



Psychological Interventions for Children and Adolescents with Depression, Anxiety and PTSD in Low- and Middle-Income Countries: A Systematic Review and Meta-analysis

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PSYCHOLOGICAL INTERVENTIONS FOR CHILDREN AND YOUTH IN LMICs

**Psychological Interventions for Children and Adolescents with Depression,
Anxiety and PTSD in Low- and Middle-Income Countries: A Systematic Review and
Meta-analysis**

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Abstract

Background: The incidence of depression, anxiety, and post-traumatic stress disorder (PTSD) among children and adolescents residing in low- and middle-income countries (LMICs) poses a significant public health concern. However, there is variation in the evidence of effective psychological interventions. This meta-analysis aims to provide a complete overview of the current body of evidence in this rapidly evolving field.

Methods: We conducted searches on PubMed, Embase.com, and EBSCO/APA PsycInfo databases up to June 23, 2022 identify randomized controlled trials (RCTs) investigating the effectiveness of psychological interventions in LMICs. We included studies that target children and adolescents with above cut-off scores for a diagnosis of depression, anxiety, and PTSD symptoms, comparing a psychological intervention with other control conditions. We conducted random effects meta-analyses for depression, anxiety, and PTSD symptoms. Sensitivity analysis for outliers and high-risk studies, and analyses for the publication bias were carried out. We conducted subgroup analyses to investigate how the specific characteristics of the studies predicted effect sizes.

Results: A total of 31 trials, with 6123 participants, met the inclusion criteria. The psychological interventions resulted in a moderate effect of psychological interventions on depression outcomes compared to the control conditions ($g = 0.53$; 95% CI: 0.06–0.99; NNT = 6.09) with a broad PI (-1.8-2.86). We found a large effect for the psychological interventions ($g = 0.88$; 95% CI: -0.03–1.79; NNT = 3.32) with a broad PI (-3.14-4.9) for the anxiety outcomes. Additionally, a moderate effect was observed on PTSD outcomes ($g = 0.54$; 95% CI: 0.19–0.9; NNT = 5.86) with a broad PI (-0.64-1.72).

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Conclusions: Psychological interventions aimed at addressing depression, anxiety, and PTSD among children and adolescents in LMICs have demonstrated promising results.

However, future studies should consider the variation in evidence and incorporate long-term outcomes to better understand the effectiveness of these interventions.

Keywords: Children; adolescents; depression; anxiety; post-traumatic stress disorder (PTSD); low- and middle-income countries (LMICs); psychological interventions; meta-analysis

Abbreviations: LMICs: Low- and Middle-Income Countries; PTSD: Post-traumatic Stress Disorder; RCT: Randomized Controlled Trials; cRCT: Cluster-Randomized Controlled Trials

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3 Recent reports show that around 970 million people worldwide live with some type of
4 mental health problem (WHO, 2022), such as depressive, anxiety, or post-traumatic stress
5 disorders. It is estimated that 8% of world's young children (5-9 years) and 14% of
6 adolescents (between 10-19 years) suffer from a mental health problem. According to the
7 Global Burden of Disease Study (GBD, 2019), 82% of people with mental health problems
8 live in a low-and middle-income countries (LMIC), where more than 83 percent of the world
9 population reside. Even though the need is significant, mental health services utilization is
10 lower when compared with high income countries (Rathod et al., 2017). Mental health
11 problems among children and adolescents are a global public health concern but like the adult
12 population; the burden is higher for LMICs in which children population constitutes 85
13 percent of the global children and adolescent population (Erskine et al., 2017). Despite the
14 need, research regarding effective interventions for children and adolescents is scarce.

15
16 According to a review by Yatham, Sivathasan, Yoon, da Silva, & Ravindran (2018),
17 studies conducted in LMICs have reported highly variable prevalence rates for depression,
18 anxiety, and PTSD, with rates of up to 28% for depressive and anxiety symptoms, and up to
19 87% for PTSD symptoms. A recent meta-analysis found the overall prevalence for
20 depression, anxiety disorders, and PTSD as 13.81%, 15.77%, and 22.71%, respectively.
21 (Blackmore et al., 2020). Another recent systematic review included 37 studies conducted in
22 the Sub-Saharan region targeting the general children and adolescent population reported
23 26.9% prevalence for depression, 29.8% prevalence for anxiety disorders, and 21.5% PTSD
24 prevalence (Jörns-Presentati et al., 2021).

25
26 Despite greater burden of disease of mental disorders among children in LMICs, so
27 far, the majority of trials on the effectiveness of psychological interventions for children and
28 adolescents have been conducted in high-income western settings (Cuijpers, Karyotaki,
29 Reijnders, Purgato & Barbui, 2018). Patel and Rahman (2015) reported that by 2007, only
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3 7% of the global mental health trials were conducted in LMICs. Furthermore, only one
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5 percent of the trials in LMICs focused on child and adolescent mental health (Patel &
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7 Rahman, 2015). A systematic review conducted by Riberio and colleagues (2022) identified
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9 107 studies up to 2019 targeting mental health problems among children and adolescents in
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11 LMICs. This review included studies assessing mental health problems or symptoms,
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13 regardless of whether they were randomized controlled trials (RCTs) or not, or whether
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15 children and adolescents were screened for mental health problems or not. Additionally,
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17 another previous systematic review could include only 13 RCTs focusing on effective
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19 interventions for children and adolescents who scored above cut-off points indicative of
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21 depression, anxiety, and PTSD or received a diagnosis (Uppendahl et al., 2020). In recent
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23 years, research regarding the effectiveness of psychological interventions also gained
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25 momentum in LMICs (Cuijpers et al., 2018), and more high-quality research has been
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27 conducted in LMICs (Jörns-Presentati et al., 2022). Given that the field is evolving rapidly
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29 and a considerable number of new high-quality RCTs have been published in recent years
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31 (i.e. Dorsey, 2020; Michelson, 2020; Osborn, 2021; Omkarappa, 2022), a meta-analysis on
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33 all available body of evidence is needed. Therefore, we aim to provide a recent overview of
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35 the literature on the RCTs for children and adolescents living in LMICs and carry out a meta-
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37 analysis that includes these recent studies.
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44 The main aim of this current study was to conduct a systematic review and meta-
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46 analysis to examine the effectiveness of psychological interventions in LMICs for children
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48 and adolescents with depression, anxiety, and PTSD compared to control conditions on
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50 symptoms of depression, anxiety, and PTSD. Additionally, we explored whether outcomes
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52 differed between different follow-up periods, intervention types (CBT-based vs. others),
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54 intervention format (group, individual, or others), the facilitator (specialist vs. non-
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professional helper), design of the study (individual or cluster RCT), and the target age group (children vs. adolescents).

Methods

Protocol and registration

The present review constitutes an update of a PROSPERO registered systematic review and metanalysis (ID: CRD42019111558). Without changing anything about the inclusion criteria and research questions we updated our previous systematic analysis (Uppendahl et al., 2020).

Information sources and search

We previously carried out a comprehensive search in the bibliographic databases PubMed, Embase.com and EBSCO/APA PsycInfo for the same research question up to December 14, 2018 (Uppendahl et al., 2020). To identify the relevant publications, we provided an update of the searches of this systematic review in the bibliographic databases PubMed, Embase.com and EBSCO/APA PsycInfo from inception up to June 23, 2022, in collaboration with a medical information specialist (RV). The following terms were used (including synonyms and closely related words) as index terms or free-text words: "Developing countries", "Low- and middle income countries", "Anxiety disorders", "Depressive disorders", "Children", "Adolescents". References of the identified articles were searched for relevant publications. All languages were accepted. Duplicate articles were excluded by a medical information specialist using Endnote X20.0.1 (Clarivatetm), following the Amsterdam Efficient Deduplication (AED)-method (Otten, Vries & Schoonmade, 2019) and the Bramer-method (Bramer, Giustini, de Jonge, Holland & Bekhuis, 2016). Full search strategies for each database can be found in Appendix 1 as a supplementary material.

Eligibility Criteria

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We formulated our research question in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement (Moher, Liberati, Tetzlaff & Altman, 2009) regarding Population, Intervention, Comparison, Outcome, and Study (PICOS). Full-text and peer-reviewed studies were eligible for inclusion if: (1) the sample consists of children and adolescents with ages below 18, (2) the study design is either an RCT or cluster RCT (cRCT), (3) the study was conducted in an LMIC, as defined by World Bank classifications (World Bank, 2022), (4) the study sample was selected based on diagnostic criteria and/or cut-off score in terms of depressive, anxiety and/or symptoms of PTSD assessed by a self-report measure, and (5) the study included one or more psychological intervention arm and an active or non-active comparison group.

Outcome Measures

Outcome measures included in the study are the measures of symptoms of depression, anxiety or PTSD measures, which were assessed either by self-report instruments or clinical interviews. By using raw data, the measure of effect sizes (Hedges' g) was calculated as the standardized mean differences (Hedges & Olkin, 1985). There were studies where multiple measures were available for one outcome. By using the 'combined' method of metapsyTools, all effect sizes in the studies were combined for separate outcomes.

Data Extraction and Quality Assessment

Two researchers (CAS and JU) independently extracted the following information from each study; 1) characteristics of the studies (title, authors, year), 2) country, 3) characteristics of the interventions (name, theoretical background, number of sessions, format), 4) study design (type of control, inclusion/exclusion criteria, number of assessments, recruitment), 5) characteristics of the sample (mean age, gender composition, scores above a cut-off or with a diagnosis), and 6) outcomes regarding depressive, anxiety, and post-traumatic stress symptomatology.

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We used the revised Cochrane risk-of-bias tool for randomized trials (RoB 2) (Sterne et al., 2019) to carry out the quality assessments. Two researchers (CAS and ZZ) independently reviewed all studies and compared their ratings. Discrepancies were discussed and consulted with the senior researchers (MS and PC) when necessary. All included studies were evaluated by using the five domains of RoB 2 tool: (1) bias arising from the randomization process; (2) bias due to deviations from intended interventions; (3) bias due to missing outcome data; (4) bias in the measurement of the outcome; and (5) bias in the selection of the reported result (Sterne et al., 2019). Each study received a rating (low risk, some concerns, or high risk) in each domain and at the end overall risk was calculated. The Cochrane tool provides an internal algorithm which helps to decide on the level of risk for each study. For included cRCTs, a separate RoB 2 tool was used, which adds a subdomain for the randomization process and examines bias arising from the timing of identification and recruitment of individual participants to the trial.

Data Analysis

Analyses were carried out in R (version 4.1.1) and RStudio (version 2022.12.0+353 for Mac). We used the metapsyTools package (Harrer, Kuper, Sprenger & Cuijpers, 2022) to conduct analyses. The metapsyTools package, which is incorporated in R, is developed explicitly for the Metapsy project (Cuijpers & Karyotaki, 2020). This package carries out the necessary analyses for the meta-analysis studies by importing the functionality of three other packages for meta-analytic studies in R, which are mainly: 'meta' (Balduzzi, Rücker & Schwarzer, 2019), 'metafor' (Viechtbauer, 2010), and 'dmetar' (Harrer, Cuijpers, Furukawa & Ebert, 2021).

