning outcomes. We did not find any evidence supporting the programme theory at the school managers/ administrators level. We found limited evidence of positive impacts of the included interventions to support these programme theories.

Conclusions These programme theories are a promising start towards ensuring school-based MHPSS interventions in humanitarian contexts better address the well-being and learning needs of children. Future research is needed to support these programme theories and enhance the evidence base.

BACKGROUND

At the end of 2019, 79.5 million persons globally had been forcibly displaced, of which 40% were children under the age of 18.[1] The majority (85%) of forcibly displaced persons are hosted in low-income or middle-income countries (LMICs) where the quality and accessibility of basic services including education and healthcare is inadequate. Multiple, overlapping adversities—such as household and community violence, lack of access to livelihoods and food insecurity—have a compounding impact on mental health,[2–4] and a growing evidence-base indicates that refugee children in LMICs experience high levels of distress and symptoms of mental disorders, including anxiety, and depression.[5] Children in humanitarian contexts, often exposed to trauma and forcibly displaced from their homes, face a host of psychological challenges and stressors. In displacement, children experience the notable daily stressors of poverty, unsafe and overcrowded living conditions, and lack of access to basic services such as health and education.[6] Uncertainty about the future, lack of control or agency, and loss of hope characterise their daily lives, with impacts on mental health.[7–9] Young refugee children show increased levels of psychological distress and rates of emotional and behavioural disorders than their non-refugee peers, including depression, post-traumatic stress disorder (PTSD), anxiety and sleep disturbance.[10]

Strengths and limitations of this study

► Used a realist review methodology to better understand how contextual factors trigger specific mechanisms that influence well-being and learning outcomes.
► Convened an advisory board to oversee and advise the review process and development and refinement of programme theories.
► Conducted a broad search that was complemented by a search of the grey literature, handsearched reference lists of relevant reviews and literature suggested by advisory board members.
► We were unable to develop context–mechanism–outcome configurations at the level of the school administration and managers, which hindered our ability to test this programme theory.

Recognition of the urgent needs of children in humanitarian crises underpins a number of policy and programmatic approaches that seek to address the needs of displaced children, including mental health and psychosocial support (MHPSS).[11 12] The Interagency Standing Committee Reference Group on MHPSS in Emergency Settings defines MHPSS as 'any type of local or outside support that aims to protect or promote psychosocial well-being and/or prevent or treat mental disorder'.[13] For children, there is increased interest in positioning MHPSS approaches and interventions in educational settings to overcome the impacts of chronic adversity and loss of learning opportunities. School attendance can help restore a sense of normalcy, enable social support and nurturing care through positive interactions with peers and educators, and provide opportunities for building important life skills.[13 14]

The question of how school-based MHPSS interventions influence children's learning and well-being outcomes in humanitarian settings is relatively new,[15] and policy and programmatic interest is not matched by a rigorous evidence-base,[16] although there are recent efforts to address these evidence gaps.[17] While data from high-income countries (HICs) suggest a number of possible pathways and mechanisms through which school-based MHPSS interventions may support and improve children's mental health and psychosocial well-being and learning outcomes,[7] this evidence is currently lacking for school-based MHPSS interventions in humanitarian contexts. However, there is a high level of interest in MHPSS interventions from international humanitarian organisations, as evidenced by recent guidance on psychosocial support in education in humanitarian contexts released by the Inter-Agency Network for Education in Emergencies (INEE).[18]

Recent analysis of MHPSS interventions in humanitarian contexts has explored the perspectives of programme recipients to understand factors influencing 'programme feasibility, acceptability and uptake'.[19] Yet in the area of school-based interventions, the classroom and school are often positioned primarily as a mode delivery/location for an intervention, and analysis of mechanisms and pathways between interventions and child-level outcome changes are sparse.[20]

Important questions remain regarding (1) the types of interventions for which there are either qualitative or quantitative outcome assessments of MHPSS and/or learning outcomes and, (2) elements of programme implementation such as who implements these interventions, where, when and for how long. Moreover, whereas a number of education in emergencies and MHPSS actors propose that MHPSS interventions within education in humanitarian contexts can both improve children's well-being and learning outcomes, the existing evidence may not adequately indicate specifically for whom (ie, child age and gender) this may be true. Most fundamentally, *how* these interventions work, or are hypothesised to work, to achieve well-being or learning outcomes, is poorly understood, which hampers efforts to adapt, contextualise, and scale-up these interventions globally.

To address these gaps, we undertook a realist review of peer-reviewed and grey literature to address the following research questions:

► What are the characteristics of school-based MHPSS interventions implemented in humanitarian contexts in LMICs (ie, intervention type, setting, implementation approaches)?
► What are the key outcome measures that are assessed in these interventions?
► What are the mechanisms through which these interventions work (or are hypothesised to work)?

The aim therefore is primarily to elucidate the characteristics of interventions and the mechanisms by which they were hypothesised to influence well-being or learning outcomes, rather than to address the extent to which the interventions were effective in addressing well-being or learning outcomes. Whereas well-being is a multifactorial latent construct, we define well-being not only as the absence of mental disorders but also as positive mental health and psychosocial outcomes more broadly. Moreover, we define learning outcomes to include literacy and mathematic knowledge and skills, academic performance and related factors such as school attendance, executive function, school-related stress and perceptions of the school environment. Our research question and choice of methodology was based on a review of existing relevant reviews and informed by an understanding of the state of the evidence[5 21–25] as well as the needs of policy makers, programme implementers, and donors in the field of MHPSS and education. This approach enables in-depth analysis of hypothesised and/or actual mechanisms through which these interventions influence children's learning and/or well-being outcomes.

METHODS

We used a realist review methodology, which enables synthesis of the evidence-base, including exploration of what works, for whom, and how.[26] A realist review is 'a form of theory-driven evidence synthesis'[27] and is particularly suited for complex interventions in which the outcomes depend on contextual factors. At the centre of the realist review analytical approach is the context–mechanism–outcome configuration (CMOC), in which the data on interventions are examined to identify the outcome (what happens because of the intervention), which is caused by a mechanism (a causal force that links the context to the outcome), which is triggered when a certain context is present.[28] Specifically, for the CMOCs in this review, context broadly refers to the MHPSS intervention, mechanism refers to intervention impact pathways and outcomes pertain to intervention impacts. The realist review approach starts with initial programme theories (IPTs)—theories derived from existing literature, consultations with experts, and policy documents and guidelines—and tests these programme theories with

the data, which are evidence collected and synthesised during the review. The realist synthesis therefore consists of comparing and contrasting the IPTs to CMOCs in the literature and refining the IPTs into programme theories that hypothesise how interventions work and in what circumstances. Realist reviews are increasingly used and promoted for evidence synthesis for a range of complex health issues given that the approach 'may generate new ideas for programme development and innovation apart from what can be achieved in reviews providing a summation and aggregation of quantified evidence'.[29] Consistent with this methodology, we report our findings using the RAMESES (Realist And MEta-narrative Evidence Syntheses: Evolving Standards) reporting standards (online supplemental material 1).[30]

The first part of our review process was to define and refine our research question and the purpose of the review.[31] We established an sdvisory board (consisting of MHPSS and education in emergencies researchers and practitioners from various non-governmental and United Nations agencies and research institutions) to advise on the questions and scope.

Developing programme theories

Two reviewers (SRM and MEL) identified a small selection of key policy and guidance documents in the area of school-based MHPSS interventions.[15 18 32] Reading these documents, we developed IPTs centring on how the interventions impact the child, teacher, caregiver and school managers/administrators and pathways between the intervention and child-level, teacher-level, caregiver-level and manager-level outcomes (online supplemental material 2). These IPTs were discussed and iteratively revised by the core review team. Advisory board members then were consulted. They provided substantial feedback on the IPTs during participatory meetings and via email, and the revised theories were used to guide development of the data extraction template and analysis approach.

Search strategy and selection criteria

We developed a search strategy based on key components of the research question: humanitarian contexts (search terms such as humanitarian, conflict affected, disaster); AND population (search terms such as children, child, youth, minors, adolescents); AND intervention (terms describing the type of intervention, ie, psychosocial, mental health, emotional and the intervention itself, ie, school, education, activity, group, programme). An example search strategy for PubMed is included in online supplemental material 3).

Searches were conducted in the following databases through January 2022: PubMed, Embase, Global Health, CINAHL, PsycINFO and PILOTS. A systematic search of grey literature was conducted using key terms in the following websites: INEE, Education Can't Wait, UNHCR, UNICEF, mhpss.net and Mental Health Innovation Network. Reference lists of relevant systematic reviews identified during the database searches were handsearched,

and relevant titles in these reference lists were screened for inclusion. Additionally, we conducted expert interviews with ten researchers and practitioners working at the intersection of MHPSS and education in humanitarian contexts, and through these conversations, identified studies that met inclusion criteria for our review. Experts were identified via purposive sampling to capture (1) expertise in education and MHPSS and (2) geographical diversity. We further used snowball sampling to extend our network to those representing both international and local actors working in programme implementation and research.

We developed inclusion and exclusion criteria to address the key research questions. Articles were included if they:

► Focused on children, ages 6–12. We focused the review on primary-school aged children due to greater enrolment rates for primary-aged vs secondary-aged children in humanitarian contexts. For example, in 2019 the gross enrolment rate for refugee children was 77% in primary school vs 31% in secondary school.[1] Additionally, this age criteria allowed us to compare across MHPSS programming that similarly targeted the developmental and cognitive abilities of children 6–12 years old vs including adolescents and youth 12+ years old.
► Were conducted in a humanitarian context in an LMIC.
► Used any study design (ie, non-experimental, or experimental, involving quantitative and/or qualitative data collection at one or more timepoints).
► Examined any universal prevention intervention in an educational setting that was designed to be MHPSS, social and emotional learning and/or musical in nature (ie, providing support aimed at protection and promotion of well-being and learning or prevention of disorder). We defined an educational setting to include formal and non-formal school settings, including extracurricular activities, but we did not include child-friendly spaces.

Exclusion criteria were:

► Studies conducted in non-humanitarian contexts or HIC.
► Studies focused on children younger than 6 or older than 12 years old or focused exclusively on adults (studies assessing teacher or caregiver-level outcomes were included if child-level outcomes also were assessed).
► Interventions targeted to children with specific symptom profiles, or interventions that screened children into programmes based on specific criteria.
► Interventions that were not delivered in educational settings.
► Small-sample study designs (ie, case study or case series, N<6).
► Studies reported in a language other than English, French or Portuguese

We used EndNote V.X9 as our bibliographic software management platform. We removed duplicates using

EndNote, prior to exporting titles and abstracts to Covidence for screening.

