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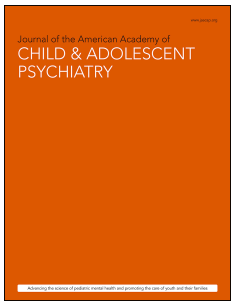

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Systematic Review and Meta-Analysis: Psychological Interventions for Posttraumatic Stress Disorder in Internally Displaced and Refugee Youth

RH = PTSD Interventions in Displaced Youth

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Editorial
Clinical Guidance
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Data Sharing: The data and analytic code are available on reasonable request.

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ABSTRACT

Objective: Refugee and internally displaced children and adolescents experience high rates of post-traumatic stress symptoms (PTSS). Yet there is a lack of evidence of the effectiveness of psychological interventions in this population. This systematic review and meta-analysis investigates the effects of psychological interventions on PTSS among refugee and internally displaced children and adolescents (PROSPERO CRD[masked]).

Method: A comprehensive literature search up to December 19th, 2025, was conducted in PubMed, PsycINFO, PSYNDEX, Web of Science, Epistemonikos, PTSDpubs and ClinicalTrials.gov. Controlled trials were eligible if they studied psychological interventions aiming to reduce PTSS in refugee and internally displaced children and adolescents. Study quality was assessed using Cochrane's RoB-2 tool. Outcomes were analyzed using a random-effects-model meta-analysis.

Results: Eight studies met the inclusion criteria, providing data on nine active treatment conditions and 448 participants. Analyses showed a small effect of psychological interventions on PTSS reduction, g = -0.35, 95%-CI [-0.61, -0.09], and no significant effects on depression, g = -0.34, 95%-CI [-0.76, 0.09], and dropout, OR = 1.71, 95%-CI [0.35, 8.32]. No significant moderators of PTSS reduction could be identified, but pretest-PTSS, b = -0.30, suggesting potential greater effects for those with higher initial symptoms.

Conclusion: The findings support the effectiveness of psychological interventions in treating PTSS in refugee and internally displaced children and adolescents. However, further research is needed to understand, whether and why treatment effects appear smaller than in the general population, and whether this relates to migration-factors or factors associated with service-provision and -use or the need for intervention adaptations.

Study registration information: Psychological interventions for post-traumatic stress disorder in internally displaced and refugee children and adolescents - A systematic review and meta-analysis; https://www.crd.york.ac.uk/PROSPERO/view/CRD42024614752

Key words: refugees; displaced persons; children and adolescents; psychotherapy; posttraumatic stress disorder

INTRODUCTION

According to the report by the UN Refugee Agency (UNHCR) as of mid-2024, there were 43.7 million refugees globally and 72.1 million internally displaced people (IDPs) due to conflict and violence. Approximately 47 million displaced individuals (nearly 40% of the total) were children under the age of 18. [1] The UNHCR defines both refugees and IDPs as people who have been forced to flee their homes due to being persecuted, being caught up in war or violence. However, while refugees must flee their country, IDPs do not leave their home country.[2] Refugee and internally displaced children and adolescents typically experience multiple potentially traumatic events before, during, and after displacement.[3–5] A number of studies have identified a link between cumulative exposure to traumatic events and an increased prevalence of mental health problems, including posttraumatic stress disorder (PTSD), depression, anxiety, and externalizing behaviors in refugee children and adolescents.[5–10] When relocated in low- and middle-income countries (LMICs) refugee and internally displaced children and adolescents often live in large camp settings with poor infrastructure and limited access to education, healthcare, and other essential resources. These conditions can lead to heightened psychological distress.[4] While IDPs may experience fewer cultural and no immigration challenges arising from crossing borders, they may nonetheless remain vulnerable to the effects of ongoing political instability.[4] Further, therapists in high income countries (HICs) report specific challenges that occur when treating refugee children and adolescents such as cultural or language barriers, differing expectations of therapy, an increased risk of marginalization, difficulties in building trust, and interpreter-related barriers.[11–14]

A meta-analysis by Blackmore et al.[15] found an overall PTSD point prevalence estimate of 23% among child and adolescent refugees, and an even higher rate of 35% among those displaced since less than two years. In their scoping review, Oberg and Sharma[16] additionally

identified a mean prevalence rate of 46% among unaccompanied young refugees. This elevated rate may also relate to the building block effect and is a consequence to experiencing multiple potentially traumatizing events.[17] Given the high prevalence of PTSD among refugee and internally displaced children and adolescents, and the specific challenges involved in treating them, there is a need for effective psychotherapeutic interventions for this particularly vulnerable population.

In general, trauma-focused therapy is regarded as the gold standard for treating PTSD in children and adolescents. It is recommended by various guidelines.[18–20] Trauma-focused interventions are therapeutic approaches that focus on processing the memory of the traumatic event and/ or modifying its meaning for life today.[18] Accordingly, non-trauma-focused interventions are therapeutic approaches that focus on teaching skills for emotion regulation and/ or dealing with post-traumatic stress symptoms (e.g. psychoeducation). Examples of trauma-focused interventions for children and adolescents include various manual-based therapies, such as trauma-focused cognitive behavioral therapy (TF-CBT) according to Cohen et al.[21], Eye Movement Desensitization and Reprocessing (EMDR)[22, 23] and Narrative Exposure Therapy for Children (KIDNET)[24].

Previous Studies

Psychological interventions, including some of those mentioned earlier in their adult versions, have been widely studied in the adult refugee and IDP population. For example, Turrini et al.,[25] excluding IDPs, conducted a network meta-analysis on treatment effects of psychological interventions in HICs and LMICs at post-treatment. Their findings support the use of trauma-focused psychotherapy, which yielded large effect sizes compared to wait-list or treatment as usual (TAU) conditions. Although Turini et al.[25] did not find significant

effect sizes for Narrative Exposure Therapy (NET), the use of NET in LMICs (such as Uganda, DR Congo, and Burundi) among vulnerable populations, is supported by various meta-analyses reporting medium to large between-group effect sizes.[26, 27]

A recent meta-analysis by Hoppen et al.[28] on the treatment of posttraumatic stress symptoms (PTSS) in children and adolescents showed large effect sizes at post-treatment for treatments counting as trauma-focused therapies (g = 0.95 to g = 1.06) when compared to passive, and small to medium effect sizes (g = 0.43 to g = 0.55) compared to active control conditions.