Since we expected a high heterogeneity within the studies, a random effects model was assumed for all analyses. Meta-analyses were conducted by taking the combined models as the main analysis. Combined model aggregates all effect sizes within one study before

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calculating the overall effect and ensures them to be independent by avoiding specific errors such as double counting. We performed sensitivity analysis for risk of bias by only including the low Risk of Bias studies as well as the outliers. I^2 levels were calculated as a test of the homogeneity of the effect sizes, including the 95% confidence interval in addition to the prediction intervals (PIs). This value is an indicator of heterogeneity in percentages, which shows high heterogeneity when it is equal to or higher than 75%, moderate heterogeneity when it is 50%, and low heterogeneity when it is equal to or lower than 25% (Higgins & Green, 2011). The follow-up effects were also analyzed where available. Only studies including follow-up assessments between 3 and 6 months were included since there were only two studies included follow-ups over 6 months.

In addition to the primary analyses, we conducted subgroup analyses to investigate the effects of psychological interventions in different subgroups (containing at least three studies for a subgroup). Subgroup analysis was performed between the intervention types (CBT-based and others), the format of the intervention (group, individual, or others), the facilitator (specialist or non-specialist), design of the study (individual or cluster RCT), and target age group (children (<13) or adolescents (≥ 13)). Finally, publication bias was examined using 3 methods, including Duval and Tweedie's Trim-and-fill procedure (Duval & Tweedie, 2000), limit meta-analysis method and the selection model. Additionally, we examined the funnel plots on three different outcomes and conducted Egger's test of the intercept (Egger, Smith, Schneider & Minder, 1997) to assess publication bias.

Results

Selection and Inclusion of Studies

3676 titles were identified through the systematic search. Following the removal of the duplicates, 2404 studies were screened based on the titles and abstracts by two researchers (CAS and JU) independently. Total number of studies included in the full text

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review was 186 and out of these, 31 randomized controlled trials were included in the meta-analysis (See PRISMA flow diagram, Figure 1).

Characteristics of Included Studies

Table 1 depicts the main characteristics of the included studies. Total number of participants were 6123, of which 3132 of them were randomized into a psychological intervention and 2991 in the control conditions. The number of participants randomized in studies ranged from 21 to 640. The age of the participants across studies ranged from 6 to 18. Seven of the included trials were cluster randomized controlled trials (cRCT) whereas the others were individual RCTs. Most of the studies recruited participants via schools (23 studies) whereas the others used community, clinics, or other methods. Twenty-two studies examining the effectiveness of psychological interventions included depression outcomes, twenty included anxiety outcomes, and eleven included PTSD outcomes. Three studies used multiple outcomes for depression and two studies used multiple measures for anxiety. In one study, both self-report and interview measures were used to assess PTSD. Self-report measures (including ones collected by assessors) were prioritized over interview measures. In studies which used both guardian and child reports, only child reported outcomes were included. Three multi-arm trials were included (Bolton et al., 2007, El-Khani et al., 2021, Thabet et al., 2005). Seventeen studies included psychological interventions containing cognitive-behavioral therapy (CBT) elements (i.e. desensitization, relaxation, cognitive restructuring, etc.), and others used alternative techniques (including psychodynamic oriented techniques, self-help, and holistic stress management). In thirteen studies, waitlist control groups were used as comparisons, in twelve studies the comparison was care as usual or no-contact control, and the remaining studies used other control groups (including low intensity methods such as mentorship, or distributing printed manuals, or active controls such as CBT or supportive counseling). The number of sessions provided ranged from one to twenty.

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Seven studies included individual interventions, two combined group interventions with individual sessions, one intervention was digital, and the remaining studies examined group interventions.

Risk of Bias Assessment

Among the RCTs examining individual interventions, one study was identified as ‘high risk’, whereas the overall risk for six studies imposed ‘some concerns’, and the rest were rated as ‘low risk’. The study rated as high risk failed to provide a clear description of the analysis carried out, dropout rates, and the potential deviations these issues might create. Other studies posed some concerns, mainly failing to provide enough information on the randomization process, analysis plan, and the selection of the reported results. Among the seven cRCTs, four of them were rated as ‘high risk’, two of them were found to pose ‘low risk’, whereas one of them created ‘some concerns’. The main reason for the high risk of bias came from the failure to blind assessors to the study conditions as the assessors were also delivering the interventions. The other reasons for the high risk of bias were problems with the randomization process and the timing of randomizing participants to the clusters. One study posed some concerns regarding the exclusion of two participants from the analysis following loss to follow-up for the outcome measures. Graphical representations of risk of bias assessments for individual trials can be found in Figure 2, and cRCTs in Figure 3.

Effects of psychological interventions on depression, anxiety and PTSD

The analysis yielded a moderate effect of psychological interventions on depression compared to the control conditions ($g = 0.53$; 95% CI: 0.06–0.99; NNT = 6.09) with very high heterogeneity ($I^2 = 93$; 95% CI: 91-95) and a broad prediction interval (PI = -1.8-2.86). After excluding three identified outliers, this effect was decreased ($g = 0.39$, 95% CI: 0.21-0.58; NNT = 8.05), and heterogeneity was also reduced ($I^2 = 75$; 95% CI: 62-83), while prediction interval remained broad (PI = -0.33-1.12).

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The effects of psychological interventions on anxiety outcomes showed a large effect compared to the comparison conditions ($g = 0.88$; 95% CI: -0.03–1.79; NNT = 3.32 with very high heterogeneity ($I^2 = 98$; 95% CI: 97-98). The combined effect was not significant ($p = 0.06$) and the prediction interval was broad (PI = -3.14-4.9). With sensitivity analysis for outliers, seven studies were identified. After removing the identified outliers, the effect was moderate ($g = 0.49$; 95% CI: 0.14–0.84; NNT = 6.62) with high heterogeneity ($I^2 = 90$; 95% CI: 85-93) and a broad prediction interval (PI = -0.75-1.73).

Psychological interventions for children and adolescents indicated a moderate effect on PTSD symptoms ($g = 0.54$; 95% CI: 0.19–0.9; NNT = 5.86) with high heterogeneity ($I^2 = 89$; 95% CI: 83-93) and a broad prediction interval (PI = -0.64-1.72). After removing two outliers, the effect size remained moderate ($g = 0.52$; 95% CI: 0.24-0.8; NNT = 6.17), heterogeneity remained high ($I^2 = 81$; 95% CI: 66-89), and the prediction interval remained broad (PI = -0.29-1.33).

The effect of psychological interventions for all outcomes was moderate to large ($g = 0.77$; 95% CI: 0.28-1.26; NNT = 3.88) with again high heterogeneity ($I^2 = 94$; 95% CI: 95-97). The prediction interval was repeatedly broad (PI = -2.07-3.62). When outliers were removed, the effect was moderate ($g = 0.52$; 95% CI: 0.34-0.7; NNT = 6.18) and heterogeneity high ($I^2 = 81$; 95% CI: 76-86). The prediction interval was broad (PI = -0.26-1.3) (for overview of all results see Table 2). See Figure 4, Figure 5 and Figure 6 for the forest plots of depression, anxiety and PTSD outcomes, respectively.

For anxiety outcomes, the Egger test of the intercept suggested significant funnel plot asymmetry ($p = .03$), thus indicating potential publication bias. After adjustment with the Duvall and Tweedie trim and fill procedure, the effect size dropped to ($g = 0$; 95% CI: -1.08-1.07) with high heterogeneity ($I^2 = 99$; 95% CI: 98-99). Additionally, limit meta-analysis method ($g = -0.35$; 95% CI: -1.76-1.06) and the selection model ($g = -0.14$; 95% CI: -2.15-1.87)

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highly decreased the effect size for the anxiety outcome; with high heterogeneity levels ($I^2 = 100$; 95% CI: NR and $I^2 = 99$; 95% CI: 99-100 respectively).

Similarly, Egger's test suggested significant funnel plot asymmetry ($p = .01$) for the combined anxiety, depression and PTSD outcomes. The Duvall and Tweedie trim and fill procedure adjusted the overall effect size to $g = 0.23$, resulting in low effect size with high heterogeneity ($I^2 = 98$, CI = NR). Additionally, limit meta-analysis method ($g = 0.05$; % CI: -0.68-0.77) and the selection model ($g = -2.34$; % CI: -5.37-0.69) highly decreased the effect size for the anxiety outcome; with high heterogeneity levels ($I^2 = 98$; 95% CI: NR and $I^2 = 100$; 95% CI: 99-100 respectively).

Ten studies reported results for follow-up measurements between 3 to 6 months. The combined effect size of psychological interventions in the follow-up assessments was high ($g = 0.91$; 95% CI: 0.15–1.68; NNT = 3.19) with high heterogeneity ($I^2 = 95$; 95% CI: 93-97) and a broad prediction interval (PI = -1.57-3.39). After removing two outliers, the effect size decreased but remained high ($g = 0.76$; 95% CI: 0.26–1.25; NNT = 3.97), heterogeneity remained high ($I^2 = 93$; 95% CI: 89-96) and the prediction interval remained high (PI = -0.71-2.22).

Subgroup Analysis

Subgroup analysis showed no significant differences in the effect sizes between CBT-based interventions and other interventions for depression ($p = 0.9$), anxiety ($p = 0.8$), or PTSD ($p = 0.6$). When comparing non-professional interventions and specialist-delivered interventions, there is a difference in their effect sizes for anxiety symptoms ($p = .005$), and no statistically significant difference for depression outcomes ($p = .3$) or PTSD outcomes ($p = .7$). The format of the psychological interventions created significant effect size differences only for the PTSD outcomes ($p = .020$), showing higher effect sizes for individual interventions than the group interventions. In terms of the PTSD outcomes, significant differences in effect

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sizes were found comparing interventions delivered to children younger than 13 and adolescents up to 18 years ($p < .001$), with the interventions for the adolescents showing larger effect sizes. Additionally, individual RCTs had significant larger effect sizes compared to the cluster RCTs for PTSD outcomes ($p < .001$). No other significant subgroup differences were observed.

