

World Health Organization Guidelines on Parenting Interventions to Prevent Maltreatment and Enhance Parent–Child Relationships with Children aged 0-17 Years: Report of the Systematic Reviews of Evidence

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Executive summary

Child maltreatment is a global public health problem. It can have detrimental and long-lasting effects on the development and health of a child. Prevention is crucial and can be carried out using multiple approaches. The World Health Organization (WHO) and other international stakeholders have led the response in reducing prevalence of abuse and neglect across the globe. The WHO INSPIRE package is an evidence-based resource that presents seven strategies to help countries and communities to accelerate their efforts to reduce child maltreatment. One of the seven strategies is the support of parents and caregivers in the form of parenting interventions. Parenting programmes contribute to a range of 2030 Sustainable Development Goals (SDGs), most prominently Target 16.2 (ending abuse, exploitation, trafficking and all forms of violence against and torture of children), in addition to Targets 5.2 (elimination of all forms of violence against all women and girls), 16.1 (reduction of all forms of violence and related death rates everywhere), 1.3 (implementation of social protection systems), 3.2 (preventing deaths of children under 5 years) and 4.2 (ensuring access to quality early childhood development (ECD) and care). This report provides evidence on the effectiveness of parenting interventions across different contexts and populations. The findings of this report will inform the decisions of the WHO Guideline Development Group for guidelines on parenting to prevent child maltreatment and promote positive development in children aged 0–17 years.

We systematically summarized the evidence on the effectiveness of parenting interventions using systematic reviewing as the predominant method. In total, we conducted two main systematic reviews, two systematic sub-reviews and one narrative review. The first systematic review focused on parenting interventions in low- and middle-income countries (LMICs) for parents of children aged 2–17 years. The second systematic review examined the effectiveness globally of the most widely distributed parenting interventions focusing on ages 2–10. We then present findings of two sub-reviews of the main LMIC review, focusing on parenting interventions: i) for parents of adolescents aged 10–17 years; and ii) delivered in humanitarian settings in LMICs. Finally, we summarize the evidence for parenting interventions for the first three years of life, drawing on the recent evidence synthesis from the WHO nurturing care guidelines, while adding to this an updated search for the most recent evidence of parenting interventions for very young children.

The systematic reviews presented represent the most comprehensive reviews to date, based on screening over 100,000 studies retrieved from highly sensitive searches in multiple electronic global, regional and grey literature databases in several languages. An included total of 435 randomized controlled trials (RCTs) from 65 countries suggests that parenting interventions improve a range of parent, child and family outcomes. Parenting interventions reduce negative parenting behaviours, including maltreatment, and improve positive and nurturing parenting behaviours across all contexts and types of interventions examined. We found strong evidence in the majority of reviews that parenting interventions

effectively reduce child behaviour problems. The findings suggest that effects on both negative and positive parenting are sustained over the long term, at least in the global review. This finding could not be replicated for maltreatment, suggesting a fade-out effect of maltreatment, albeit with a small number of trials, suggesting the possible need for booster sessions and more research. Despite the large number of RCTs included in the reviews, effectiveness analyses included only those trials that reported on the outcome, leaving a large body of trials aside.

We found very little evidence of differential effects on different subgroups of families across all reviews. Thus, the effect of parenting interventions on maltreatment and negative parenting did not vary by poverty level of the country, gender of the children, education level of the parents, family-level poverty or the age of the children or parents in the trials. We found evidence of some differential effect by ethnicity, with trials that included mostly ethnic minority families showing smaller improvements in negative parenting and child behaviour problems compared to mostly majority families. Additionally, trials that focused on children with higher levels of behaviour problems showed stronger effects on improving behaviour problems and positive parenting. Moderator findings should be interpreted with caution, given that moderators may be confounded with unmeasured trial-level factors, and that only a small subset of the trials could be included in subgroups, representing only a small portion of the overall effectiveness in the analyses.

Almost a third of the studies were conducted in the Pan-American Region, followed by a quarter conducted in both the European Region and the Western Pacific Region, with the final quarter shared by trials from the Eastern Mediterranean Region, the African Region and the South-East Asian Region.

Most trials were conducted in high-income countries, leaving many gaps on the world map for effectiveness trials. However, the evidence base from LMICs was still substantial: we included 131 trials from all regions of the world in the LMIC review for children aged 2–17, an additional 26 LMIC trials in the ECD and humanitarian review, and 28 trials from LMICs in the global review. Despite the need for more trials from LMICs, we observed a promising trend, with more evidence coming from LMICs in the past decade. In addition, more trials examining the effectiveness of trials for subpopulations are needed, including families living in humanitarian settings, parents of adolescents, and parents living in extreme poverty. To fully understand the effects of parenting interventions on maltreatment, trials should: a. target parents based on their maltreatment levels; b. use measures of maltreatment consequently including subtypes; and c. examine the effectiveness on proxy measures of maltreatment, including attitudes to corporal punishment, intimate partner violence between parents, and experience of dating violence in adolescents. Moreover, there is a strong need for LMIC trials to measure the long-term effects of trials. Finally, most trials examined the effects of parenting interventions using self-report from mothers. When possible, observational measures should be used, and measures should include other important primary caregivers such as fathers, grandparents, older siblings or other family members.

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Abbreviations

ADHD	Attention deficit hyperactivity disorder
AFRO	African Region
ECD	Early childhood development
EMRO	Eastern Mediterranean Region
EURO	European Region
GDG	Guideline Development Group
GRADE	Grading of Recommendations, Assessment, Development and Evaluations
HIC	High-income country
IPV	Intimate partner violence
LMIC	Low- and middle-income country
PAHO	Pan-American Region
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PTSD	Post-traumatic stress disorder
RCT	Randomized controlled trial
SEARO	South-East Asian Region
SES	Socio-economic status
SDG	Sustainable Development Goals
SLT	Social learning theory
UN	United Nations
UNCRC	United Nations Convention on the Rights of the Child
UNICEF	United Nations Children's Fund
VAC	Violence against children
VAWG	Violence against women and girls
WHO	World Health Organization
WPRO	Western Pacific Region

Introduction and scope of the evidence syntheses

Globally, 1 billion children under the age of 18 experience child abuse every year (Hillis, Mercy, Amobi, & Kress, 2016). Although child maltreatment is a universal reality affecting both high-income countries (HICs) and low- and middle-income countries (LMICs), children from LMICs are more likely to suffer from maltreatment (UNICEF, 2014). Child maltreatment is defined as “All forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation resulting in actual or potential harm to the child health, survival, development or dignity in the context of a relationship or responsibility, trust or power” (WHO, 1998), with the clear understanding that all four categories of maltreatment may coexist and be experienced by the same child. Child maltreatment not only violates the United Nations Convention on the Rights of the Child (UNCRC) but is also a key public health problem. It has devastating consequences for child well-being, outcomes as an adult, and the economy as a whole (Hillis et al., 2016; Mikton, Butchart, Dahlberg, Krug, & Glchik, 2014; WHO, 2014).

Front-line health care professionals – including general practitioners, family doctors, paediatricians and nurses – are often the first point of contact for children who have been exposed to maltreatment. Therefore, the health sector plays a crucial role in both the detection and prevention of maltreatment. As stated by the INSPIRE Framework that proposed seven strategies for ending violence against children (WHO, 2017), the prevention of child maltreatment needs to follow a multisectoral approach – a liaison between and not exclusively targeted by the following governmental sectors: social development, social work and public health. One of the seven key strategies is parent and caregiver support with the objective of reducing harsh parenting practices and creating positive parent–child relationships. Based on this, the World Health Organization (WHO) is developing guidelines on parenting intervention to prevent child maltreatment to provide governments, donors, project developers, programme managers and outcome evaluators with evidence-based information on the essential content and process elements for establishing parenting interventions. These guidelines will focus on parenting intervention for parents and key caregivers of children aged 0–17 years old that are designed to reduce child maltreatment or child behaviour problems, and improve parenting outcomes (e.g. attachment, mental health, responsiveness). This report will provide a systematic overview of the state-of-the-science evidence on the effectiveness of parenting interventions in reducing child maltreatment across different contexts and populations.

Preventing child maltreatment

Violence against children (VAC) prevention strategies cover a child's right to be protected from violence. While the UNCRC recognizes and respects the responsibility of parents to guide and direct, article 19 mandates countries to take all appropriate measures to protect children from all forms of violence while in the care of parents, guardians or other caregivers. Moreover, General Comment No. 8 states that any form of violent, cruel or degrading treatment of a child is unacceptable. It is, therefore, not surprising that the first of UNICEF's strategies for ending VAC relates to supporting parents and families (UNICEF, 2014a).

Protection from violence is not only a crucial child's right; VAC prevention strategies are also likely to be highly beneficial for a country's economy by preventing the costly consequences of a variety of psychopathological problems of adults resulting from experiences of child maltreatment, and less healthy workforces. At the same time, it reduces the burden of short- and long-term repercussions for children's physical and mental health. A child who is maltreated faces not only immediate risks of serious harm (e.g. injury, death), but also long-term consequences for a range of poor behavioural, mental and physical health outcomes, such as aggression, suicide attempts, drug use, and depressive and anxiety disorders (Geoffroy, Pereira, Li, & Power, 2016; Herrenkohl, Hong, Klika, Herrenkohl, & Russo, 2013; Infurna et al., 2016; Mills et al., 2013; Norman et al., 2012).

WHO, in collaboration with other UN agencies and stakeholders, launched the technical package INSPIRE containing seven strategies that have shown success in reducing VAC. The package is designed to help countries globally to achieve Sustainable Development Goal 16.2. to "end abuse, exploitation, trafficking and all forms of violence against and torture of children". The letter "P" in the strategy's name is taken from "Parent and caregiver support", placing the support of parents as one of the key strategies for preventing VAC. One effective way of supporting parents is by enrolling them in parenting programmes that teach them nurturing, non-violent and effective ways to interact with their children.

Parenting interventions – definitions and effectiveness

Most child maltreatment incidents occur in the family setting, with parents identified as the main perpetrator of violence (Gilbert et al., 2012). Therefore, prevention of child maltreatment in this context is primarily about changing the actions and behaviours of parents and other caregivers. Parenting interventions that break a coercive cycle of violence and support parents' understanding of the importance of positive parenting, non-violent disciplining and relationship-building effectively reduce abusive parenting.

Defining parenting interventions

A parenting programme is a structured intervention directed at parents or other key caregivers of the child that is designed to improve parent–child interaction and the overall quality of parenting that a child receives. There is normally a focus on parents learning new skills and behaviours to help the way they relate to their child, although programmes may also address parental knowledge, attitudes, beliefs and feelings. Programmes may target populations that are in need or at risk or may address the general population. Programmes may be designated by the authors as focusing on reducing child maltreatment or harsh/punitive parenting, improving positive parenting and parent–child relationships or reducing child behaviour problems. They normally consist of a structured series of sessions, using a range of learning activities, where parents learn to apply parenting principles to their own child and family context, and are often manualized. They can be delivered by professional or paraprofessional staff. Programmes may be group-based or individual parent/family-based, they may include the children or not, and they may be delivered in the home, at a centre or online. They may be combined with other components (e.g. teacher- or child-focused interventions).

We conducted a rapid Evidence Gap Map (EGM) on parenting interventions as a preceding exercise for this systematic synthesis of evidence. The aim of the EGM was to provide an overview on the magnitude of the existing evidence and on the gaps in research on the effectiveness of parenting interventions to reduce VAC. It did not aim to synthesize the individual findings of the identified systematic reviews and primary studies, but to identify the gaps in research that will be addressed in this evidence report. The map followed a PICO framework (here: Population–Intervention– Context– Outcome), to map where there is evidence from recent systematic reviews. We found that there are numerous systematic reviews on the effects of parenting interventions, covering diverse populations, contexts and intervention types. However, most reviews had a quite general focus covering mixed age groups, mixed regions of the world and mixed prevention strategies. Other key findings included the following.