There are numerous studies on the implementation of psychological interventions for refugee children and adolescents, with reviews identifying up to 71 studies on the subject[16, 29, 30] Several reviews and meta-analyses have been conducted on the treatment of PTSD in the pediatric refugee population.[31–35] Eberle-Sejari et al.[32] identified ten studies on trauma therapy in refugee and internally displaced children and adolescents with the most studied intervention being KIDNET. Another review by Chipalo[31] on TF-CBT according to Cohen et al.[21] in refugee children and adolescents identified four studies supporting its effectiveness, but excluded IDPs from the review. Both reviews align with the existing evidence in the general child and adolescent population and suggest that trauma-focused treatments therapies are effective. Nocon et al.[34] found a medium within-group effect size on PTSS of *SMC* = 0.79 in refugee and internally displaced children and adolescents including any psychological intervention and a medium within group-effect size of *SMC* = 0.78 when only looking at CBT interventions. However, the authors found substantial heterogeneity in the within-group effect sizes, which may have been caused by moderating factors[34]. Most between-group effect sizes in the studies identified by Nocon et al.[34] were non-significant. Molendijk et al.[33] conducted a comprehensive review and meta-analysis of psychological interventions in refugee children, adolescents, and adults, excluding IDPs. The within- and between-group

effect on PTSS reduction in children and adolescents was large, yet again, there was substantial heterogeneity. Likewise, Velu et al.[35] found a large effect on PTSS reduction in refugee and internally displaced children and adolescents with considerable heterogeneity in the effect sizes. Velu et al.[35] did not assess the risk of bias of the included studies, therefore, they may be overestimating the effects on PTSS reduction.

Concluding, psychological interventions seem to be feasible and effective for the refugee and internally displaced population. For some methods such as TF-CBT according to Cohen et al.[21], EMDR, or NET, there are some inconclusive results due to just emerging evidence. The previous reviews have various limitations, which the current study addresses.

Current Study

This study addresses some of the most relevant limitations of previous reviews and meta-analyses. Despite outnumbering the refugee children and adolescents and sharing multiple difficulties associated with displacement, IDPs are often excluded from reviews and meta-analyses. We explicitly include refugees and IDPs. Further, all of the aforementioned reviews on refugee or internally displaced children and adolescents selected studies based on refugee status or actual trauma exposure rather than on the criterion of clinically relevant symptoms of PTSD. While the reviews report on the effect sizes on PTSD reduction, none of them applied the inclusion criterion of clinically relevant symptoms of PTSD pre intervention. Given that PTSD is just one of several potential trauma-related disorders and constitutes a distinct clinical diagnosis with specific treatment requirements, this review focuses exclusively on studies in which clinically relevant symptoms of PTSD are explicitly stated. By narrowing the scope, the present review aims to draw more precise conclusions about the effectiveness of psychological interventions for PTSS in pediatric refugee and IDP

populations. Furthermore, most reviews reported high heterogeneity yet did not include moderator analyses exploring the large variation in effect estimates. This analysis examines moderating factors that could influence PTSS reduction.

The research question as to the Population, Intervention, Comparison, Outcome (PICO) framework reads as follows: In refugee or internally displaced children and adolescents with PTSD or subclinical PTSD (P), how do psychological interventions (I) compared with any control condition (passive or active; C) affect symptoms of PTSD, depression, anxiety and dropout rates (O)? In addition, we aim to conduct exploratory analyses to identify potential moderators, including comparisons between refugees and internally displaced populations, studies conducted in HICs and LMICs, and other participant and treatment characteristics.

METHOD

The meta-analysis was registered in PROSPERO (CRD[masked]) and is reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guideline (PRISMA; see Supplement 1, available online, for the checklists).[36]

Search Strategy

The following databases were searched up to December 19th, 2025; there was no lower bound: PubMed, PsycINFO, PSYNDEX, Web of Science, Epistemonikos, PTSDpubs and ClinicalTrials.gov. The search strategy included search terms of the categories PTSD, children/adolescents, psychotherapy, and controlled study design. Where applicable MeSH-Terms were applied. The exact search strategy for each database can be found in Supplement 2, available online. The search was carried out together with a broader meta-analysis and

therefore did not include search terms for refugees or IDPs. Suitable studies with eligible population characteristics (i.e., refugee or internally displaced children and adolescents) were identified during the full-text screening. By not restricting our search to keywords relating specifically to refugee or IDP populations, we avoided missing studies that do not use these terms in their titles or abstracts. Two independent raters conducted the systematic literature search in two stages using Excel Spreadsheets. Initially, the titles and abstracts of the trials were screened, and subsequently, the full texts were evaluated. Any discrepancies were resolved through discussion and, if necessary, consultation with a senior researcher.

Eligibility Criteria

We included controlled trials (randomized and non-randomized) published in a peer-reviewed journal in English or German if they fulfilled the following inclusion criteria: (1) Studies used primary outcome data; (2) Participants were ≤ 21 years old; (3) Participants were refugees or internally displaced persons with direct war- or flight-related trauma exposure (i.e. witnessing or experiencing a traumatic event leading to flight and/or occurring during their flight); (4) Participants presented with full PTSD or subclinical PTSD, i.e. individuals reported PTSD symptoms at baseline above a cutoff defined by the study's authors; (5) PTSD was the primary treatment focus and outcome; (6) Psychological treatment was applied directly to the child or adolescent for at least 50 % of the treatment time in cases of caregiver-child interventions; (7) Sample size per treatment arm was n ≥ 10; (8) PTSD symptoms were reported separately for each treatment condition.

If studies included both children and young adults, the authors were asked to provide subdatasets of participants aged ≤ 21. Authors were contacted for missing information for effect size calculation. If this was not possible, the study was excluded.