Discussion

The aim of this meta-analysis was to examine the effectiveness of psychological interventions for children and adolescents with symptoms of depression, anxiety and PTSD in low- and middle-income countries. The search resulted in thirty-one trials with 6123 participants across twenty countries. In this meta-analysis, we included many recent studies that were not included in previous meta-analyses (i.e., Dorsey, 2020; Michelson, 2020; Osborn, 2021; Omkarappa, 2022). The results showed moderate effect sizes of psychological interventions for children and adolescents for all pooled outcomes compared to comparison conditions. Results showed a moderate effect on depression symptoms, moderate to high effect on anxiety symptoms and moderate effects on PTSD symptoms. Our results are in line with a previous meta-analysis that included thirteen studies, showing moderate effects in the treatment of depression (Uppendahl et al., 2020). However, one study including eleven RCTs on psychosocial support interventions in children exposed to traumatic events in LMICs found no significant effects of interventions for depression outcomes (Purgato et al., 2018). In their investigation of psychosocial interventions for children and adolescents in LMICs affected by mass violence; Morina, Malek, Nickerson, and Bryant (2017) concluded that depression symptoms had low effects across 21 studies they included. Our results were also in line with the previous findings proving that psychological interventions have beneficial effects in reducing PTSD symptoms (Jordans, Pigott & Tol, 2016; Purgato et al., 2018; Uppendahl et al., 2020; Morina et al., 2017, Gillies, Taylor, Gray, O'Brien & D'Abrew,

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2012). Even though non-significant, moderate to high effects of psychological interventions were observed for reducing anxiety symptoms. This contradicts previous research that failed to find a significant effect of focused psychosocial support interventions in reducing anxiety symptoms for children in low-resource settings (Purgato et al., 2018) or found small effects (Uppendahl et al., 2020). It should be noted though that we found a considerable risk of publication bias, especially for the anxiety outcomes. After adjusting for the bias, the effect size of the interventions decreased sharply, suggesting findings related to reductions in anxiety should be considered with caution.

An important point to consider for the included studies was the high levels of heterogeneity observed between the studies. This finding replicates the findings of studies in low-resource settings that high heterogeneity exists between in studies conducted in these settings (Yatham, et al., 2018; Purgato et al., 2018; Uppendahl et al., 2020). However, we should interpret the findings about the heterogeneity cautiously. There might be several reasons why I^2 levels can be inflated, such as the differences in treatments, population, designs, data analysis methods, or the number of studies included in the meta-analysis (von Hippel, 2015; Migliavaca, 2022). For this reason, using prediction intervals, rather than relying only on I^2 statistics, found to be more meaningful while talking about heterogeneity (Migliavaca, 2022).

To better understand the specific characteristics of the studies included and to explain heterogeneity between the studies, we ran several subgroup analyses. When all outcomes were combined, only the design of the study (RCT or cRCT) created a difference in the outcomes, with individually randomized studies showing stronger effects. cRCTs are used in public health and mental health research even though they might result in reduced statistical efficacy, due to several reasons such as their administrative efficiency, the fact that they reduce the risk of contamination, and improve participant compliance (Donner & Klar, 2004)

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3 or to minimize the contamination between the treatment and control groups (Magill, Knight,
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5 McCrone, Ismail & Landau, 2019). Even though there are studies discussing the strengths
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7 and weaknesses of cluster versus individual RCTs, studies comparing the effectiveness of
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9 different designs on mental health outcomes are limited. One recent meta-analysis found
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11 similar outcomes as this study, showing stronger effect sizes for the individual RCTs
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13 compared to the clustered level of randomizations (Uppendahl et al., 2020).
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17 Further, studies that included specialists for delivering the interventions had larger
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19 effect sizes in reducing anxiety symptoms than the non-specialist who delivered
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21 interventions. It is important to note that subgroup analysis do not demonstrate causality thus
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23 this difference should not be interpreted as specialist delivered interventions are more
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25 effective than the non-specialist delivered ones. Recent research has shown strong evidence
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27 that psychological interventions delivered by non-specialists with adequate training can be
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29 effective in reducing common mental health problems among adult populations (i.e., de Graaf
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31 et al., 2023). The research generally shows that effects of non-specialist delivered
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33 interventions are less strong than of specialist-delivered interventions (Karyotaki, et al., 2022)
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35 often targeting heightened levels of distress or symptoms as opposed to a specific disorder
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37 (Bryant et al., 2022; Osborn et al., 2021). The fact that they differ in content, duration and
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39 intensity, might make it difficult to make a distinction. Even though the effect is less, their
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41 public health benefit may still be higher since they reach larger number of children. More
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43 research is needed for children and adolescent populations.
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50 Additionally, subgroup analysis showed better outcomes for PTSD symptoms in
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52 adolescent samples than in children, and individual interventions were more effective in
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54 reducing PTSD symptoms than group interventions. A suggested explanation for they may be
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56 the difficulties of incorporating imaginary exposure techniques in group psychological
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58 interventions. It is possible that interventions targeting individuals rather than groups may
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1
2
3 have a higher capacity to incorporate exposure elements in the interventions, allowing for
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5 enough time important characteristics such as imaginal exposure which resulted in better
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7 outcomes for PTSD symptoms. Barrera, Mott, Hofstein, and Teng (2013) investigated the
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9 exposure in group context in their meta-analysis. In this study they summarized three main
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11 concerns about using exposure elements in group contexts; 1) vicarious traumatization of
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13 other group members; 2) comparisons between group members' own traumatic experiences
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15 with the others which doesn't create any benefit, and 3) limitations regarding the duration and
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17 length of sessions in group formats.
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22 Fortunately, the evidence base for child and adolescent psychological interventions in
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24 LMIC settings is growing. Risk of bias assessments of the included studies showed that more
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26 recent studies tended to have lower risk of bias. The main reason for an included study being
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28 considered to have high risk of bias in the current review was the inability to blind the
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30 assessors to the study conditions during the trial. The studies that failed to blind the assessors
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32 reported that they used the same people to deliver the interventions and do the assessments
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34 mostly due to trust issues. This suggests that apart from the need to increase availability of
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36 mental health professions in these settings, ensuring that the care provided is culturally
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38 informed and aware of how stigma and trust issues may impact services is imperative.
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43 To the best of our knowledge, this meta-analysis provided the most comprehensive
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45 overview of psychological interventions for children and adolescents residing in LMICs and
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47 included at least ten more studies than previous meta-analyses. Apart from the study's
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49 strengths, there are some limitations that should be addressed while interpreting the results.
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51 First, the high heterogeneity of the studies might question how much the findings can be
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53 generalized. We also wanted to analyze the follow-up effects of the interventions, but not all
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55 studies assessed outcomes in follow-up periods and the ones that did have mostly short-term
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57 follow-up periods (less than 6 months). This made it difficult to understand better the long-
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term effectiveness of psychological interventions for these outcomes. Additionally, in this meta-analysis, many trials posed low risk of bias - on the one hand this reflects a positive development in the field but at the same time it might pose a limitation. Low-risk studies have stricter inclusion criteria and better adherence to study protocols, which could lead to better outcomes compared to studies with higher risk of bias. Therefore, this situation might have underestimated the true treatment effect and limit the generalizability of the results.

Conclusion

Despite limitations, there is strong evidence for the positive effects of psychological interventions for depression, anxiety, and PTSD in children and adolescent populations of low- and middle-income settings. More high-quality research focusing on different modes of interventions including follow-up assessments to better understand the long-term implications on mental health outcomes should be available to contribute to the development of the countries' clinical practice and mental health policies.

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Key points:

- The prevalence of mental health problems among children and adolescents in low- and middle-income countries (LMICs) is high, and it is crucial to develop effective psychological interventions.

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- In this meta-analysis, we included 31 randomized controlled trials (RCTs) conducted in LMICs testing the effectiveness of psychological interventions compared to other comparison conditions on depression, anxiety, and post-traumatic stress-related symptoms in children and adolescents.
- We found strong evidence for the positive effects of psychological interventions for depression, anxiety, and PTSD symptoms in children and adolescent populations in LMIC settings.
- Future studies should explore different modes of psychological interventions that targets these symptoms and focus more on the long-term effectiveness of these interventions by including follow up assessments in different time points.

Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Appendix S1. Search strategy

Table S1. Characteristics of the Included Studies

Table S2. Effects of psychological interventions on depression, anxiety and PTSD

Figure S1. PRISMA flowchart for the inclusion of studies

Figure S2. Risk of bias assessment for individual RCTs

Figure S3. Risk of bias assessment for cluster trials

Figure S4. Forest plot of trials for depression outcome

Figure S5. Forest plot of trials for anxiety outcome

Figure S6. Forest plot of trials for PTSD outcome

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PSYCHOLOGICAL INTERVENTIONS FOR CHILDREN AND YOUTH IN LMICs

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Figure 1. Flowchart of the search and selection procedure of studies.

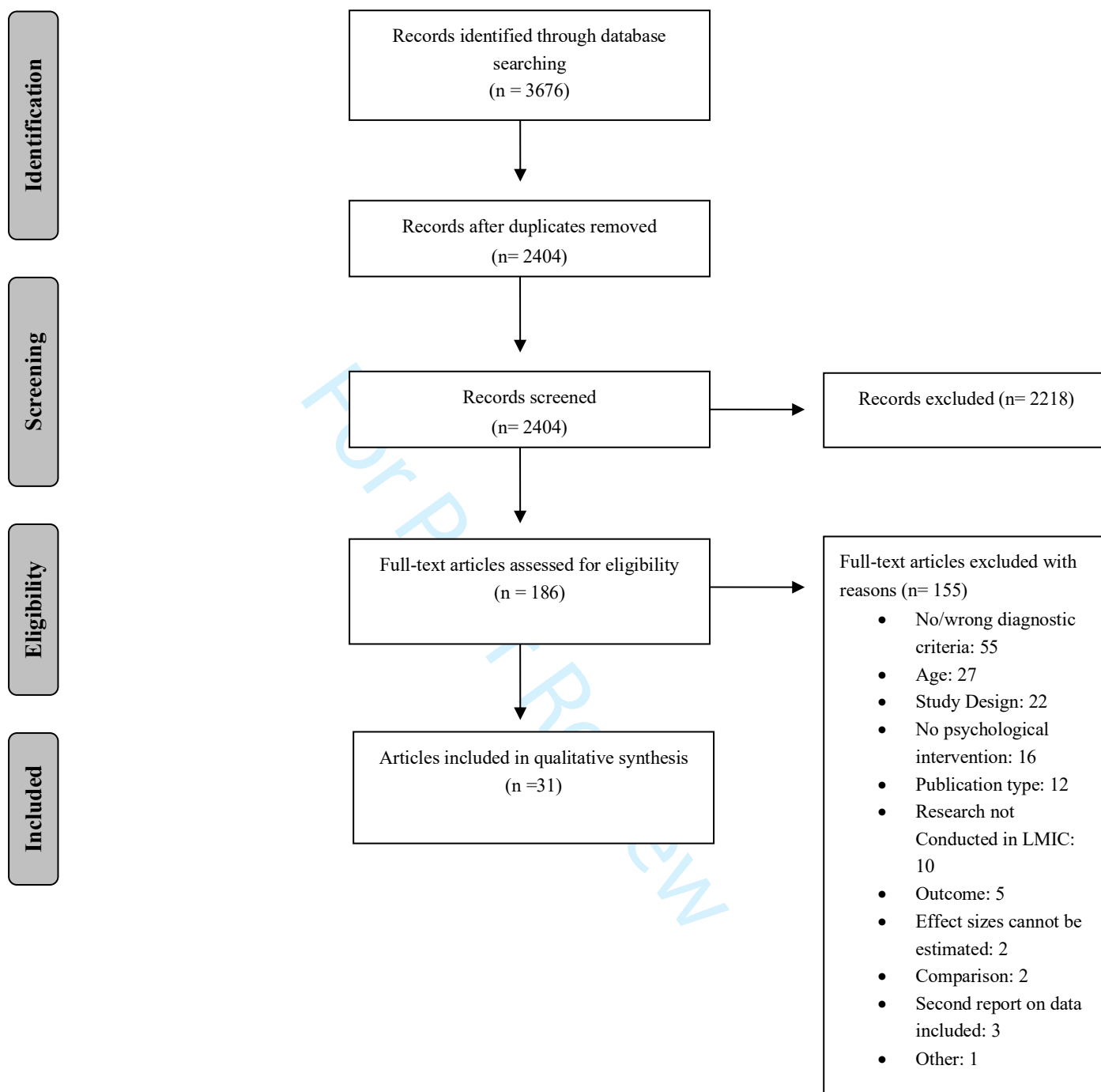


Table 1. Characteristics of the included studies.