- We found a number of reviews focusing on LMICs. However, the number of trials from LMICs has increased drastically in the past decade, calling for an updated review of parenting interventions in LMICs.
- Few reviews focused specifically on the adolescent age group, while many mixed age group reviews included trials on adolescents.
- There are no reviews focusing specifically on families in extreme poverty.
- Levels of prevention are hard to define and code at review level, with poor reporting at trial level.

- One review focused on conflict or humanitarian settings. Other reviews that we found were excluded due to overlap, as they included the same few parenting trials. We found more recent trials that have not been included in the review.

The previous reviews of the effectiveness of parenting interventions found that parenting interventions are an effective strategy for improving health and behavioural outcomes for parents and children generally (Flujas-Contreras, García-Palacios, & Gómez, 2019; Gardner, Montgomery, & Knerr, 2016; Knerr, Gardner, & Cluver, 2013; Leijten, Melendez-Torres, Knerr, & Gardner, 2016; Lundahl, Risser, & Lovejoy, 2006; Olds, Sadler, & Kitzman, 2007; Sanders, Kirby, Tellegen, & Day, 2014). However, most of the parenting interventions in these reviews focused on child behaviour outcomes, whereas only a few aimed to assess their effectiveness for reducing child maltreatment. Parenting interventions are grounded in the assumption that change in parenting behaviours accounts for change in child behaviour. Thus, parenting is the dominant component addressed in parenting interventions such as teaching parents effective, non-violent discipline methods or promoting nurturing parenting behaviours. This is the case regardless of whether an intervention aims to reduce child behaviour problems or harsh parenting behaviours. Since parenting is always addressed in parenting interventions, these interventions have the potential to decrease parenting behaviours that can be labelled as maltreatment, such as forms of physical disciplining or psychological aggression. Furthermore, parents that use coercive or physical disciplinary strategies such as spanking, swearing or yelling are at a higher risk of becoming perpetrators of more serious abuse and neglect (Brown et al., 1998; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). At the same time, parents who have higher levels of positive parenting skills are at lower risk of harsh parenting and maltreatment. Hence, working with parents and showing them new ways of positively interacting with and reducing harsh disciplining of their children consequently reduces the risk of serious forms of child maltreatment. A pioneering systematic review concluded that there was only limited evidence to show that some parenting programmes may be effective in improving parenting outcomes associated with abuse, and stressed the urgent need for further research (Barlow, Simkiss, & Stewart-Brown, 2006). Since then, strong evidence has increasingly emerged from high-quality systematic reviews, showing that parenting programmes have the potential to decrease the risk of abusive punishment and other forms of maltreatment (Barlow et al., 2006; Chen & Chan, 2016; Desai, Reece, & Shakespeare-Pellington, 2017; Lundahl et al., 2006), and may even prevent the recurrence of child physical abuse (Vlahovicova, Melendez-Torres, Leijten, Knerr, & Gardner, 2017).

However, it should be noted that the evidence is not clear-cut. First, Euser, Alink, Stoltenborgh, Bakermans-Kranenburg, and van IJzendoorn (2015) identified that the effects of child maltreatment prevention programmes become negligible when controlling for publication bias. Second, different reviews often make quite different choices about which studies to include. One key source of this variation is the choice of which parenting

behaviours to include under child maltreatment, with many reviewers basing their decisions on the terminology used by the authors of the primary study. Third, new evidence is emerging rapidly with more and more studies being conducted in low-resource settings, including in low-income countries and humanitarian settings, or with poor families in HICs. Therefore, there is an urgent need for not only updating global reviews but also focusing on the effectiveness of parenting interventions in low-resource countries, for specific age groups and in humanitarian settings.

We add to the evidence by conducting multiple systematic reviews taking into account: a. the new studies that have emerged over the years from LMICs; and b. from around the globe that strongly contribute to the overarching effectiveness literature; and c. the diversity of interventions, of settings where interventions are delivered, and the different populations and families targeted.

Scope of the evidence syntheses

This report of systematic reviews helps to determine the level of evidence available to support potential recommendations to the 196 Member States on parenting and the prevention of VAC. We report on two main systematic reviews, two sub-reviews and one narrative review. A scoping meeting was convened in July 2020 to formulate questions that will need to be addressed in the systematic reviews. This report on the evidence aims to provide a summary of the answers to these questions that will inform the recommendations of the WHO Guideline Development Group (GDG).

Each review answers its unique research questions that are formulated using the Population/Problem, Intervention, Comparison/Control and Outcome (PICO) framework (see Table 1). In addition, each review has a distinctive scope. The main LMIC review aims to summarize the effectiveness of parenting interventions in LMICs. It takes into account a large amount of new emerging evidence from those parts of the world, focusing on a wide age range (2–17 years) and a broad range of programmes. The main global review aims to provide an overview of the evidence globally for parenting interventions. It currently constitutes the largest parenting intervention review in the field while remaining focused on one specific and the most prominent type of parenting intervention: those focusing on the ages 2–10 years and that are based on social learning theory. The first sub-review of the main LMIC review focuses on adolescents and includes only trials targeting parents of children aged 10–17 years. This sub-review enables the reader to understand the effectiveness of parenting interventions for adolescents. The second sub-review of the main LMIC review includes intervention trials that were conducted in humanitarian settings in LMICs. It provides an estimate of the effectiveness of parenting interventions to reduce VAC within a humanitarian context. Finally, the narrative review draws on the existing WHO ‘Guideline on Early Childhood Development’, thus summarizes the effectiveness of the

included parenting interventions for children aged 0–2 years, and adds recent evidence findings from an updated search. Table 1 provides an overview of the five reviews.

Table 1. Reviews by PICO question

	Short name of review	Type of review	Population	Intervention	Comparison	Primary outcome	Context
1	LMIC review	Main systematic review	Parents and caregivers of children aged 2–17 years	Parenting interventions	Inactive or active control group	Maltreatment <i>See list of outcomes below</i>	LMICs as classified by the World Bank at the time of the trial
2	Global review	Main systematic review	Parents and caregivers of children aged 2–10 years	Parenting interventions based on social learning theory	Inactive control group	Maltreatment <i>See list of outcomes below</i>	Global
3	Adolescent review	Sub-review of LMIC review	Parents and caregivers of adolescents aged 10–17 years	Parenting interventions	Inactive or active control group	Maltreatment <i>See list of outcomes below</i>	LMICs as classified by the World Bank
4	Humanitarian review	Sub-review of LMIC review	Parents and caregivers of children aged 0–17 years	Parenting interventions and interventions with a parenting focus	Inactive or active control group	Maltreatment <i>See list of outcomes below</i>	LMICs as classified by the World Bank
5	ECD review	Narrative review	Parents and caregivers of children aged 0–2 years	Parenting interventions	Inactive or active control group	Maltreatment <i>See list of outcomes below</i>	LMICs as classified by the World Bank

Outcomes

The WHO GDG rated 13 outcomes by priority. Based on the availability of outcomes in LMICs and the ratings from the GDG, the following six prioritized outcomes have been identified and will be addressed across all five reviews:

- Child maltreatment
- Harsh and negative parenting
- Positive parenting skills and behaviour (subsumes positive parenting skills and behaviour, parental monitoring and supervision and parent–child relationship and communication)
- Child externalizing/behavioural problems (e.g. conduct, oppositional, delinquency, drug use)
- Child internalizing problems (e.g. anxiety, depression, PTSD, others)
- Parental mental health and stress.

The following outcomes, although not prioritized, will be assessed in the review:

- Intimate partner violence
- Parental self-efficacy
- Positive parenting knowledge, attitudes and beliefs
- Parental attitudes to corporal punishment.

The following outcomes will not be addressed, either because there are very few data on them owing to their being very rarely assessed, or, in the case of child development, because this would unnecessarily duplicate work already completed for a recent WHO guideline on early childhood development (ECD).

- Rate of care seeking (by child or for child by parent/caregiver)
- Child physical health
- Child development (e.g. cognition, language outcomes, growth).

Parenting programmes for reducing child maltreatment and harsh parenting in low- and middle-income countries: systematic review and meta-analysis

Key findings

- Based on evidence from 131 randomized controlled trials conducted in 32 low- and middle-income countries (LMICs), in all regions of the world, parenting interventions for parents of children aged 2–17 appear to be effective, with moderate-quality evidence, for improving a range of parent, child and family outcomes.
- Meta-analyses based on smaller subsets of these trials show that parenting interventions reduce child maltreatment and harsh parenting, at least in the short term.
- Parenting interventions also reduce overall negative parenting (including harsh and abusive parenting, ineffective behaviour management and poor monitoring), improve positive parenting (e.g. warmth and praise) and enhance parental mental health.
- Few studies assessed longer-term evidence, with most showing sustained reductions in maltreatment or harsh parenting over follow-up periods ranging from 3 to 14 months.
- Few differential effects were found, despite 56 analyses of 14 potential moderators for each of 4 outcomes. This suggests that the likelihood of interventions achieving good outcomes is similar across subgroups of families, including those with different levels of poverty or educational level, or with older vs. younger children. Level of prevention, based on risk of maltreatment, did not moderate any outcomes.
- The few moderators found were in keeping with evidence from high-income countries (HICs). Interventions were more effective at improving child behaviour problems in families experiencing higher levels of these problems – that is, interventions in indicated prevention or treatment mode. Effects may also be stronger, but only for negative parenting outcomes, when programmes are shorter, and delivery agents are more highly qualified.
- Since most studies used broad measures of harsh parenting or child maltreatment, evidence is lacking regarding effectiveness at reducing specific subtypes of violence against children (VAC), including physical and psychological abuse, neglect and intimate partner violence.
- Certainty of evidence was rated low to moderate.

Introduction

VAC is common worldwide, with prevalence estimated at 50 per cent, and with higher rates in many LMICs (Hillis et al., 2016). Tackling violence has become an important global policy goal (WHO, 2016), driven by increasing recognition of the rights of children to live free from violence, enshrined in the United Nations Declaration on the Rights of the Child, and growing evidence on the adverse consequences and costs of VAC (Fang et al., 2015). One of the commonest forms of VAC is physical and emotional harsh treatment by parents, often occurring in the context of parental discipline and conflict with children. This may range from mild, socially sanctioned physical punishment to severe abuse. The definition and prevention of maltreatment are complicated by the wide variation in cultural norms and expectations between and within cultures, and their rapid change over time. Legal variation is also wide: while in all countries, hitting adults is an offence in most contexts, just 63 countries (32%) have bans on physical punishment of children in home and school (Global Partnership to End Violence Against Children, 2021). Implementation of these laws also varied greatly between countries.

Parenting programmes are one strategy for reducing VAC by parents. Due to their substantial evidence base, they are recommended by key policy bodies (WHO, 2016; *The INSPIRE Handbook*). As well as showing promise for reducing harsh parenting and improving positive parent–child relationships, parenting programmes have been shown in many trials to reduce parent depression, and they are highly effective for reducing child behaviour problems – a major source of parental stress and conflict with children, as well as a costly problem in themselves (Bonin et al., 2011). The positive parenting principles learned in these interventions also provide the foundation for early learning in the home, with similar programmes showing promise for enhancing child development (Jeong et al., 2021). By helping families with young children, parenting programmes represent an opportunity to prevent intergenerational transmission of violence and harsh parenting practices.

Systematic reviews show a substantial evidence base for the effectiveness of parenting programmes, with one recent review (Leijten et al., 2018) finding 150 randomized controlled trials (RCTs) of parenting programmes in the age range 2–9 alone. However, the vast majority of these (around 90%) were conducted in HICs. Reviews focusing specifically on LMICs have also found low numbers of trials: Knerr et al. (2013) found 12 trials in LMICs (age range 0–18 years), and Pedersen et al. (2019) found 16 trials (age range 0–24), mainly of quite poor quality. Arguably, this is thin evidence on which to base global policy, especially given that these reviews reveal very few trials for any given age group or region. Given these policy initiatives and the visible activity around implementing and testing these programmes in many LMICs, there is a need for a substantial update of this evidence base, using the most sensitive and appropriate methods for searching for trials in LMICs.

