


# Interventions to enhance psychological resilience in forcibly displaced children: a systematic review

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## ABSTRACT

**Background** Children represent nearly 40% of forcibly displaced populations and are subject to stressors that affect well-being. Little is known about the effects of interventions to enhance psychological resilience in these children, outside clinical settings.

**Methods** We conducted a systematic review, following Cochrane methods. Eligible studies tested resilience-enhancing interventions outside clinical settings in forcibly displaced children/adolescents. We included longitudinal quantitative studies with comparator conditions irrespective of geographical scope or language. We searched articles published between January 2010 and April 2020 in PubMed, Embase, Cochrane Library, Web of Science, PsycINFO and the WHO's Global Index Medicus. To standardise effect sizes across the different reported outcomes, we transformed reported mean differences to standardised mean differences using Hedge's *g* statistic with associated 95% CI. We pooled data for meta-analysis where appropriate. We used Cochrane tools to assess study risk of bias and used Grading of Recommendations Assessment, Development and Evaluation to determine evidence quality for meta-analysed outcomes.

**Results** Searches yielded 4829 results. Twenty-three studies met inclusion criteria. Studies reported 18 outcomes measured by 48 different scales; only 1 study explicitly measured resilience. Eight studies were randomised controlled trials; the rest were non-randomised pre–post studies. Interventions were diverse and typically implemented in group settings. Studies reported significant improvement in outcomes pertinent to behavioural problems, coping mechanisms and general well-being but not to caregiver support or psychiatric symptoms. In meta-analysis, resilience was improved ( $g_{av}=0.194$ , 95% CI 0.018 to 0.369), but anxiety symptoms and quality of life were not ( $g_{av}=-0.326$ , 95% CI  $-0.782$  to 0.131 and  $g_{av}=0.325$ , 95% CI  $-0.027$  to 0.678, respectively). Risk of bias varied. Quality of evidence for most graded outcomes was very low.

**Conclusions** The multiplicity of study designs, intervention types, outcomes and measures impeded quantifying intervention effectiveness. Future resilience research in this population should use rigorous methods and follow reporting guidelines. **PROSPERO registration number** CRD42020177069.

## WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Forcibly displaced persons are a growing population globally and children (ages 0–18) comprise 40% of this group.
- ⇒ Most (80%) of these children experience psychological problems in conjunction with trauma endured before, during and/or after forced displacement.
- ⇒ Clinical interventions can improve outcomes associated with child mental health and well-being. However, forcibly displaced populations may not be able to access clinical settings.

## WHAT THIS STUDY ADDS

- ⇒ Studies reported improvement in behavioural problems, coping mechanisms and general well-being but not in caregiver support or psychiatric symptoms.
- ⇒ In meta-analysis, resilience was improved but anxiety symptoms and quality of life were not.
- ⇒ Variation in data collection methods across studies precluded further meta-analysis.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Non-clinical interventions, including those delivered by lay practitioners, offer scalable methods to improve many resilience outcomes among forcibly displaced children.
- ⇒ Future research would benefit from guidance on reporting and use of standardised measurement scales.

## BACKGROUND

A forcibly displaced population (FDP) is defined by the International Organization for Migration as, 'Persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, either across an international border or within a state, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters'.<sup>1</sup>

Psychological sequelae are a major effect of forced displacement, an increasingly

prevalent experience that disproportionately affects young people. In 2010, 40 million people worldwide were estimated to be forcibly displaced, a figure that nearly doubled to 79.5 million by the end of 2019.<sup>2</sup> Around 40% of forcibly displaced individuals in 2019 were below age 18.<sup>2</sup>

An estimated 80% of forcibly displaced children experience psychological problems.<sup>3 4</sup> For these children, premigration traumas of exposure to violence and deprivation are reinforced by extreme hardship experienced during displacement and challenges following arrival in the host location. For example, children may become separated from their caregivers, which increases risk of exposure to sexual and physical violence, poor nutrition and other resource deprivation. Postmigration, children and their families may experience discrimination, impeded access to resources, acculturation challenges and elevated family conflict.<sup>5</sup>

While resettlement may offer some short-term relief for forcibly displaced children, it is often associated with exposure to a range of other adversities such as discrimination, social marginalisation, economic struggles, language barriers and loss of status. This can be further compounded by a phase of grief, which may cause deep traumas to resurface.<sup>5-7</sup> Such stressors become further aggravated among unaccompanied minors, who become vulnerable to additional trauma-inducing events such as child labour, kidnapping or exploitation by drug dealers, human traffickers and militia.<sup>4</sup>

Given the elicited variability and complexity of trauma-inducing factors in forcibly displaced children, 'childhood adversities' in this context not only encompass the commonly cited causes of psychological trauma in childhood (eg, neglect, abuse, household dysfunction) but also the effects of exposure to armed conflicts. This includes but is not limited to family separation, witnessing murders and exposure to bombing and shelling.<sup>8 9</sup>

Practitioners largely agree that resilience, defined as 'the ability to maintain stable, healthy psychological and physical functioning despite exposure to trauma,' is a key lever for mitigating morbidities associated with childhood trauma.<sup>6 10</sup> Nevertheless, many of the conceptual dimensions used to describe and measure resilience are still widely debatable, starting with its own definition.<sup>11</sup> While some researchers think of resilience as a dynamic lifelong process, others see it as an outcome of different personal traits.<sup>10</sup> However, one attribute that most researchers agree on is that resilience does not exist in a dichotomous 'all or none' form, but is rather present in individuals to varying degrees and is evidence of a compilation of strengths.<sup>12</sup> Resilience is conventionally measured through composite assessments addressing one or more of: cognitive ability, psychological strength, self-esteem, social skills, respect for others, engagement in hobbies, feelings of hope and control, good peer relationships, feelings of safety and/or consistency in behaviour.<sup>12 13</sup> Quantifying resilience is inherently challenging as the context of adversity often means that deterioration in

well-being is expected and a favourable outcome could potentially be reflected in the absence of a change in related indicators, rather than positive change. This is challenging to prove outside of a randomised controlled trial (RCT). Additionally, where study populations have all experienced trauma at baseline, evidence of improvement is necessary to inform strategies for mitigating the effects of that trauma, even if populations remain at risk for further adversities.

Although effective under optimal conditions, experience illustrates practical shortcomings of clinical settings as venues for resilience-enhancing interventions serving FDP, such as lack of services, too few clinicians proficient in relevant languages, distance between FDP residences and service-delivery locations and cost.<sup>14</sup> Research also shows, however, that non-clinical settings can facilitate effective resilience-enhancing interventions that deliver evidence-based programming at accessible venues (eg, school, religious institution), often via trained lay workers, a strategy that simultaneously addresses language and fiscal barriers.<sup>14-20</sup>

Yet, the best approaches to mitigate childhood adversities and develop resilience in forcibly displaced children remain unclear. Most research has focused on psychopathology rather than factors linked to improved resilience outcomes in children.<sup>20</sup> Additionally, most evidence focuses on interventions using credentialed professionals, who are too limited in number to meet the need among FDP, particularly in low-resource settings.<sup>14 21</sup> Further, there is a general paucity of research on the effect of childhood adversities on younger children due to logistical and ethical factors, including challenges to obtaining consent and fear, mistrust or suspicion felt by caregivers.<sup>4 22</sup> Finally, established models of trauma-informed parenting do not recognise the fact that parents of children experiencing adversities in conflict zones are traumatised themselves. This can render parents unable to meet their basic parenting responsibilities; studies have shown that parents exposed to extreme hardship or those who suffer from mental health conditions such as depression become less emotionally responsive and withdrawn from their children, which can lead to intrusive and abusive parenting.<sup>4 23 24</sup> Collectively, these factors result in a knowledge gap around effective, accessible, realistic strategies for enhancing resilience among forcibly displaced children.