First author, Year	N (% female)	Age mean	Outcomes (measures)	Intervention	Comparison group	Number of Sessions	Format	Country
Amin, 2020	76 (59)	14,85	Anxiety (LSAS-CA)	Guided Self Help	TAU	8	Individual	Pakistan
Are, 2021	40 (75)	15,27	Depression (BDI)	Teacher Delivered CBT	WL-Control	5	Group	Nigeria
Barron, 2016	154 (60)	13,51	Depression (DSRS), PTSD (CRIES-13)	Teaching Recovery Technique	WL-Control	5	Group	Palestine
Bella-Awusah, 2016	40 (70)	15,6	Depression (BDI, SMFQ)	School Based CBT	WL-Control	5	Group	Nigeria
Bolton, 2007	314 (57)	15,0	Depression (locally created instrument)	IPT	Creative Play, Control	16	Group	Uganda
Dorsey, 2020	640 (50)	10,6	PTSD (Child PTSD Symptom Scale)	TF-CBT	Usual Care	12 group +3-4 individual	Individual + group	Kenya & Tanzania
Egenti., 2019	155 (43)	14,35	Anxiety (SMGAD-C, LSAS-CA, SAS-A)	Music Therapy with CBT (MTCBT)	WL-Control	12	Group	Nigeria

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El-Khani, 2021	119 (85,7)	Range: 9 to 12	Depression (DSRS), Anxiety (SCARED), PTSD (CRIES-13)	Teaching Recovery Skills with Parenting Skills (TRT+P)	TRT, WL- Control	5 children + 5 parent sessions	Group	Lebanon																																					
Getanda, 2020	54 (59)	Range: 14 to 17	Depression (DSRS), PTSD (CRIES-13), Anxiety (RCMAS),	Writing for Recovery (WfR)	WL-Control	3	Individual	Kenya																																					
Gordon, 2008	82 (76)	16,3	PTSD (HTQ)	Mind Body Skills Group	WL-Control	12	Group	Kosovo																																					
Jacob, 2016	30 (100)	13,9	Depression (BDI-II, AADS, KADS-11)	Bibliotherapy	Control	8	Group	Philippines																																					
Jibunoh, 2021	40 (70)	14,55	Depression (SMFQ), Anxiety (SCAS)	Group-based Psychoeducation	WL-Control	3	Group	Nigeria																																					
Jordans, 2010	325 (49)	12,7	Depression (DSRS), Anxiety (SCARED- 5), PTSD (CPSS)	School Based Intervention	WL-Control	15	Group	Nepal																																					
Michelson, 2020	251 (30)	15,61	Anxiety (PSS)	Problem Solving Intervention	Control (distribution of printed PS Booklets)	4 to 5 sessions	Individual	India																																					
Murray, 2015	257 (50)	13,7	PTSD (PTSD-RI)	TF-CBT	TAU	NR	Individual	Zambia																																					

Salama, 2022	30 (37)	11,47	Anxiety (STAI-C)	Neurofeedback Training	CBT	Neurofeedback: 20, CBT: 8 to 12	Individual	Egypt
Simms, 2022	842 (55)	14,81	Depression (PHQ-9),	Zvandiri Program+Friendship Bench (Zvandiri+PST)	Zvandiri	6 (plus optional 6)	Individual + group	Zimbabwe
Srivastava, 2020	21 (24)	16,05	Depression (BDI-II, CDRS, CGI-S)	Smartteen (Computer Assisted CBT Intervention)	TAU	12	Computer assisted	India
Thabet, 2005	111 (46)	12,34	Depression (CDI), PTSD (CPTSD-RI)	Crisis Intervention	Teacher Education, Control	7	Group	Gaza Strip
Tol, 2008	403 (49)	10,2	Depression (DSRS), Anxiety (SCARED-5), PTSD (CPSS)	School-Based Intervention	WL-Control	15	Group	Indonesia
Tol, 2012	399 (39)	11,03	Depression (DSRS), Anxiety (SCARED-5), PTSD (CPSS)	School-Based Intervention	WL-Control	15	Group	Sri Lanka
Tol, 2014	329 (48)	12,29	Depression (DSRS), Anxiety (SCARED-5), PTSD (CPSS)	School-Based Intervention	WL-Control	15	Group	Burundi
Zafar, 2015	100 (50)	15,14	Depression (DASS-d), Anxiety (DASS-a)	Didactic Therapy	Control	6	Group	Pakistan

JCPP Risk of bias domains

		D1	D2	D3	D4	D5	Overall
1	Amin, 2020	+	+	+	+	+	+
2							
3	Are,2021	+	+	+	+	+	+
4							
5	Barron, 2016	+	+	+	+	+	+
6							
7	Bella-Awusah, 2016	+	+	+	+	+	+
8							
9	Bolton, 2007	+	+	+	+	+	+
10							
11	Dorsey, 2020	-	+	+	+	+	-
12							
13	Egenti, 2019	+	+	+	+	+	+
14							
15	El-Khani,	+	+	+	+	+	+
16							
17	Getanda, 2020	+	-	+	-	+	-
18							
19	Gordon, 2008	+	+	+	-	+	-
20							
21	Jacob, 2016	+	X	X	-	-	X
22							
23	Jibunoh, 2021	+	+	+	+	+	+
24							
25	Michelson, 2020	+	+	+	+	+	+
26							
27	Murray, 2015	+	+	+	+	+	+
28							
29	Obiweluozo, 2021	+	+	+	+	+	+
30							
31	Omkarappa, 2022	+	-	+	+	+	-
32							
33	Osborn, 2020	+	+	+	+	+	+
34							
35	Osborn, 2021	+	+	+	+	+	+
36							
37	Ramdhonee-Dowlot, 2021	+	+	+	+	+	+
38							
39	Rentala, 2019a	+	+	+	+	+	+
40							
41	Rentala, 2019b	+	-	+	+	+	-
42							
43	Rossouw, 2020	+	+	+	+	+	+
44							
45	Salama, 2022	+	+	+	+	+	+
46							
47	Srivastava, 2020	+	+	+	+	+	+
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49	Zafar, 2015	-	+	+	+	-	-
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Study

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.

Judgement

High

Some concerns

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		Risk of bias domains						
		D1	D1b	D2	D3	D4	D5	Overall
Study	Jordans, 2010	+	+	+	+	+	+	+
	Obiweluozo, 2021	+	+	+	+	+	+	+
	Simms, 2022	+	+	+	+	X	+	X
	Thabet, 2005	X	X	+	+	+	+	X
	Tol, 2008	+	+	+	+	X	+	X
	Tol, 2012	+	+	-	+	+	+	-
	Tol, 2014	-	+	+	+	X	+	X

Domains:

- D1 : Bias arising from the randomization process.
- D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
- 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.

Judgement

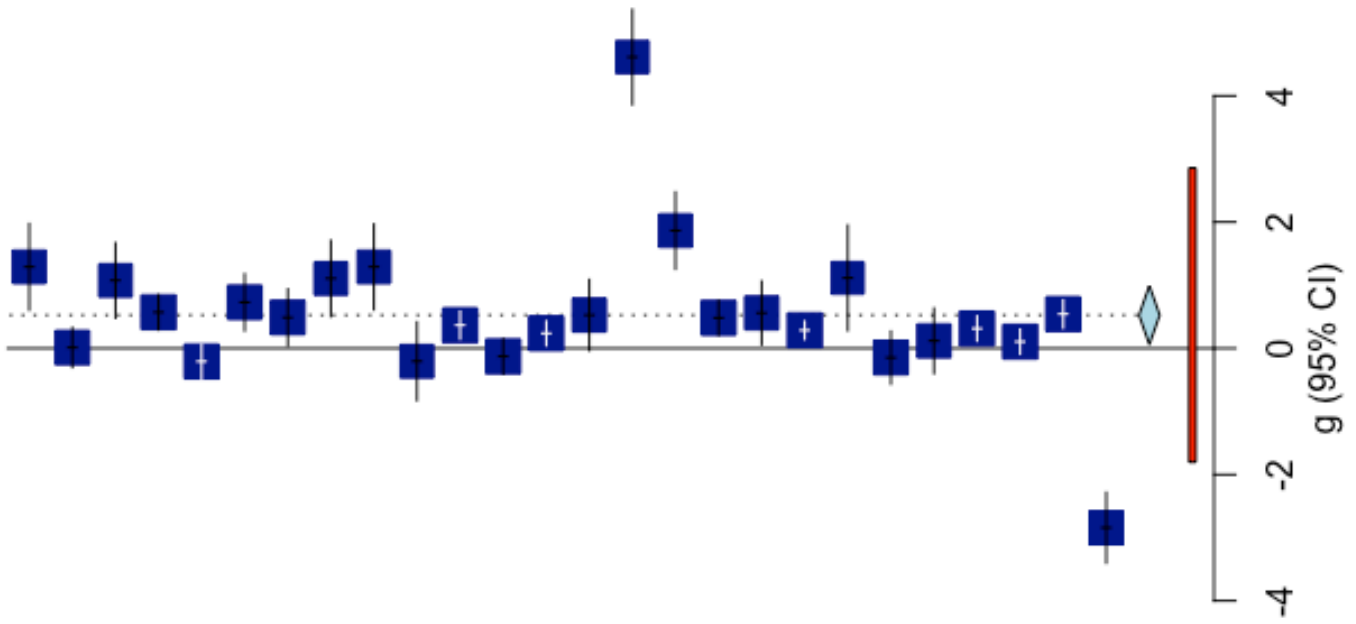
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Table 2. Effects of psychological interventions on depression, anxiety and PTSD.