Furthermore, it is vital to understand the extent to which parenting intervention effects vary across countries, cultures and population subgroups. It is often argued that parenting programmes developed in HICs and that aim to reduce violence and harsh parental discipline may be unsuitable for cultures where family values and structures are different and there is higher approval of corporal punishment and authoritarian methods of child-rearing. Initial evidence based on systematic reviews with small samples of trials from non-Western countries (Gardner et al., 2016; Leijten et al., 2016) suggests that these concerns about suitability may not be well founded. However, the evidence base for parenting interventions in LMICs has increased greatly in recent years, and there is an urgent need to update this evidence base, examining both main and moderator effects.

Methods

Review questions

In families of children aged 2–17 years in LMICs, how effective are parenting programmes compared to an inactive control:

1. for reducing child maltreatment and harsh parenting?
2. for improving positive parenting behaviours and parental mental health?
3. for reducing negative parenting behaviours and child behavioural and emotional problems?

How do intervention effects vary by level of prevention, context, family and child characteristics, or delivery methods? (moderator analyses, using meta-regression)

Protocol and registration

The review was pre-registered with PROSPERO on 14 February 2018: CRD42018088697, conducted using Cochrane Handbook guidance, and reported using PRISMA guidelines.

Eligibility criteria

Eligible studies were published or unpublished RCTs – including cluster-RCTs and quasi-experimental designs with a strong counterfactual – of interventions with parents or primary caregivers of children (mean age 2–17) designed to reduce child maltreatment and harsh or dysfunctional parenting and/or child conduct problems, and to teach positive child behaviour management strategies or improve parent–child bonding/attachment and relationships, through changes in parenting knowledge, attitudes, skills or behaviour. This included programmes delivered to parents and sometimes to their children, provided greater than 50% of programme time or components focused on parenting. Trials took place in a country categorized by the World Bank as low- or middle-income at the time the trial was conducted. Studies were eligible if they used inactive or active controls, including no treatment, wait-list, care-as-usual, a variant or different parenting intervention, or alternative intervention. We excluded studies aimed at adults caring for children in

institutional settings, and parents of children with special needs, including physical disabilities or illness (e.g. epilepsy, asthma), psychosis, autism or severe learning disabilities.

Search

We conducted a highly sensitive search, involving 12 English- and 14 non-English-language databases/platforms, grey literature sources, and trial registries up to December 2020. We contacted authors and reviewed reference lists of published reviews on our topic up to August 2019. Search terms varied across databases, and included terms describing population or intervention focus of interest (e.g. child-rearing or family conflict or parent–child or parenting or maternal/paternal behaviour or parent–child communication or parent training or child abuse or maltreatment) combined with a complete list of LMICs and related terms (e.g. developing country). A list of all sources and search terms is available in the appendix.

Study selection

One author searched and screened studies in English-language databases; a second author screened a random 10% of these to ensure concordance. Full text of all potentially eligible studies was assessed by one author, with a random 10% assessed by a second author. Searching and screening in databases indexed in Chinese, Farsi, Russian, Thai and Spanish were conducted by bilingual collaborators. Disagreements were resolved through discussion with a third reviewer.

Data extraction

A standardized Excel spreadsheet was used to collect and code data, including: study setting/context, intervention characteristics and delivery; duration, intensity; study population; participant demographics and baseline characteristics; control conditions; study methodology; recruitment and completion rates; outcomes, times of measurement; risk of bias.

A team of reviewers extracted data from English- and Spanish-language studies. For studies published in Chinese, Farsi, Russian and Thai, data were extracted by bilingual collaborators. A second author independently extracted data on a random 20% of the original sample of English-language studies. All studies meeting the inclusion criteria were included in the review. Studies were included in the meta-analysis if they reported sample sizes, means and standard deviations, or other figures from which these data could be calculated, for primary or secondary outcomes of interest. Missing data were requested from study authors.

Measures

Prioritized outcomes

Child maltreatment and subtypes

The outcome category 'child maltreatment' includes any type of physical or psychological abuse or neglect. We include corporal punishment as a type of maltreatment.

Harsh parenting

Harsh parenting is an overarching category with behaviours included under child maltreatment such as physical abuse and behaviours that are harsh but not easily classified as maltreatment such as overreactivity, harsh disciplining, and hostile and authoritarian parenting.

Negative parenting

Negative parenting includes all parenting behaviours that are either harmful (including harsh parenting and maltreatment), ineffective for behaviour management or reflect a poor parent–child relationship. Example behaviours are overprotective parenting, laxness, hostile parenting, emotional violence or negative reinforcement.

Positive parenting

Positive parenting includes all parenting behaviours that promote a positive parent–child relationship. Example behaviours are appropriate disciplining, praising, warmth and nurturing behaviours.

Parenting stress

Parenting stress includes perceived stress by parents connected to their parenting role. One of the most used instruments of parenting stress is the Parenting Stress Inventory.

Parent mental health problems

This outcome category includes measures of depression and anxiety.

Child behaviour problems overall

This outcome category is an overarching category for all internalizing and externalizing child behaviour problems.

Externalizing child behaviours

Externalizing behaviours include symptoms of conduct problems, oppositional, defiant, ADHD or aggressive or antisocial behaviours in children.

Internalizing behaviours

Internalizing behaviours include behaviours such as anxious, withdrawing, somatic or depressed behaviours in children.

Non-prioritized outcomes

Parenting efficacy and satisfaction

Parenting efficacy and satisfaction with the parenting role reflect the degree to which parents feel confident with their parenting role and parenting strategies.

Intimate partner violence

Intimate partner violence includes violence perpetration and victimization between partners.

Positive parenting knowledge, attitudes and beliefs

Most measures of positive parenting include parenting behaviours as well as attitudes and knowledge. Thus, separating out behaviours from attitudes is a nearly impossible task. These attitudes and beliefs will be captured under positive parenting behaviours.

Parental attitudes towards corporal punishment

Positive attitudes towards the use of corporal punishment as a disciplinary method is measured with a self-report questionnaire.

Risk of bias assessment

Risk of bias within studies was assessed by two authors, with a third author assessing risk of bias of a randomly selected 10% of the included studies. We used the Cochrane Risk of Bias Tool to assess randomization/sequence generation; treatment allocation concealment; blinding of assessors; completeness of outcome data; selective outcome reporting; and other sources of bias, including who designed the intervention and whether they were involved in the trial. Disagreements were resolved by discussion, with involvement of a fourth review author where necessary.

Synthesis of results

Analyses assessed the differences between groups on validated measures of each prioritized and non-prioritized outcome (as above), from pre- to post-intervention, as parent or child self-report, measured by official reports or direct observation. Longer-term outcomes were extracted for maltreatment and harsh parenting, where available. Effect sizes were extracted into a spreadsheet and converted to Cohen's *d*. Where appropriate, logit transformation was used to convert odds ratios into standardized mean differences (SMDs). Effect sizes were labelled with respect to the outcome domain they represent and the duration of follow-up. Calculation of effect sizes favoured ANCOVA-adjusted endpoint means in the first instance, followed by raw group means and then summary statistics (e.g. F-tests, t-values). Where necessary, effect sizes based on change scores were converted to an endpoint-based metric using an appropriate correlation. We did not use selection or decision rules to select one effect size per study per outcome domain, preferring instead to

extract all relevant effect sizes. This is highly relevant in a field where measurements are often collected using multiple instruments within domains (e.g. positive parenting).

Where trials included multiple arms, we extracted each intervention–control comparison with reference to a common comparator. Where cluster-randomized trials had not accounted for clustering, we inflated the standard errors of SMDs using either an estimated ICC or an ICC estimated from the variance components model in the included trial.

Once effect sizes were assigned to the relevant outcome domain, robust variance estimation meta-analysis was used (STATA v13) to combine effect sizes from multiple studies in each outcome domain (Tanner-Smith et al., 2016). Robust variance estimation meta-analysis is appropriate when trials report multiple relevant effect sizes for a given meta-analysis. We used a random effects meta-analysis model and assumed an intercorrelation of 0.8. For each model, we estimated I^2 as a measure of heterogeneity using the estimated Q-statistic. As a sensitivity analysis and where robust variance estimation models produced unreliable results (i.e. when degrees of freedom (df) were less than 4), we estimated a multilevel model with random effects at the between-study level and a compound symmetry correlation matrix of 0.8 within studies.

Where a meta-analysis model included more than 10 studies, we approximated an Egger test of small-study bias by combining effect sizes within each study and entering a ‘compound’ effect size into a funnel plot. Where more than 10 studies were included in a meta-analysis, meta-regression was used to consider possible explanations for heterogeneity in effectiveness. Analysis focused on characteristics of the interventions and involved entering between-study variables one at a time (i.e. in bivariate analyses) into the robust variance meta-analysis. The moderator (subgroup) variables and their definitions are listed at the start of the relevant results section. The meta-analysis was planned to focus primarily on analysis of post-test effects, because few studies in the field assess longer-term effects, hence meta-analyses for each outcome would be very small, and often with wide variation in follow-up period.

Assessing the certainty of evidence (GRADE)

We applied the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to make preliminary judgements for assessing the certainty of evidence for the prioritized outcomes. We ranked and presented the certainty of evidence for the main effect analyses at post-test, and that yielded a reliable estimate (df>4). GRADE ranks confidence in findings from high to very low based on risk of bias, effect consistency, imprecision, indirectness and publication bias (Guyatt et al., 2011).

Results

Included trials and participants

We screened titles and abstracts of over 75,000 studies and inspected full texts of 635 studies, of which 131 met our inclusion criteria. The flow diagram below (Figure 1) shows details, including reasons for exclusion.

Global distribution of trials – country and context

We included 131 trials (studies) meeting our inclusion criteria. Studies took place in 32 different LMICs, in all regions of the world. Countries where the most trials were conducted were Iran (40 studies), China (24), South Africa (10), Turkey (7), Thailand (5), Mexico (5), Romania (4), Brazil (4) and Chile (3). There were 2 included studies in each of 6 countries: Ethiopia, Lebanon, Uganda, Indonesia, Nigeria and Colombia, and there were 17 countries in which 1 trial took place (see Figure 2). The great majority of trials (113, or 86%) took place in upper-middle-income countries, with 10 (8%) in 8 lower-middle-income countries (Indonesia, Philippines, Nigeria, Kenya, Ghana, Honduras, Palestine and Pakistan), and 8 (6%) in 6 low-income countries (Ethiopia, Uganda, Burkina Faso, Liberia, Rwanda and Tanzania). In terms of WHO regions, about one third of the 131 trials took place in the Eastern Mediterranean region (35%, 46 trials, most of these in Iran), about one fifth in Western Pacific (21%, 28 trials, most of these in China), and 17% (22 trials) in sub-Saharan Africa (AFRO), with smaller numbers in the Pan-American region (17 trials, 13%), Europe (10%) and the Southeast Asian region (SEARO) (4%).