Screening

Two authors (MEL, CB) independently reviewed titles and abstracts retrieved through the search strategy to determine which should be included for full text review. If an abstract or title was considered relevant by either of the authors, it was included for full text review. Two authors (two of SRM, MEL, CB or JF) independently reviewed all articles selected for full text review for eligibility to reach consensus on inclusion in the review. Any discrepancies were resolved by a third reviewer.

Data extraction

A data extraction template was developed for this study, which included information about humanitarian context, study, sample characteristics, intervention characteristics, implementation factors, impact indicators and theories of change. Three reviewers (MEL, CB and SRM) extracted data for three articles to pilot the data extraction template and ensure consistency. We compared results, refining the data extraction template based on this. The remaining data extraction was split between the three reviewers. Our unit of analysis was not dependent on study design, as relevant data could be drawn from any section of the article (ie, Abstract, Introduction, Discussion).[26] Therefore, we did not assess study quality. Moreover, given we focused on building theory rather than mapping this quality of evidence, a quality assessment was not needed to fulfil the aims of this study.

Analysis and synthesis processes

Two reviewers (MEL and JF) extracted data on the context–mechanism–outcome (CMO) underlying the intervention of each article. The CMOs were then combined or expanded on to develop CMOCs. Our analysis identified CMOs that primarily employed the same *outcomes,* but proposed different contexts and mechanisms linking to that outcome. As such, our analytical process moving from CMOs to CMOCs entailed iteratively separating out and delineating contexts and mechanisms to form coherent and comprehensive CMOCs for each article. Similar CMOCs were then grouped together and combined, and further refined, noting which articles had contributed to the final CMOCs. The final step of the analytic process was linking CMOCs to the IPTs, and using the CMOCs to iteratively refine IPTs to the final programme theories. Each step of this process was discussed with the full research team, and the final programme theories and linked CMOCs were provided to the Advisory Board for feedback and discussion.

Patient and public involvement

No patient involvement.

RESULTS

The search process and results are shown in figure 1. The searches yielded 9939 unique records. Following title and abstract screening, 9487 records were excluded, leaving 452 full-text articles assessed for eligibility. Of these, 27 records were included in the review. The included 27 records represent data from 19 studies. We extracted CMOCs and analysed data from 26 articles. We did not extract CMOCs from Kangaslampi *et al* given that the article did not report on mechanisms underlying the teaching recovery techniques (TRT) intervention.[33] Please see online supplemental material 4 for our Preferred Reporting Items for Systematic Reviews and Meta-Analyses Checklist.

Overview of study characteristics

Most studies were conducted in lower-middle-income countries (Palestine and Sri Lanka),[33–44] followed by upper-middle-income countries (Indonesia, Jordan, China, Lebanon and Colombia),[45–52] and then low-income countries (Uganda, South Sudan, Democratic Republic of Congo, Sierra Leone and Niger).[53–59] The majority of studies took place in the context of an ongoing armed conflict,[33–41 46 47 51 52 54–56] with the remaining studies conducted in a post natural disaster[42–45 49 50] or postconflict displacement context[48 53 57–59] (table 1).

Intervention modalities

Numerous intervention modalities were represented in this review (table 2). Six articles, representing the same study, examined the TRT intervention.[33–38] TRT aims to create feelings of safety and mastery and incorporates trauma-related psychoeducation, cognitive–behavioural therapy methods, coping skills training and creative-expressive elements such as drawing and dream work.[60]

Several interventions sought to improve psychosocial well-being, drawing on cognitive behavioural skills, psychoeducational information, social support, arts and play, narrative approaches and mind–body techniques.[39–42 44–46 49–51 53 54 57] The Psychosocial Structured Activities programme combines play therapy, drama, and art with the aim of enhancing children's resilience and feelings of security and stability following a trauma.[53] The Better Learning Programme seeks to improve learning conditions for children and adolescents exposed to war and conflict through the integration of psychosocial support, psychoeducation and coping techniques into daily learning.[40]

One study implemented musical activities,[47] while another study used a Happy/ Sad Letter Box.[43] The Healing Classrooms intervention was assessed in six articles,[48 52 55 56 58 59] representing three studies. Healing Classrooms seeks to support children's social and emotional well-being and academic learning by creating child-centred, emotionally supportive, predictable, safe and cooperative learning environments.[56]

Outcome measures

The most frequently measured outcomes in this review were psychological symptoms of distress (see table 1).
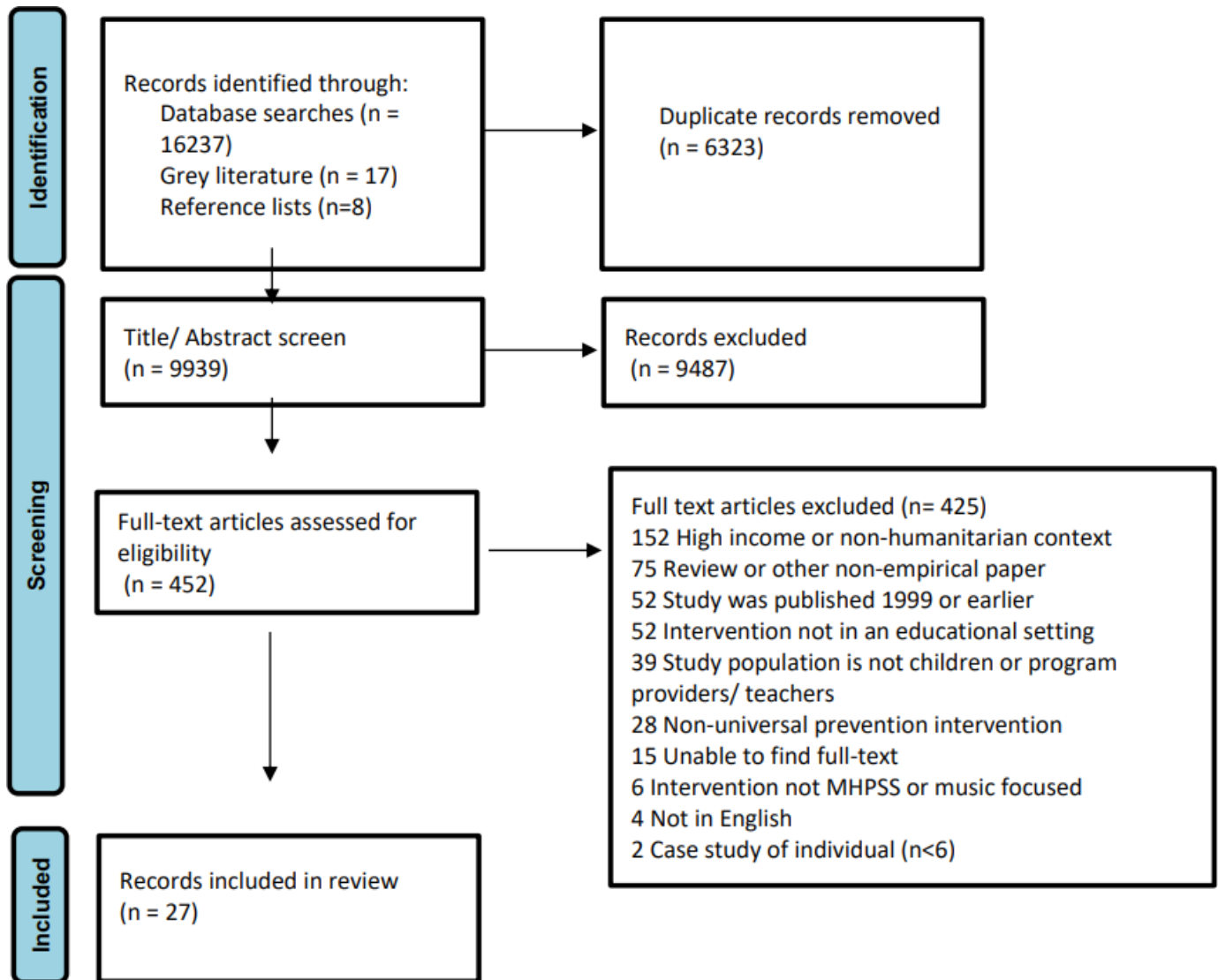
Figure 1 PRISMA diagram. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Outcomes measured included PTSD,[42 46 49] post-traumatic stress symptoms (PTSS),[33 37 38 41 45 51 57] psychological distress,[37 38 51 52] anxiety,[41 50 51] symptoms of depression,[33 37 38 42 45 51] emotion regulation,[36 37 41 46 51 52] behavioural regulation[52] and mental health.[35 36 41 55 56] Well-being-related outcomes were also frequently measured including, resilience,[49] well-being,[34 37 40 53] life satisfaction,[39] hope,[41 42 46] optimism,[51] self-esteem,[41 47] self-efficacy,[50] attributions and perceptions[41] and peer support.[50 56] Lastly, several articles included scholastic-related outcomes measures, including literacy and math skills,[48 52 55 56 58 59] academic performance,[40 58 59] school attendance,[40] school-related stress and stress reactivity,[52] perceptions of public-school environment,[52] executive function[52] and perceived teaching self-efficacy among teachers.[45]

Intervention implementation

Teachers and/or school staff[35 40–42 44 48–50 52 53 55–59] were the most frequent intervention providers, followed by mental health professionals,[33 34 37 38] community health workers,[46 54] volunteer ambassadors[51] and social workers.[41]

One article had a blended model of providers including teachers and/or school staff, mental health professionals, and social workers.[39] Only three articles did not report on intervention providers.[36 45 47] All but seven articles provided some description of the training of intervention providers.[36 41 45 47 49 54 55] The duration of the interventions was reported in all but three articles[36 49 55] and varied widely. For example, a brief psychosocial skills intervention was implemented over three sequential days,[45] while the Better Learning Programme was implemented over the course of a year.[40]

Programme theories

At the start of the review process, we developed four IPTs at the child, teacher, caregiver and school administration/manager levels (online supplemental material 2). Over the course of data extraction and analysis, IPT 1 (child level) was expanded into four separate programme theories (1.1–1.4), IPT 2 (teacher level) was expanded into three programme theories (2.1–2.3), IPT 3 (caregiver level) was expanded into two separate programme