### Rationale for review

Prior systematic reviews have focused on specific outcomes, settings, intervention types and/or high-income countries.<sup>25-30</sup> Although useful, these do not provide actionable information for decision makers in low-resource settings nor a holistic analysis of the global evidence on psychological resilience-enhancing interventions for forcibly displaced children. This review aims to answer the question, 'among forcibly displaced children and adolescents (ages 3-17 years) or their caregivers, what is the effect of psychological resilience-enhancing

interventions offered outside clinical settings (compared with no intervention, an alternative resilience-enhancing intervention or standard of care) in terms of improved resilience or improved resilience-protective factors, as measured with validated scales?’

## METHODS

We followed Cochrane methods and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance.<sup>31 32</sup> The study protocol was registered in the international prospective register of systematic reviews.

We developed a search strategy using indexing terms and keywords related to our inclusion criteria based on scoping searches run in PubMed. We searched PubMed, Embase, PsycINFO, Cochrane Library, Web of Science and the WHO Global Index Medicus for studies between 1 January 2010 and 15 May 2020. We excluded studies published prior 2010 because the global refugee crisis started in 2011 and our resources limited our project timeline. See online supplemental appendix 1 for complete search strategies. We used EndNote V.X9 software<sup>33</sup> to remove duplicate records.

Eligible studies were quantitative, interventional, randomised or non-randomised studies with comparators, published in any language, conducted to assess the impact of any intervention designed to develop or enhance resilience (or an associated factor) in forcibly displaced children and adolescents aged between 3 and 17 years at the time of intervention. We defined psychological resilience-enhancing interventions as those that aimed to improve resilience—as defined by investigators—or any of the modifiable factors associated with it as improvement in; psychological strength, self-esteem, social skills and interaction in addition to respect for others, hobbies, feelings of hope, willingness to accept support, feelings of control, good peer relationship, feelings of safety and consistency in behaviour.<sup>12 13</sup> Interventions could be directed to children or to their caregivers. We did not restrict geography, country-income level, type of comparator, or follow-up duration, or type outcomes measured.

We excluded studies requiring a threshold of severity of psychological disease in their study populations. We also excluded studies conducted in populations exposed to war but not displaced and those displaced due to natural disasters. We further excluded populations of child soldiers, torture survivors and sexually abused children. The decision to exclude those specific populations was made after consulting a subject matter expert (SG) who considered such trauma and subsequent interventions to be very specific and not generalisable to the target population within the scope of the study. The decision to exclude populations exposed to war but not displaced emerged from the understanding that displacement

adds further challenges to the experience of political violence. Those challenges affect both the types of war-related psychological trauma as well as the types of interventions that can be implemented. The complete inclusion and exclusion criteria for this systematic review are summarised in online supplemental appendix 2.

Eligible outcomes included effect size of change in psychological resilience as defined by authors and measured by recognised, validated scales. We also included secondary outcomes, also measured with recognised, validated scales, measuring change in factors research has shown to be associated with resilience (cognitive ability, psychological strength, self-esteem, social skills, respect for others, hobbies, feelings of hope and control, good peer relationships, feelings of safety and consistency in behaviour).<sup>12 13</sup> Measurements could assess resilience enhancement in the short term or long term, which we defined as within or beyond 3 months of the end of the intervention, respectively.

Two authors (AT and SG) reviewed the titles of deduplicated records and excluded clearly irrelevant titles. Both authors then independently reviewed abstracts for remaining records and excluded those they deemed ineligible. Following that, two authors (AT and SG) independently examined the full text of all potentially eligible studies, reconciling disagreement via discussion and/or the arbitrating third author (MM).

We developed and pilot-tested data extraction templates in Microsoft Excel.<sup>34</sup> We collected data on study design, setting, sample size and participant demographic characteristics including nationality, intervention characteristics and assessed outcomes. Data extraction was done by two authors (AT and SG) who are fluent in English. One author (AT) extracted data from each study; a second author (SG) verified the extracted data against source documents. All studies were in English except one, which was published in German; data abstraction of this study was done by a faculty colleague fluent in German.

We used two Cochrane instruments to assess the risk of bias in included studies: the Revised Risk of Bias Tool (ROB-2) for RCTs and ROBINS-I for non-randomised studies.<sup>31</sup> ROB-2 domains included: selection bias, reporting bias and general sources of bias. ROBINS-I domains included: confounding bias, selection bias, classification bias, bias due to deviation from interventions, missing data bias, measurement bias and reporting bias. For each study, we assigned a rating of high, low or unclear risk of bias for each of the applicable instrument’s domains.

Initial scoping searches determined that relevant studies typically report effects in terms of the mean difference (MD). To standardise effect sizes across different outcomes and measurement scales, we transformed the reported MD to the standardised MD (SMD) using Hedge’s *g* statistic.<sup>35</sup> Analysis was performed by one review author (AT). Where studies had a two-group, pretest and post-test design, we used Morris’s methods

(the difference of differences) as a reference for calculating the SMD.<sup>36</sup>

Where studies reported outcomes as mean scores on assessment instruments, we converted mean scores to SMDs. Where studies reported the significance of difference between baseline and post-intervention scores rather than the actual mean scores, we contacted study authors to obtain additional data in order to calculate SMDs. Where studies reported SE or 95% CIs rather than SD, we back-calculated SDs from reported data points. Where validated scales showed positive effect size with negative scores or vice versa, we inverted these scales to standardise the direction of effect size reporting to present improvement in desirable outcomes with positive scores and increases in undesirable outcomes with negative scores.

Where there was missing information, ambiguity or discrepancies in manuscripts, we conducted additional calculations from study data, where provided; identified/reviewed publications associated from the same study and/or contacted study authors. When none of these strategies resulted in adequate data, we performed descriptive analysis only.

Given the variety of study designs, interventions and outcome types within the scope of the review, we expected methodological, clinical and statistical heterogeneity. We used the  $\chi^2$  test of homogeneity to assess heterogeneity and the  $I^2$  statistic to guide our choice of meta-analytic models.<sup>37</sup> We let  $I^2$  guide our choice of meta-analysis model:  $I^2 < 40$  (fixed effect),  $I^2$  (40%–80%): random-effects mode and explore heterogeneity, and subgroup analysis, and  $> 80\%$  we did not pool data.

Following data extraction but prior to meta-analysis, we grouped similar interventions by type, setting and intensity of intervention to explore potential categorisations of the reported outcome data. We conducted meta-analysis across groups of studies sharing comparable populations, interventions and outcomes, using Open Meta-Analyst software.<sup>38</sup> Where the same outcomes were reported by different types of study participants (eg, youth vs caregivers), we used data reported by the group with the greatest number of participants across relevant studies. To address heterogeneity in pooled effect sizes, we conducted subgroup analyses for studies with similar intervention-content domains, participant ages, intervention settings, personnel training levels or intervention intensities.