Figure 2. Distribution of parenting intervention trials across LMICs

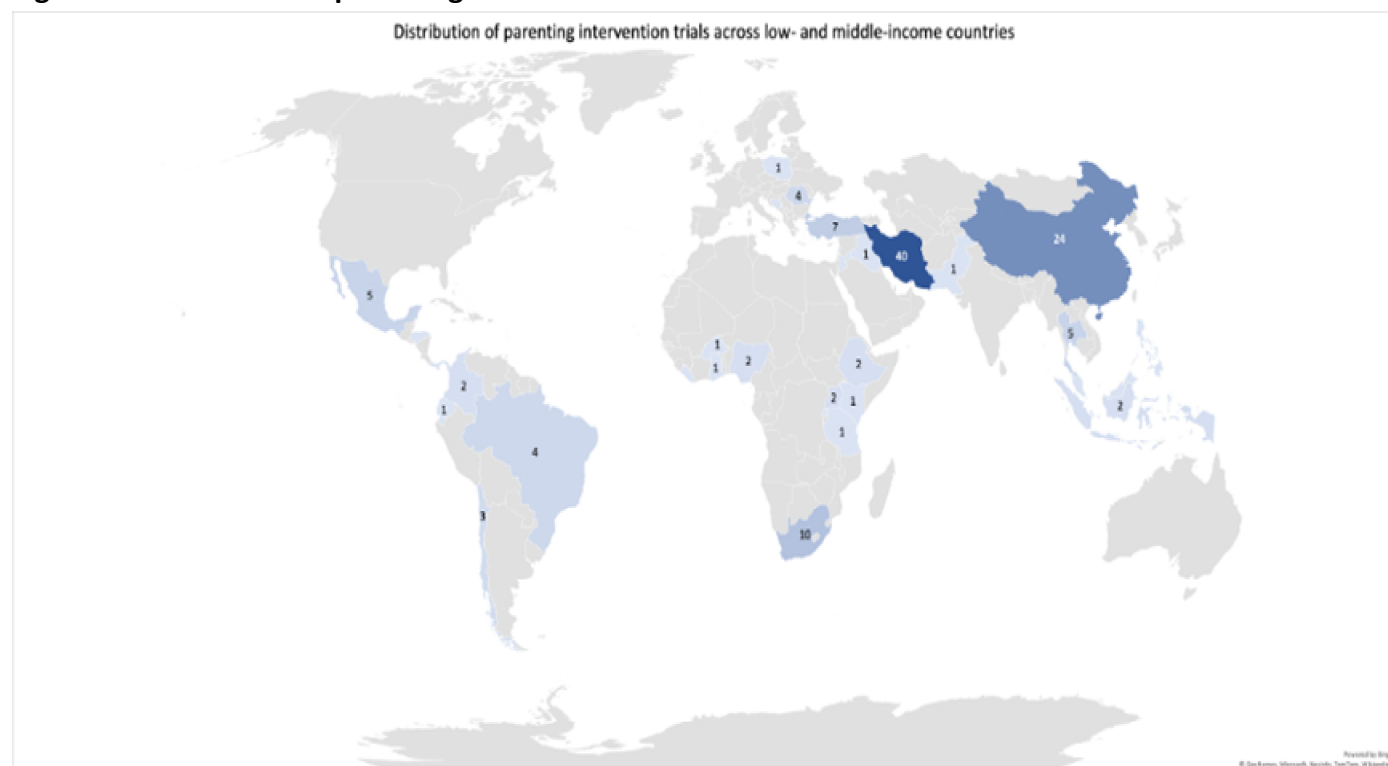
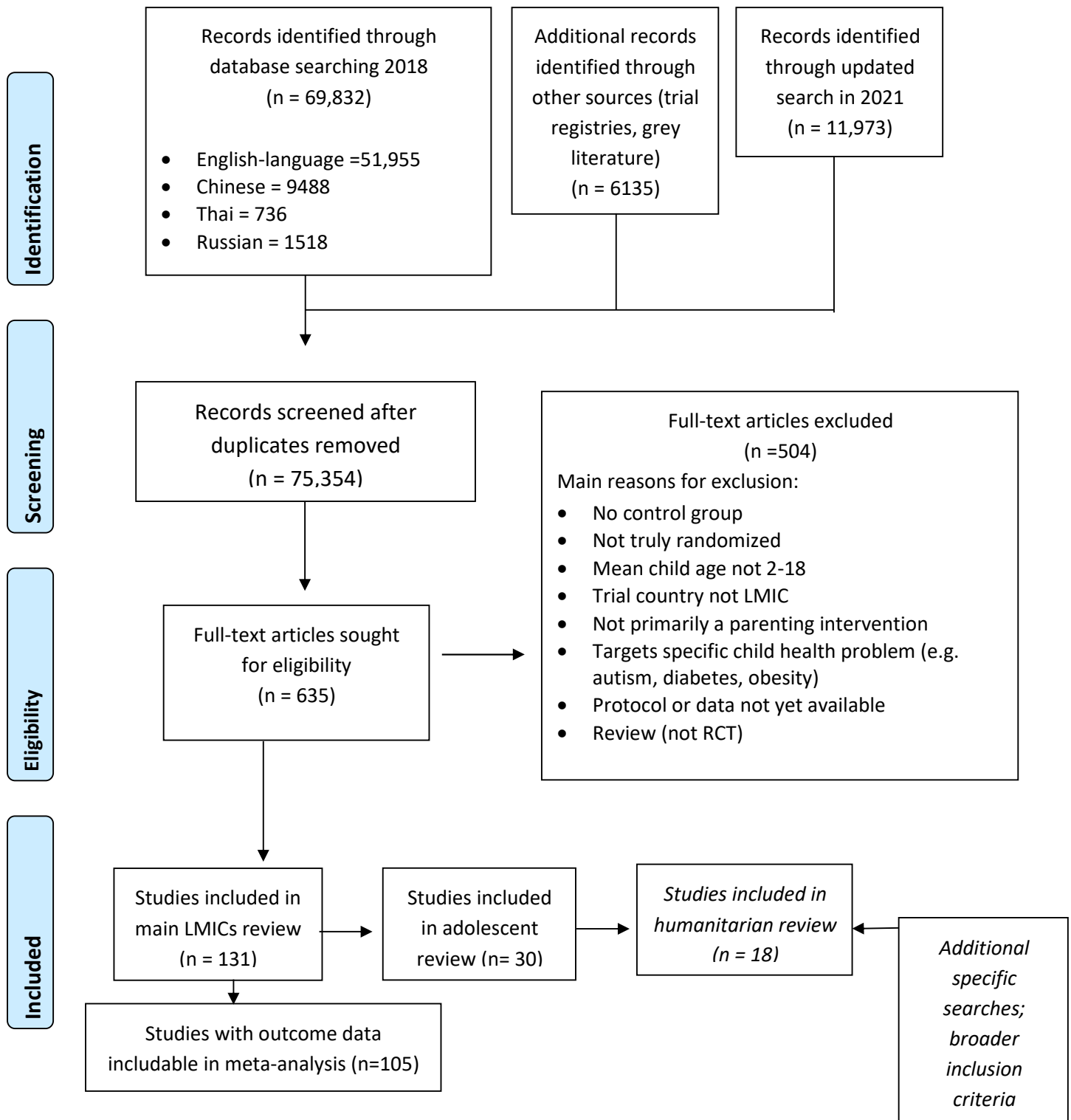


Figure 1. Participant flow chart



Trial languages

Our searches employed terms in multiple languages, and hence retrieved a number of non-English-language studies. For these, data were extracted by native or bilingual speakers. We included 9 studies from Iran in Farsi, 13 studies in Chinese, 2 in Spanish and 1 in Thai.

Study and intervention characteristics

Eligible studies had been published between 1991 and 2021, including unpublished manuscripts. Sample sizes ranged from 12 to 1,944 participants (mean=170, median=79) or families. The total number of participants across the 131 studies was 22,375. All studies used an RCT or a cluster-randomized design. Most trials were two-arm trials where the parenting intervention was compared to an inactive control, such as wait list or minimal services as usual. Intended number of sessions ranged from 1 to 28 sessions. The mean, median and modal number of sessions was eight. For 3 studies, the number of sessions was variable, and for 10 studies (8%), the number of sessions was not stated.

Most studies involved group-based parenting interventions, with 80 (61%) entirely group-based, and 15 (11%) individual-based interventions, delivered in a centre or in the home. The remainder were mixed individual and group (8%), or in-person mixed with digital or phone-based components (7%). Three trials (2%) used interventions that were purely digital (respectively, a 'distance learning' parent education package, a set of CDs and a single-component, online attention-bias training). Of the nine trials (7%) mixing in-person delivery with digital or phone components, most used phone calls (5%) or minor digital components (2%) to support the main in-person programme. Two trials in China used self-directed written materials. In 12 trials, (9%) the delivery mode was unclear.

A wide range of programme types were tested; a few involved internationally well-known branded interventions – for example, Triple P (14 trials), Strengthening Families (3 trials), Parenting for Lifelong Health (4 trials), ACT Raising Safe Kids (1 trial) and the Barkley Parent Management Training approach (3 trials). These interventions, and a majority of the other included studies, were based around common social learning theory principles (sometimes termed Parent Management Training), often incorporating additional, related elements of emotion regulation, and parent–child communication training. Some programmes also had components based on mindfulness, or attachment-based approaches. A very small number of interventions were based on other theoretical models, including family therapy and play therapy. Many trial reports provided poor descriptions of the interventions and their components, making it hard to classify intervention types. Almost half of the trials (45%) tested interventions that were homegrown – that is, developed in the trial country – and half (49%) tested interventions that were transported to the trial country from another country, in most cases from an HIC. Six per cent were unclassifiable, due to limited information. It should be noted that for many interventions, it is not straightforward to make a clear distinction between transported and homegrown. Many interventions were developed in the country, and hence classed as homegrown, but drew heavily on social

learning principles and strategies that came from the international literature and could be seen, to varying degrees, as international in origin.

The setting for intervention delivery was often poorly reported. In 37% of studies, the setting was not reported, 16% were delivered in a health setting, 15% in a community or other public setting, and 14% in a school. In 7% of trials, the setting varied, and in one trial each, the intervention was conducted by phone or in the workplace. Data on other implementation factors were poorly reported, with only 25% of studies reporting on staff training for the intervention, or compensation. Staff qualifications were reported in 70% of studies. Most interventions were conducted by professional staff (53%), with much smaller numbers conducted by semi-professional (12%) or lay-person (6%) staff.

Intervention comparators

Most interventions were compared to a wait-list control group (34%), followed by no treatment control and treatment-as-usual (21%, 17%), active-active comparison (11%) and minimal-intervention control group (6%). For 10% of trials, the nature of the comparison group was not described.

Level of prevention

We classified the interventions into four different prevention levels: universal, selective, indicated and treatment. Level of prevention can be determined from two different perspectives based on the intervention aims.

Level of prevention based on risk of maltreatment

First, trials that aim to reduce harsh and maltreating parenting behaviours are classified as *treatment* if the intervention is offered to parents who were referred by agencies (e.g. social services) based on their levels of maltreatment; as *indicated* if parents are offered an intervention based on scoring highly on child maltreatment instruments; *selective* if based on risk factors for maltreatment such as poverty or child behavioural difficulties; and *universal* if an intervention is offered to parents regardless of any maltreatment-related criteria. In this review the largest number of trials, 60%, tested effectiveness of interventions at the selective prevention level – that is, families at risk of maltreatment, followed by universal intervention, 33%. Only seven trials (5%) involved interventions operating in a ‘response’ mode – that is, offering interventions to parents based on their level of maltreatment (n=3 trials indicated; n=4 treatment).

Level of prevention based on risk of child conduct problems

Trials that aim to reduce child conduct problems are classified as *treatment* if the intervention is offered to parents of children diagnosed or referred for clinically significant levels of conduct problems; as *indicated* if offered an intervention based on reporting that their child scores highly on a behaviour problem inventory; *selective* if based on risk factors for conduct problems; and *universal* if an intervention is offered to parents regardless of any

child conduct-related criteria. In this review, the largest number of trials, 34%, tested the effectiveness of interventions at the selective prevention level – that is, families at risk of child conduct problems. Treatment trials made up 31%, indicated prevention 5%, and universal 27%. The remainder (3%) were unclear or mixed.

Participant characteristics

A total of 22,375 families participated in the included parenting intervention trials. In terms of family poverty level, the largest group of trials (37%) included mainly low-income families, followed by mainly middle income (23%) and high income (5%) families. However, in 34% of trials, income level of the families was either very varied or – more often – not reported. In terms of parent education level, the largest group of trials (21%) included mainly low-educated parents, with primary school or below level of education, followed by mainly secondary educated (18%) and higher educated (17%). The remainder of trials, almost half (45%), did not report parental education level. Most trials did not report ethnicity of the families, but where they did, almost all were from the ethnic majority of the country.