Table 1 Study characteristics

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Aber et al[55] 2017	Democratic Republic of the Congo, Katanga Province	Armed conflict, protracted crisis	To investigate whether the intervention is associated with children's academic and socioemotional outcomes after 1 year of intervention implementation	RCT	**Cluster random sampling**: random selection of 63 schools; random selection of students from each school to participate in the evaluation; 4142 students	**Conduct problems, hyperactivity, emotional symptoms:** 3 subscales of the Strengths and Difficulties Questionnaire **Reading skills:** Early Grade Reading Assessment **Math skills:** Early Grade Math Assessment	↑math skills N/I reading skills ↓mental health problems (via impact on school-level perceptions of caring and supportiveness)
Ager et al[53] 2011	Uganda, Gulu and Amuru Districts	Armed conflict, return/recovery	To test whether the intervention improves child resilience	Case control	**Cluster random sampling with matched controls**: random selection of 8 intervention schools, 4 comparison schools (2:1) matched by geographic location; purposive selection of first 25 intervention students (prioritised based on criteria such as low self-esteem), same criteria and procedure in control schools; 367 children	**Well-being:** locally-developed self-, teacher-, and parent-rated scales	↑well-being (from child and parent report) N/I well-being (teacher report)
Berger et al[42] 2009	Sri Lanka, Welligama	Natural disaster, return/recovery	To evaluate intervention impact	RCT	**Stratified random sampling**: random selection of 6 intervention and six control classes within each age group; 166 children	**PTSD**: UCLA PTSD Index for DSM-IV (child version) **Subjective functional impairment:** 7 items derived from the Child Diagnostic Interview Schedule **Somatic complaints:** 5 items from the Diagnostic Predictive Scales **Hope:** report questionnaire for dispositional hope **Depression:** brief Beck Depression Inventory	↓PTSD severity ↓functional problems ↓somatic complaints ↓depression ↑hope
Brown et al[58] n.d.	Niger, Diffa and Mainé-Soroa departments (Nigerian refugees and Nigeriens)	Armed conflict, active crisis	1. To investigate if the intervention positively impacts academic learning 2. To determine if targeted SEL programming embedded within the intervention positively impacts academic learning	RCT	**Cluster random sampling:** schools paired based on baseline characteristics and randomly assigned to 1 of 2 interventions; random assignment of children in the lowest performing categories on the Annual Status of Education Report; 1800 students	**French literacy**: Annual Status of Education Report French literacy **French numeracy:** Annual Status of Education Report Math **Academic performance:** overall public school grade averages	↑reading skills ↑math skills Students who received targeted SEL skills ↑grades

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Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Commers et al[43] 2012	Sri Lanka	Natural disaster, stabilisation	To evaluate the relevance, efficiency, effectiveness, impact, and sustainability of the project	Single group	**Non-random sampling:** 24 schools selected for deliberate balance in terms of intervention performance, child ages, geographical distribution, and length of intervention participation; 120 children, 43 teachers, 17 teacher-counsellors, and 23 principals	**Relevance, efficiency, effectiveness, impact, sustainability, and predictors:** questionnaires, key informant interviews, group consultation with staff and parents	Interventions perceived as "relevant and non-stigmatised, cost-effective ....anecdotally effective in identifying and helping resolve trauma."
Diab et al[35] 2014	Palestine, North Gaza and Gaza City	Armed conflict, protracted crisis	To examine the effectiveness of the TRT intervention in enhancing good social relations and whether these improved social relations would mediate the intervention impact on mental health among Palestinian children.	RCT	**Cluster random sampling:** selection of 2 regions impacted by the 2008–9 Gaza war; random selection of 4 schools and 16 classrooms; random assignment of classrooms to the intervention; 482 children	**Peer relations:** 7 items of the children's loneliness Scale and 8 items of Friendship Qualities Scale **Sibling relations:** 11 item scale of positive and negative interactions **Mental health:** latent variable including PTSS (Children's Revised Impact Event Scale), depression (Depression Self-Rating Scale for Children), psychological distress (Strengths and Difficulties Scale), and psychosocial well-being (Mental Health Continuum – Short Form for youth)	Intervention was protective against increase in sibling rivalry in control group ↓mental health symptoms (latent construct)
Diab et al[34] 2015	Palestine, North Gaza and Gaza City	Armed conflict, protracted crisis	1. To investigate the effectiveness of the intervention for enhancing resilience 2. To examine the moderating role of family factors for impacts on resilience	RCT	**Cluster random sampling:** selection of 2 regions impacted by the 2008–9 Gaza war; random selection of 4 schools and 16 classrooms; random assignment of classrooms to the intervention; 482 children	**Psychological well-being:** Mental Health Continuum-Short Form for youth **Prosocial behaviour:** 5 items from the Strengths and Difficulties Scale (SDQ)	N/I prosocial behaviour N/I level of well-being N/I on intervention effect by mother's acceptance and willingness to serve as attachment figure or by family atmosphere
Eiling et al[54] 2014	South Sudan, Eastern Equatoria State	Armed conflict, protracted crisis	1. To examine whether the intervention fits with participants' perceptions of well-being 2. To analyse intervention effects on child-determined goals and social and emotional coping skills 3. To investigate what factors influence the outcomes of the intervention	Single group	**Non-random sampling:** selection of 5 groups based on security/ accessibility and starting dates of the intervention; 122 children; evaluation sample: 6 teachers, 3 facilitators, and 11 parents	**Individual child-determined goals:** 'Personal Goal' exercise conducted in intervention monitoring and evaluation **Well-being, social and emotional coping skills, academic performance, process evaluation:** individual and group interviews with children; individual interviews with teachers, parents, and facilitators; process evaluation	Children perceived significant personal improvement, improvements in social skills and relationships, coping skills Teachers reported improved learning outcomes

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Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Eloranta et al[36] 2017	Occupied Palestinian Territories, Gaza	Armed conflict, protracted crisis	1. To examine how attachment style predicts changes in mental health 2. To determine whether change in emotion regulation intensity mediates the association between attachment style and changes in mental health in the context of the intervention	RCT	**Cluster random sampling:** selection of 2 regions impacted by the 2008–9 Gaza war; random selection of 4 schools and 16 classrooms; random assignment of classrooms to the intervention; 482 children	**Emotion regulation:** Emotion Regulation Questionnaire for Children **Mental health:** latent variable including PTSS (Children's Revised Impact Event Scale), depression (Depression Self-Rating Scale for Children), psychological distress (Strengths and Difficulties Scale), and psychosocial well-being (Mental Health Continuum – Short Form for youth)	↑mental health for securely attached children (in both intervention and control groups)
Fu[88] 2012	China, Sichuan Province	Natural disaster, stabilisation	1. To examine the effect of the intervention on resilience and PTSD (symptom score, dichotomous measure) 2. To examine whether the intervention moderated the effects of risk and resilience factors on PTSD	Case control	**Random sampling with non-random selection of matched controls:** random selection of intervention schools, matched control schools (geographic location, damage suffered from the earthquake, student demographics, and socio-economic conditions), 4120 children	**Resilience:** Connor-Davidson Resilience Scale, measure of rational thinking, measure of self-awareness) **PTSD:** UCLA-PTSD Index for DSM-IV	N/I resilience ↑rational thinking ↓self-awareness ↓PTSD
Gupta et al[57] 2008	Sierra Leone, Freetown	Armed conflict, stabilisation	1. To assess the psychosocial status of children enrolled in the intervention 2. To determine whether the intervention reduced trauma symptoms that interfere with learning	Single group	**Stratified random sampling:** simple random sampling of children within three strata (cap site, gender, class level); 315 children	**Feelings before and after participating in the intervention:** subjective assessment questionnaire **Trauma symptoms:** 15-item revised version of the Impact of Events Scale (IES); four items addressing the prevalence and intensity of selected PTSS	↓symptoms of intrusion and arousal ↑avoidance reactions ↓overall score on IES
Ho et al[89] 2017	China, Sichuan Province	Natural disaster, stabilisation	To examine if participation would lead to improvements in self-efficacy and peer support, which consequently would lower anxiety levels	Case control	**Non-random sampling:** selection of 3 schools where principals agreed to support the intervention in the affected area; intervention/control assignment by compromise among school principals and teachers; 112 children	**Self-efficacy:** General Self-Efficacy Scale **Peer support:** Classmate Support Scale **Anxiety:** Generalised Anxiety subscale of the Spence Children's Anxiety Scale	N/I anxiety ↑general self-efficacy ↑peer support

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Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Kangaslampi et al[33] 2016	North Gaza and Gaza City	Armed conflict, protracted crisis	1. To examined whether reductions in PTSS were mediated by changes in posttraumatic cognitions 2. To identify trajectories of posttraumatic cognitions among children participating in the TRT intervention	RCT	Cluster random sampling: selection of 2 regions impacted by the 2008-9 Gaza war; random selection of 4 schools and 16 classrooms; random assignment of classrooms to the intervention; 482 children	**PTSS:** Children's Revised Impact of Event Scale **Post-traumatic cognitions:** Children's Post-Traumatic Cognitions Inventory **Depression:** Depression Self-Rating Scale for Children	N/I on post-traumatic cognitions
Khamis et al[41] 2004	Palestine, West Bank and Gaza	Armed conflict, protracted crisis	To determine the impact of the programme and differences by age (young children v. adolescents) and gender (boys v. girls)	RCT	Stratified random sample: evaluation sample selection based on five primary stratified variables (gender, age, grade level, geographic region, school, and intervention vs waitlisted group); 840 children	**Pro-social strengths:** Child and Adolescent Strengths Assessment (CASA) **Coping:** Youth Coping Inventory (YCI); Adolescent Coping for Problem Experience **Hope:** Children's Hope Scale **Mental health:** Strengths and Difficulties Questionnaire - Child Form **Anxiety:** PENN State Worry Questionnaire for Children **PTSD-like symptoms:** Impact of Event Scale (IES) **Attribution:** Children's Attributional Style Questionnaire **Perception:** Children's Attribution and Perceptions Scale **Self-esteem:** Rosenberg's Self-Esteem Scale	Wait-list group had significantly poorer peer strengths than intervention group N/I on Youth Coping ↑reactions (attribution style) ↑impact on 3 out of 4 dimensions of attribution and perceptions and composite score ↑hope N/I worry N/I PTSD symptoms
Kim et al[59] 2017	Niger, Diffa and Maine-Soroa departments (Nigerian refugees and Nigeriens)	Armed conflict, active crisis	1. To investigate if the intervention positively impacts academic learning 2. To determine if targeted SEL programming embedded within the intervention positively impacts academic learning 3. To determine if targeted SEL programming embedded within the intervention positively impacts social-emotional skills	RCT	Cluster random sampling: schools paired based on baseline characteristics and randomly assigned to 1 of 2 interventions; random assignment of children in the lowest performing categories on the Annual Status of Education Report; 1800 students	**French literacy:** Annual Status of Education Report French literacy **French numeracy:** Annual Status of Education Report Math **Academic performance:** overall public school grade averages	**Regular intervention:** ↑Reading skills ↑Math skills+Targeted SEL intervention: ↑Reading skills ↑Math skills ↑Overall grades N/I socio-emotional outcomes