Where we considered two analytical models for the same comparison, we ran sensitivity analysis to quantify the difference. Where there were stark differences across models, we interpreted the results with caution and recommend further investigation or research.

For anxiety, depression and post-traumatic stress disorder (PTSD), we reported results in the context of statistical significance (based on the CIs) and clinical significance. Clinical significance indicated a change in mean scores relative to the clinical threshold for diagnosis with the relevant measurement scale. We reported

a clinical significance value of ‘yes’ where mean scores crossed the clinical threshold to achieve subclinical scores of undesirable outcomes and ‘improved’ where scores improved but did not reach the non-clinical threshold of undesirable outcomes. We reported ‘worsened’ where either: (1) scores were below the threshold for diagnosis before treatment but increased after treatment and crossed the clinical threshold or (2) mean scores became less desirable but did not cross a clinical threshold. Where baseline scores were below the threshold for diagnosis and increased to remain subclinical, we reported a value of ‘no’.

We used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology<sup>39</sup> to assess the quality of the overall body of evidence for meta-analysed outcomes. We rated the quality of evidence for each outcome as high, moderate, low or very low for the following domains: inconsistency among study results, indirectness of effect measurement, imprecision of effect estimates and the risk of publication bias.

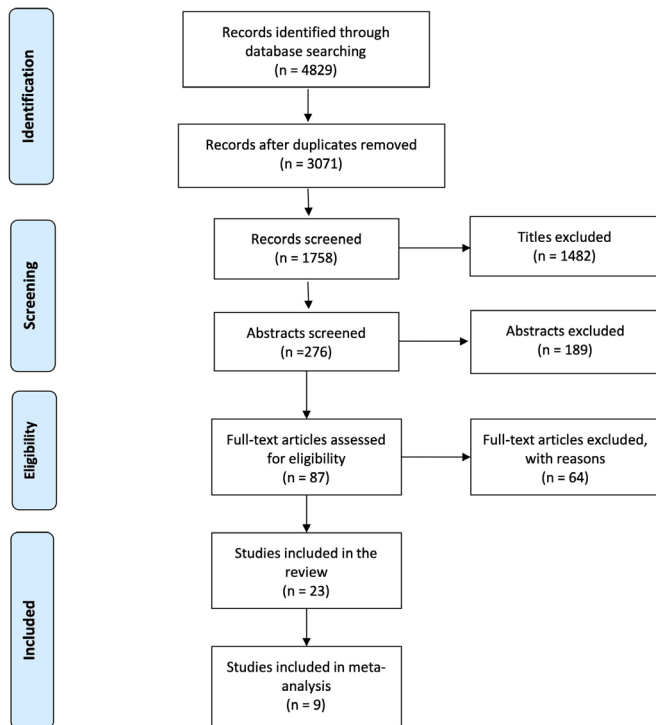
Patient and public involvement was not a component of this project. As a systematic review, patients were not directly involved in this research. Resource constraints precluded public involvement in study design, execution and dissemination.

## RESULTS

Electronic searches yielded 4829 results. After removing 1758 duplicates, we screened 3071 records. 276 articles passed title screening and 87 passed abstract screening. We reviewed the full text of those 87 studies and excluded 64. Twenty-three studies met eligibility criteria and are included in this review (figure 1).

Reasons for study exclusions after full text review were: population was exposed to war but not displaced (n=50); study inclusion criteria required a certain severity of psychiatric symptoms (n=7); children of FDP were born after resettlement (n=3); interventions targeted adult FDPs (n=2); intervention conducted in a clinical setting (n=1) and intervention was not specific (n=1). Online supplemental appendix 3 reports rationale for each excluded study.

Eight<sup>40–47</sup> included studies were RCTs; 15<sup>48–62</sup> were non-randomised single-group pre–post studies. Studies were diverse in intervention setting, population age group, intervention type, intervention form and intensity. Studies were conducted in 16 countries, with settings including schools (n=6), refugee camps (n=4), community centres (n=3), units of unaccompanied minors (n=3), homes (n=1), online (n=1), and unspecified or mixed venues (n=5). Ages of the involved children varied, and we categorised age groups into younger than 12 years (n=2), age 12–18 years (n=7), and, broadly, ‘younger than 18 years’ where data were not disaggregated between children and adolescents (n=13) or unspecified (n=1).



**Figure 1** Search and screening results.

Intervention content typically involved multiple domains and included psychosocial skills (n=22), family therapy (n=6), parenting skills (n=6) and art therapy (n=10). Interventions were typically implemented in a group setting (n=17) rather than individual sessions (n=3) or mixed individual and group meetings (n=3) and had varying intensities, most commonly between 6 and 9 sessions (n=8) (table 1). Ten studies reported on interventions implemented with professional mental health practitioner, sometimes in conjunction with non-professionals; 12 involved non-professional mental health interventionists (eg, teachers, lay workers).

## Outcomes

Studies reported a total of 77 result measurements addressing 18 distinct outcomes assessed with 1 or more of 48 different scales. Ten studies reported separate estimates for the same outcome based on child-reported and caregiver-reported data. Effect sizes for eight results could not be calculated.

To prepare for meta-analysis, we organised outcomes into six categories: resilience (comprised ‘resilience’ (n=1), child psychosocial protective factors (n=1) and family satisfaction (n=1)); coping style (including internalising problems (n=3), externalising problems (n=3) and attention problems (n=1)); behavioural problems of childhood (n=10, no subcategories); psychiatric symptoms (depression (n=7), anxiety (n=4), PTSD (n=9) and general psychopathological symptoms (n=3)); general well-being (including ‘well-being’ (n=3), self-esteem (n=1), optimism (n=2) and quality of life (n=3)); and caregiver support

(comprised of caregiver distress (n=5), parenting (n=3) and family communication (n=2)). Online supplemental appendix 4 details outcome definitions and assessment instruments.

## Effects of interventions

Due to a lack of combinable effect sizes and high heterogeneity where outcomes were potentially combinable, we were able to perform meta-analysis only in the behaviour problems of childhood and psychiatric symptoms categories. Table 2 reports pooled estimates; study-level results appear in table 1 and are organised by outcome in online supplemental appendix 5. Online supplemental appendix 6 reports subgroup analyses.

## Resilience

Child psychosocial protective factors, resilience and family satisfaction outcomes were reported by one study each. The effect of interventions on child psychosocial protective factors reported by children was  $g_{av}=0.206$  (0.027, 0.386), and  $g_{av}=0.063$  (-0.110, 0.237) when reported by caregivers, compared with the control groups.<sup>40</sup> The effect on resilience was  $g_{av}=-0.08$  (-0.916, 0.756)<sup>53</sup>; the effect on family satisfaction was  $g_{av}=1.789$  (1.058, 2.520).<sup>53 55</sup> We deemed child psychological protective factors and resilience to be sufficiently similar to combine and generated a pooled estimate of  $g_{av}=0.194$  (0.018, 0.369) with 0% heterogeneity (see figure 2A).