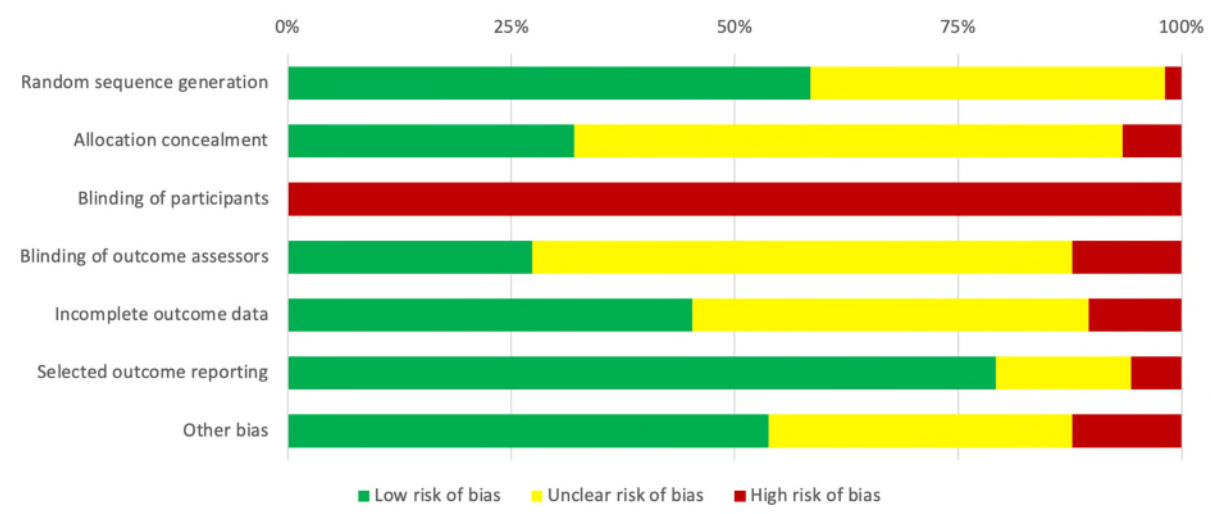
Most of the trials (93%) included boys and girls, with the percentages of girls within trials ranging from 14% to 60%. In three trials, all participants were girls, and in five trials, all were boys. Most of the caregivers were female (range, 37–100% female, mean percentage female 88%), and in half of trials, all caregivers were female. On average, caregivers were 35 years old. One trial in Tanzania had a majority of male participants (63%).

The mean age of children in the studies ranged from 2 to 17, but 47 (36%) studies did not report mean child age. Most studies, however (all but five), reported or gave clues as to the age range of the children, with 40% of studies involving children broadly of primary school age (age 5–10), 30% preschoolers (age 2–5), and 22% of studies involving primarily teenagers (age 11–17). The mean age of caregivers in the studies was 37 years.

Risk of bias of included studies

There was a low risk of bias on most indices across studies, apart from blinding of participants. However, in nearly two thirds of studies (64%), there was a high or unclear risk of bias in relation to the developer of the intervention being involved with the trial. There was an unclear risk of bias in more than half of included studies in relation to allocation concealment and blinding of assessors (Figure 3). Other potential sources of bias are noted: most trials were not pre-registered, meaning the level of selective outcome reporting bias was hard to assess. It is standard in the field to use parent-reported outcomes for parenting and child outcomes, meaning key outcome reporters are unable to be blinded to intervention status.

Figure 3. Risk of bias of included studies



Studies included in the meta-analysis

There were 105 studies included in the meta-analysis. Twenty-six (of 131) studies could not be included in the meta-analysis because the paper did not report suitable data on our predefined outcomes, and authors did not respond to requests for fuller data. The excluded trials tended to be older, and took place in a range of countries and regions, including South Africa, Iran, China, Uganda and Mexico. The 26 not included were on average larger in size (mean $N = 278$, median 74, compared to mean 170, median 79 in the full sample), and included several large studies conducted over 10 years ago, for which we were unable to obtain data from the authors. The trials covered a range of age groups, and, like the full sample of studies, most (all but five) were in upper-middle-income countries.

Main effects results

Prioritized outcomes:

Maltreatment

Twenty trials reported child maltreatment outcomes, with 47 effect sizes. Parenting interventions had a small, significant effect on reducing maltreatment, with substantial variation between studies ($d = -0.39$; 95% CI = -0.61, -0.17; $p = 0.0015$; $I^2 = 84\%$). Trials were conducted in the following 11 countries: Burkina Faso, South Africa (3), Nigeria (2), Tanzania, Chile, Thailand (2), Philippines, Indonesia, Iraq, Iran (4) and China (3).

Physical abuse

Thirteen trials reported physical abuse outcomes, with 21 effect sizes. Interventions had a medium-sized, significant effect on reducing physical abuse, with substantial variation between studies ($d = -0.59$; 95% CI = -0.92, -0.26; $p = 0.002$; $I^2 = 89\%$).

Table 1. Main effect results for all outcomes in LMICs, at post test

Outcome	No. of trials	No. of effect sizes	Effect size (Cohen's d)	Confidence interval of effect size	Heterogeneity (I ²)	Certainty of evidence (GRADE)
Prioritized outcomes						
Maltreatment	20	47	-0.39	-0.61, -0.17**	84%	⊕⊕⊕○ moderate
Physical abuse	13	21	-0.59	-0.92, -0.26**	89%	<i>not rated</i>
Psychological abuse	10	20	-0.26	-0.48, -0.04 *	85%	<i>not rated</i>
Neglect	3	3	-0.15	N/A	27%	<i>not rated</i>
Harsh parenting	44	95	-0.37	-0.54, -0.19**	89%	⊕⊕○○ low
Negative parenting	58	207	-0.47	-0.61, -0.32**	90%	<i>not rated</i>
Positive parenting	64	219	0.46	0.29, 0.64**	88%	⊕⊕○○ low
Parenting stress	16	23	-0.24	-0.44, -0.03*	72%	⊕⊕⊕○ moderate
Parent mental health problems	29	55	-0.57	-0.88, -0.27**	90%	⊕⊕○○ low
Child emotional-behavioural problems	70	293	-0.62	-0.81, -0.43**	90%	<i>not rated</i>
Child externalizing	54	158	-0.59	-0.80, -0.37**	89%	⊕⊕⊕○ moderate
Child internalizing	35	90	-0.46	-0.65, -0.27**	84%	⊕⊕⊕○ moderate

Non-prioritized outcomes					
Intimate partner violence	8	16	-.24	-.50, 0.016 [†]	70%
Parenting efficacy and satisfaction	16	21	0.41	0.01, 0.83*	90%
Child conduct problems	46	85	-0.59	-0.84, -0.34**	90%
Child ADHD	27	54	-0.50	-0.72, -0.28**	84%
Child anxiety/depression	14	28	-0.37	-0.70, -0.04*	84%

Note: Colour-coding as green = significant effect, blank = non-significant effect, grey = df<4 and untrustworthy results; p-value ranges: 0.05 – 0.01= *, 0.01 – 0.000= **, 0.05 – 0.999= †

Psychological abuse

Ten trials reported psychological abuse outcomes, with 20 effect sizes. Interventions had a small-sized, significant effect on reducing psychological abuse, with substantial variation between studies ($d=-0.26$; 95% CI= -0.48, -0.04; $p=0.024$; $I^2=85\%$).

Neglect

Three trials reported neglect outcomes, too few to report a reliable summary. Effect sizes were small, ranging from zero and near zero to 0.4.

Harsh parenting

Forty-four trials reported harsh parenting outcomes, with 95 effect sizes. Interventions had a small-sized, significant effect on reducing harsh parenting, with substantial variation between studies ($d=-0.37$; 95% CI= -0.54, -0.19; $p=0.0001$; $I^2=89\%$).

Negative parenting

Fifty-eight trials reported negative parenting outcomes, with 207 effect sizes. Interventions had a small-sized, significant effect on reducing negative parenting, with substantial variation between studies ($d=-0.47$; 95% CI= -0.61, -0.32; $p=0.000$; $I^2=90\%$).

Positive parenting

Sixty-four trials reported positive parenting outcomes, with 219 effect sizes. Interventions had a small-sized, significant effect on improving positive parenting, with substantial variation between studies ($d = 0.46$; 95% CI = 0.29, 0.64; $p = 0.000$; $I^2 = 88\%$).

Parenting stress

Sixteen trials reported parenting stress outcomes, with 23 effect sizes. Interventions had a small-sized, significant effect on reducing parenting stress, with substantial variation between studies ($d = -0.24$; 95% CI = -0.44, -0.03; $p = 0.028$; $I^2 = 72\%$).

Parent mental health problems

Twenty-nine trials reported parent mental health outcomes, with 55 effect sizes. Interventions had a medium-sized, significant effect on reducing parent mental health symptoms, mainly depression and anxiety, with substantial variation between studies ($d = -0.57$; 95% CI = -0.88, -0.27; $p = 0.0006$; $I^2 = 90\%$).

Child behaviour problems – mixed externalizing and internalizing

Seventy trials reported on child behaviour problems, with 293 effect sizes. Interventions had a medium-sized, significant effect on reducing child behaviour problems, with substantial variation between studies ($d = -0.62$; 95% CI = -0.81, -0.43; $p = 0.0000$; $I^2 = 90\%$).

Child externalizing problems

Fifty-four trials reported on child externalizing problems, with 158 effect sizes. Interventions had a medium-sized, significant effect on reducing child externalizing problems (including conduct problems, delinquency and drug use), with substantial variation between studies ($d = -0.59$; 95% CI = -0.80, -0.37; $p = 0.0000$; $I^2 = 89\%$).

Child internalizing problems

Thirty-five trials reported on child internalizing problems, with 90 effect sizes. Interventions had a small-sized, significant effect on reducing child externalizing problems (including depression, anxiety, fears and worries, and somatic symptoms), with substantial variation between studies ($d = -0.46$; 95% CI = -0.65, -0.27; $p = 0.0000$; $I^2 = 84\%$).

Non-prioritized outcomes:

Intimate partner violence (IPV)

Eight trials reported on IPV, with 16 effect sizes. Parenting interventions had a small-sized effect, with borderline significance, on reducing partner violence, and substantial variation between studies ($d = -0.24$; 95% CI = -0.50, 0.016; $p = 0.06$; $I^2 = 70\%$).

Parenting efficacy and satisfaction

Sixteen trials reported on parenting efficacy and satisfaction, with 21 effect sizes. Parenting interventions had a small-sized, significant effect on improving parents' sense of efficacy and satisfaction in their parenting, and substantial variation between studies ($d=0.41$; 95%CI =0.01, 0.83; $p=0.05$; $I^2=90\%$).

Child conduct problems

Forty-six trials reported on child conduct problems, with 85 effect sizes. Parenting interventions had a medium-sized, significant effect on reducing child conduct problems, with substantial variation between studies ($d=-0.59$; 95%CI =-0.84, -0.34; $p=0.0000$; $I^2=90\%$).

Child ADHD

Twenty-seven trials reported on child ADHD symptoms, with 54 effect sizes. Parenting interventions had a medium-sized, significant effect on reducing child ADHD symptoms, with substantial variation between studies ($d=-0.50$; 95%CI =-0.72, -0.28; $p=0.0001$; $I^2=84\%$).

Child anxiety and depression

Fourteen trials reported on child symptoms of anxiety and depression, with 28 effect sizes. Parenting interventions had a small-sized, significant effect on reducing child symptoms, with substantial variation between studies ($d=-0.37$; 95%CI =-0.70, -0.04; $p=0.03$; $I^2=84\%$).