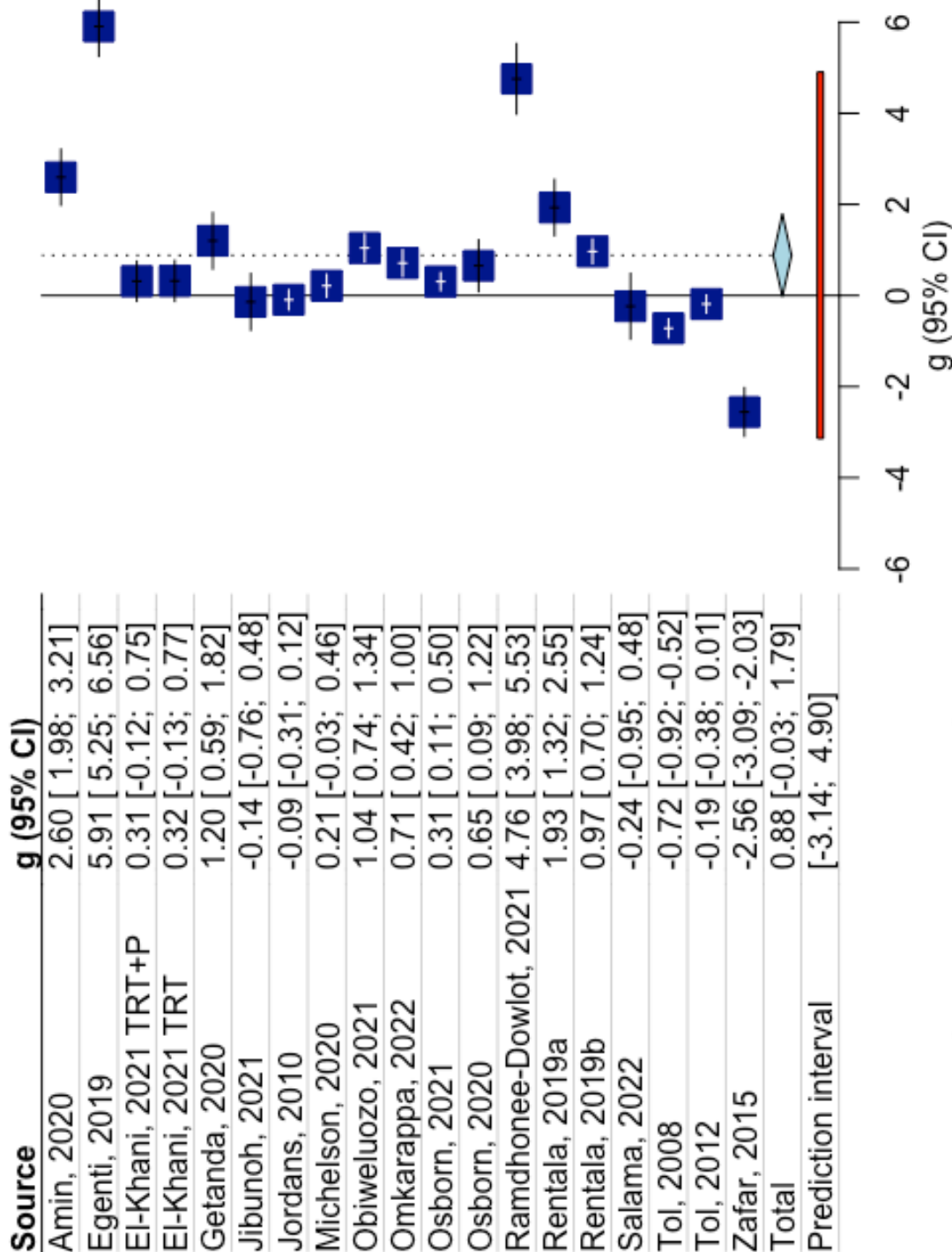
Depression								
<i>Outcomes</i>	<i>k</i>	<i>g</i>	CI	<i>p</i>	<i>I</i> ²	CI	PI	NNT
All comparisons (effect sizes combined)	26	0.62	0.22-1.02	0.22-1.02	92.06	89.8-93.82	-1.54-2.78	5.02
All studies (effect sizes combined)	26	0.53	0.06-0.99	0.029	93.05	90.95-94.66	-1.8-2.86	6.09
Three-Level Model (CHE)	26	0.57	0.05-1.08	0.032	97.90		-1.88-3.01	5.60
One effect size per study (lowest)	23	0.52	-0.01-1.05	0.054	93.62	91.61-93.15	-1.99-3.04	6.13
One effect size per study (highest)	23	0.60	0.07-1.13	0.028	93.49	91.61-95.06	-1.9-3.1	5.20
Outliers removed	23	0.39	0.21-0.58	<0.001	74.63	61.91-83.11	-0.33-1.12	8.50
Influence Analysis	24	0.46	0.25-0.68	<0.001	79.44	70.06-85.88	-0.46-1.38	7.10
Only RoB > 3	15	0.84	0.2-1.48	0.014	92.70	89.58-94.89	-1.62-3.31	3.50
Anxiety								
<i>Outcomes</i>	<i>k</i>	<i>g</i>	CI	<i>p</i>	<i>I</i> ²	CI	PI	NNT
All comparisons (effect sizes combined)	23	1.51	0.44-2.59	0.008	98.45	98.15-98.7	-3.7-6.73	1.85
All studies (effect sizes combined)	19	0.88	-0.03-1.79	0.056	97.77	97.23-98.21	-3.14-4.9	3.32
Three-Level Model (CHE)	23	1.07	0-2.14	0.049	99.30		-3.54-5.68	2.65
One effect size per study (lowest)	18	0.86	-0.09-1.82	0.072	97.59	96.97-98.09	-3.24-4.97	3.40
One effect size per study (highest)	18	1.19	0.03-2.35	0.045	98.27	97.87-98.59	-3.82-6.2	2.36
Outliers removed	14	0.49	0.14-0.84	0.010	90.13	85.21-93.41	-0.75-1.73	6.62
Influence Analysis	18	0.60	-0.13-1.34	0.103	96.72	95.78-97.46	-2.55-3.75	5.20
Only RoB > 3	13	1.34	0.16-2.52	0.029	97.62	96.87-98.18	-0.53-5.67	2.66

PTSD								
<i>Outcomes</i>	<i>k</i>	<i>g</i>	CI	<i>p</i>	<i>I</i> ²	CI	PI	NNT
All comparisons (effect sizes combined)	12	0.54	0.19-0.9	0.007	89.3	83.23; 93.17		5.86
All studies (effect sizes combined)	12	0.54	0.19-0.9	0.007	89.3	83.23; 93.17		5.86
Three-Level Model (CHE)	12	0.58	0.22-0.95	0.005	93.40	-		5.42
One effect size per study (lowest)	11	0.58	0.18-0.97	0.008	90.18	84.46-93.17	-0.68-1.83	5.48
One effect size per study (highest)	11	0.59	0.22-.097	0.005	89.89	83.94-93.64	-0.59-1.78	5.27
Outliers removed	10	0.52	0.24-0.8	0.002	81.20	66.48-89.46	-0.29-1.33	6.17
Influence Analysis	12	0.54	0.19-0.9	0.007	89.29	83..23093.17	-0.64-1.72	5.86
Only RoB > 3	4	0.68	0.04-1.33	0.044	90	77.31-95.59	-1.22-2.59	4.47
Three Outcomes Combined								
<i>Outcomes</i>	<i>k</i>	<i>g</i>	CI	<i>p</i>	<i>I</i> ²	CI	PI	NNT
All comparisons (effect sizes combined)	66	0.92	0.51-1.34	<0.001	96.60	96.12-97.02	-2.39-4.24	3.15
All studies (effect sizes combined)	34	0.77	0.28-1.26	0.003	94.04	95.2-96.74	-2.07-3.62	3.88
Three-Level Model (CHE)	66	0.90	0.32-1.47	0.003	99		-2.31-4.1	3.26
One effect size per study (lowest)	31	0.67	0.12-1.23	0.018	96.35	95.55-97	-2.38-3.73	4.55
One effect size per study (highest)	31	1.14	0.5-1.77	<0.001	96.44	95.67-97.07	-2.35-4.63	2.49
Outliers removed	26	0.52	0.34-0.7	<0.001	80.72	75.52-86.47	-0.26-1.3	6.18
Influence Analysis	32	0.49	0.18-0.8	0.003	92.27	90.13-93.95	-1.18-2.16	6.62
Only RoB > 3	21	1.12	0.42-1.82	0.003	95.56	95.64-97.29	-2.12-4.36	2.53

Source	g (95% CI)
Are, 2021	1.29 [0.61; 1.97]
Barron, 2016	0.01 [-0.30; 0.33]
Bella-Awusah, 2016	1.08 [0.48; 1.67]
Bolton, 2007 IPT	0.57 [0.29; 0.85]
Bolton, 2007 Creative Play	-0.21 [-0.48; 0.06]
EI-Khani, 2021 TRT+P	0.73 [0.28; 1.18]
EI-Khani, 2021 TRT	0.49 [0.04; 0.94]
Getanda, 2020	1.11 [0.50; 1.71]
Jacob, 2016	1.29 [0.61; 1.97]
Jibunoh, 2021	-0.21 [-0.83; 0.42]
Jordans, 2010	0.37 [0.15; 0.59]
Omkarappa, 2022	-0.13 [-0.41; 0.15]
Osborn, 2021	0.24 [0.04; 0.43]
Osborn, 2020	0.53 [-0.03; 1.09]
Ramdhonee-Dowlot, 2021	4.61 [3.86; 5.37]
Rentala, 2019a	1.86 [1.26; 2.47]
Rentala, 2019b	0.48 [0.21; 0.76]
Rossouw, 2020	0.56 [0.06; 1.06]
Simms, 2022	0.29 [0.14; 0.43]
Srivastava, 2020	1.12 [0.28; 1.95]
Thabet, 2005 Crisis Intervention	-0.15 [-0.56; 0.27]
Thabet, 2005 Teacher education	0.12 [-0.40; 0.63]
Tol, 2008	0.31 [0.12; 0.51]
Tol, 2012	0.10 [-0.09; 0.30]
Tol, 2014	0.54 [0.32; 0.76]
Zafar, 2015	-2.84 [-3.40; -2.28]
Total	0.53 [0.06; 0.99]
Prediction interval	[-1.80; 2.86]



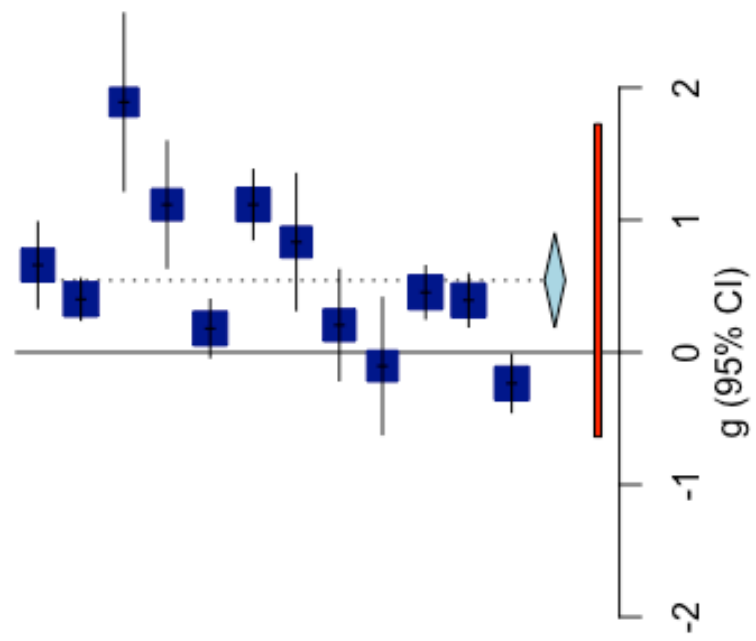
Heterogeneity: $\chi^2_{25} = 359.61$ ($P < .001$), $I^2 = 93\%$