## Coping mechanisms

Most data showed favourable change in coping mechanisms. Internalising problems were reported by three studies. Murray reported a significant reduction by both children ( $g_{av}=-1.600$  (-2.123, -1.076)) and caregivers ( $g_{av}=-1.428$  (-1.939, -0.918))<sup>56</sup> in pre-post analysis and Annan *et al* reported non-significant differences among intervention participants (children:  $g_{av}=0.084$  (-0.095, 0.263), caregivers:  $g_{av}=-0.127$  (-0.300, 0.046)) when compared with the control groups.<sup>40</sup> Betancourt *et al* reported an association between caregiver distress and internalising problems ( $\beta=4.02$ ,  $p<0.05$ ), however, the effect size of the intervention on internalising problems could not be estimated.<sup>48</sup> The same studies also reported on externalising problems. Annan *et al* reported an effect size of  $g_{av}=-0.092$  (-0.271, 0.087) by children and  $g_{av}=-0.22$  (-0.395, -0.048) by caregivers when compared with control groups.<sup>40</sup> Murray *et al* reported an effect size of  $g_{av}=-1.55$  (-2.070, -1.030) by children and  $g_{av}=-1.239$  (-1.737, -0.742) by caregivers.<sup>56</sup> The effect size for Betancourt *et al* could not be estimated. The effect of an intervention on the reduction in attention problems was reported only by Annan *et al*, at  $g_{av}=-0.275$  (-0.449, -0.100) by caregivers and  $g_{av}=0.04$  (-0.139, 0.219) by children, compared with the control group.<sup>40</sup>

## Behavioral problems of childhood

Six out of the 10 reported effect size estimates showed statistically significant improvements in this category, however, meta-analysis was not appropriate due to the use

**Table 1** Summary of included studies on interventions to enhance psychological resilience in forcibly displaced children

Author (year)	Host country	Country/region of origin	Target population	Intervention category and intensity	Intervention setting	Outcome measure	Outcome(s)	Effect size (g <sub>av</sub> ) and 95% CI	Overall risk of bias*
Annan 2017 <sup>40</sup>	Thailand	Burma	Less than 18-year-old FDP	Parenting+psychosocial + family therapy: 10–15 group sessions	Rural, urban and periurban sites on the borders between Thailand and Burma	(1) The Achenbach Child Behaviour Checklist (CBCL) and Youth Self Report (YSR)	Internalising problems† Externalising problems† Attention problems†	Child report: 0.084 (–0.095 to 0.263) Caregiver report: –0.127 (–0.300 to 0.046) Child report=–0.092 (–0.271 to 0.087) Caregiver report=–0.220 (–0.395 to 0.048) Child report=0.040 (–0.139 to 0.219) Caregiver report=–0.275 (–0.449 to 0.100)	Low
Betancourt 2012 <sup>48</sup>	Ethiopia	Kunama population (residing by the Eritrean–Ethiopian borders)	Less than 18-year-old refugees	Art+psychosocial: group sessions	Refugee camp	(2) A Child Psychosocial Protective Factors Scale	Child protective factors†	Child report=0.206 (0.027 to 0.386) Caregiver report=0.063 (–0.110 to 0.237)	Moderate
Betancourt 2020 <sup>43</sup>	USA	Somalia (Somali Bantu and Bhutanese)	Less than 18-year-old refugees	Parenting+Psychosocial +Family therapy: 10–15 individual sessions	Home visits	(1) Hopkins Symptom Checklist-25 (HSCL-25) (2) HSCL-25 (3) Post-traumatic stress disorder (PTSD) Symptom Scale Interview (4) Alabama Parenting Questionnaire (5) Family Conflict Scale (6) WHO Disability Assessment Schedule for Children 2.0 (7) CBCL and YSR (8) Centre for Epidemiological Studies Depression Scale for Children (CES-DC) (9) UCLA PTSD Reaction Index (PTSD-R)	Internalising problems Externalising problems Caregiver distress Caregiver distress Parenting Family communication Family communication Behavioural problems of childhood Behavioural problems of childhood Depression PTSD	Effect size could not be estimated Effect size could not be estimated Effect size could not be estimated –0.139 (–0.522 to 0.244) –0.079 (–0.462 to 0.303) 0.067 (–0.158 to 0.292) <b>Note:</b> scale was adjusted to reflect improvement in parenting skills 0.126 (–0.257 to 0.508) 0.081 (–0.302 to 0.464) Caregiver report: –1.534 (–1.842 to 1.227) Child report: –0.393 (–0.620 to 0.166) Caregiver report: –5.012 (–5.563 to 4.462) Child report: = –0.111 (–0.336 to 0.114) Caregiver report: 0.448 (0.174 to 0.721) Child report: 0.500 (0.315 to 0.773) Suicidal ideation=0.059 (–0.166 to 0.284) Effect size could not be estimated	Some concerns

Continued

**Table 1** Continued

Author (year)	Host country	Country/region of origin	Target population	Intervention category and intensity	Intervention setting	Outcome measure	Outcome(s)	Effect size (g <sub>adj</sub> ) and 95% CI	Overall risk of bias*
Björn 2013 <sup>49</sup>	Sweden	Bosnia-Herzegovina	<12-year-old refugees	Psychosocial+Family therapy: 1–5 group session	Unspecified	Erica play-diagnostic method using the Symptom Checklist (Cederblad & Höök, 1986)	Behavioural problems of childhood	Effect size could not be estimated	Serious
Dourmit 2020 <sup>50</sup>	Lebanon	Syria	12–18-year-old refugees	Psychosocial: 6–9 group sessions	Community centre	(1) Patient Health Questionnaire–9 (2) Generalised Anxiety Disorder–7 (3) Paediatric Quality of Life Inventory	Depression Anxiety Quality of life	–0.498 (–0.962, to 0.033) –0.359 (0.820 to 0.102) 0.420 (–0.042 to 0.882)	Low
Durà-Vilà 2013 <sup>51</sup>	UK	<ul style="list-style-type: none"> <li>▲ 44% from the Middle East</li> <li>▲ 27% Africa</li> <li>▲ 22% Europe</li> <li>▲ 7% from elsewhere</li> </ul>	Less than 18-year-old FDP	Psychosocial+Family therapy: group and individual sessions	Community centre	Strengths and Difficulties Questionnaire (SDQ)	Behavioural problems of childhood	–0.406 (–0.879 to 0.068)	Critical
El-Khani 2016 <sup>52</sup>	Turkey	Syria	Less than 18-year-old refugees	Parenting+Psychosocial: 10–15 group sessions	School	The Impact of Events Scale Revised The Depression-Anxiety-Stress Scale (DASS)	Caregiver distress Caregiver distress	–0.240 (–1.012 to 0.532) –0.247 (–1.021 to 0.527)	Moderate
						The Child Adjustment and Parenting Efficacy Scale The Parenting Scale	Parenting skills Parenting skills	0.498 (–0.269 to 1.264) 0.675 (–0.117 to 1.468) <b>Note:</b> scale was inverted to reflect improvement in parenting skills <b>Note:</b> scale was inverted to reflect improvement in parenting skills	
Ellis 2013 <sup>57</sup>	USA	Somalia (Somali Bantu and Bhutanese)	Less than 18-year-old refugees	Psychosocial group and individual sessions	Community, School and home	(1) The Depression Self-Rating Scale for Children (DSRS) (2) UCLA PTSD-RI (3) Resource hardships: Adolescent Post-War Adversities Scale-Somali version	Depression PTSD Quality of life	0.467 (0.077 to 0.856) –0.313 (–0.86 to 0.234) <sup>6</sup> months for all tiers 0.193 (–0.352 to 0.738) <b>Note:</b> scale was inverted to reflect QoL rather than adversities	Low