Long-term effects

We identified 9 out of 131 trials that reported follow-up data on harsh parenting and child maltreatment. The time point of the follow-up data collection ranged from 3 to 14 months post-intervention. Of trials that reported follow-up data, most found a sustained reduction in harsh parenting and maltreatment-related outcomes such as physical and psychological abuse, authoritarian parenting, coercive parenting and corporal punishment. However, a few trials found no sustained long-term effects, reporting no difference on maltreatment or harsh parenting between intervention and control group at follow-up. In addition, effect sizes ranged widely from $d= 0.00$ to $d= -2.36$. Although these data are promising, long-term data may be at higher risk of publication bias; thus, more studies with long-term follow-up are needed to understand whether parenting interventions in LMICs have enduring beneficial effects.

Moderation results in LMICs

Definition of moderator variables

We examined differential effects of the intervention on the following four key outcomes: child maltreatment, negative parenting, positive parenting, and child emotional and behavioural problems (mixed externalizing and internalizing problems). We conducted planned subgroup analyses (see tables 2-6), based on the following characteristics (including continuous and categorical variables) assessed at trial level:

- Level of prevention from both a maltreatment perspective and a child conduct problem perspective (three levels: universal vs. selective vs. indicated prevention or treatment)
- Country income status (two levels: low vs. upper-middle vs. high).

Family characteristics (predominant characteristics, at trial level):

- Family socio-economic status (SES; two levels: disadvantaged vs. non-disadvantaged; each trial coded according to predominant SES level of the participating families)
- Parent education level (three levels: primary, secondary, higher; each trial coded according to predominant education level of the participating parents)
- Child age (three levels: preschool, primary school age, teenage)
- Parent age – mean per trial (continuous variable)
- Proportion of female caregivers – mean percentage per trial (continuous variable)
- Proportion of female children – mean percentage per trial of target children who were female (continuous variable).

Intervention features:

- Intervention (two levels: homegrown vs. imported from abroad)
- Delivery format (three levels: group, individual, combination)
- Delivery agent (three levels: lay worker, semi-professional, professional)
- Intended number of sessions (continuous variable).

Ethnicity: For most trials, child or parent ethnicity was either not reported or was the same as the majority for the country. Thus, there were insufficient data to test for differential effects by minority status.

Table 2. Moderator analyses for categorical variables for child maltreatment in LMICs (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N sub-group	k sub-group	Mean effect size for subgroup	Difference in coefficients; 95% Confidence Interval (CI) (p-level*)	Tau-squared
Prevention strategy conduct problems – 3 levels; selective vs indicated and treatment, vs universal	Selective	7	14	-0.54	Indicated/Treatment	4	6	-0.32	0.23; CI: -0.60, 1.07	0.17
					Universal	9	27	-0.31	0.21; CI: -0.35, 0.77	
Prevention strategy maltreatment – 3 levels; selective vs indicated and treatment, vs universal	Selective	9	19	-0.20	Indicated/Treatment	3	4	-1.09	<i>unreliable</i>	0.13
					Universal	8	24	-0.31	-0.10; CI: -0.41,0.21	
Family socio-economic status – 3 levels: high vs middle, upper_middle vs low and low_middle	Middle/upper-middle/high	12	27	-0.32	Low/lower-middle	5	15	-0.41	<i>unreliable</i>	0.12
Delivery format – 3 levels: group vs individual, group vs mixed	Group	14	29	-0.45	Individual	2	13	-0.59	<i>unreliable</i>	0.24
					Mixed	3	4	-0.02	<i>unreliable</i>	
Country income level – 2 levels: upper-middle income vs low-lower-middle	Upper-middle	15	33	-0.25	Low-lower-middle	5	14	-0.75	0.46; CI: -1.20, 0.28	0.12

Delivery agent – 3 levels – lay-worker, semi-professional, professional	Professional	10	24	-0.49	Lay worker	2	4	-0.20	<i>unreliable</i>	0.12
					Semi-professional	6	16	-0.14	0.33; CI: -0.2, 0.69	
Participating adult – 3 levels: mothers & fathers vs mix of caregivers, vs mothers	Mothers & fathers	8	18	-0.51	Mix of caregivers	4	8	-0.14	0.39; CI: -0.12, 0.89	0.17
					Mothers	8	21	-0.43	0.10; CI: -0.45, 0.66	
Parent education level – 3 levels: primary vs higher, vs secondary	Primary	8	17	-0.17	Higher	3	4	-0.60	<i>unreliable</i>	0.16
					Secondary	5	17	-0.75	-0.54; CI: -0.93, -0.15	
Child age group – 3 levels: primary vs preschool, vs teen	Primary	8	15	-0.39	Preschool	8	24	-0.39	-0.01; CI: -0.58, 0.55	0.18
					Teen	4	8	-0.33	-0.03; CI: -0.79, 0.73	
Homegrown – 2 levels: homegrown vs. imported intervention	Homegrown	14	34	-0.21	Imported	7	13	-0.47	-0.26, CI: -1.20, 0.28	0.12

P-levels: * = 0.05–0.01 ** = 0.010–0.000

Table 3. Moderator analyses for categorical variables for negative parenting in LMICs (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N sub-group	k sub-group	Mean effect size for subgroup	Difference in coefficients; 95% Confidence Interval (CI) (p-level*)	Tau-squared
Prevention strategy conduct problems – 3 levels; selective vs indicated and treatment, vs universal	Selective	21	77	-0.40	Indicated/Treatment	22	64	-0.70	-0.27; CI: -0.64,0.09	0.24
					Universal	13	64	-0.33	-0.06; CI: -0.27,0.40	
Prevention strategy maltreatment – 3 levels; selective vs indicated and treatment, vs universal	Selective	39	131	-0.49	Indicated/Treatment	4	10	-0.85	<i>unreliable</i>	0.24
					Universal	14	65	-0.35	0.12;CI: -0.19, 0.42	
Family socio-economic status – 2 levels: low vs high, low vs middle	Low	13	34	-0.52	High	4	13	-1.07	<i>unreliable</i>	0.17
					Middle	25	94	-0.28	-0.24;CI: -0.56, 0.08	
Delivery format – 3 levels: group vs individual, group vs mixed	Group	41	150	-0.49	Individual	4	17	-0.46	<i>unreliable</i>	0.24
					Mixed	9	31	-0.58	-0.06;CI: -0.52, 0.40	
Country income level – 2 levels: upper-middle income vs low-lower-middle	Upper-middle	48	168	-0.44	Low-lower-middle	10	39	-0.59	-0.15;CI: -0.60, 0.31	0.22

Delivery agent – 3 levels – lay-worker, semi-professional, professional	Professional	25	85	-0.60	Lay worker	5	19	-0.27	0.32; CI: -0.09, 0.73	0.17
	Semi-professional					11	46	-0.24	0.33; CI: 0.03, 0.63*	
Participating adult – 3 levels: Mothers & fathers vs mix of caregivers, vs mothers	Mothers & fathers	23	88	-0.49	Mix of caregivers	7	34	-0.09	0.43; CI: 0.10, 0.76*	0.21
					Mothers	25	76	-0.62	-0.10; CI: -0.42, 0.21	
Parent education level – 3 levels: primary vs higher, vs secondary	Primary	13	60	-0.17	Higher	11	26	-0.59	-0.41; CI: -0.85, 0.03	0.25
					Secondary	12	44	-0.67	-0.48; CI: -0.80, 0.16	
Child age group – 3 levels: primary vs preschool, vs teen	Primary	26	87	-0.48	Preschool	19	73	-0.48	-0.01; CI: -0.34, 0.32	0.25
					Teen	11	38	-0.41	0.06; CI: -0.37, 0.50	
Homegrown – 2 levels: homegrown vs. imported intervention	Homegrown	20	47	-0.26	Imported	-	-	-0.47	0.21; CI: -0.28, 0.31	0.16

P-levels: * = 0.05–0.01 ** = 0.010–0.000

Table 4 . Moderator analyses for categorical variables for positive parenting in LMICs (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N subgroup	k subgroup	Mean effect size for subgroup	Difference in coefficients; 95% Confidence Interval (CI) (p-level*)	Tau-square d
Prevention strategy conduct problems – 3 levels; selective vs indicated and treatment, vs universal	Selective	26	105	0.39	Indicated/ Treatment	21	54	0.52	0.13; CI:-0.37,0.61	0.22
					Universal	16	57	0.52	0.13;CI: -0.24,0.50	
Prevention strategy maltreatment – 3 levels; selective vs indicated and treatment, vs universal	Selective	40	138	0.44	Indicated/ Treatment	5	6	0.98	<i>unreliable</i>	0.24
					Universal	19	72	0.45	0.01; CI:-0.33,0.39	
Family socio-economic status – 2 levels: low vs high, low vs middle	Low	31	142	0.37	High	4	13	0.48	<i>unreliable</i>	0.20
					Middle	15	31	0.84	0.47;CI:-0.21, 0.95	
Delivery format – 3 levels: group vs individual, group vs mixed	Group	43	158	0.57	Individual	7	18	0.45	-0.12;CI:-0.62,0.38	0.22
					Mixed	12	38	0.10	-0.47; CI: -0.96,- 0.03	

Country income level – 2 levels: upper-middle income vs low-lower-middle	Upper-middle	48	168	0.43	Low-lower-middle	9	50	0.40	-0.07; CI: -0.47,0.32	0.22
Delivery agent – 3 levels – lay-worker, semi-professional, professional	Professional	29	91	0.34	Lay worker	6	32	0.29	-0.07;CI: -0.39, 0.24	0.15
					Semi-professional	11	47	0.27	-0.09;CI: -0.43, 0.24	
Participating adult – 3 levels: Mothers & fathers vs mix of caregivers, vs mothers	Mothers & fathers	25	104	0.30	Mix of caregivers	10	46	0.38	0.08; CI: -0.26, 0.49	0.22
					Mothers	27	67	0.66	0.34;CI: -0.06, 0.75	
Parent education level – 3 levels: primary vs higher, vs secondary	Primary	16	71	0.42	Higher	11	33	0.67	0.18; CI: -0.38, 0.74	0.22
					Secondary	11	32	0.33	-0.12;CI: -0.48, 0.34	
Child age group – 3 levels: primary vs preschool, vs teen	Primary	31	100	0.40	Preschool	18	60	0.39	0.01;CI: -0.38, 0.39	0.22
					Teen	12	51	0.64	0.24; CI: -0.27, 0.76	
Homegrown – 2 levels: homegrown vs. imported intervention	Homegrown	60	209	0.41	Imported	-	-	0.54	0.13; CI: -0.23, 0.49	0.22

P-levels: * = 0.05–0.01 ** = 0.010–0.000

Table 5 . Moderator analyses for categorical variables for child emotional and behavioural problems (externalising/internalising) in LMICs (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N sub-group	k sub-group	Mean effect size for subgroup	Difference in coefficients; 95% Confidence Interval (CI) (p-level*)	Tau-square d
Prevention strategy conduct problems – 3 levels; selective vs indicated and treatment, vs universal	Selective	22	78	-0.37	Indicated/Treatment	36	173	-1.03	-0.66; CI -0.92,-0.07*	0.29
					Universal	10	36	-0.26	0.14;CI: -0.15,0.43	
Prevention strategy maltreatment – 3 levels; selective vs indicated and treatment, vs universal	Selective	53	230	-0.72	Indicated/Treatment	NA	NA	NA	NA	NA
					Universal	15	50	-0.37	NA	
Family socio-economic status – 2 levels: low vs high, low vs middle	Low	25	81	-0.21	High	4	20	-0.28	<i>unreliable</i>	0.13
					Middle	14	57	-0.60	-0.39;CI: -0.67, 0.04	
Delivery format – 3 levels: group vs individual, group vs mixed	Group	43	186	-0.54	Individual	7	25	-0.55	0.03; CI: -0.89, 0.95	0.32
					Mixed	13	53	-0.66	-0.11; CI: -0.61,0.38	