Data Extraction

Two researchers ([masked initials]) extracted data on PTSS, depression, anxiety, and dropout, as well as study and participant characteristics, and other treatment variables (type, length, frequency, etc.) for descriptive and moderator analyses. If another eligible psychological intervention was reported next to the one primarily targeted in the respective trial, it was coded as additional treatment condition, which was also compared in the meta-analysis as control group. Where available, intention-to-treat (ITT) data were used and preferred over completer analysis (CA) data. If both self-report and interview-based data were reported for an outcome, we prioritized the interview-based data. Regardless of the exact timing, the first measurement conducted following the intervention was coded as the post-assessment. In cases where no standard deviations, but confidence intervals or standard errors were reported, the sample size was used to calculate the standard deviation from the standard error or the confidence interval. Dropout was extracted as the number of participants who did not complete the intervention as defined by the study investigators. Again, any discrepancies in data extraction were resolved through discussion and, if necessary, consultation with a senior researcher.

Risk of Bias Assessment

Risk of bias of all included studies was assessed using the Risk of Bias assessment tool (RoB 2.0).[37] The assessment was conducted by [masked initials] using the Excel tool and any uncertainties were discussed with [masked initials]. The RoB 2.0 tool utilizes five domains to rate studies for bias: randomization process, deviations from intended interventions, missing outcome data, measurement of the outcome, and selection of the reported result. These

domains were used by an algorithm to determine whether a study had 'low risk', 'some concerns', or 'high risk' of bias.

Statistical Analysis

The meta-analyses were performed in R Version 4.4.0[38] and RStudio Version 2024.12.0[39] using the packages {meta}[40] and {metafor}[41]. For each study we calculated within- and between group effect sizes for continuous outcome data as standardized mean differences (*SMD*) using effect size Hedges' *g* to adjust for small sample bias and 95% confidence intervals (CI). For within-group effect sizes we assumed a correlation of $\rho = 0.8$ to calculate the standard error.[42]. According to Cohen's[43] classification for Hedges' *g*, an effect size of [0.20, 0.50) indicates a small effect, [0.50, 0.80) indicates a medium effect, and ≥ 0.80 indicates a large effect. For dichotomous outcome data we calculated effect sizes with average weighted rates and odds ratio (*OR*) and 95% CI. For studies with zero cell frequencies a selective continuity correction of 0.5 was applied (modified Haldane-Anscombe correction).[44]

Meta-analyses were computed by pooling studies according to the random effects model, as considerable heterogeneity between studies was expected. We used Hartung-Knapp adjustments[45] for the calculation of CIs to account for the small number of studies. To account for studies with multiple psychological interventions as different treatment conditions (i.e. nested structure of the data) we tested whether a three-level model, including sampling variance as well as within-study and between-study variance, was a better fit. Model fit was assessed using likelihood ratio test and two-level or three-level models were implemented accordingly. To conduct meta-analyses an adequate number of trials reporting the outcome of interest was required ($k \geq 4$). The extent of heterogeneity in the effect sizes was examined

using Cochran's Q and I^2 statistics.[46] As suggested by Deeks et al.[47] I^2 between 0% and 40% was interpreted as might not be important, 30%-60% as moderate, 50%-90% as substantial, and 75%-100% as considerable heterogeneity.

Univariate meta-regressions and subgroup analyses were conducted to explore heterogeneity and examine potential moderators. Variables included age, percentage of female participants, type of control condition, trial country, population characteristics, inclusion source of reported symptoms, intended number of sessions, session frequency, intended total contact time, treatment setting, treatment type, caregiver involvement and standardized PTSS and depressive symptoms at pre-test. Continuous moderators were examined using meta-regression, while categorical moderators were explored through both subgroup analyses and meta-regression. Subgroup analyses and meta-regression were computed assuming that all subgroups are sharing a common estimate of the between-study heterogeneity τ^2. Publication bias was intended to be assessed inspecting the funnel plot and performing Egger's test of asymmetry[48], provided that the meta-analysis included more than ten studies[49]. The significance level for all analyses was set at 5%

To provide a tabular overview of the quality of evidence we additionally assessed the certainty of evidence for outcomes and produced a summary of findings table according to the GRADE working group using GRADEpro.[50, 51]

RESULTS

Study selection process

An overview of the study selection process and reasons for inclusion are shown in the PRISMA flowchart presented in Figure 1.[36] Searches produced a total of 7,908 results. After

automatic removal of duplicates 4,208 titles and abstracts were screened. 224 reports of studies were assessed for eligibility in full text. In total, 8 studies met the eligibility criteria and were included in the review and meta-analysis. Note that exclusion due to refugee or IDP population characteristics was not applied until the full-text screening. Full citations of the studies included in the analysis can be found in Supplement 3, available online . A list of potentially relevant studies that were read in full but excluded can be found in Supplement 4, available online.

[please insert Figure 1 about here]

Characteristics of included studies

In Table 1, the characteristics are summarized and pre-treatment data and PTSS effect estimates on a study level. In Table S1, available online, pre-treatment data and effect estimates of secondary outcomes are displayed. All eight studies were RCTs with nine active treatment conditions. One study included an additional treatment condition (Academic Catch-up with Counseling; Ertl et al.[52]). The number of studies will be referred to with *n*, while the number of treatment conditions with *k.* Control groups were mostly waitlist (*n* = 5) with one Treatment-As-Usual (TAU) and two active control conditions (Meditation-Relaxation, Catani et al.[53]; Child-Centered Play Therapy, Schottelkorb et al.[54]). Studies were published between 2009 and 2025 and were conducted in Australia (12.50%), Germany (25.00%), Sri Lanka (12.50%), Kuwait (12.50%), Türkiye (12.50%), Uganda (12.50%), and the USA (12.50%). In total data of 448 children and adolescents (treatment condition: *n* = 240; control condition: *n* = 208) at baseline with a mean age of 14.76 (*SD* = 2.57) were included in the analysis. Participants were predominantly male (*M* = 67.61%, *SD* = 19.44%). The studies included children from up to 17 different countries, with a total of 36 countries represented across all

studies. The majority of these children originated from the African continent. A detailed overview of the country of origin is displayed in Table S2, available online. Psychological interventions included M = 7.02 (SD = 2.74) sessions over M = 7.02 (SD = 3.29) weeks and were mostly CBT-based (k = 8) with one study using an EMDR intervention. Further details on the manuals used are provided in Table S3, available online. Five of the psychological interventions were conducted in individual sessions, while four were group treatments. Caregivers were mostly not involved (k = 8), only the study by Schottelkorb et al.[54] included caregiver-only and conjoint sessions. The interventions were carried out by trained professionals (k = 3), lay counsellors (k = 3), teacher counsellors (k = 2), and social workers (k = 1). Interventions were conducted in camps (k = 3), schools (k = 2), clinics (k = 1), child and adolescent welfare (k = 1) and an art studio (k = 1). Five studies assessed PTSS for inclusion based on interview data, while three used questionnaires (self-report). Four provided data on the secondary outcome depression, six studies on dropout. No study reported anxiety as an outcome.