Heterogeneity: $\chi^2_{18} = 807.22 (P < .001)$, $I^2 = 98\%$

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Source	g (95% CI)
Barron, 2016	0.66 [0.33; 0.98]
Dorsey, 2020	0.40 [0.24; 0.56]
Getanda, 2020	1.89 [1.22; 2.56]
Gordon, 2008	1.12 [0.64; 1.59]
Jordans, 2010	0.18 [-0.04; 0.40]
Murray, 2015	1.12 [0.85; 1.38]
Rossouw, 2020	0.83 [0.32; 1.35]
Thabet, 2005 Crisis Intervention	0.21 [-0.21; 0.62]
Thabet, 2005 Teacher education	-0.10 [-0.62; 0.41]
Tol, 2008	0.45 [0.25; 0.65]
Tol, 2012	0.39 [0.19; 0.59]
Tol, 2014	-0.24 [-0.45; -0.02]
Total	0.54 [0.19; 0.90]
Prediction interval	[-0.64; 1.72]



Heterogeneity: $\chi^2_{11} = 102.74$ ($P < .001$), $I^2 = 89\%$

Supplementary material

PubMed Session Results (23 Jun 2022)

Search	Query	Items found
#5	#1 AND #2 AND #3 AND #4	1,512
#4	"clinical trial*" [tw] OR "controlled trial*" [tw] OR random* [tw] OR "psycho-social intervention*" [tiab] OR "psychosocial intervention*" [tiab] OR "psychological intervention*" [tiab] OR "psychologic intervention*" [tiab]	2,277,721
#3	child* [tw] OR adolescen* [tw] OR pediatric* [tw] OR paediatric* [tw] OR pube* [tw] OR juvenil* [tw] OR youngster* [tiab] OR kid [tiab] OR kids [tiab] OR prepube* [tiab] OR preadolescen* [tiab] OR young people* [tiab] OR minors [tiab] OR youth* [tiab] OR teen [tiab] OR teens [tiab] OR teenager* [tiab]	3,999,126
#2	"Anxiety Disorders" [Mesh] OR "Trauma and Stressor Related Disorders" [Mesh] OR "Depressive Disorder" [Mesh] OR "Depression" [Mesh] OR "Panic" [Mesh] OR "Mutism" [Mesh] OR anxiety [tiab] OR panic [tiab] OR phobic [tiab] OR phobia [tiab] OR stressor [tiab] OR "post-traumatic" [tiab] OR posttraumatic [tiab] OR "traumatic stress" [tiab] OR "psychological trauma*" [tiab] OR depress* [tiab] OR dysthymi* [tiab] OR dysthimi* [tiab] OR dysphori* [tiab] OR "selective mutism*" [tiab] OR "elective mutism*" [tiab]	816,297
#1	"Developing Countries" [Mesh] OR "developing countr*" [tiab] OR "developing nation*" [tiab] OR "developing population*" [tiab] OR "developing econom*" [tiab] OR "undeveloped countr*" [tiab] OR "undeveloped nation*" [tiab] OR "undeveloped economy" [tiab] OR "undeveloped economies" [tiab] OR "least developed countr*" [tiab] OR "least developed nation*" [tiab] OR "least developed economy" [tiab] OR "least developed economies" [tiab] OR "less-developed countr*" [tiab] OR "less-developed nation*" [tiab] OR "less-developed population" [tiab] OR "less-developed populations" [tiab] OR "less-developed econom*" [tiab] OR "lesser developed countr*" [tiab] OR "lesser developed nation*" [tiab] OR "lesser developed population" [tiab] OR "lesser developed populations" [tiab] OR "lesser developed economy" [tiab] OR "lesser developed economies" [tiab] OR "under-developed countr*" [tiab] OR "under-developed nation*" [tiab] OR "underdeveloped countr*" [tiab] OR "underdeveloped nation*" [tiab] OR "underdeveloped population*" [tiab] OR "underdeveloped econom*" [tiab] OR "low income countr*" [tiab] OR "middle income countr*" [tiab] OR "low income nation*" [tiab] OR "middle income nation*" [tiab] OR "low income population*" [tiab] OR "middle income population*" [tiab] OR "low income econom*" [tiab] OR "middle income econom*" [tiab] OR "lower income countr*" [tiab] OR "lower income nation*" [tiab] OR "lower income population*" [tiab] OR "lower income economy" [tiab] OR "lower income	1,167,503

Search	Query	Items found
	<p>economies"[tiab] OR "resource limited"[tiab] OR "low resource countr*"[tiab] OR "lower resource countr*"[tiab] OR "low resource nation*"[tiab] OR "low resource population*"[tiab] OR "low resource economy"[tiab] OR "low resource economies"[tiab] OR "underserved countr*"[tiab] OR "underserved nation*"[tiab] OR "underserved population*"[tiab] OR "underserved economy"[tiab] OR "underserved economies"[tiab] OR "under-served country"[tiab] OR "under-served countries"[tiab] OR "under-served nation"[tiab] OR "under-served nations"[tiab] OR "under-served population"[tiab] OR "under-served populations"[tiab] OR "underserved economy"[tiab] OR "underserved economies"[tiab] OR "deprived country"[tiab] OR "deprived countries"[tiab] OR "deprived nation"[tiab] OR "deprived nations"[tiab] OR "deprived population"[tiab] OR "deprived populations"[tiab] OR "deprived economy"[tiab] OR "deprived economies"[tiab] OR "poor countr*"[tiab] OR "poor nation*"[tiab] OR "poor population*"[tiab] OR "poor econom*"[tiab] OR "poorer countr*"[tiab] OR "poorer nation*"[tiab] OR "poorer population*"[tiab] OR "poorer econom*"[tiab] OR "Imic"[tiab] OR "Imics"[tiab] OR "lami"[tiab] OR "transitional countr*"[tiab] OR "transitional nation"[tiab] OR "transitional nations"[tiab] OR "transitional econom*"[tiab] OR "transition countr*"[tiab] OR "transition nation*"[tiab] OR "transition econom*"[tiab] OR "low resource setting*"[tiab] OR "lower resource setting*"[tiab] OR "middle resource setting*"[tiab] OR "Third World*"[tiab] OR "south east asia*"[tw] OR "middle east*"[tw] OR "Afghan*"[tw] OR "Angola*"[tw] OR "Angolese*"[tw] OR "Angolian*"[tw] OR "Armenia*"[tw] OR "Bangladesh*"[tw] OR "Benin*"[tw] OR "Bhutan*"[tw] OR "Birma*"[tw] OR "Burma*"[tw] OR "Birmese*"[tw] OR "Burmese*"[tw] OR "Boliv*"[tw] OR "Botswan*"[tw] OR "burkina Faso*"[tw] OR "Burundi*"[tw] OR "Cabo Verde*"[tw] OR "Cambod*"[tw] OR "Cameroon*"[tw] OR "Cape Verd*"[tw] OR "Central Africa*"[tw] OR "Chad"[tw] OR "Comoro*"[tw] OR "Congo*"[tw] OR "Cote d'Ivoire*"[tw] OR "Djibouti*"[tw] OR "East Africa*"[tw] OR "Eastern Africa*"[tw] OR "Egypt*"[tw] OR "El Salvador*"[tw] OR "Equatorial Guinea*"[tw] OR "Eritre*"[tw] OR "Ethiopia*"[tw] OR "Gabon*"[tw] OR "Gambia*"[tw] OR "Gaza*"[tw] OR "Georgia (Republic)"[Mesh] OR "Ghan*"[tw] OR "Guatemala*"[tw] OR "Guinea"[tw] OR "Haiti*"[tw] OR "Hondur*"[tw] OR "India*"[tw] OR "Indones*"[tw] OR "Ivory Coast*"[tw] OR "Kenya*"[tw] OR "Kiribati*"[tw] OR "Kosovo*"[tw] OR "Kyrgyz*"[tw] OR "Lao PDR*"[tw] OR "Laos*"[tw] OR "Lesotho*"[tw] OR "Liberia*"[tw] OR "Madagascar*"[tw] OR "Malaw*"[tw] OR "Mali"[tw] OR "Mauritan*"[tw] OR "Mauriti*"[tw] OR "Micronesi*"[tw] OR "Mocambiqu*"[tw] OR "Moldov*"[tw] OR "Mongolia*"[tw] OR "Morocc*"[tw] OR "Mozambiqu*"[tw] OR "Myanmar*"[tw] OR "Namibia*"[tw] OR "Nepal*"[tw] OR "Nicaragua*"[tw] OR "Niger*"[tw] OR "North Korea*"[tw] OR "Northern Korea*"[tw] OR ("Democratic"[tiab] AND "People*"[tiab] AND "Republic of Korea"[tiab]) OR</p>	

Search	Query	Items found
	"Democratic People's Republic of Korea"[Mesh] OR "Pakistan*"[tw] OR "Papua New Guinea*"[tw] OR "Philippine*"[tw] OR "Principe"[tw] OR "Rhodesia*"[tw] OR "Rwanda*"[tw] OR "Samoa*"[tw] OR "Sao Tome*"[tw] OR "Senegal*"[tw] OR "Sierra Leone*"[tw] OR "Solomon Islands*"[tw] OR "Somalia*"[tw] OR "South Africa*"[tw] OR "South Sudan*"[tw] OR "Southern Africa*"[tw] OR "Sri Lanka*"[tw] OR "Sub Saharan Africa*"[tw] OR "Subsaharan Africa*"[tw] OR "Sudan*"[tw] OR "Swaziland*"[tw] OR "Syria*"[tw] OR "Tajikist*"[tw] OR "Tanzan*"[tw] OR "Timor*"[tw] OR "Togo*"[tw] OR "Tonga*"[tw] OR "Tunis*"[tw] OR "Ugand*"[tw] OR "Ukrain*"[tw] OR "Uzbekistan*"[tw] OR "Vanuatu*"[tw] OR "Vietnam*"[tw] OR "West Africa*"[tw] OR "West Bank*"[tw] OR "Western Africa*"[tw] OR "Yemen*"[tw] OR "Zaire*"[tw] OR "Zambia*"[tw] OR "Zimbabw*"[tw]	

Embase.com Session Results (23 Jun 2022)