Country income level – 2 levels: upper-middle income vs low-lower-middle	Upper-middle	63	271	-0.69	Low-lower-middle	7	22	-0.15	-0.50, CI: 0.22, 0.78*	0.22
Delivery agent – 3 levels – lay-worker, semi-professional, professional	Professional	42	187	-0.66	Lay worker	2	7	-0.04	<i>unreliable</i>	0.28
					Semi-professional	11	49	-0.33	0.29; CI: -0.11, 0.70	
Participating adult – 3 levels: Mothers & fathers vs mix of caregivers, vs mothers	Mothers & fathers	24	131	-0.42	Mix of caregivers	7	23	-0.20	0.10; CI: -0.48, 0.68	0.28
					Mothers	34	127	-0.77	-0.29; CI: -0.67, 0.10	
Parent education level – 3 levels: primary vs higher, vs secondary	Primary	12	39	-0.32	Higher	13	52	-0.51	-0.18; CI: -0.63, 0.26	0.33
					Secondary	12	40	-0.67	-0.31; CI: -1.10, 0.48	
Child age group – 3 levels: primary vs preschool, vs teen	Primary	35	151	-0.63	Preschool	23	89	-0.52	0.04; CI: -0.37, 0.46	0.13
					Teen	11	52	-0.80	-0.15; CI: -0.87, 0.57	
Homegrown – 2 levels: homegrown vs. imported intervention	Homegrown	70	293	-0.68	Imported	-	-	-0.17	0.07; CI: -0.32, 0.50	0.30

P-levels: * = 0.05–0.01 ** = 0.010–0.000

Moderator findings

Level of prevention – child maltreatment perspective (three levels: universal vs. selective vs. indicated prevention or treatment)

We found no evidence that intervention outcomes were moderated by level of prevention from a child maltreatment perspective. In other words, the effectiveness of the intervention for reducing maltreatment, negative parenting, and child emotional and behavioural problems, and improving positive parenting did not vary by the level of prevention (treatment or indicated, selective or universal) if assessed from a maltreatment perspective. Thus, trials focusing on families who were selected for their high risk of maltreatment were no more likely to show greater or lesser intervention effects than those focusing on families with lower levels of risk. We note that relatively few trials used an indicated or treatment prevention strategy (7/131 trials, 5%), and some analyses were unreliable. Therefore, more studies are needed to understand whether interventions that target parents in LMICs who are at higher risk of maltreatment have stronger effects on parent and child outcomes.

Level of prevention – child conduct problem perspective (three levels: universal vs. selective vs. indicated prevention or treatment)

For parenting outcomes – that is, maltreatment, negative parenting and positive parenting – we found no evidence that intervention effects were moderated by level of prevention from a child conduct problem perspective. However, for child emotional and behavioural problem outcomes, effects were stronger in indicated and treatment trials – that is, trials testing interventions that targeted children with high levels of behavioural problems. Thus, we found that indicated/treatment trials ($d=-1.03$; $n=36$, $k=173$) had stronger effects compared to selective trials ($d=-0.37$; $n=22$, $k=78$) on reducing child emotional and behavioural problems ($\beta = -0.66$; CI: $-0.92, -0.07$, $\tau^2=0.29$, $n=68$). For universal trials, the effect size was somewhat lower ($d= -0.26$, $n= 10$).

Country income status (two levels: low income and lower-middle income vs. upper-middle income)

We collapsed three levels of country income status into two, because most trials were in upper-middle-income countries, and there were fewer trials in lower-income (low- and lower-middle-income) countries. For most outcomes – that is, maltreatment, negative parenting and positive parenting – we found no evidence that intervention effects were moderated by country income status. However, for child emotional and behavioural problem outcomes, effects were stronger in upper-middle-income ($d=-0.67$; $n=63$, $k=271$) compared to lower-income ($d=-.17$; $n=7$, $k=22$) countries ($\beta = -0.50$; 95% CI $[-0.22, -0.78]$, $\tau^2=0.32$ $n=70$). We note the caution that this analysis included just seven trials from lower-income countries.

Family characteristics

Family SES (two levels: disadvantaged vs. non-disadvantaged; coded by predominant SES level of participating families in each trial). For all outcomes we found no evidence that intervention effects were moderated by family SES level. There was a good deal of missing data on family income level, and some analyses were unreliable.

Parent education level (three levels: primary vs. secondary vs. higher; coded according to predominant education level of parents participating in each trial). For all outcomes we found no evidence that intervention effects were moderated by parent education level. There was a good deal of missing data on education level, and some analyses were unreliable.

Child age group (three levels: preschool vs. primary school age vs. teenage). We chose to analyse child age by age group categories, rather than treat age as a continuous variable. This was due to poor reporting; thus, despite requests to authors, many trials did not provide mean age, but most reported some information on the broad age group of the children. For all outcomes we found no evidence that intervention effects were moderated by child age. Contrary to common belief, there was no suggestion that interventions delivered when children are younger were any more effective, with trends not showing any predominance of stronger effects in younger children. For example, for positive parenting and child emotional and behavioural problems, effects tended to be (non-significantly) larger for teenagers compared to younger children, and for all outcomes, effect sizes were closely similar for preschool children (0–2) compared to children of primary school age.

Parent age; proportion of female caregivers; proportion of female children participating. For these continuous moderators (table 6), for all outcomes, we found very little evidence that intervention effects were moderated by average age or gender composition (at trial level) of the family members attending the intervention. Exceptions to the lack of differential effects were that trials with a higher proportion of girls among the target children showed stronger effects on positive parenting and on child emotional and behavioural problems (change per SD = -0.01, CI -0.02, -0.00; $\tau^2=0.28$). This finding is hard to interpret, as distributions are very skewed, with most trials having a girl:boy ratio close to 50:50, and a few focused on only one gender.

Intervention features

Intervention (two levels: homegrown vs. imported from abroad). There was no evidence of moderation by the origin of the intervention, for any outcome. Thus, homegrown interventions were no more likely to be effective than those developed in and imported from another country. In almost all cases interventions were imported from an HIC.

Delivery format (three levels: group vs. individual vs. combination). There was no evidence of moderation by delivery format, thus group-based interventions were no more or less likely to be effective than interventions delivered to individual families or parents. Effect sizes were closely similar for group- and individual-based intervention, for all outcomes. There was one significant moderation effect: for positive parenting outcomes, the category of 'mixed group and individual' interventions ($d = 0.1$, $N = 12$) was less effective than group-based ones ($d = 0.57$, $N = 43$; $\beta = -0.49$; 95% CI = -0.96, -0.03, $\tau^2 = 0.22$). However, this is hard to interpret, given that the main comparison of interest – group vs. individual – showed no differential effects (individual, $d = 0.45$, $N = 7$). For maltreatment and negative parenting outcomes, there were very few trials (two and four, respectively) in the subgroup of individually delivered interventions, and these analyses were not reliable. For child emotional and behavioural outcomes, effect sizes were very similar for individual and group based programmes ($d = .55$ & $.54$).

Qualifications of delivery agent (three levels: lay worker vs. semi-professional vs. professional). For most outcomes, there was no evidence of moderation by level of qualifications of staff delivering the programme. For negative parenting only, there were stronger effects in trials where the intervention was delivered by professional ($d = -.60$; $n = 25$, $k = 85$) vs. semi-professional staff ($d = -.24$; $n = 11$, $k = 46$) staff ($\beta = 0.33$; 95% CI [-0.03, 0.63., $\tau^2 = 0.17$). The effect size for lay staff ($d = -.27$; $n = 5$, $k = 19$) was similar to that for semi-professional.

Intended number of sessions (continuous variable, table 6). Longer interventions – that is, those with a greater number of intended sessions – were no more likely to be effective than shorter interventions. For negative parenting outcomes, shorter programmes were associated with larger effect sizes ($N = 58$, change per SD = 0.04, CI 0.02, 0.07; $\tau^2 = 0.28$). For other outcomes, the trends, which were not significant, tended to go in the same direction, whereby shorter programmes tended to show greater effects.

Summarizing the moderator analyses of the LMIC review, examining 14 potential moderators related to level of prevention, country context, and family and intervention characteristics across 4 outcomes, we found little evidence of differential effects. Thus, the effect of parenting interventions on child maltreatment and harsh/negative parenting outcomes did not vary by level of prevention, poverty level of the country, gender of the child, education level of the parent, family-level poverty, or child or parent age. For most trials, family ethnicity was either not reported or was the same as the majority for the country. Thus, there were insufficient data to test if there were differential effects by minority status. There was some evidence of moderation by intervention delivery characteristics, though many of these analyses were unreliable or hard to interpret, due to low numbers or restricted distributions. With these caveats, there was some suggestion that

longer programmes, and those delivered by lay staff, tended to show smaller effects on negative parenting.

Table 6. Moderators for continuous variables for all outcomes in LMICs

Moderator	Outcome	K	N	Mean effect size, ref group	Change per standard deviation	95% CI (p-level*)	Heterogeneity (τ^2)
Number of sessions	Child maltreatment	45	20	-0.39	0.06	CI: -0.01; 0.14	0.14
	Negative parenting	203	58	-0.43	0.04	CI: 0.02; 0.07*	0.21
	Positive parenting	216	63	0.49	-0.02	CI: -0.06; 0.03	0.20
	Child emot.& beh. problems	266	66	-0.61	0.02	CI: -0.02; 0.06	0.31
Mean parent age	Child maltreatment	47	20	-0.39	0.13	CI: -0.34; 0.60	0.16
	Negative parenting	162	44	-0.44	0.03	CI: -0.30; 0.37	0.20
	Positive parenting	182	47	0.44	-0.15	CI: -0.42; 0.12	0.15
	Child emot.& beh. problems	159	42	-0.38	0.07	CI: -0.34; 0.49	0.22
Parent gender (female participants)	Child maltreatment	45	19	-0.41	0.01	CI: -0.28; 0.29	0.18
	Negative parenting	177	51	-0.51	0.03	CI: -0.08; 0.14	0.24
	Positive parenting	200	57	0.49	0.04	CI: -0.05; 0.13	0.22
	Child emot. & beh. problems	203	54	-0.50	-0.09	CI: -0.21; 0.03	0.26
Child gender (% girls)	Child maltreatment	46	19	-0.39	-0.01	CI: -0.07; 0.05	0.08
	Negative parenting	204	57	-0.42	0.00	CI: -0.01; 0.00	0.20
	Positive parenting	218	63	0.43	0.00	CI: 0.00; 0.01	0.20
	Child emot.& beh. problems	293	70	-0.58	-0.01	CI: -0.02; -0.00*	0.28

P-levels: * = 0.05–0.01 ** = 0.01–0.000

For child behaviour problem outcomes in LMICs, there were also no differential effects by parent education level or poverty, or child or parent age. However, intervention effects on child behaviour problems were moderated by level of child emotional and behaviour problems, and by level of externalizing problems, with trials having stronger effects when they were focused at an indicated prevention level, or on treatment for children showing severe problems. Effects were also somewhat lower in trials in the lowest-income countries, and somewhat higher in trials where there was a higher percentage of girls (i.e. girls who were the target child for the outcome assessments). There were no trials focusing purely on fathers, hence trials were classified by whether the participants were all mothers or a mix of mothers and fathers; data on the percentage of female caregiver participants were also analysed. No differential effects were found by gender composition of the group. A few trials reported including grandparents, almost all female, but reporting was insufficiently clear, and numbers too small for analysis.

Certainty of evidence (GRADE)

For most outcomes, we are moderately confident in the effect estimate; the true effects likely are close to the effect estimate, but there is a possibility that they are substantially different. The remaining few outcomes were graded as low certainty. Our grading was determined based on an overarching confidence in the estimates. On the one hand, we had some serious and very serious concerns about the risk of bias. On the other hand, we took into account several criteria that increased our confidence: the consistency in effect; the high relevance of the trials to our PICO questions; and our moderation results that explained some heterogeneity in the effect estimates. For example, for harsh parenting, we judged the confidence as low due to very serious concerns about risk of bias (high risk of unblinding of outcome assessors and lack of addressing incomplete data). We could not detect publication bias for any of the outcomes.