[please insert Table 1 about here]

Risk of Bias Assessment

The overall risk of bias was rated *some concerns* for seven studies and *high* for one study. The only study with a high risk of bias rating was Schottelkorb et al.[54]. No study received a low risk of bias rating. The main reason for this was that the randomization process was not described in detail or the absence of a pre-registration or published study protocol. Details on the risk of bias rating per domain for the individual studies can be found in Table S4, available online.

Results of meta-analyses

Meta-analyses could be conducted for PTSS (k = 9), depression (k = 5) and dropout (k = 7). Two-level models were used for all outcomes (for model fit comparisons see Table S5, available online). No assessment of publication bias was carried out, as the number of included studies was below the recommended threshold for such analyses.[42]

Overall estimates of effects and moderators on PTSS. Psychological interventions showed a small and significant effect compared to the respective active or passive control conditions on the reduction of PTSS, g = -0.35, 95%-CI [-0.61, -0.09], k = 9 (see Figure 2). Heterogeneity rated as 'might not be important', I^2 = 18.85%. The within group effect on PTSS reduction was large and significant, g = -1.53, 95%-CI [-2.14, -0.91], k = 9, but heterogeneity was considerable, I^2 = 86.19%. Table 2 shows the meta-analysis of between-group and within-group effect sizes.

[please insert Table 2 about here]

[please insert Figure 2 about here]

None of the subgroup analyses were significant, with some even increasing heterogeneity (see Table 3). Descriptively, larger effect sizes in PTSS reduction were observed in descending order for treatments without caregiver involvement, trauma-focused treatments, standard treatment frequencies, passive control groups, LMICs, refugees, group settings, inclusion based on an interview, although differences were mostly minimal. Initially, we also intended to conduct a moderator analysis of the intervention provider. As described above, the professions of therapists were highly diverse. Therefore, we did not conduct a subgroup analysis. When looking at continuous moderators only one significant effect was observed. Pre-

test PTSS significantly predicted PTSS symptom reduction, $b = -0.30$, $P < .05$, indicating that higher pre-test PTSS was associated with a larger PTSS symptom reduction. There was no significant moderating effect of age, percent of female participants, intended number of sessions, frequency of sessions, intended contact time and pre-test depressive symptoms (see Table 4).

[please insert Table 3 and 4 about here]

Overall estimates of effects of secondary outcomes. Meta-analyses yielded non-significant effect sizes for depression, g = -0.34, 95%-CI [-0.76, 0.09], k = 5, and dropout, OR = 1.71, 95%-CI [0.35, 8.32], k = 7, when compared to the control conditions (see Figure 2). Heterogeneity was moderate for depression, $I^2 = 42.5\%$, and substantial for dropout, $I^2 = 69.22\%$. The within-group effect size of depressive symptom reduction yielded a small but non-significant effect, g = -0.31, 95%-CI [-2.13, 0.79], k = 5. Heterogeneity was substantial $I^2 = 92.62\%$. The weighted mean rate of dropouts in treatment conditions was 0.13, 95%-CI [0.08, 0.19], k = 7. Heterogeneity was rated as 'might not be important', $I^2 = 14.32\%$. In Table 2 between-group and within-group effect sizes for secondary outcomes are displayed.

Certainty of Evidence

The certainty of evidence according to GRADE was rated low for PTSS due to a serious risk of bias and imprecision, given the relatively small total sample size. However, since heterogeneity was low and the effect size was significant, and inconsistency was rated not serious, leading to the overall low certainty of evidence. For depression, the risk of bias was rated low and imprecision was rated as very low due to the small total sample size and the CI of the effect size including zero. This leads to a very low certainty of evidence. The certainty of evidence regarding the effect size for dropout was rated as very low, as there was a serious

risk of bias, serious inconsistency due to substantial heterogeneity and very serious imprecision, as the CI of the *OR* included 1 and the total sample size was small. The detailed GRADE Evidence Profile can be found in Table S6, available online.

DISCUSSION

This is the first systematic review and meta-analysis to analyze the effectiveness of psychological interventions in reducing PTSS among refugee and internally displaced children and adolescents, who presented with clinically relevant symptoms or a PTSD diagnosis at baseline. The sample compromised 448 children and adolescents originating from a total of 36 different countries. Therapists had a variety of professional backgrounds. Some were lay-counsellors, who received intensive training, others were licensed psychotherapists. We observed a small effect of psychological interventions compared to the respective active or passive control conditions in reducing PTSS (g = -0.35), but no significant effects of psychological interventions on the secondary outcomes depression and dropout. Within-group effect sizes were significant and large for reducing PTSS (g = -1.53), but not for depression. Our observations revealed a weighted mean dropout rate of 13 % in treatment conditions. The certainty of evidence for the primary outcome PTSS was low as there was some risk of bias and imprecision, yet heterogeneity was low. In the main analysis, passive and active controls were combined. When only passive control conditions were considered, the effect size increased slightly, but remained small and significant (g = -0.42). In comparison, when active controls were considered, the effect size decreased and was no longer significant (g = -0.23). Note, that the respective subgroup sizes were very small (k = 6 for passive controls and k = 3 for active controls). Although, in subgroup analyses the effect estimates suggested a greater reduction in PTSS for trauma-focused interventions than non-trauma-focused interventions, there was no significant difference between subgroups. Meta-regression

analyses revealed no significant moderators of the reduction in PTSS, except for a significant effect of PTSS at pretest (b = -0.30). This suggests that in studies with populations exhibiting higher symptom levels prior to intervention, participants tend to benefit more from treatment.