Continued

**Table 1** Continued

Author (year)	Host country	Country/region of origin	Target population	Intervention category and intensity	Intervention setting	Outcome measure	Outcome(s)	Effect size (g <sub>adj</sub> ) and 95% CI	Overall risk of bias*
Foka 2019 <sup>52</sup>	Greece	<ul style="list-style-type: none"> <li>▲ 57% Syria (7/12)</li> <li>▲ 18% Iraq</li> <li>▲ 18% Afghanistan</li> <li>▲ 5% Others</li> </ul>	Less than 18-year-old FDP	Psychosocial: 6–9 group sessions	Refugee camp	(1) WHO Well-Being Index (WHO-5; Bech, 2004) (2) Four items from the Youth Life Orientation Test (3) One item from the Lifespan, Self-Esteem Scale	Well-being†  Optimism†  Self-esteem†	2.005 (1.437 to 2.572)  1.481 (0.958 to 2.003)  1.810 (1.260 to 2.360)	Low
Garoff 2019 <sup>53</sup>	Finland	<ul style="list-style-type: none"> <li>▲ Afghanistan (7/12)</li> <li>▲ Iraq (2/12)</li> </ul>	Less than 18-year-old FDP	Psycho-social: 10–15 group sessions	Units for UAM	(4) 10-item version of the CES-DC (1) Child and Youth Resilience Measure (2) The SDQ (3) Children's Revised Impact of Event Scale (CRIES)	Depressive symptom†  Resilience  Behavioural problems of childhood  PTSD	-2.077 (-2.652 to 1.503)  -0.080 (-0.916 to 0.756)  0.059 (-0.410 to 0.527)  0.367 (-0.476 to 1.210)	Moderate
Gomez 2017 <sup>54</sup>	Turkey	Syria	Less than 18-year-old refugees	Psycho-social: 6–9 group sessions	School	(1) The child post-traumatic stress - reaction index (CPTS-R) (2) Spence children's anxiety scale (SCAS) (3) SDQ	PTSD  Anxiety  Behavioural problems of childhood	-0.469 (-0.982 to 0.044)  -0.727 (-1.233 to 0.221)  -0.396 (-0.895 to 0.103)	Low
Hoffman 2020 <sup>55</sup>	USA	Burma (Karen refugees)	12–18-year-old refugees	Parenting: 6–9 group sessions	Community centre	(1) A 10-item subscale of the FACES IV instrument (2) A 17-item scale assessing self-agency and coping in the parental role	Family communication  Family satisfaction  Parental Self-Efficacy	3.026 (1.885 to 4.167)  1.789 (1.058 to 2.520)  0.348 (-0.211 to 0.906)	Moderate
Lange-Nielsen 2012 <sup>44</sup>	Palestine	Palestine	12–18-year-old refugees	Art+Psycho-social: 6–9 group sessions	School	(1) The DRSRS (2) Revised Children's Manifest Anxiety Scale (3) CRIES-13	Depression†  Anxiety†  PTSD†	1.129 (0.748 to 1.500)  0.236 (-0.118 to 0.590)  -0.042 (-0.395 to 0.311)	Low

Continued



**Table 1** Continued

Author (year)	Host country	Country/region of origin	Target population	Intervention category and intensity	Intervention setting	Outcome measure	Outcome(s)	Effect size ( $g_w$ ) and 95% CI	Overall risk of bias*
Metzler 2019 <sup>41</sup>	Uganda	Congo	Less than 18-year-old refugees	Parenting+Art + Psychosocial group sessions	Refugee camp	(1) A locally derived measure of psychosocial well-being (PSWB), based on ethnographic fieldwork in Uganda (CPC, 2011) (2) 10-item Caregiver Rating of Developmental Assets scale (3) The Child Protection Rapid Assessment	Psychosocial well-being† Developmental assets† Caregiver distress†	7.821 (7.328 to 8.314) -0.447 (-0.301 to 0.593) 0.056 (-0.126 to 0.237) <b>Note:</b> scale was inverted to reflect reduction in behavioural problems	Some concerns
Meyer DeMott 2017 <sup>42</sup>	Norway	▲ 76% Afghanistan ▲ 17% Somalia	Less than 18-year-old UAM	Art+Psychosocial: 10–15 group sessions	The arrival centre (AC) for UAM and other refugee facilities	(1) Post-traumatic stress symptoms (2) General psychological distress (HSCL-25A) (3) Current life satisfaction (4) Expected life satisfaction	PTSD General psychopathological problems Quality of life	Effect size could not be estimated Effect size could not be estimated Effect size could not be estimated Effect size could not be estimated	High
Mom 2019 <sup>58</sup>	Australia	▲ Middle East and Central Asia (Iraq, Afghanistan, and Pakistan) ▲ Africa (Sudan and Somalia) ▲ South East Asia (Burma and East Timor)	12–18-year-old refugees	Art+Psychosocial: 20 or more group sessions	School	SDQ	Behavioural problems of childhood	-0.609 (-1.110 to 0.108)	Moderate
Murray 2018 <sup>59</sup>	Ethiopian/Somali border	Somalia	Less than 18-year-old refugees	Parenting+Psychosocial +Family therapy: 6–9 individual sessions	Refugee camp	(1) The Achenbach CBCL/YSR (2) Child PTSD Symptom Scale-Interview format (3) The Orphans and Vulnerable Children Well-being Tool	Internalising symptoms Externalising symptoms PTS symptoms Child well-being	Child report: -1.600 (-2.123 to 1.076) Caregiver report: -1.428 (-1.939 to 0.918) Child report: -1.550 (-2.070 to 1.030) Caregiver report: -1.239 (-1.737 to 0.742) Child report: = -2.036 (-2.597 to 1.474) Caregiver report: -1.522 (-2.040 to 1.005) 0.963 (0.481 to 1.444)	Low