Search	Query	Items found
#5	#1 AND #2 AND #3 AND #4	1,763
#4	'clinical trial'/exp OR 'clinical trial*':ab,ti,kw OR 'controlled trial*':ab,ti,kw OR random*':ab,ti,kw OR 'psychosocial intervention*':ab,ti,kw OR 'psycho-social intervention*':ab,ti,kw OR 'psychological intervention*':ab,ti,kw OR 'psychologic intervention*':ab,ti,kw	3,145,084
#3	'child'/de OR 'adolescent'/de OR child*':ab,ti,kw OR adolescen*':ab,ti,kw OR pediatric*':ab,ti,kw OR paediatric*':ab,ti,kw OR pube*':ab,ti,kw OR juvenil*':ab,ti,kw OR youngster*':ab,ti,kw OR kid:ab,ti,kw OR kids:ab,ti,kw OR prepube*':ab,ti,kw OR preadolescen*':ab,ti,kw OR 'young people*':ab,ti,kw OR minors:ab,ti,kw OR youth*':ab,ti,kw OR teen:ab,ti,kw OR teens:ab,ti,kw OR teenager*':ab,ti,kw	4,179,894
#2	'anxiety disorder'/exp OR 'depression'/exp OR 'selective mutism'/exp OR anxiety:ab,ti,kw OR panic:ab,ti,kw OR phobic:ab,ti,kw OR phobia:ab,ti,kw OR stressor:ab,ti,kw OR 'post-traumatic':ab,ti,kw OR posttraumatic:ab,ti,kw OR 'traumatic stress':ab,ti,kw OR 'psychological trauma*':ab,ti,kw OR depress*':ab,ti,kw OR dysthymi*':ab,ti,kw OR dysthimi*':ab,ti,kw OR dysphori*':ab,ti,kw OR 'selective mutism*':ab,ti,kw OR 'elective mutism*':ab,ti,kw	1,254,266
#1	'developing country'/exp OR 'low income country'/exp OR 'middle income country'/exp OR 'developing countr*':ab,ti,kw OR 'developing nation*':ab,ti,kw OR 'developing population*':ab,ti,kw OR 'developing econom*':ab,ti,kw OR	1,438,878

Search	Query	Items found
	'undeveloped countr*':ab,ti,kw OR 'undeveloped nation*':ab,ti,kw OR 'undeveloped econom*':ab,ti,kw OR 'least developed countr*':ab,ti,kw OR 'least developed nation*':ab,ti,kw OR 'least developed econom*':ab,ti,kw OR 'less-developed countr*':ab,ti,kw OR 'less-developed nation*':ab,ti,kw OR 'less-developed population*':ab,ti,kw OR 'less-developed econom*':ab,ti,kw OR 'lesser developed countr*':ab,ti,kw OR 'lesser developed nation*':ab,ti,kw OR 'lesser developed population*':ab,ti,kw OR 'lesser developed econom*':ab,ti,kw OR 'under-developed countr*':ab,ti,kw OR 'under-developed nation*':ab,ti,kw OR 'underdeveloped countr*':ab,ti,kw OR 'underdeveloped nation*':ab,ti,kw OR 'underdeveloped population*':ab,ti,kw OR 'underdeveloped econom*':ab,ti,kw OR 'low income countr*':ab,ti,kw OR 'middle income countr*':ab,ti,kw OR 'low income nation*':ab,ti,kw OR 'middle income nation*':ab,ti,kw OR 'low income population*':ab,ti,kw OR 'middle income population*':ab,ti,kw OR 'low income econom*':ab,ti,kw OR 'middle income econom*':ab,ti,kw OR 'lower income countr*':ab,ti,kw OR 'lower income nation*':ab,ti,kw OR 'lower income population*':ab,ti,kw OR 'lower income econom*':ab,ti,kw OR 'resource limited':ab,ti,kw OR 'low resource countr*':ab,ti,kw OR 'lower resource countr*':ab,ti,kw OR 'low resource nation*':ab,ti,kw OR 'low resource population*':ab,ti,kw OR 'low resource econom*':ab,ti,kw OR 'underserved countr*':ab,ti,kw OR 'underserved nation*':ab,ti,kw OR 'underserved population*':ab,ti,kw OR 'underserved econom*':ab,ti,kw OR 'under-served countr*':ab,ti,kw OR 'under-served nation*':ab,ti,kw OR 'under-served population*':ab,ti,kw OR 'underserved econom*':ab,ti,kw OR 'deprived countr*':ab,ti,kw OR 'deprived nation*':ab,ti,kw OR 'deprived population*':ab,ti,kw OR 'deprived econom*':ab,ti,kw OR 'poor countr*':ab,ti,kw OR 'poor nation*':ab,ti,kw OR 'poor population*':ab,ti,kw OR 'poor econom*':ab,ti,kw OR 'poorer countr*':ab,ti,kw OR 'poorer nation*':ab,ti,kw OR 'poorer population*':ab,ti,kw OR 'poorer econom*':ab,ti,kw OR lmic:ab,ti,kw OR lmics:ab,ti,kw OR lami:ab,ti,kw OR 'transitional countr*':ab,ti,kw OR 'transitional nation*':ab,ti,kw OR 'transitional econom*':ab,ti,kw OR 'transition countr*':ab,ti,kw OR 'transition nation*':ab,ti,kw OR 'transition econom*':ab,ti,kw OR 'low resource setting*':ab,ti,kw OR 'lower resource setting*':ab,ti,kw OR 'middle resource setting*':ab,ti,kw OR 'Third World*':ab,ti,kw OR 'south east asia*':ab,ti,kw,de OR 'middle east*':ab,ti,kw,de OR Afghan*:ab,ti,kw,de OR Angola*:ab,ti,kw,de OR Angolese*:ab,ti,kw,de OR Angolian*:ab,ti,kw,de OR Armenia*:ab,ti,kw,de OR Bangladesh*:ab,ti,kw,de OR Benin*:ab,ti,kw,de OR Bhutan*:ab,ti,kw,de OR Birma*:ab,ti,kw,de OR Burma*:ab,ti,kw,de OR Birmese*:ab,ti,kw,de OR Burmese*:ab,ti,kw,de OR	

Search	Query	Items found
	Boliv*:ab,ti,kw,de OR Botswan*:ab,ti,kw,de OR 'Burkina Faso*':ab,ti,kw,de OR Burundi*:ab,ti,kw,de OR 'Cabo Verde*':ab,ti,kw,de OR Cambod*:ab,ti,kw,de OR Cameroon*:ab,ti,kw,de OR 'Cape Verd*':ab,ti,kw,de OR 'Central Africa*':ab,ti,kw,de OR Chad:ab,ti,kw,de OR Comoro*:ab,ti,kw,de OR Congo*:ab,ti,kw,de OR 'Cote d Ivoire*':ab,ti,kw,de OR Djibouti*:ab,ti,kw,de OR 'East Africa*':ab,ti,kw,de OR 'Eastern Africa*':ab,ti,kw,de OR Egypt*:ab,ti,kw,de OR 'El Salvador*':ab,ti,kw,de OR 'Equatorial Guinea*':ab,ti,kw,de OR Eritre*:ab,ti,kw,de OR Ethiopia*:ab,ti,kw,de OR Gabon*:ab,ti,kw,de OR Gambia*:ab,ti,kw,de OR Gaza*:ab,ti,kw,de OR 'Georgia (republic)'/exp OR Ghan*:ab,ti,kw,de OR Guatemal*:ab,ti,kw,de OR Guinea:ab,ti,kw,de OR Haiti*:ab,ti,kw,de OR Hondur*:ab,ti,kw,de OR India*:ab,ti,kw,de OR Indones*:ab,ti,kw,de OR 'Ivory Coast*':ab,ti,kw,de OR Kenya*:ab,ti,kw,de OR Kiribati*:ab,ti,kw,de OR Kosovo*:ab,ti,kw,de OR Kyrgyz*:ab,ti,kw,de OR 'Lao PDR*':ab,ti,kw,de OR Laos*:ab,ti,kw,de OR Lesotho*:ab,ti,kw,de OR Liberia*:ab,ti,kw,de OR Madagascar*:ab,ti,kw,de OR Malaw*:ab,ti,kw,de OR Mali:ab,ti,kw,de OR Mauritan*:ab,ti,kw,de OR Mauriti*:ab,ti,kw,de OR Micronesi*:ab,ti,kw,de OR Mocambiqu*:ab,ti,kw,de OR Moldov*:ab,ti,kw,de OR Mongolia*:ab,ti,kw,de OR Morocc*:ab,ti,kw,de OR Mozambiqu*:ab,ti,kw,de OR Myanmar*:ab,ti,kw,de OR Namibia*:ab,ti,kw,de OR Nepal*:ab,ti,kw,de OR Nicaragua*:ab,ti,kw,de OR Niger*:ab,ti,kw,de OR 'North Korea*':ab,ti,kw,de OR 'Northern Korea*':ab,ti,kw,de OR (Democratic:ab,ti,kw,de AND People*:ab,ti,kw,de AND 'Republic of Korea':ab,ti,kw,de) OR Pakistan*:ab,ti,kw,de OR 'Papua New Guinea*':ab,ti,kw,de OR Philippine*:ab,ti,kw,de OR Principe:ab,ti,kw,de OR Rhodesia*:ab,ti,kw,de OR Rwanda*:ab,ti,kw,de OR Samoa*:ab,ti,kw,de OR 'Sao Tome*':ab,ti,kw,de OR Senegal*:ab,ti,kw,de OR 'Sierra Leone*':ab,ti,kw,de OR 'Solomon Islands*':ab,ti,kw,de OR Somalia*:ab,ti,kw,de OR 'South Africa*':ab,ti,kw,de OR 'South Sudan*':ab,ti,kw,de OR 'Southern Africa*':ab,ti,kw,de OR 'Sri Lanka*':ab,ti,kw,de OR 'Sub Saharan Africa*':ab,ti,kw,de OR 'Subsaharan Africa*':ab,ti,kw,de OR Sudan*:ab,ti,kw,de OR Swaziland*:ab,ti,kw,de OR Syria*:ab,ti,kw,de OR Tajikist*:ab,ti,kw,de OR Tanzan*:ab,ti,kw,de OR Timor*:ab,ti,kw,de OR Togo*:ab,ti,kw,de OR Tonga*:ab,ti,kw,de OR Tunis*:ab,ti,kw,de OR Ugand*:ab,ti,kw,de OR Ukrain*:ab,ti,kw,de OR Uzbekistan*:ab,ti,kw,de OR Vanuatu*:ab,ti,kw,de OR Vietnam*:ab,ti,kw,de OR 'West Africa*':ab,ti,kw,de OR 'West Bank*':ab,ti,kw,de OR 'Western Africa*':ab,ti,kw,de OR	

Search	Query	Items found
	Yemen*:ab,ti,kw,de OR Zaire*:ab,ti,kw,de OR Zambia*:ab,ti,kw,de OR Zimbabw*:ab,ti,kw,de	

EBSCO / PsycINFO Session Results (23 Jun 2022)