Overall, psychological interventions, particularly trauma-focused ones, appear to be effective in reducing PTSS in refugee and internally displaced children and adolescents. This finding aligns with the results of other reviews and meta-analyses. [25–29] However, when comparing the effect sizes for non-trauma-focused and trauma-focused interventions with those reported in meta-analyses of the general population of children and adolescents with PTSS, the effect sizes observed in this meta-analysis were smaller.[28, 60] This could be related to the multiple and complex traumas experienced by refugee and internally displaced children and adolescents.[3–5] However, as psychotherapy for multiple-event-related PTSD appears to be as effective as for single-event-related PTSD[61, 62], it may rather be related to other factors such as post-migration stressors like ongoing uncertainty regarding legal status, family separation, discrimination, and socioeconomic hardship.[3, 5] Moreover, specific challenges concerning service-use and -provision are reported in refugee populations resettled in HICs[11–14] as well as in LMICs[4]. These include ongoing political instability and inadequate healthcare infrastructure in the country of resettlement. In instances of displacement across borders, language and cultural barriers, as well as the administrative challenges involved in providing therapy to refugees without health insurance or who are unreliable in keeping appointments, are frequently reported.[4, 13]

Further, the effect sizes that we identified were smaller than those reported in other recent meta-analyses of refugee children and adolescents. These analyses included participants based on trauma-exposure, rather than just those who met the criterion of at least clinically relevant symptoms of PTSS.[33, 35] However, these results do not align with our finding that studies with populations with higher PTSS at pretest tended to report larger symptom

reduction. Regarding this, it should be noted that the other meta-analyses reported substantial heterogeneity and wide CIs, which can inflate pooled effects. We included a smaller number of studies, due to stricter eligibility criteria, found little heterogeneity and therefore a higher certainty of evidence for the estimated effect size of PTSS reduction than previous analyses. The moderating effect of higher PTSS at pretest is a common observation in meta-analyses (e.g. De Haan et al.[63]).

Nevertheless, the findings of the present study suggest that trauma-focused treatments might be more promising in terms of reducing symptoms of PTSD, as larger effect sizes were observed for trauma-focused interventions: If the effect sizes of included studies are considered at the study level, larger effect sizes are typically reported for trauma-focused interventions when compared to passive controls or usual care.[52, 55, 56, 58, 59] The non-significant subgroup analysis might be due to the limited number of studies included in the analysis, but also aligns with the findings from other analyses: In network-meta-analyses for the general child and adolescent population with PTSS, authors report larger effect sizes for trauma-focused interventions than for non-trauma-focused interventions, yet no significant difference between effect sizes for the two intervention types.[28, 60] As a clinical implication, it can be concluded that psychological interventions show effective results despite highly diverse conditions in terms of setting, therapist qualifications and the cultural background of the children and adolescents and can therefore be applied in various contexts. The most frequently studied manual was NET.

For depression, no significant symptom reduction was observed and no superiority of treatment compared with control conditions. Meta-analyses for the general child and adolescent population with clinically relevant symptoms of PTSD report mostly medium to large effect sizes on depressive symptom reduction for trauma-focused interventions (e.g., Xiang et

al.[60]). The small number of studies reporting depression as an outcome ($k = 5$) limits statistical power. However, individual studies included in our meta-analysis also usually reported close to zero effects despite mostly being compared to passive control conditions. Again, this could potentially be attributed to contextual factors and ongoing stressors that are specific to the refugee and IDP population. [3, 5] As interventions are designed to address symptoms of PTSS specifically, rather than depressive symptoms, and these factors may have a notable impact on the maintenance of symptoms of depression, effect sizes could be smaller.

Regarding dropout, the odds ratio should be interpreted with great caution. Due to the presence of zero cells, it was necessary to apply zero-cell correction to multiple studies. This resulted in greater heterogeneity and wide CIs. In the weighted mean dropout rate of 13%, we found little heterogeneity. Velu et al.[35] also reported dropout rates of mostly between 0 and 25% but did not pool these rates. Dropout rates within the included trials were lower than those reported in adult refugee populations or non-refugee populations, but similar to those reported in pediatric non-refugee populations[64–66], suggesting that dropout is not a primary problem. This may be because many of the interventions were conducted as outreach therapy. Multiple studies were conducted in settings such as refugee camps, schools, and child and adolescent welfare service, where therapy was more accessible and children and adolescents could be more easily reached and encouraged to continue treatment. It should be noted that the dropout rate varied significantly among the studies included in our analysis. Consequently, further investigation is necessary to explore this variation.

Several limitations should be considered when interpreting the findings of this analysis. First, the number of studies and treatment conditions included in the analysis was small. Moderator and subgroup analyses should be interpreted with caution, as these are recommended for computation only if the meta-analysis for an outcome contains at least $k = 10$ studies or at least $k = 4$ studies per subgroup.[67, 68] Since we did not reach these

recommendations, our finding that there were no significant moderators does not imply that there are no moderators of the treatment effect. Further, we included various control groups when pooling between-group effect sizes. Including passive and active controls in the main effect size may have attenuated the estimated effect size. Two more studies with eligible sub-datasets were identified and authors were contacted. Unfortunately, the data could not be retrieved and included. Moreover, our search was limited to publications in English or German. This may have resulted in selection bias.

Furthermore, the odds ratio for dropout cannot be interpreted meaningfully due to multiple zero cells, a low number of dropouts, and wide CIs. The latter is likely to be due to the small number of participants in individual studies. Zero-cell corrections were applied, which may have introduced bias into the effect sizes. Substantial heterogeneity was found in the effect estimates for dropout and moderate heterogeneity in the effect estimates for depression. Therefore, when interpreting the results for secondary outcomes, consideration should be given to the lower certainty of evidence in effect sizes.

While we reported within-group effect sizes as additional information, these should be interpreted with great caution as they may lead to biased results, such as overestimation of effects.[69] One reason for this is that the effect is uncontrolled, therefore various confounders are not accounted for, such as natural recovery. Further, when calculating the effect size the correlation between pre- and post-scores is often estimated rather than known, yet still influences the results. Consequently, the main interpretations and conclusions of this analysis were based on the between-group effect sizes.