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Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Michalek et al[51] 2021	Jordan, Amman (Syrian refugees and Jordanians)	Armed conflict, active crisis	To examine whether a reading-based intervention improves emotion recognition and mental health through socialisation in Syrian refugee vs Jordanian non-refugee children.	RCT	**Cluster random sampling:** selection of 2 schools for the intervention/ control groups; 49 refugee and 44 non-refugee children	**Emotion recognition:** emotional recognition facial stimulus software **Trauma:** Traumatic Events Checklist, Child Revised Impact of Events Scale (CRIES 8) **Depression:** Arab Youth Mental Health Scale (AYMHS) **Anxiety:** Arab Youth Mental Health Scale (AYMHS) **Insecurity:** Human Insecurity and Distress Scale (HIDS) **Optimism:** Youth Life Orientation Test (YLOT)	N/I Emotion recognition Emotion recognition bias was not associated with changes in self-reported mental health symptoms
Nastasi et al[44] 2011	Sri Lanka, Southern coastal province	Natural disaster, stabilisation	To determine if the intervention provides children and adolescents with the context and skills to discuss tsunami-specific and developmentally-contextually relevant stressors	Single group	**Non-random sampling:** purposive selection of two schools, 1 of which was included in the evaluation; 120 students, 12 teachers, and two administrators	**Stressors and associated feelings:** curriculum products (graphic, visual, and textual material produced by students) **Implementation** (acceptability, social validity, integrity, perceived impact/success): student evaluations, teacher evaluations, participant observation	Programme perceived as acceptable; consistency and integrity in programme implementation Tsunami and non-tsunami related stressors identified
Punamäki et al[37] 2014	Palestine, North Gaza and Gaza City	Armed conflict, protracted crisis	1. To examine the effectiveness of the intervention for increasing functional emotion regulation 2. To investigate if beneficial changes in emotional regulation mediate the effect of the intervention on changes in mental health	RCT	**Cluster random sampling:** selection of 2 regions impacted by the 2008–9 Gaza war; random selection of 4 schools and 16 classrooms; random assignment of classrooms to the intervention; 482 children	**Emotional regulation:** Emotional Regulation Questionnaire for Children **PTSS:** Children's Impact of Event Scale **Depressive symptoms:** Depression Self-Rating Scale for Children **Psychological distress:** Strengths and Difficulties Scale **Psychosocial well**-being: Mental Health Continuum-Short Form for youth	N/I emotion regulation ↓depression ↓PTSS ↓distress ↑psychosocial well-being

Continued

Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Qouta et al[38] 2012	Palestine, North Gaza and Gaza City	Armed conflict, protracted crisis	1. To examine intervention effects on children's mental health and their staying power at follow-up 2. To analyse the role of peritraumatic dissociation in moderating the intervention effect on PTSS	RCT	Cluster random sampling: selection of 2 regions impacted by the 2008–9 Gaza war; random selection of 4 schools and 16 classrooms; random assignment of classrooms to the intervention; 482 children	**PTSS:** Children's Revised Impact of Event Scale **Depressive symptoms:** Depression Self-Rating Scale for Children **Psychological distress:** Strengths and Difficulties Scale	↓PTSS only among boys ↓PTSS for girls who had low peritraumatic dissociation at baseline
Seyle et al[45] 2013	Indonesia, Central Java	Natural disaster, return/recovery	To determine intervention impact on teacher psychosocial health, perceived teaching efficacy, and classroom behaviour	Single group	Non-random sampling: teachers from highly-Affected schools were invited to participate; 43 teachers	**Perceived teaching efficacy:** Teacher Efficacy Scale **Perceived classroom behaviour:** Child Behaviour Checklist (modified) **PTSS:** PTSD Checklist (culturally adapted) **Depression:** Centre for Epidemiologic Studies Depression Scale	↓PTSD symptoms ↓symptoms of depression N/I perceptions of teaching efficacy N/I perceptions of general teaching efficacy N/I reports of classroom behaviour
Shah et al[40] 2017	Palestine, West Bank and Gaza	Armed conflict, protracted crisis	To investigate questions of impact, relevance, targeting, efficiency, sustainability, and scale for the intervention	Single group	Non-random sampling: selected by NRC and evaluator from sampling frame; 584 students	**Nightmares:** average number reported per week **Well-being:** Norwegian Refugee Council's well-being survey **Change:** Most Significant Change Stories **School attendance:** average total number of days of attendance **Academic performance:** average	↓number of nightmares reported ↑level of well-being
Tol et al[46] 2010	Indonesia, Central Sulawesi	Armed conflict, active crisis	1. To determine if coping, social support, and hope mediate the relationship between treatment and change in mental health symptoms 2. To investigate if individual variables (eg, age) moderate treatment effects 3. To determine if social support size (eg, family connectedness) moderate the relationship between treatment and change in mental health symptoms	RCT	Cluster random sampling: random selection of 14 schools; 403 children	**PTSD:** Child PTSD Symptom Scale **Function impairment:** locally-constructed child-rated checklist **Hope:** Children's Hope Scale **Coping repertoire and satisfaction:** child-rated Kidcope	N/I hope+positive coping N/I peer social support ↑play social support Mediators: play social support acted as mediator of treatment effects (+play social support associated with lower reductions of PTSD in intervention group) Moderators: Girls showed larger treatment effects on PTSD symptoms; girls, children receiving social support and children in smaller households showed larger treatment effects on function impairment

Continued

Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Torrente et al[56] 2019	Democratic Republic of Congo, eastern region	Armed conflict, protracted crisis	To examine the intervention impact on social-emotional support of schools and classrooms, student well-being, student math and reading performance, and teacher motivation and well-being	RCT	**Cluster random sampling:** geographically-adjacent clusters of 2–6 schools were randomised by public lottery in a wait-list controlled design; student and teacher study participants selected through simple random sampling; 8813 students	**Peer victimisation:** 5 items adapted from the Aggression, Victimisation, and Social Skills Scale **Mental health problems:** 12 items adapted from 3 subscales of the Strengths and Difficulties Questionnaire **Reading performance:** Early Grade Math Assessment **Math performance:** Early Grade Math Assessment	(results from pooled analyses) N/I peer victimisation N/I mental health problems N/I reading performance ↑math performance (after 1 year, N/I after 2 years)
Tubbs Dolan et al[48] 2017	Lebanon, Bekaa and Akkar regions (Syrian refugees)	Armed conflict, active crisis	1. To investigate the impact of the intervention on academic and social-emotional learning 2. To determine if adding Mindfulness practices improved the impact of the intervention on academic and social-emotional skills 3. To determine if adding Brain Games improved the impact of the intervention on academic and social-emotional skills	RCT	**Cluster random sampling:** 87 communities	**Math skills:** Early Grade Reading Assessment **Reading skills:** Early Grade Math Assessment	↑reading skills ↑math skills ↓hostile attribution bias N/I mental health outcomes

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Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact
Tubbs-Dolan et al[52] 2021	Lebanon (Syrian refugees)	Armed conflict, active crisis	To test the impact of two nonformal remedial support and mindfulness interventions among Syrian refugee children in Lebanese public schools.	RCT	**Cluster random sampling:** 87 sites stratified by region and randomised by site level into one of the three treatment arms; n=4598 children	**Literacy skills:** Early Grade Reading Assessment **Numeracy skills:** Early Grade Mathematics Assessment **Perception of public school environment:** Child Friendly Schools Questionnaire **School-related stress and stress reactivity:** Academic Problems subscale and Involuntary Engagement (RSIE) subscale of the Response to Stress Questionnaire **Executive function:** Rapid Assessment of Cognitive and Emotional Regulation **Internalising symptoms:** Arabic version of the Moods and Feelings Questionnaire **Behavioural regulation:** adapted 13-item Preschool Self-Regulation Assessment—Assessor Report **Cognitive and emotional regulation:** Children's Stories Package	**Healing Classrooms Tutoring (HCT) vs control** N/I literacy skills N/I numeracy skills ↑perceptions of public schools N/I school related stress and stress reactivity N/I executive function, **internalising** symptoms, cognitive and emotional regulation ↑behavioural regulation **HCT+mindfulness vs. control** N/I literacy skills N/I numeracy skills ↑perceptions of public schools N/I school related stress and stress reactivity N/I executive function, internalising symptoms, cognitive and emotional regulation ↑behavioural regulation **HCT+mindfulness vs. HCT** N/I literacy skills N/I numeracy skills ↑perceptions of public schools N/I school related stress and stress reactivity N/I executive function, internalising symptoms, cognitive and emotional regulation, behavioural regulation
Veronese et al[39] 2018	Palestine, Gaza	Armed conflict, protracted crisis	To investigate the intervention impact on life satisfaction, positive emotions, awareness of life conditions, pessimism/ optimism about overall life state	Unclear	**Unclear selection with random sampling of controls:** 64 children	**Life satisfaction:** Multidimensional Students' Life Satisfaction Scale, Face Scale **Optimism/pessimism:** Youth Life Orientation Test **Positive/negative affect:** Positive and Negative Affect Scale for Children	↑life satisfaction ↑greater appreciation for friends, school, family, themselves, and living environment ↑positive emotions ↑negative emotions
Zapata et al[47] 2018	Columbia, Bogotá	Armed conflict, active crisis	To examine how, and to what extent, musical activities influence self-esteem and socio-emotional development	RCT	**Simple random sampling:** 104 children	**Component (social, behavioural, physical appearance, cognitive) and global self-esteem:** Harter's Perceived Competence Scale for Children	↑overall self-esteem score; cognitive sub-scale

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Table 1 Continued

Article	Country and region (in which study was conducted)	Humanitarian crisis and phase of crisis	Research aims	Study design	Sampling approach and sample size	Outcome measure(s)	Outcomes ↑statistically significant increase ↓statistically significant decrease N/I=no impact

NRC, Norwegian Refugee Council; PTSD, post-traumatic stress disorder; PTSS, post-traumatic stress symptoms; RCT, randomized controlled trial; SEL, social and emotional learning; TRT, Teaching Recovery Techniques.

theories (3.1–3.2), and programme theory 4 (school environment level) was added, resulting in a total of 11 programme theories (table 3). CMOCs were extracted and supported all programme theories with the exception of programme theories 3.2 and 5.

Programme theory 1.1

When MHPSS prevention and promotion interventions are integrated into learning spaces, children are better able to develop and strengthen coping skills, which results in improved psychosocial well-being.