Continued

**Table 1** Continued

Author (year)	Host country	Country/region of origin	Target population	Intervention category and intensity	Intervention setting	Outcome measure	Outcome(s)	Effect size (g <sub>adj</sub> ) and 95% CI	Overall risk of bias*
Quinlan 2016 <sup>59</sup>	Australia	▲ Middle East ▲ East Asia ▲ Africa	12–18-year-old refugees	Art+Psychosocial +Family therapy: 10–15 sessions	School	(1) HSCL-25  (2) SDQ	General psychopathological symptom†  Behavioural problems of childhood†	3.308 (2.377 to 4.239)  -0.483 (-1.097 to 0.131)	Moderate
Scheiber 2019 <sup>47</sup>	Austria	Afghanistan	12–18-year-old UAM*	Psychosocial: 6–9 group sessions	Unspecified	(1) RHS-15  (2) PROTECT	Depression, anxiety and PTSD†  Trauma and depression†	0.539 (-0.084 to 1.162)  0.563 (-0.061 to 1.186)	Low
Sirin 2018 <sup>45</sup>	Turkey	Syria	Less than 18-year-old refugees	Art+Psychosocial: 20 or more individual sessions	Online	Beck's hopelessness scale	Optimism	0.755 (0.419 to 1.091) <b>Note:</b> scale was inverted to reflect optimism rather than hopelessness	Some concerns
Ugurlu 2016 <sup>60</sup>	Turkey	Syria	<12-year-old refugees	Art+Psychosocial: 1–5 group sessions	Municipality	(1) Child Depression Inventory (2) State-Trait Anxiety Scale (3) UCLA PTSD-RI	Depression  Anxiety  PTSD	-1.191 (-1.741 to 0.642)  -0.550 (-1.066 to 0.035)  -1.421 (-1.988 to 0.855)	Moderate
Van der Gucht 2019 <sup>61</sup>	Belgium	Unspecified	12–18-year-old UAM	Art+Psychosocial: 6–9 group sessions	Shelters for UAM	(1) The International Positive and Negative Affect Schedule Short Form (2) DASS-21-D (3)The Children's Impact of Events Scale (CRIES)	Behavioural problems of childhood  Depression  PTSD	-0.807 (-1.607 to 0.008) <b>Note:</b> This is a combined effect size after considering positive and negative affect results  -0.864 (-1.667 to 0.060)  -0.050 (-0.819 to 0.719)	Moderate
Yankey 2012 <sup>46</sup>	India	Tibet	12–18-year-old refugees	Psychosocial: 20 or more group sessions	School	Problem Questionnaire (English version)	Behavioural problems of childhood	Effect size could not be estimated	High

Note: The following studies used a randomised design: Annan et al.,<sup>40</sup> Meyer DeMott et al.,<sup>42</sup> Metzler et al.,<sup>41</sup> Betancourt et al.,<sup>43</sup> Lange-Nielsen et al.,<sup>44</sup> Sirin et al.,<sup>45</sup> Yankey et al.,<sup>46</sup> and Scheiber et al.<sup>47</sup> \*Risk of bias classification was based on ROB-2 and ROBINS-I instruments.<sup>31</sup> 'Low' risk of bias is considered comparable to an RCT; 'moderate' risk of bias is considered inferior to an RCT but sound for observational studies; 'serious' risk of bias or 'some concerns' indicates at least one domain where bias likely affects results; high risk of bias indicates substantial risk of bias in one domain or concerns across multiple domains; 'critical' indicates risk of bias to a degree that renders the evidence likely not useful.  
†Effect size is based on the difference between treatment and control groups.  
FDP, forcibly displaced population; RCT, randomised controlled trial; UAM, unaccompanied minors.

**Table 2** Results of meta-analysis of interventions to enhance psychological resilience in Forcibly displaced children

Category	Outcome	N	Estimated effect	Evidence certainty
Resilience	Pooled estimate of child psychological protective factors and resilience	2	$g_{av}=0.194$ (0.018 to 0.369), $I^2=0\%$	Very low
	Child psychosocial protective factors	1	Child report: $g_{av}=-0.206$ (0.027 to 0.386) Caregiver report: $g_{av}=0.063$ (-0.110 to 0.237)	Moderate
	Resilience (not further defined)	1	$g_{av}=-0.08$ (-0.916 to 0.756)	Very low
	Family satisfaction	1	$g_{av}=1.789$ (1.058 to 2.520)	Very low
Coping mechanisms	Internalising problems	2	Data not pooled due to heterogeneity Caregiver report: $I^2=96.87\%$ , range: $g_{av}=-1.428$ to $-0.127$ , Mix of significant and non-significant effect sizes. Child report: $I^2=96.53\%$ , range: $g_{av}=-1.600$ to $0.084$ , mix of significant and non-significant effect sizes.	Not applicable
	Externalising problems	2	Data not pooled due to heterogeneity Caregiver report: $I^2=96.62\%$ , range: $g_{av}=-1.239$ to $-0.22$ , both significant Child report: $I^2=97.09\%$ , range: $g_{av}=-1.55$ to $-0.092$ , mix of significant and non-significant effect sizes.	Not applicable
	Attention problems	1	Child report: $g_{av}=0.04$ (-0.139 to 0.219) Caregiver report: $g_{av}=-0.275$ (-0.449 to $-0.100$ )	Moderate
Behavioural Problems of Childhood	Behavioural problems of Childhood	8	Effect sizes not combinable, range: $g_{av}=-5.012$ to $0.059$ , mix of significant and non-significant effect sizes	Not applicable
Psychiatric symptoms	Depression	7	Data not pooled due to heterogeneity $I^2=95.51\%$ , range: $g_{av}=-2.077$ to $1.129$ , mix of significant and non-significant effect sizes	Not applicable
	Anxiety	4	$g_{av}=-0.326$ (-0.782 to 0.131), $I^2=75.34\%$	Very low
	PTSD	7	Data not pooled due to heterogeneity $I^2=88.22\%$ , range $g_{av}=-1.421$ to $0.367$ , mix of significant and non-significant effect sizes	Not applicable
	General psychopathological symptoms	2	Effect sizes not combinable, range: $g_{av}=0.539$ to $3.308$ , mix of significant and non-significant effect sizes	Not applicable
General well-being	Well-being	3	Data not pooled due to heterogeneity however, all of the studies reported statistically significant improvements $I^2=99.53\%$ , range $g_{av}=0.963$ to $7.82$ .	Not applicable
	Optimism	2	Data not pooled due to heterogeneity, however both studies reported statistically significant improvements $I^2=80.92\%$ , range $g_{av}=0.755$ to $1.481$ .	Not applicable
	Self-esteem	1	$g_{av}=1.810$ (1.260 to 2.360)	Very low
	Quality of life	2	$g_{av}=0.325$ (-0.027 to 0.678), $I^2=0\%$	Very low
Caregiver support	Caregiver distress	3	Effect sizes not combinable, range: $g_{av}=-0.247$ to $0.056$ , none significant	Not applicable
	Parenting	3	Effect sizes not combinable, range: $g_{av}=0.067$ to $0.675$ , none significant	Not applicable
	Family communication	2	Effect sizes not combinable, range $g_{av}=0.081$ to $3.026$ (mix of significant and non-significant effect sizes)	Not applicable