There are also several limitations related to the methodological quality of the included studies. Notably, three of the seven included studies were completer-analyses and only four were

intent-to-treat analyses. Completer-analyses view treatment effects under optimal conditions and therefore may overestimate effect sizes by excluding participants who dropped out, this leads to potential bias in the effect estimates. Moreover, post-treatment assessments were coded as the closest available measurement to the end of the intervention, which varied across studies from immediately after the intervention to several weeks later. As follow-up assessments were mostly not reported, it was impossible to evaluate the long-term effects of the interventions. Furthermore, while we only included studies with participants reporting at least clinically relevant PTSS, the assessment of these at study inclusion varied. Three studies used self-report data for inclusion and seven for post-treatment assessment. This may have affected PTSS severity ratings at intake and post-assessment. Lastly, none of the included studies received a low risk of bias rating, indicating methodological concerns across all studies.

Concluding, to the best of our knowledge, this systematic review and meta-analysis is the first to pool effect sizes for psychological interventions for refugee and internally displaced children and adolescents with clinically relevant PTSS or a PTSD diagnosis. The findings suggest that psychological interventions are effective in treating PTSS in refugee and internally displaced children and adolescents. Specifically, there was broader evidence for the effectiveness of trauma-focused interventions. For clinical practice this review and meta-analysis implies that findings for the refugee and IDP population are consistent with the recommendations of clinical practice guidelines, which recommend trauma-focused treatments as first-line treatment for reducing PTSS in children and adolescents.[18–20] To assess dropout rates meaningfully and draw meaningful conclusions about this outcome, studies should report the number of dropouts and provide a clear definition of what constitutes a dropout.

However, there is a clear lack of studies in the child and adolescent refugee and internally displaced population. This is particularly relevant given that nearly 40% of refugees and IDPs are children and adolescents. [1] Despite a comprehensive search, we identified only eight studies, of which only three included an IDP population, even though IDPs outnumber refugees globally. [1] This review highlights the need for further investigations, to better understand whether and why treatment effect sizes appear smaller in this population than in the general population. Specifically, the influence of displacement- and migration-related factors, factors related to service-provision and -use, as well as cultural adaptations, should be explored.

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Tables

Table 1

Overview of Included Studies

Author(s) (Year) Control (n) Treatment (n)	Country	Population Type/ trauma	Country of origin	Age (*M*)	Female (%)	Inclusion Source (DSM)	Providers Qualification	Treatment Setting	Caregiver involvement	Number of sessions	Frequency[a]	Analysis Type	PTSD-Instrument	Pre-Ass. PTSS *M* (*SD*)	Hedges' *g* for PTSS (95%-CI)
Banoğlu and Korkmazlar (2022) [55] Waitlist (47) EMDR (47)	Türkiye	Refugee / war-related	Syria	-[b]	Total: 41.0	Interview (-)	Trained therapists	- / Group	No	3-4	-	CA	CPTS-RI	 36.58 (6.66) 37.10 (10.34)	 -0.50 (-2.04, 0.05)
Catani et al. (2009) [53] MED-Relax (15) NET (16)	Sri Lanka	IDP/ war-related / tsunami	Sri Lanka	 12.3 11.6	 53.3 37.5	Interview (DSM-IV)	Lay counsellors	Camp/ Individual	No	6	Intense	ITT	UCLA PTSD-RI	 36.58 (14.6) 37.94 (14.8)	 -0.01 (-0.72, 0.69)
Ertl et al. (2011) [52] Waitlist (23) Academic Catch up (21) NET (21)	Uganda	IDP/ abduction (child soldiers)	Uganda	 16.96 16.43 16.86	 43.5 71.43 52.4	Interview (DSM-IV)	Lay counsellors	Camp/ Individual	No	8	Intense	ITT	CAPS	 65.26 (16.4) 62.81 (13.9) 66.67 (16.52)	-0.38 (-0.97, 0.22) -0.49 (-1.09, 0.11)
Kalthom et al.(2025) [56] Waitlist (10) Self-Narrative Art Therapy (10)	Kuwait	Refugee/ war-related	Syria	-	-	Self-Report (DSM-IV)	Teacher counsellors	Local art studio/ Group	No	12	Intense	CA	PCL-C	 7.16 (2.11) 8.49 (2.16)	 -0.72 (-1.62, 0.19)
Ooi et al. (2016) [57] Waitlist (37) TRT (45)	Australia	Refugee/ war-related	Mixed [c]	 12.05 13.13	 27.0 46.0	Self-Report (DSM-IV)	Teacher counsellors	School/ Group	No	8	Standard	ITT	CRIES	 17.92 (11.86) 23.02 (10.51)	 0.02 (-0.41, 0.46)
Pfeiffer et al. (2018) [58] Usual Care (49) Mein Weg (50)	Germany	Refugee/ mixed	Mixed [c]	 16.92 17	 6.0 8.2	Self-Report (DSM-5)	Social workers	Child welfare/ Group	No	6	Standard	ITT	CATS-S	 31.85 (8.61) 29.97 (8.63)	 -0.54 (-0.94, -0.14)
Ruf et al. (2010) [59] Waitlist (13) NET (13)	Germany	Refugee/ mixed	Mixed [c]	 11.4 11.5	 46.0 46.0	Interview (DSM-IV)	Trained therapists	Clinic/ Individual	No	8	Standard	CA	UCLA PTSD-RI	 38.30 (8.6) 43.30 (12.30)	 -1.00 (-1.83, -0.16)

Schottelkorb et al. (2012) [54]	USA	Refugee/ mixed	Mixed [3]	Total: 9.16	Total: 45.2	Interview (-)	Trained therapists	School/ Individual	Yes	12	Intense	CA	UCLA PTSD-RI		
CCPT (14)														20.29 (11.87)	0.21 (-0.56, 0.98)
TF-CBT (17)														22.33 (10.09)	

Note: CA = Completer Analysis; CAPS = Clinician Administered PTSD Scale; CATS-S = Child and Adolescent Trauma Screen Self-report.er; CCPT = Child-Centered Play Therapy; CPTS-RI = Child Post-Traumatic Stress Reaction Index; CRIES = Child Revised Impact of Events Scale; EMDR = Eye Movement Desensitization and Reprocessing; IDP = internally displaced person; ITT = Intention-To-Treat Analysis; MED-Relax = Meditation-Relaxation; NET = Narrative Exposure Therapy; PCL-C = PTSD Checklist Civilian Version; TF-CBT = Trauma-focused Cognitive Behavioral Therapy; TRT = Teaching Recovery Techniques; UCLA PTSD-RI = UCLA Child/Adolescent PTSD Reaction Index.

a. Intense refers to > 1 session per week and standard ≤ 1 session per week.
b. A '-' indicates that the variable was not reported in the study.
c. Further details can be found in Table S2, available online.