Programme theory 1.1 is supported by four CMOCs from 12 articles.[34 37–42 46 49 50 53 54] This theory centres on children developing the ability to cope during or in the aftermath of potentially traumatic events, and relates directly to cognitive abilities and behaviour. It includes mastery of new skills and the ability to use these skills in response to new or ongoing challenges.[39 46]

The interventions supporting this programme theory incorporated many different activities into implementation. Six articles[37 38 46 49 50 53] present evidence from interventions that used creative approaches (ie, drawing, music or drama) to promote coping skills. For example, Ager *et al*[53] studied the Psychosocial Structured Activities intervention in northern Uganda, which incorporated play therapy, drama, art, and movement in order to support self-esteem, regulation of emotions, resource identification and coping skills. Overall, the study found intervention participation was associated with a trend of recovery and enhanced well-being for children.[53]

Narrative, story-telling intervention approaches were described in two articles taking place in Palestine.[34 39] Veronese and Barola[39] reported positive impact on psychosocial well-being via assessment of life satisfaction, while Diab *et al*[34] reported no effect of the intervention studied. Also in Palestine, Shah[40] showed positive impact of relaxation and stress reduction techniques and activities on psychosocial well-being as part of the Better Learning Programme. Overall, 10 articles showed positive impact on psychosocial well-being (via at least one measure) via this mechanism.[37 39–42 46 49 50 53 54]

Programme theory 1.2

When MHPSS prevention and promotion interventions are integrated into learning spaces, children are able to better understand and manage their emotions and develop a greater sense of self, which leads to improved psychosocial well-being.

Programme theory 1.2 is supported by four CMOCs from 14 articles.[34 36–38 40–42 47 49–53 57] This theory centred on personal emotional components of psychosocial well-being such as emotional regulation,[34 37 38 41 47 49–53 56] healthy expression of emotions,[38 41 47 49 52 57] self-efficacy and feelings of empowerment,[34 37 41 49] and self-esteem and self-identity.[49 53]

The interventions studied presented multiple activities that encouraged emotional regulation and sense of self. Six articles studied interventions that featured creative

Table 2 Intervention characteristics

Article	Intervention name and source	Intervention goal	Format of intervention	Intervention duration	Intervention delivery in relation to humanitarian emergency	Provider type and training
Aber et al[55] 2017	Learning to Read in a Healing Classroom, IRC	To improve children's learning and math scores as well as mental health outcomes	Group	Not reported	Not reported	Teachers and school staff; training not reported
Ager et al[53] 2011	Psychosocial Structured Activities programme, based on Robert Macy's Classroom-Based Intervention	To improve child resilience	Group	15 sessions lasting 1 hour	1 year following official cessation of conflict	Teachers and school staff; trained in a residential workshop
Berger et al[42] 2009	Erase Stress Programme	To strengthen resilience and reduce tsunami-related distress	Group	12, 90min sessions	2 years after the tsunami	Teachers and school staff; 3 day training
Brown et al[58] n.d.	Healing Classrooms Basic, Healing Classrooms+Targeted SEL, IRC	To improve children's learning, retention, and social and emotional learning outcomes	Group	Up to 6 hours per week for 11 weeks	During active crisis	Teachers and school staff; 6 day training on the IRC's Learning to Read and Learning Math in a Healing Classroom approach
Commers et al[43] 2012	Happy/sad letter box (HSLB) project	To promote children's mental health	Individual	N/A	5–7 months after Tsunami	N/A
Diab et al[35] 2014	Teaching Recovery Techniques	To help children develop effective coping skills, empowerment, and emotion regulation to enhance positive feelings, relaxation, and social resources	Group	two weekly, 2 hour sessions for 4 weeks	3 months after the 2008–2009 Gaza war	Mental health professional; trained in TRT techniques
Diab et al[34] 2015	Teaching Recovery Techniques	To enhance children's resources to deal with symptoms of posttraumatic stress	Group	16 extracurricular activity sessions; delivered as 2 weekly 2 hour sessions over 4 weeks	3.5 months after 2008–2009 Gaza war	Mental health professionals; trained by member of research team

Continued

Table 2 Continued

Article	Intervention name and source	Intervention goal	Format of intervention	Intervention duration	Intervention delivery in relation to humanitarian emergency	Provider type and training
Eiling et al[54] 2014	I DEAL, War Child Holland	To support children to cope with the aftermath of armed conflict, by strengthening determinants of resilience and psychosocial well-being	Group	Maximum 19 sessions of 1.5 hours each, implemented over a period of 4 to 6 months	During protracted crisis	Community health workers; training not reported
Eloranta et al[36] 2017	Teaching Recovery Techniques	To help children develop effective coping skills, empower themselves, and normalise intrusive, avoidance, and hyperarousal symptoms of PTSD	Group	Not reported	During ongoing political violence	Not reported
Fu[88] 2012	Comfort for Kids and Moving Forward, Mercy Corps	Improve children and youth's resiliency and mental well-being after the earthquake	Individual and group	Not reported	After the earthquake	Teachers; training not reported
Gupta et al[57] 2008	Rapid-Ed, Plan International	To reduce children's levels of emotional distress and post-traumatic stress reactions that often interfere with learning	Group	eight 60 min sessions, twice per week for 4 weeks	9–12 months after rebel invasion	Teachers and school staff; 6 hour training on basic child development, traumatic stress theory, loss and grief reactions, and how to implement the structured trauma healing and recreation activities
Ho et al[89] 2017	School-based arts and play intervention	To reduce anxiety levels by enhancing self-efficacy, emotional expression, and self-understanding; promoting interpersonal relationships, cooperation, and teamwork; and positive thinking and problem solving	Group	One semester	1 year after the earthquake	Teachers and school staff; 3 day training delivered by qualified creative arts and play therapists from the University of Hong Kong

Continued

Table 2 Continued

Article	Intervention name and source	Intervention goal	Format of intervention	Intervention duration	Intervention delivery in relation to humanitarian emergency	Provider type and training
Kangaslampi et al[33] 2016	Teaching Recovery Techniques	To reduce post-traumatic stress symptoms in children following exposure to armed conflict	Group	eight sessions lasting 2 hours, twice a week	3 months after the 2008–2009 Gaza war	Mental health professionals; trained by member of research team
Khamis et al[41] 2004	Classroom Based Intervention Programme, Boston Centre for Trauma Psychology	To reduce potentially harmful traumatic stress reactions, and increase children's ability to solve problems, maintain pro-social attitudes, and sustain self-esteem as well as hope for the future	Group	15 sessions over 5 weeks	During ongoing crisis	Social workers, school counsellors and other psychosocial support personnel; Training not described
Kim et al[59] 2017	Learning in a Healing Classroom Basic & Learning in a Healing Classroom Plus (IRC)	To improve children's learning, retention, and social and emotional learning outcomes	Group	6 hours per week for 22 weeks	During active crisis	Teachers and school staff; 5 day training on IRC Healing Classrooms approach
Michalek et al[51] 2021	We Love Reading	To improve children's mental health, well-being, and emotion recognition through emotion socialisation	Group	15 min reading sessions delivered over 5 weeks	Around 8 years after the start of the Syrian civil war	Female volunteer ambassadors; 2 day training delivered by Taghyeer Foundation.
Nastasi et al[44] 2011	School-based intervention	To address the psychosocial needs of children and adolescents living in Sri Lanka through the development of culturally and contextually appropriate programming	Group	10, 90 min sessions	15–18 months following December 2004 Tsunami	Teachers and school staff; consultants provided training prior to implementation and were onsite to provide ongoing supervision
Punamäki et al[37] 2014	Teaching Recovery Techniques	To help children develop effective coping skills, empowerment, and emotion regulation to enhance positive feelings, relaxation, and social resources	Group	16 extracurricular activity sessions; delivered as 2 weekly 2 hour sessions over 4 weeks	3 months after the 2008–2009 Gaza war	Mental health professional; trained in CBT techniques in addition to intensive TRT training, organised by the last author

Continued

Table 2 Continued

Article	Intervention name and source	Intervention goal	Format of intervention	Intervention duration	Intervention delivery in relation to humanitarian emergency	Provider type and training
Qouta et al[38] 2012	Teaching Recovery Techniques	To help children develop effective coping skills, empowerment, and emotion regulation to enhance positive feelings, relaxation, and social resources	Group	16 extracurricular activity sessions; delivered as 2 weekly 2 hour sessions over 4 weeks	During 2008–2009 Gaza war	Mental health professional; trained by first author
Seyle et al[45] 2013	Brief psychosocial skills intervention, Psychology Beyond Borders and United States National Child Traumatic Stress Network	To improve posttraumatic psychological health in teachers and to enhance their perceptions of self-efficacy and teaching performance	Group	three sequential days	4 years after the earthquake	Not reported
Shah et al[40] 2017	Better Learning Programme, NRC	To improve learning conditions for children and adolescents exposed to war and conflict in Palestine	Group	1 year	During ongoing political violence	Teachers and school staff; 2 day training for one school counsellor and one teacher who provided cascade training to all other teachers
Tol et al[46] 2010	Manualized classroom-based intervention, based on Robert Macy's Classroom-Based Intervention	To decrease negative coping, and decrease symptomatology for children affected by political violence by strengthening protective resources in children and their socioecological environment	Individual and group	15 sessions over 5 weeks	During ongoing armed conflict	Community health workers; trained over 3 weeks
Torrente et al[56] 2019	Learning in a Healing Classroom, IRC	To mitigate the negative effects of violence by promoting students' feelings of safety, predictability, and attachment to their teachers and peers	Group	2011–2014	During active crisis	Teachers and school staff; initial intensive 10-day training, followed by ongoing training throughout the school year

Continued

Table 2 Continued

Article	Intervention name and source	Intervention goal	Format of intervention	Intervention duration	Intervention delivery in relation to humanitarian emergency	Provider type and training
Tubbs Dolan et al[48] 2017	Healing Classrooms Basic and Healing Classrooms+Targeted SEL (IRC)	To improve children's learning, retention, and social and emotional learning outcomes	Group	8 hours per week for 32 weeks	During active crisis	Teachers and school staff; 5 day training on IRC Healing Classrooms approach
Tubbs Dolan et al[52] 2021	Tutoring in a Healing Classroom (HCT); Tutoring in a Healing Classroom+Mindfulness (HCT+Mindfulness) (IRC)	To improve children's academic and social and emotional skills	Group	2.67 hours per day for 3 days a week, delivered over a half year	During active crisis	Teachers and school staff; 5 day training on IRC Healing Classrooms approach; three follow-up visits over the half-year programme from trainers
Veronese et al[39] 2018	Psychosocial narrative school-based intervention	To strengthen the survival skills and psychological functioning of children who had experienced war and political violence on the Gaza Strip	Group	6, 4 hour sessions over 1 week	Immediately following armed conflict in 2014	Social workers, teachers, and a mental health professional; social workers and teachers trained in trauma management, mental health professional trained in family-focused trauma interventions
Zapata et al[47] 2018	Group Music Programme	To increase the social, behavioural, and cognitive domains of self-esteem as well as overall self-esteem through musical activities.	Group	2 hours per week for 18 weeks	During ongoing conflict	Not reported

CBT, cognitive–behavioural therapy; IRC, International Rescue Committee; IRC, International Rescue Committee; NA, not available; NRC, Norwegian Refugee Council; NRC, Norwegian Refugee Council; PTSD, post-traumatic stress disorder; TRT, Teaching Recovery Techniques.