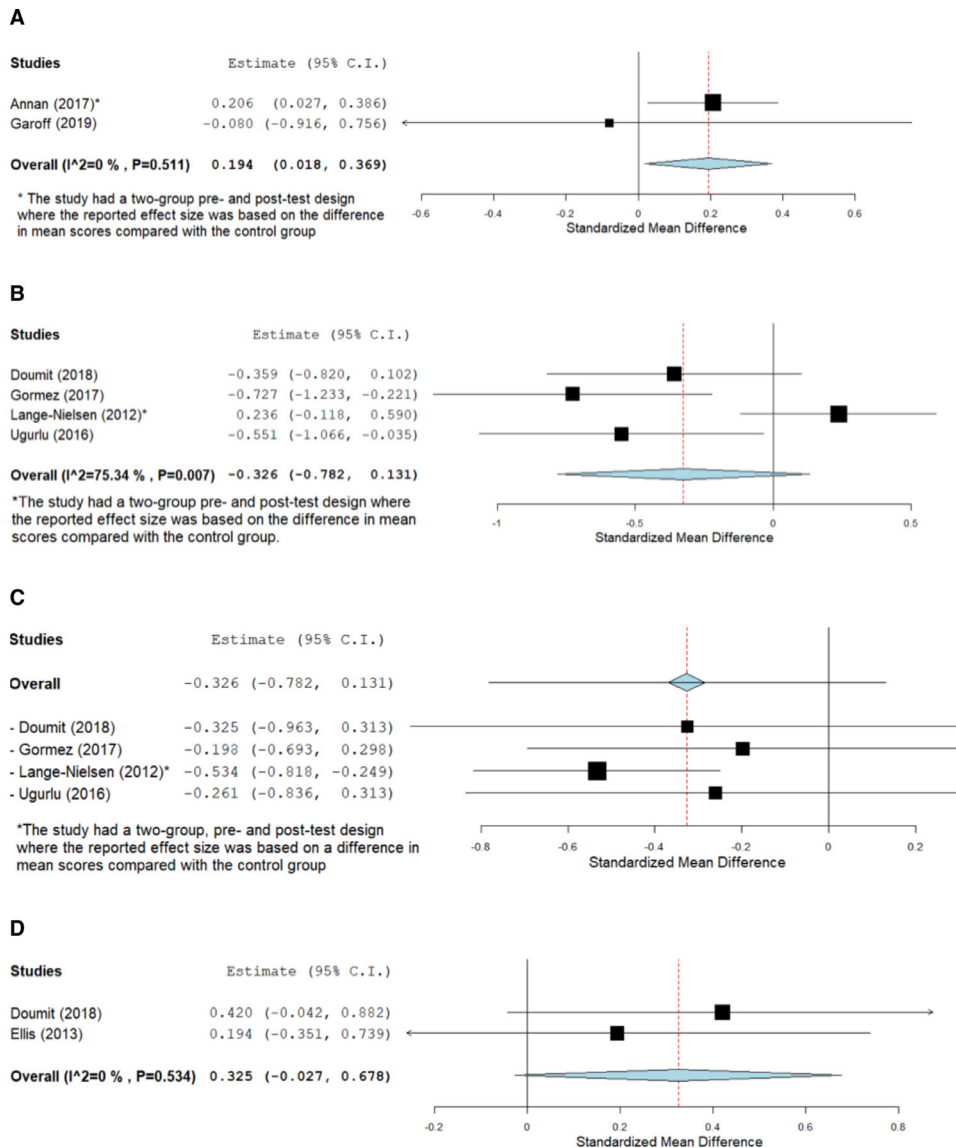
of differing assessment scales. Additionally, two studies reported significant differences in a desirable direction, but effect sizes could not be calculated.<sup>46 49</sup> Significant effect sizes ranged from  $g_{av}=-5.012$  (-5.563, -4.462) to  $g_{av}=-0.111$  (-0.336, 0.114).<sup>43</sup> One study reported a undesirable positive effect size (0.059 (-0.410, 0.527)), but it was not significant.<sup>53</sup>

### Psychiatric symptoms

Psychiatric symptoms was the only category in which studies reported statistically significant undesirable effect

sizes. Clinically significant change, in which mean scores crossed a clinical threshold, were reported by at least one study for all three outcomes in this category. Online supplemental appendix 7 reports clinical significance of study findings in context with statistical significance, study design and effect size.

Because depression was reported by seven studies but with variable designs and intervention types, meta-analysis was inappropriate. Individual study results were promising, with four studies reporting statistically significant



**Figure 2** Meta-analysis of effect of interventions to enhance child psychological protective factors and resilience in forcibly displaced children.

improvement; only two of those reported clinically significant improvement, as baseline scores for the other two studies were already above the clinical threshold.<sup>50 52 60 61</sup> Two studies reported clinically and statistically significant worsening.<sup>43 44</sup>

The effect on anxiety was reported by four studies with a pooled estimate of  $g_{av} = -0.326$  (-0.782, 0.131) (figure 2A). Due to high heterogeneity ( $I^2=75.34\%$ ), which we attribute to variation in intervention types, intervention intensities, staff training levels and target population ages, we conducted sensitivity analysis for this outcome, with those estimates ranging from  $g_{av} = -0.534$  (-0.818, -0.249) to  $g_{av} = -0.193$  (-0.693, 0.298) (figure 2C).

Meta-analysis was also not possible for PTSD symptoms and evidence was weak overall. While the directionality of results was favourable for most studies, only one study reported clinical and statistically significant improvement.<sup>56</sup>

### General well-being

Meta-analysis was not possible for the well-being outcome, but strong results were observed with effect sizes ranging from  $g_{av} = 0.963$  (0.481, 1.444) to 7.821 (7.328, 8.314).<sup>41 52 56</sup> The effect on self-esteem was only reported by Foka ( $g_{av} = 1.810$  (1.26, 2.36)).<sup>52</sup> Two studies showed an effect on optimism, both significant improvements ( $g_{av} = 1.481$  (0.958, 2.003),  $g_{av} = 0.755$  (0.419, 1.091)).<sup>45 52</sup> Meta-analysis was possible for the quality of life outcome, although effect sizes could not be estimated for two studies,<sup>42</sup> so our pooled estimate of  $g_{av} = 0.325$  (-0.027, 0.678) reflects only two studies (figure 2D).

### Caregiver support

Evidence was also weak across the caregiver-support category with only one statistically significant result, which showed improvement in family communication ( $g_{av} = 3.026$  (1.885, 4.167)).<sup>55</sup>

**A**

Study	Risk of Bias Domains					Overall
	D1	D2	D3	D4	D5	
Annan (2016)	✓	✓	✓	✓	!	✓
Metzler (2019)	✗	✓	✓	!	!	!
Meyer DeMott (2017)	!	!	✓	✓	✗	✗
Betancourt (2020)		✓	✓	!	✓	!
Lange-Nielsen (2012)	✓	✓	✓	✓	✓	✓
Sirin (2018)	✓	✓	✓	✓	!	!
Yankey (2011)	✓	✓	✓	✗	✗	✗
Scheiber (2019)	✓	✓	✓	✓	✓	✓

**ROB-2 Domains:**

- D1: Bias arising from the randomization process  
 D2: Bias due to deviations from intended intervention  
 D3: Bias due to missing outcome data  
 D4: Bias in measurement of the outcome  
 D5: Bias in selection of the reported result

**Scores**

- ✗ High  
 ! Some concerns  
 ✓ Low

**B**

Study	Risk of Bias Domains							Overall
	D1	D2	D3	D4	D5	D6	D7	
Betancourt (2012)	✓	✓	!	✓	✓	✓	✓	!
Björn (2013)	!	!	✓	✓	!	!	✓	✗
Doumit (2018)	✓	✓	✓	✓	✓	✓	✓	✓
Durà-Vilà (2013)	✓	!	!	✓	✗	✓	✓	!
Foka (2020)	✓	✓	✓	✓	✓	✓	✓	✓
Garoff (2019)	!	✓	✓	✓	!	✓	✓	!
Gormez (2017)	✓	✓	✓	✓	✓	✓	✓	✓
Hoffman (2020)	✓	✓	✓	✓	!	✓	✓	!
Murray (2018)	✓	✓	✓	✓	✓	✓	✓	✓
Ellis (2013)	✓	✓	✓	✓	✓	✓	✓	✓
Mom (2019)	✓	✓	✓	✓	✓	!	✓	!
Quinlan (2016)	!	!	✓	✓	✓	!	✓	!
Ugurlu (2016)	✓	✓	✓	!	✓	✓	✓	!
Van der Gucht (2019)	✓	✓	✓	✓	!	✓	✓	!
El-Khani (2018)	✓	!	✓	✓	✓	✓	✓	!