Table 2

Meta-Analysis of Between-Group and Within-Group Effect Sizes

Outcome	*k*	Effect size (type)	95%-CI	*Q*	I^2 (%)
Between-group effect sizes					
PTSS	9	-0.35 (*g*)	-0.61, -0.09	10.01	18.85
Depression	5	-0.34 (*g*)	-0.76, 0.09	6.96	42.5
Dropout	7	1.71 (*OR*)	0.35, 8.32	27.85***	69.22
Within-group effect sizes					
PTSS	9	-1.53 (*g*)	-2.14, -0.91	42.88***	86.19
Depression	5	-0.31 (*g*)	-1.17, 0.56	44.04***	92.62
Dropout	7	0.13 (Rate)	0.08, 0.19	6.79	14.32

Note: k number of comparisons; CI = confidence interval.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3

Results from Moderator Analyses and Subgroup Analyses for Categorial Moderators on PTSS

Subgroup		*k*	*g*	95%-CI	*b*	*P*-value of meta-regression	*Q*	I^2 (%)
Type of control	Passive	6	-0.42	-0.79, -0.05	*ref.*		9.91	35.03
	Active [a]	3	-0.23	-0.74, 0.28	0.19	.51		
Country	LMIC	5	-0.41	-0.81, -0.01	*ref.*		9.69	26.35
	HIC	4	-0.30	-0.69, 0.10	0.11	.65		
Population	Refugee	6	-0.37	-0.71, -0.03	*ref.*		9.99	28.4
	IDP	3	-0.32	-0.83, 0.19	-0.05	.84		
Inclusion source	Interview	6	-0.37	-0.74, 0.01	ref.		9.96	29.22
	Self-report	3	-0.34	-0.78, 0.11	0.03	.91		
Setting	Single	5	-0.33	-0.75, 0.09	*ref.*		9.99	28.84
	Group	4	-0.37	-0.76, 0.02	-0.04	.86		
Frequency	Standard	3	-0.40	-0.90, 0.10	*ref.*		9.56	38.03
	Intense	5	-0.21	-0.75, 0.19	0.12	.68		
Caregiver involvement	No	8	-0.39	-0.66, -0.12	*ref.*		7.99	15.83
	Yes	1	0.21	-0.77, 1.19	0.60	.20		
Trauma-focused treatment	No	2	-0.19	-0.54, 0.31	*ref.*		7.65	0.00
	Yes	7	-0.45	-0.73, -0.17	-0.33	.17		

Note: k number of comparisons; assuming that all subgroups are sharing a common estimate of the between-study heterogeneity τ^2. CI = confidence interval;; HIC = high income country; IDP = internally displaced person; LMIC = low to middle income country; ref. = reference group.

a. TAU or other active conditions.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Results from Moderator Analyses for Continuous Moderators on PTSS

Moderator	*k*	*b*	95%-CI	*P*
Age	6	-0.05	-0.21, 0.10	.40
Percent female	6	-0.10	-2.10, 1.89	.89
Intended number of sessions	8	0.07	-0.06, 0.20	.23
Session frequency (sessions per week)	8	0.05	-0.33, 0.43	.78
Intended total contact time (minutes)	9	-0.00	-0.00, 0.00	.16
Pre-test PTSS	9	-0.30	-0.60, -0.00	<.05
Pre-test depression	5	0.10	-0.69, 0.89	.71

Note: k number of comparisons; PTSS = post-traumatic stress symptoms.

Figure 1

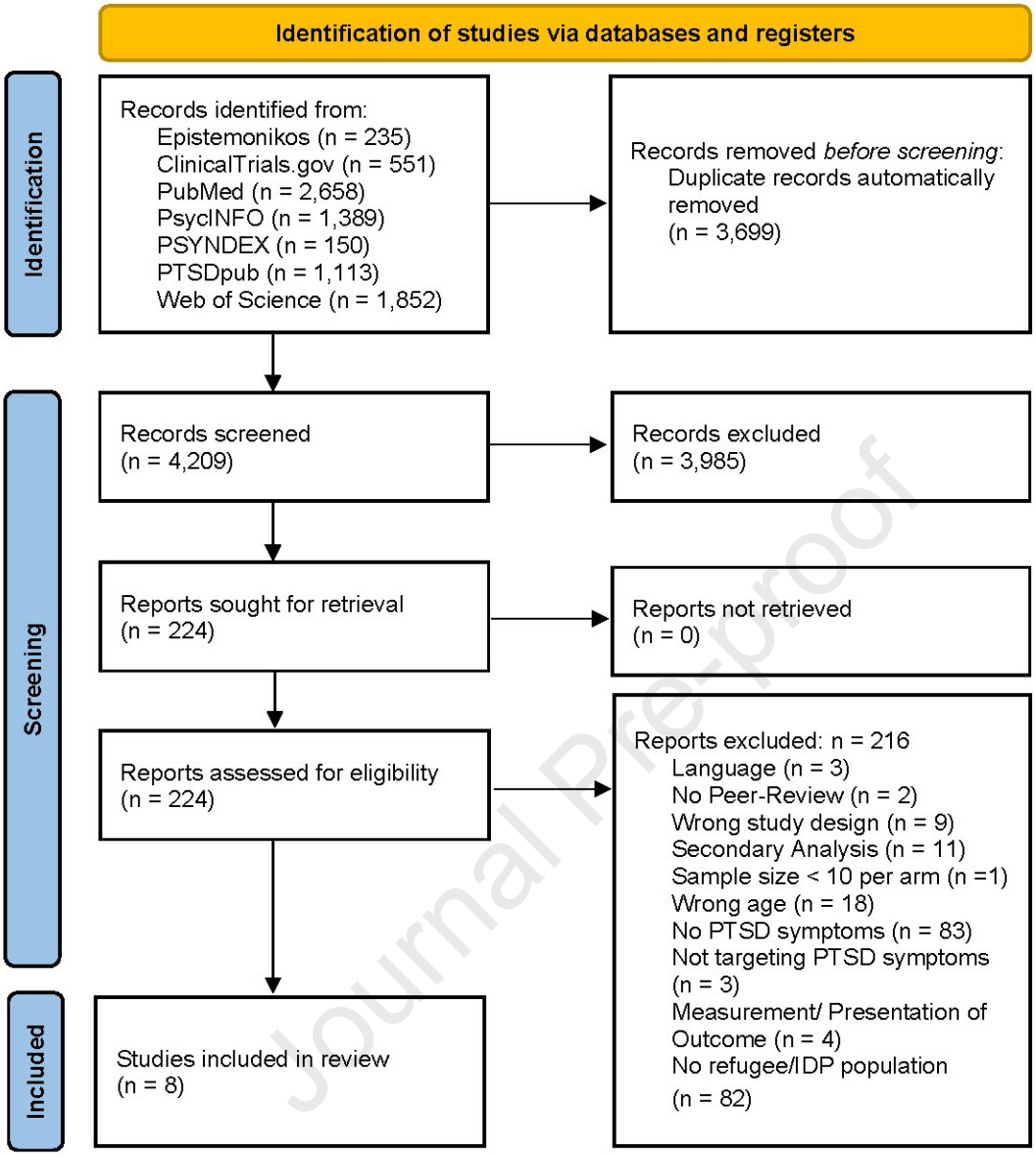
PRISMA Flow Diagram of Study Selection Process.