Table 3 Programme theories and context–mechanism–outcome configurations (CMOC)

Programme theory	CMOC
1.1 When MHPSS prevention and promotion interventions are integrated into learning spaces, children are better able to develop and strengthen coping skills, which results in improved psychosocial well-being.	C: When children are given MHPSS programming in learning spaces, that centre on engaging them in creative and expressive approaches and activities…M: they learn positive coping skills and the ability to apply skills and knowledge, which leads to…O: Improved psychosocial wellbeing.[37 38 46 49 50 53] C: When children are given MHPSS programming in learning spaces, that centre on engaging them in relaxation and stress-release approaches and activities… M: they learn positive coping skills and the ability to apply skills and knowledge, which leads to…O: Improved psychosocial wellbeing.[34 40] C: When children are given MHPSS programming in learning spaces, that centre on narrative approaches and storytelling…M: they learn positive coping skills and the ability to apply skills and knowledge, which leads to…O: Improved psychosocial wellbeing.[34 39] C: When children are given MHPSS programming in learning spaces that centre on creative and physical/sports-based activities…M: they build trust, and improved teamwork and communication skills, which leads to…O: increased ability to understand and regulate emotions, as well as cope.[34 49 50 54]
1.2 When children are given MHPSS When MHPSS prevention and promotion interventions are integrated into learning spaces, children are able to better understand and manage their emotions and develop a greater sense of self, which leads to improved psychosocial well-being.	C: In school based, safe environments, where children are provided with group-based psychoeducation…M: children are able to recognise, understand, and share their feelings and emotions, and learn emotion and behaviour regulation skills…O: Which leads to improved mental health outcomes and potential for learning.[36 52 57] C: When children are given MHPSS programming in learning spaces, that centre on engaging them in creative and expressive approaches and activities…M: they learn emotional regulation and personal emotional skills, which leads to…O: Improved psychosocial wellbeing.[37 38 41 42 47 49–51 53 57] C: When children are given MHPSS programming in learning spaces, that centre on engaging them in relaxation and stress-release approaches and activities…M: they learn emotional and behavioural regulation and personal emotional skills, which leads to…O: Improved psychosocial wellbeing.[34 40 52] C: When children are given MHPSS programming in learning spaces, that include sports and physical activities…M: they learn emotional regulation and personal emotional skills, which leads to…O: Improved psychosocial wellbeing.[49 57] C: When students participate in school based MHPSS intervention that provides a safe place for trauma processing…M: students are able to develop effective coping skills, empowerment, and emotion regulation by narrative, imagery, and body- and mind-related and psycho-educational techniques…O: which leads to improved psychosocial well-being.[35]
1.3 When MHPSS prevention and promotion interventions are integrated into learning spaces, children are able to strengthen interpersonal relationships with their peers, instructors and caregivers, which leads to improved psychosocial well-being.	C: Through participation in a school-based MHPSS intervention with a focus on narrative, creative and community oriented activities; M: Children are able to engage with family, neighbours, and community… which leads to…O: Improved psychosocial well-being.[39 49 53] C: When children are given MHPSS programming in learning spaces that centre on creative and physical/sports based activities…M: they build trust, and improved teamwork and communication skills, which leads to…O: increased ability to understand and regulate emotions, as well as cope.[34 49 50 54] C: A school-based MHPSS intervention where children are supported by their natural support networks (teachers, parents, and peers)…M: children are able to learn communication skills and coping skills for daily stressors…O: Which leads to improved psychosocial well-being and learning outcomes.[40 44] C: When children are given MHPSS programming in learning spaces, that centre on engaging them in creative and expressive approaches and activities…M: they learn social and interpersonal skills including trust and collaboration, which leads to…O: Improved psychosocial well-being.[54] C: When students participate in school based MHPSS intervention that provides a safe place for trauma processing…M: children are able to strengthen relationships with their siblings and peers, and form new friendships…O: which leads to improved psychosocial wellbeing.[35] C: When children are given MHPSS programming in learning spaces that centre on group based and peer supporting activities…M: children are able to better understand, express, and regulate emotions…O: which leads to improved psychosocial well-being.[36 40 57]
1.4 When MHPSS prevention and promotion interventions are integrated into learning spaces, children will have improved psychosocial well-being, which leads to improved learning outcomes.	C- In school based, safe environments, where children are provided with group-based psychoeducation…M: children are able to recognise, understand, and share their feelings and emotions, and learn emotion regulation skills…O: Which leads to improved mental health outcomes and potential for learning.[52 54 57] C: When children are given MHPSS programming in learning spaces that centre on physical/sports based activities and creative activities…M: they are able to release tension and experience reduced levels of emotional distress and PTS responses, which leads to…O: Improved potential for learning.[57] C: When children are given MHPSS programming in learning spaces, that centre on relaxation and stress reduction techniques and activities…M: they reduce emotional distress and improve social-emotional skills, which leads to…O: Improved academic performance.[48 55 56 58]
2.1 When teachers/ educators/ facilitators in learning spaces actively engage in training and receive supportive supervision to increase their mental health literacy, they are better able to develop positive coping skills, which leads to improved teacher/ educator/ facilitator psychosocial well-being.	C: When teachers receive a MHPSS intervention…M: Their teaching efficacy and classroom behaviours will improve, and they will be better able to support student's recovery and emotional stability in the classroom…O: Which leads to teachers having reduced PTSD symptoms (which in turn improves MHPSS outcomes and learning of students in their classrooms).[45]
2.2. When teachers/ educators/ facilitators in learning spaces actively engage in training and receive supportive supervision to increase their mental health literacy, they are better able to support their students' mental health, allowing children to strengthen their self-esteem, process their emotions, and develop new coping skills, which leads to improved student psychosocial well-being.	C: When parents and teachers participate in a child music programme; M: Their positive promotion of children's self- theories leads to; O: Children experiencing increased behavioural and cognitive self-esteem.[47] C: When teachers who are familiar with the children and their trauma experiences design and implement culturally appropriate arts and play activities for children…M: children are able to process their experiences, develop new coping skills and promote social support, leads to…O: Increased self-efficacy, peer support and reduced anxiety.[50]

Continued

Table 3 Continued

Programme theory	CMOC
2.3. When teachers/ educators/ facilitators in learning spaces actively engage in training and receive supportive supervision to increase their mental health literacy, they are better able to support their student's mental health, which leads to improved student learning outcomes.	C: MHPSS interventions delivered to teachers who receive training and ongoing support for their own professional development and for supporting their students with safe environments and positive discipline…M: teachers' resources and practices are improved and children experience supportive social and pedagogical processes in the classroom…O: Which leads to improved learning outcomes; improved teacher motivation and well-being.[55 56]
3.1 When caregivers are engaged in their children's learning and well-being, interpersonal and family bonds are strengthened, which leads to improved psychosocial well-being.	C: Through participation in a school-based MHPSS intervention with a focus on narrative, creative and community service activities; M: Children are able to engage with family, neighbours, and community… which leads to…O: Improved psychosocial wellbeing.[39 49 53] C: When children are provided with psycho-education, CBT informed intervention with additional parental/caregiver support; M: They are able to learn coping strategies, problem solving skills and increase functional cognitive emotional regulation; O: Results in increased psychosocial wellbeing.[34]
3.2. If caregivers are engaged in their children's learning and well-being, then they will help foster a positive relationship among their children with learning spaces, which leads to improved learning outcomes	No CMOCs were extracted related to this programme theory
4.When school environments are created to be safe, supportive, and child-centred, then children will feel secure, relaxed, and less stressed, which leads to improved psychosocial well-being and learning outcomes.	C: MHPSS programmes that are child-centred and focus creating an environment that feels safe and supportive…M: Children are able to feel secure, relaxed, and less stressed, O: Results in increased psychosocial well-being, and improved learning outcomes.[36 37 40 44 48 51 52 55 57 58] C: MHPSS programmes that encourage collaboration among parents, teachers, and counsellors in order to create a supportive school environment…M: Children feel safe and secure in school…O: results in increased psychosocial well-being and improved learning.[36 40 44]
5.If managers and administrators (inclusive of principals) of learning spaces receive training to increase their mental health literacy, they will better understand the importance of MHPSS prevention and promotion activities in learning spaces, which will encourage the implementation and MHPSS prevention and promotion activities.	No CMOCs were extracted related to this programme theory

CBT, cognitive behavioural therapy; MHPSS, mental health and psychosocial support; PTSD, post-traumatic stress disorder.

approaches[37 38 47 49 50 53]; two articles featured sports or physical activities[49 57]; three articles described relaxation and stress reducing activities[34 40 52] and two described narrative and story-telling activities.[34 51] For example, Zapata and Hargreaves[47] described an intervention that provided musical activities to children in order to influence sense of self-esteem and socialemotional development. This was found to have some impact on cognitive abilities and overall self-esteem but no impact on social or behavioural domains of self-esteem. Nine articles showed positive impact on psychosocial well-being (via at least one measure) via this mechanism.[37 40–42 47 49 50 53 57]

Programme theory 1.3

When MHPSS prevention and promotion interventions are integrated into learning spaces, children are able to strengthen interpersonal relationships with their peers, instructors, and caregivers, which leads to improved psychosocial well-being.

Programme theory 1.3 is supported by six CMOCs from twelve articles.[34–36 38–40 44 49 50 53 54 57] The theory focuses on the development of social and interpersonal skills and activities, such as building trust,[40 49] practising collaboration and communication,[49 54] and using conflict resolution skills.[54] Additionally, this theory links supportive interpersonal relationships with improved understanding, expressing, and regulating of emotions.[36 40 57] The articles study interventions that include sports and

physical activities,[49 57] creative activities[38 47 49 53 54 57] and relaxation and stress reduction.[38 40]

Diab, studying the TRT intervention in Palestine, which uses social resources and shared experiences to help children better communicate and engage with their emotions in peer interactions, showed that the intervention decreased loneliness in peer relations in boys, reduced sibling rivalry in girls, and prevented an increase in sibling conflict in both.[35] The other studies of TRT included in this review showed mixed impact on elements of psychosocial well-being. Qouta showed modest effect of the intervention, with reduction in PTSS only in boys, and notes that the intervention may not have been enough to overcome the adverse events children had experienced.[49] Eloranta investigated if emotional regulation mediates the impact of attachment style on mental health outcomes, and found it did not (the authors note that this contradicts earlier studies).[36] Overall, nine articles show positive impact (via at least one measure) on psychosocial well-being via this mechanism.[34 35 39 40 49 50 53 54 57]

Programme theory 1.4

When MHPSS prevention and promotion interventions are integrated into learning spaces, children will have improved psychosocial well-being, which leads to improved learning outcomes.