Search	Query	Items found
S7	S1 AND S2 AND S5 AND S6	401
S6	DE "Clinical Trials" OR DE "Random Sampling" OR TI ("clinical trial*" OR "controlled trial*" OR random* OR "psycho-social intervention*" OR "psychosocial intervention*" OR "psychological intervention*" OR "psychologic intervention*") OR AB ("clinical trial*" OR "controlled trial*" OR random* OR "psycho-social intervention*" OR "psychosocial intervention*" OR "psychological intervention*" OR "psychologic intervention*") OR KW ("clinical trial*" OR "controlled trial*" OR random* OR "psycho-social intervention*" OR "psychosocial intervention*" OR "psychological intervention*" OR "psychologic intervention*")	264,911
S5	S3 OR S4	1,242,891
S4	Limiters - Age Groups: Preschool Age (2-5 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs)	709,232
S3	TI (child* OR adolescen* OR pediatric* OR paediatric* OR pube* OR juvenil* OR youngster* OR kid OR kids OR prepube* OR preadolescen* OR "young people*" OR minors OR youth* OR teen OR teens OR teenager*) OR AB (child* OR adolescen* OR pediatric* OR paediatric* OR pube* OR juvenil* OR youngster* OR kid OR kids OR prepube* OR preadolescen* OR "young people*" OR minors OR youth* OR teen OR teens OR teenager*) OR KW (child* OR adolescen* OR pediatric* OR paediatric* OR pube* OR juvenil* OR youngster* OR kid OR kids OR prepube* OR preadolescen* OR "young people*" OR minors OR youth* OR teen OR teens OR teenager*)	1,026,304
S2	DE "Anxiety Disorders" OR DE "Generalized Anxiety Disorder" OR DE "Panic Disorder" OR DE "Phobias" OR DE "Acrophobia" OR DE "Agoraphobia" OR DE "Claustrophobia" OR DE "Ophidiophobia" OR DE "School Phobia" OR DE "Social Phobia" OR DE "Post-Traumatic Stress" OR DE "Posttraumatic Stress Disorder" OR DE "Complex PTSD" OR DE "DESNOS" OR DE "Separation Anxiety" OR DE "Separation Anxiety Disorder" OR DE "Major Depression" OR DE "Anaclitic Depression" OR DE "Dysthymic Disorder" OR DE "Endogenous Depression" OR DE "Late Life Depression" OR DE "Postpartum Depression" OR DE "Reactive Depression" OR DE	558,162

Search	Query	Items found
	<p>"Recurrent Depression" OR DE "Treatment Resistant Depression" OR DE "Atypical Depression" OR DE "Depression (Emotion)" OR DE "Panic" OR DE "Elective Mutism" OR TI (anxiety OR panic OR phobic OR phobia OR stressor OR "post-traumatic" OR posttraumatic OR "traumatic stress" OR "psychological trauma*" OR depress* OR dysthymi* OR dysthimi* OR dysphori* OR "selective mutism*" OR "elective mutism*") OR AB (anxiety OR panic OR phobic OR phobia OR stressor OR "post-traumatic" OR posttraumatic OR "traumatic stress" OR "psychological trauma*" OR depress* OR dysthymi* OR dysthimi* OR dysphori* OR "selective mutism*" OR "elective mutism*") OR KW (anxiety OR panic OR phobic OR phobia OR stressor OR "post-traumatic" OR posttraumatic OR "traumatic stress" OR "psychological trauma*" OR depress* OR dysthymi* OR dysthimi* OR dysphori* OR "selective mutism*" OR "elective mutism*")</p>	
S1	<p>DE "Developing Countries" OR TI ("developing countr*" OR "developing nation*" OR "developing population*" OR "developing econom*" OR "undeveloped countr*" OR "undeveloped nation*" OR "undeveloped economy" OR "undeveloped economies" OR "least developed countr*" OR "least developed nation*" OR "least developed economy" OR "least developed economies" OR "less-developed countr*" OR "less-developed nation*" OR "less-developed population" OR "less-developed populations" OR "less-developed econom*" OR "lesser developed countr*" OR "lesser developed nation*" OR "lesser developed population" OR "lesser developed populations" OR "lesser developed economy" OR "lesser developed economies" OR "under-developed countr*" OR "under-developed nation*" OR "underdeveloped countr*" OR "underdeveloped nation*" OR "underdeveloped population*" OR "underdeveloped econom*" OR "low income countr*" OR "middle income countr*" OR "low income nation*" OR "middle income nation*" OR "low income population*" OR "middle income population*" OR "low income econom*" OR "middle income econom*" OR "lower income countr*" OR "lower income nation*" OR "lower income population*" OR "lower income economy" OR "lower income economies" OR "resource limited" OR "low resource countr*" OR "lower resource countr*" OR "low resource nation*" OR "low resource population*" OR "low resource economy" OR "low resource economies" OR "underserved countr*" OR "underserved nation*" OR "underserved population*" OR "underserved economy" OR "underserved economies" OR "under-served country" OR "under-served countries" OR "under-served nation" OR "under-served nations" OR "under-served population" OR "under-served populations" OR "underserved economy" OR "underserved economies" OR "deprived country" OR "deprived countries" OR "deprived nation" OR "deprived nations" OR "deprived population" OR "deprived populations" OR "deprived</p>	84,728

Search	Query	Items found
	<p>economy" OR "deprived economies" OR "poor countr*" OR "poor nation*" OR "poor population*" OR "poor econom*" OR "poorer countr*" OR "poorer nation*" OR "poorer population*" OR "poorer econom*" OR Imic OR Imics OR lami OR "transitional countr*" OR "transitional nation" OR "transitional nations" OR "transitional econom*" OR "transition countr*" OR "transition nation*" OR "transition econom*" OR "low resource setting*" OR "lower resource setting*" OR "middle resource setting*" OR "Third World*" OR "south east asia*" OR "middle east*" OR Afghan* OR Angola* OR Angolese* OR Angolian* OR Armenia* OR Bangladesh* OR Benin* OR Bhutan* OR Birma* OR Burma* OR Birmese* OR Burmese* OR Boliv* OR Botswan* OR "Burkina Faso*" OR Burundi* OR "Cabo Verde*" OR Cambod* OR Cameroon* OR "Cape Verd*" OR "Central Africa*" OR Chad OR Comoro* OR Congo* OR "Cote d'Ivoire*" OR Djibouti* OR "East Africa*" OR "Eastern Africa*" OR Egypt* OR "El Salvador*" OR "Equatorial Guinea*" OR Eritre* OR Ethiopia* OR Gabon* OR Gambia* OR Gaza* OR (Georgia AND Republic) OR Ghan* OR Guatemal* OR Guinea OR Haiti* OR Hondur* OR India* OR Indones* OR "Ivory Coast*" OR Kenya* OR Kiribati* OR Kosovo* OR Kyrgyz* OR "Lao PDR*" OR Laos* OR Lesotho* OR Liberia* OR Madagascar* OR Malaw* OR Mali OR Mauritan* OR Mauriti* OR Micronesi* OR Mocambiqu* OR Moldov* OR Mongolia* OR Morocc* OR Mozambiqu* OR Myanmar* OR Namibia* OR Nepal* OR Nicaragua* OR Niger* OR "North Korea*" OR "Northern Korea*" OR (Democratic AND People* AND Republic of Korea) OR Pakistan* OR "Papua New Guinea*" OR Philippine* OR Principe OR Rhodesia* OR Rwanda* OR Samoa* OR "Sao Tome*" OR Senegal* OR "Sierra Leone*" OR "Solomon Islands*" OR Somalia* OR "South Africa*" OR "South Sudan*" OR "Southern Africa*" OR "Sri Lanka*" OR "Sub Saharan Africa*" OR "Subsaharan Africa*" OR Sudan* OR Swaziland* OR Syria* OR Tajikist* OR Tanzan* OR Timor* OR Togo* OR Tonga* OR Tunis* OR Ugand* OR Ukrain* OR Uzbekistan* OR Vanuatu* OR Vietnam* OR "West Africa*" OR "West Bank*" OR "Western Africa*" OR Yemen* OR Zaire* OR Zambia* OR Zimbabw*) OR AB ("developing countr*" OR "developing nation*" OR "developing population*" OR "developing econom*" OR "undeveloped countr*" OR "undeveloped nation*" OR "undeveloped economy" OR "undeveloped economies" OR "least developed countr*" OR "least developed nation*" OR "least developed economy" OR "least developed economies" OR "less-developed countr*" OR "less-developed nation*" OR "less-developed population" OR "less-developed populations" OR "less-developed econom*" OR "lesser developed countr*" OR "lesser developed nation*" OR "lesser developed population" OR "lesser developed populations" OR "lesser developed economy" OR "lesser developed economies" OR</p>	

Search	Query	Items found
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Search	Query	Items found
	Pakistan* OR "Papua New Guinea*" OR Philippine* OR Principe OR Rhodesia* OR Rwanda* OR Samoa* OR "Sao Tome*" OR Senegal* OR "Sierra Leone*" OR "Solomon Islands*" OR Somalia* OR "South Africa*" OR "South Sudan*" OR "Southern Africa*" OR "Sri Lanka*" OR "Sub Saharan Africa*" OR "Subsaharan Africa*" OR Sudan* OR Swaziland* OR Syria* OR Tajikist* OR Tanzan* OR Timor* OR Togo* OR Tonga* OR Tunis* OR Ugand* OR Ukrain* OR Uzbekistan* OR Vanuatu* OR Vietnam* OR "West Africa*" OR "West Bank*" OR "Western Africa*" OR Yemen* OR Zaire* OR Zambia* OR Zimbabwe*) OR KW ("developing countr*" OR "developing nation*" OR "developing population*" OR "developing econom*" OR "undeveloped countr*" OR "undeveloped nation*" OR "undeveloped economy" OR "undeveloped economies" OR "least developed countr*" OR "least developed nation*" OR "least developed economy" OR "least developed economies" OR "less-developed countr*" OR "less-developed nation*" OR "less-developed population" OR "less-developed populations" OR "less-developed econom*" OR "lesser developed countr*" OR "lesser developed nation*" OR "lesser developed population" OR "lesser developed populations" OR "lesser developed economy" OR "lesser developed economies" OR "under-developed countr*" OR "under-developed nation*" OR ""underdeveloped countr*" OR "underdeveloped nation*" OR "underdeveloped population*" OR "underdeveloped econom*" OR "low income countr*" OR "middle income countr*" OR "low income nation*" OR "middle income nation*" OR "low income population*" OR "middle income population*" OR "low income econom*" OR "middle income econom*" OR "lower income countr*" OR "lower income nation*" OR "lower income population*" OR "lower income economy" OR "lower income economies" OR "resource limited" OR "low resource countr*" OR "lower resource countr*" OR "low resource nation*" OR "low resource population*" OR "low resource economy" OR "low resource economies" OR "underserved countr*" OR "underserved nation*" OR "underserved population*" OR "underserved economy" OR "underserved economies" OR "under-served country" OR "under-served countries" OR "under-served nation" OR "under-served nations" OR "under-served population" OR "under-served populations" OR "underserved economy" OR "underserved economies" OR "deprived country" OR "deprived countries" OR "deprived nation" OR "deprived nations" OR "deprived population" OR "deprived populations" OR "deprived economy" OR "deprived economies" OR "poor countr*" OR "poor nation*" OR "poor population*" OR "poor econom*" OR "poorer countr*" OR "poorer nation*" OR "poorer population*" OR "poorer econom*" OR Imic OR Imics OR lami OR "transitional countr*" OR "transitional nation" OR "transitional nations" OR	

Search	Query	Items found
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