Note: Source: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71. Published 2021 Mar 29. doi:10.1136/bmj.n71

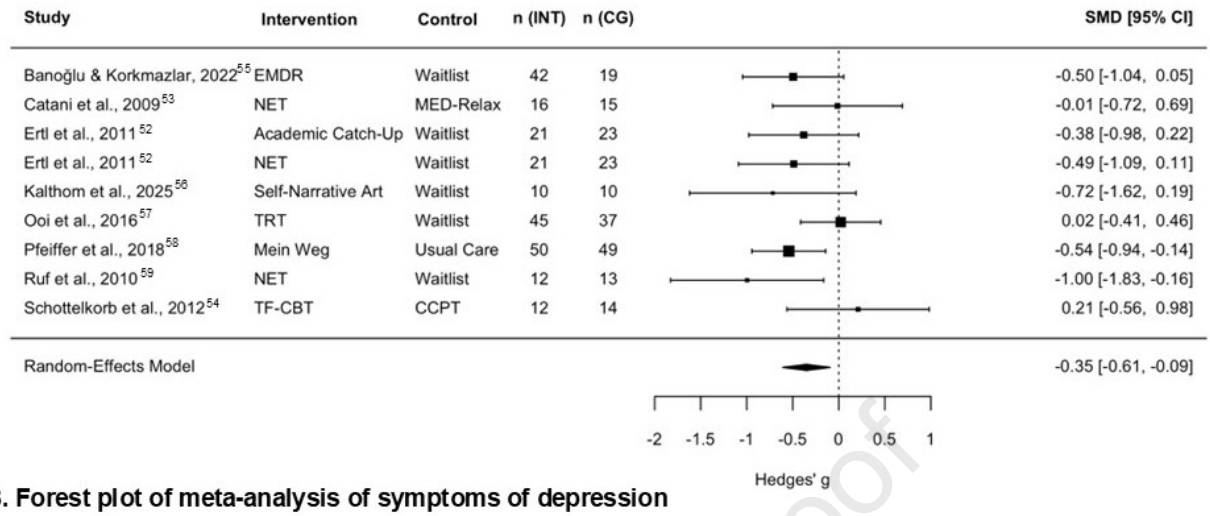
Figure 2

Forest Plots of Meta-Analyses

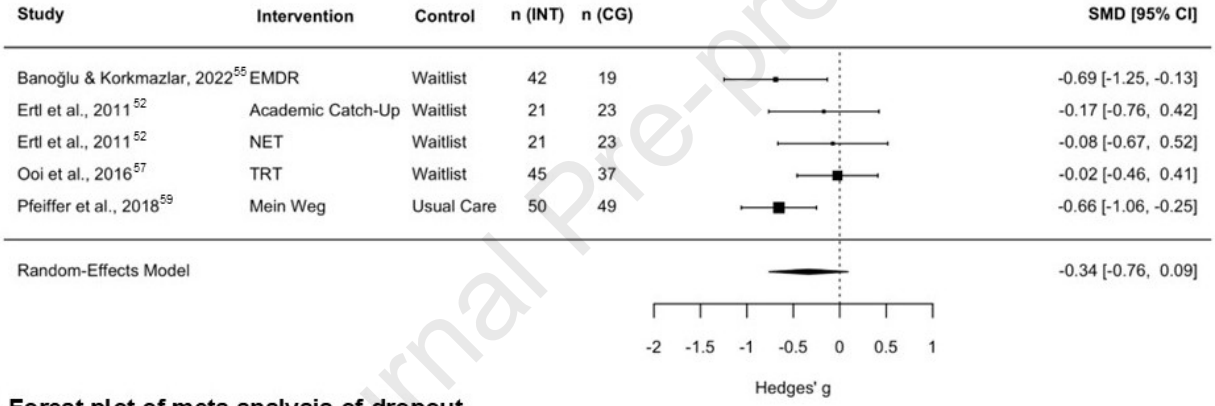
Note: CCPT = Child-Centered Play Therapy; CG = Control Group; EMDR = Eye Movement Desensitization and Reprocessing; INT = Intervention; MED-Relax = Meditation-Relaxation; NET = Narrative Exposure Therapy; TF-CBT = Trauma-focused Cognitive Behavioral Therapy; TRT = Teaching Recovery Techniques.



A. Forest plot of meta-analysis of PTSS



B. Forest plot of meta-analysis of symptoms of depression



C. Forest plot of meta-analysis of dropout