Programme theory 1.4 is supported by three CMOCs from eight articles.[40 48 52 54–58] Five of these articles study

the Healing Classrooms intervention implemented by the International Rescue Committee; these are the only studies in this review that directly measure learning outcomes.[48 52 55 56 58] The Healing Classrooms intervention has been studied in DRC, Lebanon, Niger and Nigeria. In addition to teacher support (described below), children in this intervention receive relaxation and stress reduction techniques and activities, which aim to reduce emotional distress and improve the social-emotional skills of the learner. This is hypothesised to improve academic performance over time. For Tubbs Dolan *et al* in Lebanon, and Kim *et al* in Niger and Nigeria, this hypothesis was supported, with children in the intervention group receiving higher scores in both math and literacy tests compared with peers who did not receive the intervention.[48 59]

A study of the Better Learning Programme described similar pathways, wherein relaxation, breathing exercises, and stress release activities lead to better ability to concentrate and, thus, improved potential for learning.[40] However, a main conclusion of this study was, according to Shah, that while improvements in concentration and ability to focus were described by participants, there was actually a negative association with participation in the intervention and attendance rates.[40]

One study[54] reported on changes in child-identified personal goals during the intervention; both children and teachers reported improvements in academic performance after participating in the intervention. The final study that described learning outcomes via this CMOC measured MHPSS outcomes only. The authors posit that with improved MHPSS outcomes, children's capacity for learning will likely increase. The study however does not directly measure learning outcomes.[57]

Overall, four articles show positive impact of MHPSS programmes on learning outcomes.[48 55 56 58] Two show self-reported impact,[40 54] although for one of these[40] there was actually a negative association with the academic outcomes measured in the study. Overall, the CMOCs in this category show that evidence for clear impact of MHPSS programming on learning outcomes is still lacking.

Programme theory 2.1
When teachers/educators/facilitators in learning spaces actively engage in training and receive supportive supervision to increase their mental health literacy, they are better able to develop positive coping skills, which leads to improved teacher/educator/facilitator psychosocial well-being.

Programme theory 2.1 is supported by one CMOC derived from one article,[45] and highlights the importance of ensuring the psychosocial well-being of teachers. In humanitarian contexts, teachers must first address their own mental health and well-being in order to lessen any potential impacts a traumatic exposure may have on their teaching capacity and performance. When teachers are adequately supported and provided with training

addressing their own mental health, they are then better equipped to use positive coping strategies, increase their teaching efficacy, and ultimately improve their well-being. For example, in a study by Seyle *et al*, a significant association was found between teachers' posttraumatic distress symptoms and teacher efficacy, and following the psychosocial skills-based intervention for teachers, a significant drop in depression and PTSS was reported.[45]

Programme theory 2.2
When teachers/educators/facilitators in learning spaces actively engage in training and receive supportive supervision to increase their mental health literacy, they are better able to support their students' mental health, allowing children to strengthen their self-esteem, process their emotions, and develop new coping skills, which leads to improved student psychosocial well-being.

Two CMOCs were extracted from two articles to support Programme theory 2.2.[47 50] This theory relates to teacher trainings to meet the psychosocial needs of their students. When teachers are engaged with their students and knowledgeable of their trauma experiences, they are better suited to address the psychosocial needs of their students. Moreover, when teachers are provided with specific training to support their students' psychosocial well-being, they are then able to integrate arts and play activities that allow students to process traumatic experiences, develop new coping skills, and provide social support to each other. This results in improved student psychosocial well-being, as well as increased social support and reduced anxiety.

The two interventions that support this programme theory include a musical-activities programme in the context of armed conflict[47] and a strength-based arts and play programme implemented following an earthquake.[50] Zatapa and Hargreaves[47] reported positive impacts on cognitive abilities and overall self-esteem following participation in the musical-activities programme, and participation in the strength-based arts and play programme also was found to positively impact self-efficacy.[47 50]

Programme theory 2.3
When teachers/educators/facilitators in learning spaces actively engage in training and receive supportive supervision to increase their mental health literacy, they are better able to support their student's mental health, which leads to improved student learning outcomes.

Programme theory 2.3 is supported by 1 CMOC extracted from two articles, representing the same study of the Healing Classrooms intervention in the Democratic Republic of the Congo.[55 56] This theory highlights the importance of teacher training and professional development for improved learning outcomes among students. Providing teachers with professional development training and ongoing support that also increases their mental health literacy enables the strengthening of their own resources, competencies, and classroom practices. This in turn creates a supportive environment for

student's academic and social experiences in the classroom, which contributes to improved student learning outcomes. At midline of the Healing Classrooms trial, positive impacts on math scores, but no impacts on reading scores, were reported.[55] However, only positive impacts were reported on students' addition and subtraction at end line.[56]

Programme theory 3.1

When caregivers are engaged in their children's learning and well-being, interpersonal and family bonds are strengthened, which leads to improved psychosocial well-being.

Programme theory 3.1 is supported by two CMOCs extracted from four articles.[34 39 49 53] This theory relates the role of caregiver involvement and support to improved psychosocial well-being. Through MHPSS interventions that include caregiver support and involvement, children and caregivers can interact with each other, peers and the community, which helps to strengthen family and interpersonal bonds. When children have supportive relationships with their caregivers, they may be better equipped to integrate the lessons from MHPSS programming into their daily lives and use positive coping and problem-solving strategies, all of which leads to improved psychosocial well-being.

The interventions supporting this programme theory include TRT,[34] a narrative-based psychosocial intervention,[39] an arts and play intervention,[49] and the psychosocial structured activities programme.[53] Of these interventions only the psychosocial structured activities programme showed positive impacts on child psychosocial well-being[53]; others reported mixed intervention impacts[39 49] or no impacts.[34]

Programme theory 4

When school environments are created to be safe, supportive and child-centred, then children will feel secure, relaxed, and less stressed, which leads to improved psychosocial well-being and learning outcomes.

Programme theory 4 is supported by two CMOCs extracted from ten articles.[36 37 40 44 48 51 52 55 57 58] This theory relates to the role of the school environment in an intervention as well as the potential impacts on children's psychosocial well-being. Three articles study interventions that focus on collaboration among parents, teachers, and counsellors in order to create supportive school environments.[36 40 44] Shah[40] notes that the Better Learning Programme specifically strengthens both home and school environments by involving caregivers and teachers to identify and respond to symptoms of traumatic stress.

The three articles that describe the Healing Classrooms intervention in DRC and Lebanon measure students' perceptions of safety and support in their schools and classrooms.[52 55 56] Aber *et al* showed improved perceptions of school environment mediated the impact on learning outcomes.[55] The theory of change for Healing Classrooms explicitly notes the link between learning environments and learning outcomes.[48 52 55 56 58] Overall, seven articles show positive impact (via at least one measure) on psychosocial well-being via this mechanism.[37 40 41 48 55 57 58]

DISCUSSION

This realist review sought to synthesise the literature on the characteristics of and mechanisms by which school-based MHPSS interventions in humanitarian contexts influence well-being or learning outcomes among children. In a context of limited funding for school-based MHPSS interventions and high prevalence of poor mental health and psychosocial outcomes among children in humanitarian contexts, donors, policy-makers, and programme implementers need to know not only which interventions work, but how and for whom. Rather than delivering concrete recommendations for intervention components that need to be implemented in a given context,[31] the results of our realist review highlight the need to critically reflect on school-based MHPSS interventions in general and their theoretical underpinnings in particular in order to develop effective interventions that can be adapted and scaled in different populations and contexts. Based on the goals of a realist review to illuminate the evidence-base, we synthesise our findings regarding *which* interventions work, focusing on evidence for programme theories; *how* interventions work, focusing on theories of change, measurement, and intervention implementation; and for whom interventions work.

At the start of undertaking this realist review, we developed four evidence-informed IPTs at the levels of child, teacher, caregiver and school managers/administrators. These theories were further refined throughout data extraction and analysis, and in consultation with the advisory board, resulting in 11 final programme theories at the following levels: child (n=4), teacher (n=3), caregiver (n=2), school environment (n=1) and school managers/administrators (n=1). At the child level, mechanisms related to building coping skills, bolstering emotion regulation, strengthening interpersonal relationships, and improving psychosocial well-being led to improved psychosocial well-being or learning outcomes. At the teacher level, coping skills and the provision of support to students was linked to psychosocial well-being and learning outcomes. At the caregiver level, strengthening interpersonal and family bonds trigger improved psychosocial well-being, and at the level of the school environment, fostering feelings of security and calm was linked to both psychosocial well-being and learning outcomes for children. We did not find any evidence in the literature to support mechanisms for Programme theory 3.2 (caregiver level), nor for programme theory 5 (school managers/administrators). Further, we found limited overall evidence of positive impacts of the included interventions, which may reflect several issues related to core assumptions and theories underlying interventions and measurement and implementation challenges.

Whereas the IPTs did not include a theory focused on the school environment, it became clear during analysis that safe learning environments were central to many of the interventions studied. Programme theory 4 was developed to reflect the ten articles that described the importance of school environment for children's well-being.[36 37 40 41 44 48 51 55 57 58] Education and school-based interventions offer protective environments for children who have experienced acute and chronic adversities, which can support their psychosocial well-being and capacity to learn.[61] However, while articles in this review note this as a foundational component of the intervention, this component is rarely further elaborated on nor measured. Two interventions (Healing Classrooms and the Better Learning Programme) specifically focus on how and why feelings of safety and support may in turn impact the effectiveness of the intervention towards its stated outcomes.[40 48 55 59] Such elaboration on perceptions of school environment, as well as better understanding of the factors that might influence learners' feelings of safety and support, could offer clearer understanding of the mechanisms by which MHPSS programmes impact psychosocial well-being. In non-humanitarian and HIC contexts, social ecological models of psychosocial support and/or social and emotional learning programming in schools have been applied to better understand such pathways and improve both learning and psychosocial outcomes.[62 63] In the education in emergencies sector, approaches, tools, and measures have been developed and applied in recent years to assure both physical and psychological safety in schools (ie, the UNICEF Child Friendly School Questionnaire adapted for Syrian Children in Lebanon or the USAID Safe Learning Environments Toolkit).[64 65] Still, there is limited understanding of the complex interplay of factors and characteristics of school environments that may impact children's psychosocial and learning outcomes. This aligns with a recent mapping activity commissioned by INEE that notes this lack of evidence regarding the relationship between school-related protection interventions and children's psychosocial well-being, as well as inconsistencies in how well-being is understood and measured.[66] This review further emphasises the point that while establishing safety may be a priority for interventions, it is unclear if, how, or to what extent that has been accomplished and how this interacts with intervention impact.