**ROBINS-I Domains:**

- D1: Bias due to confounding  
 D2: Bias due to selection of participants  
 D3: Bias in classification of interventions  
 D4: Bias due to deviations from intended interventions  
 D5: Bias due to missing data  
 D6: Bias in measurement of outcomes  
 D7: Bias in selection of the reported result

**Scores**

- ! Critical  
 ✗ Serious  
 ! Moderate  
 ✓ Low

**Figure 3** Risk of bias ratings for individual studies.

**Subgroup analysis**

We conducted subgroup analysis for each reported outcome by intervention setting, age group, intervention intensity, intervention content and mental health expertise of interventionists. No conclusive pattern was observed by any of those variables across all categories (see online supplemental appendix 6).

**Risk of bias and quality of evidence using grade**

Two of the eight RCTs had high overall risk of bias; three were judged to be of concern and three to be at low risk of bias. Of the 15 non-randomised interventional studies,

1 had serious risk of bias, 9 had moderate risk of bias and 5 had low risk of bias (figure 3).

The overall quality of evidence for the three outcomes in which meta-analysis was feasible (pooled estimate of child psychological protective factors and resilience, symptoms of anxiety and quality of life) was ‘very low’. In all three categories, imprecision was the lowest-scored domain. See online supplemental appendix 8. Where outcomes were reported by single studies, evidence certainty was moderate for child psychological protective factors and attention problems, which were reported in

an RCT,<sup>40</sup> and very low for resilience, family satisfaction and self-esteem, which were reported in observational studies.<sup>52 53 55</sup> We were unable to statistically explore risk of reporting bias or generate funnel plots because we identified so few effect sizes per meta-analysed outcome.

### Quality of evidence

Results of the overall level evidence for the three outcomes in which meta-analysis was feasible showed a 'very low' quality grade for each of resilience, symptoms of anxiety and quality of life (online supplemental appendix 8).

The reporting quality of this systematic review was ensured by using PRISMA 2009 reporting checklist.

## DISCUSSION

To our knowledge, this is the first review to thoroughly assess evidence on the effectiveness of non-clinical, resilience-enhancing interventions targeting forcibly displaced children irrespective of the clinical manifestations of psychological trauma and without geographic limitations. In general, we found that statistically significant improvements were reported by the majority of studies across all outcome categories except for outcomes related to caregiver support and psychiatric symptoms. However, meta-analyses, where possible, found effectiveness of these interventions to be low to moderate and GRADE assessment indicated very low quality of evidence. With such limitations to the evidence, we encourage caution in application to our findings to policy and advocate for further, rigorous research.

The lack of clarity on the effectiveness of the studied interventions can be explained by several factors. Primary studies had design limitations, since randomisation is extremely challenging in humanitarian emergencies.<sup>52</sup> Most studies did not include a control group and constraints in resources resulted in variations in intervention formats, durations, follow-up intervals and personnel training. Meta-analysis of SMD had the limitation of combining effect sizes of randomised and non-randomised studies, which provide different quality of evidence. This resulted in heterogeneity and bias in effect-size estimations, which limits their utility in programme implementation. Furthermore, SMD assumes that the differences in SD among studies are due to differences in measurement scales rather than variability among study populations, which is unlikely given the global scope of the review.

Interventions targeting both children and caregivers and involving multiple content domains had greater impacts. However, rigorous comparison and ranking of intervention effectiveness was not possible and the long-term effects interventions could not be determined, nor could implications for global mental health programmes. Jordans *et al* reached the same conclusions in his review of mental health and psychosocial interventions for children exposed to protracted violence and war in LMICs.<sup>63</sup> That review reported weak evidence for comparative

assessment of interventions due to methodological (eg, absence of control groups) and geographical limitations. We were unable to identify specific, promising interventions or address our fourth research aim of exploring commonalities among successful interventions to inform the design of universal resilience-enhancing interventions for non-clinical settings. In the absence of stronger evidence, we recommend integrating existing resilience-enhancing interventions with related interventions already recognised as effective, such as trauma-focused cognitive behavioural therapy.<sup>64</sup> Service delivery in group settings could provide an effective, lower-cost strategy for low-resource settings.<sup>64 65</sup>

We expected that most interventions would involve professional mental health personnel but found that fewer than half did. We believe that this is a positive marker for potential scalability, suggesting a paradigm shift in addressing the mental health of children who are exposed to armed conflicts in Low and Middle Income Countries (LMICs). This shift from tertiary prevention at clinical settings to community-based approaches has been widely advocated for.<sup>66-68</sup> Within clinical settings, training general practitioners on mental health services in order to integrate them with the primary care delivered to FDP. There may also be an opportunity to leverage the expertise of healthcare professionals within FDP, a strategy that could counteract language and cultural barriers while supporting these professionals' integration into their host countries, assuming sufficient funding and training were available, as appropriate, and understanding that some providers in the FDP may experience trauma symptoms that prevent them from practising.

Our findings also highlight many of the recognised challenges in mental health research. We observed incongruence between the geographical distribution of study locations (mostly Europe and high-income countries) vs the global distribution of FDPs. This is consistent with the fact that more than 70% of the global burden of mental health comes from LMICs, yet almost 94% of published mental health research in major psychiatric journals is from Europe, North America and Australia.<sup>69 70</sup> It is also yet another reason to advocate for further research, to build the body of evidence closely aligned with the actual settings where most forcibly displaced children live.

It was feasible to measure clinical implications of interventions in only a few cases. Many measurement scales were intended to be descriptive rather than diagnostic and the psychometric properties of measurement scales were extremely variable in sensitivity and internal consistency. Some scales did not have hard cut-off points, and their developers advised that the threshold should be set based on the distribution of mean scores and context in which the interventions took place, which were not reported in the studies. Even in cases where clear thresholds were set, some studies reported removal or replacement of items in validated instruments for cultural reasons, rendering the recommended thresholds inapplicable.

The clinical interpretation of effect size estimates of psychological scales is particularly complex. Unlike hypertension, for instance, where any three-point difference in mmHg across the measurement scale imply a clinically significant change, no concrete thresholds are available in mental health research.<sup>71</sup> Instead, interpretation should consider difference in mean scores relative to baseline in concert with the clinical thresholds and direction of each measurement tool.

The main limitation of our study reflects limitations in the fields of mental health research in that primary studies must rely on self-reported and parent-reported data. We also note that there is an inherent complexity in the assignment of outcomes to particular categories, although we consulted a subject-area expert prior to making assignments; assessment scales typically cover multiple domains, so symptoms measured to assess anxiety, for example, could potentially reflect depression symptoms as well, although the instrument would report only on anxiety. Finally, we could not draw funnel plots to support our risk-of-publication bias assessments. On the other hand, the main strength of this review is that we did not restrict included studies by region, language or outcome. We also searched six major databases, which provided access to a holistic set of publications.

Our review highlights the need for further resilience research, specifically more rigorous study-design and reporting guidelines. Research guidelines should specify core outcomes and recommended measurement scales. Enhanced efforts should be made to drive mental health research in LMICs, especially among forcibly displaced children since they are a particularly vulnerable and disadvantaged population.

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