The programme theories developed in this review map onto some components of frameworks underlying school-based MHPSS interventions in HICs. One such framework is the whole school approach, which is a multicomponent intervention that involves all parts of a school (ie, administration, teachers and staff) working in partnership with caregivers and the wider community to improve student learning and well-being.[67 68] The theory of change underlying whole school approach interventions suggests that, broadly, through active, collective and collaborative action to address the needs of all members of a school system (ie, students, teachers, school staff, caregivers and

the wider community) within school curricula and across the school environment, children will have improved mental health and well-being. Many countries have implemented whole school approach interventions including KidsMatter[69] and MindMatters in Australia[70]; MindMatters in Germany[71]; Up in Denmark[72]; and UPRIGHT in Spain, Italy, Poland, Iceland and Denmark.[73] Although whole school approaches are gaining recognition in HICs, evidence of their impact is less clear as there are few peer-reviewed evaluations, and when an evaluation has taken place, findings are mixed.[68] One review of 16 universal mental health interventions included two evaluations of whole school interventions and identified significant changes in positive mental health, including self-concept, conflict resolution, and interpersonal sensitivity.[74] However, two other reviews found whole school interventions to be less effective than single-component interventions, likely due to implementation challenges inherent in complex, multi-component interventions.[75 76] Compared with the theory of change underlying whole school approaches, the programme theories in this review are comprised of single levels of intervention (ie, child, teacher, caregiver, school environment, school staff and administration). While many of the interventions included in this review supported programme theories at two levels, only one intervention, Learning to Read in a Healing Classroom,[55] supported programme theories at three levels: child, teacher, and school environment. This difference is likely due to challenges working in humanitarian, low-resource settings where funding priorities typically target interventions for shelter, nutritional support, physical health needs, and water and sanitation before addressing mental health needs.

Very few studies in this review included a clearly stated theory of change underlying the intervention. A theory of change is not only an essential tool to inform intervention design. It also serves to link intervention activities to assumptions of intervention impact and helps to guide decision making regarding who can most benefit from the intervention, how it should be delivered, what outcomes should be evaluated, and the timing and sequencing of intervention activities.[77 78] Theories of change must undergo continual testing and iterative revision to ensure interventions are meeting observed needs of specific populations and to understand which intervention components are producing both intended and unintended impacts. In the absence of a stated theory of change, it is difficult to understand why and how an intervention did or did not work and which mechanism(s) triggered the outcomes. For example, if a theory of change posits that the intervention will decrease distress by increasing peer support and interpersonal relationships, then peer support, interpersonal relationships, and social networks should be measured repeatedly over the course of the intervention, with distress measured at the end. Future research and programming should not only develop explicitly stated theories of change, but should involve stakeholders such as community

members, potential study participants, implementers and researchers to collaboratively develop these theories. In addition to developing theories of change, the design and implementation of future school-based MHPSS interventions could be strengthened by using an active ingredients framework that begins with the question of what works for whom and then working backwards to understand why and how intervention ingredients work together produce positive outcomes.[79]

As observed in other reviews of the MHPSS literature, many interventions were evaluated using numerous outcomes with limited theoretical justification for their use.[22 78 80 81] A clear rationale, including a stated theory of change, is needed regarding which outcomes were selected for evaluation and why. Consistent with other evaluations of preventive and promotive interventions, some of the most commonly measured outcomes in this review were clinical symptoms of psychological distress, which are inconsistent with a psychosocial framework.[22 78] Measurement of non-distress outcomes, including social connectedness, coping, and subjective well-being are important as they often better align with the underlying frameworks of psychosocial interventions. Moreover, a challenge in our interpretation of evaluation findings was not only that non-distress outcomes were less frequently measured, but also measured with less consistency regarding the instruments used. This is likely a result of the longer history of studies of mental distress rather than psychosocial outcomes, and highlights the need for greater guidance, coordination, and accessibility surrounding an appropriate pool of outcome measures associated with psychosocial well-being.[22 77]

As a part of this review, we extracted data on and describe elements of intervention implementation. Implementation factors such as who delivers the intervention, how (ie, in what type of setting, duration and size of groups) and training of individuals implementing the intervention (ie, type, duration and content) may have significant influences on intervention effectiveness. Although we were able to provide descriptive analysis of these components, the existing evidence base does not provide significant insights into how modes of implementation of school-based MHPSS interventions influence children's learning and well-being outcomes. A particular gap is the perspective of implementers of the interventions—often teachers, who themselves experience significant stressors and threats to psychosocial well-being in humanitarian settings.[82] Lack of assessment of feasibility and acceptability of implementing these interventions within the scope of teachers' capacities and existing teaching load may threaten quality and sustainability of programming. Conversely, exploration of systems of support and methods to improve fidelity can enhance impacts on children's learning and well-being outcomes. In order to more fully address key implementation questions, a more cohesive body of evidence on effectiveness of interventions is needed; for example, analysis of how many sessions of the Common Elements Treatment

Approach were needed for significant improvement in participants' symptoms relied on comparative data of the same intervention, which measured the same outcomes in multiple contexts.[83] However, implementation questions can also be integrated within future testing and design of research: for example, embedding process evaluations or mixed-methods assessments of the perceptions of implementers regarding feasibility, acceptability and sustainability of interventions within studies, using rapid ethnographic methods to adapt interventions to specific cultural contexts, or using routinely collected data, such as attendance data, to shed light on quality and fidelity of intervention implementation. Existing relevant implementation research frameworks can be adopted to guide this work: for example, reach, effectiveness, adoption, implementation and maintenance.[84 85] Evidence on aspects of intervention implementation have significant implications for programme development, funding and scaling-up of effective school-based MHPSS interventions in humanitarian contexts, and the limitations in the evidence base indicate the value of integration of elements of implementation science within future research.

One of the primary objectives of a realist review methodology is to determine what works for whom, with the recognition that complex interventions have differential impacts on population groups according to various sociodemographic and other factors. In our synthesis, given the variation in types of interventions and outcome measures assessed, we could not determine clear patterns of impact for specific subgroups of children in humanitarian settings. Some studies did provide gender-disaggregated analyses or explored gender as a moderator of intervention impact.[34 35 37–40 46 50 56 59] For example, Tol et al identified gender as a moderator of intervention impact for both PTSD symptoms and functioning in a school-based intervention in Indonesia,[46] and Quota et al identified clinically significant reduction in PTSS among boys, but only for girls with low peritraumatic dissociation (low-risk girls).[38] Some of these studies are ongoing and future published analyses may offer more insight into subgroup impacts. Given evidence concerning the significant role of gender in influencing school attendance, learning outcomes and psychosocial well-being in humanitarian contexts, gender disaggregated data and exploration of the influence of gender on intervention effects is an important component of strengthening the evidence base, and this could have substantial influence on policy and programmatic design and implementation. Similarly, although a small number of studies examined the role of baseline level of symptoms, vulnerabilities, or risk profiles,[33 36 38 46 51 52] the question of whether these interventions are equally effective for children with specific levels of risk or symptoms at baseline is underexplored. Beyond gender and baseline risk profiles, other variables such as disability status, socioeconomic status, and household and community-level factors may be important influences on impact of school-based interventions for children. In sum, the evidence base reviewed in this manuscript cannot adequately

address the question of what works for whom. Presentation of disaggregated study results, or consideration of these variables as potential moderators of intervention impact, could shed further light on this question.

Education in emergency practitioners have advocated for a shift away from traditional education systems to more holistic learning methods in an effort to help children in humanitarian settings overcome the psychosocial effects of chronic adversity and loss of learning opportunities.[86] However, as found in this review, the evidence remains scant for impact of these interventions on both learning and well-being outcomes.[17 18 20 86 87] Whereas evidence from HICs indicates the potential positive impact of MHPSS interventions in educational settings,[7] we found limited evidence of intervention effectiveness. It is possible that the particular barriers that operate in humanitarian contexts—including a lack of long-term funding for education and MHPSS interventions, poor infrastructure for educational activities and lack of integration of refugees into national education systems in many regions—influence the effectiveness of such interventions.[86] More rigorous research is needed to understand the mechanisms, causal pathways and implementation factors underlying MHPSS interventions in humanitarian settings.

The findings of this review should be interpreted in light of several limitations. First, our search was limited to English, French and Portuguese language articles only (languages spoken by members of the research team). Therefore, relevant evaluations reported in languages other than English, French or Portuguese may have been excluded. Studies included in this review were limited to humanitarian contexts in LMIC. There are school-based MHPSS interventions implemented for resettled refugee youth, many of whom may have experienced similar displacement trajectories as youth in humanitarian contexts in LMIC. However, the context of implementation of this programming in resettlement settings is vastly different to that of education in emergencies programming, and as such, is not directly comparable to the body of literature presented here. A review of the evidence base on school-based MHPSS interventions for refugee youth in resettlement settings would be a useful complement to the present review.

CONCLUSIONS

This realist review developed eleven programme theories, grounded in evidence and humanitarian programming, to understand the mechanisms on why, how, for whom, and in what contexts school-based MHPSS interventions improve well-being and learning outcomes in humanitarian settings. We found that the included studies addressed mechanisms that we identified at the child, teacher and caregiver level; however, no studies addressed mechanisms at the level of school managers or administrators. Mechanisms reported across theories included building coping skills, strengthening interpersonal

relationships, increasing social support and feelings of security, and bolstering emotion regulation. Although we found limited evidence of intervention effectiveness and the mechanisms underlying programming, the developed programme theories are a promising start to help school-based MHPSS interventions in humanitarian contexts better address the well-being and learning needs of children while taking into account the role of teachers, caregivers and the larger education ecosystem. However, it remains clear that more evidence must be generated to understand the mechanisms that lead to improved well-being and learning outcomes. Further research should build on the eleven outlined programme theories to enhance the evidence base to support effective humanitarian programming. This in turn will help education and MHPSS practitioners in humanitarian settings advocate, fund, and make MHPSS programming a core tenet of the education response to ultimately reach the goal of improved learning and well-being outcomes.

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