Discussion

Summary of findings

This systematic review focused on the effectiveness of parenting interventions for reducing maltreatment in children aged 2–17 years in LMICs. The outcome focus was on child maltreatment in the family, associated harsh and positive parenting behaviours, and child and parent mental health and child behaviour problems. The review is the most comprehensive to date, based on screening over 75,000 studies retrieved from highly sensitive searches in multiple electronic global, regional and grey literature databases, in several languages. A total of 131 RCTs met our inclusion criteria, involving 22,375 families

from 36 countries, in all regions of the world. Most trials were conducted in upper-middle-income countries, with the largest number in Iran, China and South Africa. It is striking to note the increase in the number of parenting trials in LMICs over the 10 years since the searches were conducted for the first systematic review on this topic (Knerr et al., 2013) – which included just 12 trials.

Of the 131 included trials, 103 provided data potentially suitable for meta-analysis of one or more of the pre-planned outcomes. Numbers of studies included in the meta-analysis for each outcome, however, were considerably lower (range 3–70 trials), with 20 trials reporting on maltreatment outcomes, and 44 on harsh parenting. The highest numbers of trials included in the meta-analysis were 70 for child behavioural and emotional problems, and 64 for positive parenting. Most trials reported multiple effect sizes for each outcome domain, thus we were able to include in the meta-analyses larger numbers of effect sizes for each trial.

With this caveat, the meta-analyses found that parenting interventions reduce child maltreatment, with small to medium effect sizes for maltreatment overall ($d = -.39$), physical ($d = -.59$) and psychological abuse ($d = -.26$), and harsh parenting ($d = -.37$). Too few trials assessed parental neglect to report a pooled outcome, and there was wide variation in effects. Parenting interventions also reduced overall negative parenting ($d = -.47$) and improved positive parenting ($d = .46$). Many of the trials aimed to address child behavioural problems, and significant medium-sized intervention effects were found for these outcomes, showing reductions in overall child behavioural-emotional problems ($d = -.62$), externalizing or disruptive behaviour problems ($d = -.59$), and ADHD symptoms ($d = -.50$). Small, significant intervention effects were found for child internalizing problems ($d = -.46$), and child depression and anxiety symptoms ($d = -.37$). Parenting interventions also significantly improved parents' mental health problems ($d = -.57$), and small effects on parenting stress ($d = -0.24$), and on efficacy and satisfaction in the parenting role ($d = 0.41$). There were small, non-significant ($d = -.24$, $p = .06$) effects on partner violence.

Our understanding of the longer-term effects across childhood of parenting interventions in LMICs is limited, as only a few trials reported follow-up data, and these covered only 3-14 months follow up. Most of these trials reported a sustained reduction in harsh parenting and maltreatment-related outcomes such as physical and psychological abuse, suggesting promising evidence that improvement in maltreatment can endure over the first year following intervention.

Our moderator analyses tested whether parenting intervention effects in LMICs are greater or smaller in studies that focus on families in greatest need due to poverty, low education, risk of maltreatment or child behavioural problems. Overall, we found little evidence of differential effects across contexts, or for different groups of families, when examining 14 potential moderators related to level of prevention, country context, family and intervention characteristics across four outcomes. Thus, the effect of parenting interventions on child maltreatment and harsh/negative parenting outcomes did not vary by level of prevention, income level of the country, gender of the child, education level of the

parent, family-level poverty, or child or parent age. There was some evidence of moderation by intervention delivery characteristics, though many of these analyses were unreliable or hard to interpret, due to low numbers or restricted distributions. With these caveats, there was some suggestion that longer programmes, and those delivered by lay staff, tended to show smaller effects on negative parenting. For child behaviour problem outcomes in LMICs, there were also no differential effects by parent education level or poverty, or child or parent age. However, intervention effects on child behaviour problems were moderated by the initial level of these problems, with interventions yielding stronger effects when they were focused at an indicated prevention or treatment level, showing they are particularly beneficial for children showing more severe problems. Effects were also somewhat lower in trials in the lowest-income countries

Findings for gender effects were generally null or weak and were hard to interpret, as there were restricted distributions by parent and child gender across the trials. The distributional problems mean that gender effects are not well captured at trial level, and these questions would be better addressed in individual participant data meta-analysis. There were no trials focusing purely on fathers, hence trials were classified by whether the participants were all mothers or a mix of mothers and fathers.

We note that these moderator findings need interpreting with caution, given that the sample of trials was often small for some outcomes and moderators, that interactions between outcomes and contextual effects are likely to be complex, and that hypothesized moderators only operate at the trial level and may be confounded with other unmeasured trial-level factors. In addition, we observed often a small number of trials included in subgroups, therefore representing only a small portion of the overall effectiveness in the moderation analyses. We also note that a large number of moderators were tested, 14 across 4 outcomes, and we did not correct for multiple testing. Nevertheless, even in this context, some moderator effects are very plausible. Level of prevention, based on child behavioural problems, has repeatedly been found to moderate parenting intervention effects on child behavioural outcomes, in aggregate-level moderator analyses (Leijten et al., 2018), in IPD analyses (Gardner et al., 2017), in large trials (Dishion et al., 2008) and in narrative reviews (Shelleby & Shaw, 2014). Similarly, other reviews have found that longer programmes were less effective (Bakermans-Kranenburg et al., 2003), although we only found this for one outcome, negative parenting.

These moderator results are nevertheless significant in that there have been no large prior reviews focusing on sources of heterogeneity in parenting intervention effects in LMICs. They complement and extend the few findings on within-trial moderator analyses conducted as part of trials in LMICs (see Gardner et al., INTEGRATE report, Chapter 5, 'Equity'), which found little evidence of moderation by child age or gender. The failure to find evidence of differential effects can be viewed as cautiously encouraging for the field, as it suggests these interventions are equally likely to benefit the families who are at highest risk of maltreatment, by virtue of several risk factors, and on a range of outcomes, and by

the same token, are unlikely to increase inequities in these outcomes (see INTEGRATE report, Chapter 5).

Strengths and limitations of this review

This review has many strengths and limitations. Our thorough searching in a very wide range of databases, academic, grey literature, regional, and country-specific, and in several major languages resulted in a review with 131 included studies, all randomized controlled trials, from all regions of the world. This represents by far the largest meta-analytic dataset of parenting interventions in LMICs to date. Our meta-analytic strategy using robust variance estimation is currently seen as a state-of-the-art method that enhances the power for each analysis by including multiple effect sizes from each study. It accounts for inter-correlation within trials and produces a robust average effect size per outcome. Moreover, this review did not limit search terms to child maltreatment terminology and, therefore, included interventions that address the full range of outcomes relevant to the Guideline. Our range of age groups and parenting intervention types was quite broad, enhancing the possibilities for further analysis of sources of heterogeneity through moderator analyses.

An important limitation of our LMIC review is that levels of heterogeneity were very high for all outcomes, reflecting the wide range of contexts, families and parenting programme types included in the review. We were able to explain only small portions of this heterogeneity in our moderator analyses, and it may be that, for some policy questions, smaller, more focused reviews, for example by region or programme type, could be useful, albeit placing considerable limits on the size of the sample. Secondly, very few trials provided follow-up data, limiting our understanding of longer term effects.

Finally, risk of bias was variable across studies, with poor reporting and lack of pre-registration in many studies, leading to judgements of unclear risk of bias. A key source of bias in this field is the use of key outcome measurements based predominantly on self-report by parents, which is especially problematic, since parents took part in the intervention and hence are never blinded to condition. This is a problem in the field recognised since its inception in the 1970s (Patterson, 1982), with researchers striving to develop and validate direct observational measures of parenting and child behaviour (Gardner, 2000; Waller et al., 2015). These manualized observational assessments are conducted, often in the home, by trained observers who are required to attain high reliability standards, and are blinded to intervention condition. Although observational assessments bring their own limitations, they help overcome some of the biases inherent in parent-report instruments (Gardner et al., 2000). However, these assessments are costly to conduct and require suitable equipment, skill and family living conditions, meaning there are fewer studies in LMICs that use these measures. Examples of studies in LMICs that included observational measures are the trials of Ponguta et al. (2020) with refugees in Lebanon, and Ward et al. (2020), in townships in South Africa. It is reassuring to note that in these trials, findings from observational data largely appeared to support those found from self-report. Furthermore, a meta-analysis on the effectiveness of parenting intervention on

disruptive child behaviours identified a similar magnitude of effectiveness for self-report measures compared to independent observations (Menting, de Castro, Matthys, 2013).

Research gaps

Many gaps have been mentioned in the discussion so far. These include lack of long term data, and the need to develop efficient direct observational measures of positive and harsh parenting that are usable in LMIC contexts. Novel methods of online video self-observation carried some promise for this (Oliver & Pike, 2021). Only a small proportion of trials measure child maltreatment, with fewer covering the sub-types of maltreatment and intimate partner violence. Finally, trial pre-registration and reporting standards are sorely in need of improvement, in order to enhance transparency and reduce bias, and provide a more generalizable and unbiased set of trials for meta-analysis. One consequence of poor reporting is missing data on trial baseline characteristics (e.g basic family demographic information) leading to reduced numbers of trials, in many of the moderator analyses, and hence to more uncertain conclusions.

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Global review on parenting interventions for children aged 2–10 years

Key findings

- Based on the evidence from 278 randomized controlled trials conducted in 30 countries, parenting interventions improve a range of parent, child and family outcomes.
- Parenting interventions reduce child maltreatment. However, in a small subset (3%) of trials with longer follow-up, this effect fades out with time.
- Parenting interventions reduce negative parenting (e.g. ineffective behaviour management, overprotection and abusive parenting), improve positive parenting (e.g. warmth and praise) and enhance parental mental health. Data from a subset (12%) of trials suggest that these effects exist up to at least a year later.
- We found no differential effects for the majority of the examined moderator variables indicating that interventions are equally likely to be effective across different contexts and populations.
- However, for some outcomes effectiveness may vary with lower effects when maltreatment or child problem behaviour already occurs in the family, low attendance rates of participants, and for families from an ethnic minority.
- Since most studies used broad measures of child maltreatment, evidence is lacking regarding effectiveness at reducing specific subtypes of VAC, including physical and psychological abuse, neglect, and intimate partner violence between parents.
- Certainty of evidence was rated low to moderate.

Introduction

Child maltreatment is a global phenomenon affecting not only families from LMICs but children across different contexts and cultures, and families along all socio-economic groups. The majority of parenting interventions have been historically developed and evaluated in high-income countries (HICs). To understand whether parenting interventions are effective in reducing violence against all children regardless of the country they live in, it is crucial to include the immense body of evidence from high-income settings. By including trials across varying countries, contexts, settings and thus highly different families, we are increasing heterogeneity between the trials, which will help us to unpack whether these interventions are equally effective for all families. At the same time, we aim to decrease heterogeneity with regard to the parenting interventions themselves by focusing on parenting interventions with a similar theoretical background and target age group. Most parenting interventions help parents at the time of the onset of child behaviour problems

around the age of 2 years until entry into adolescence at around 10 years. Parenting interventions may be based on different theories, including attachment, mindfulness and social learning theory. The most common parenting interventions such as Triple P, Incredible Years and Parent Management Training Oregon are primarily based on social learning theory (Bandura & McClelland, 1977). According to social learning theory, children develop disruptive behaviours when parents negatively reinforce defiant behaviours and model adverse behaviours to their children. Those interventions teach parents behaviour management skills such as setting clear rules, and reduce coercive reinforcement cycles (Patterson, 1982). The coercive cycle of parent–child interaction describes a maladaptive pattern in which parents unwittingly reward disruptive behaviours by bringing attention to them. Moreover, parents model adverse behaviours that lie on the spectrum of child maltreatment such as screaming, yelling, spanking or hitting a child in a conflict or disciplining situation. Children may model these behaviours and, as a result, learn that they are acceptable (White & Straus, 1981). An example of a coercive interaction is displayed in Figure 1. By introducing parents to alternatives to physical and emotional discipline, those interventions can reduce child maltreatment.

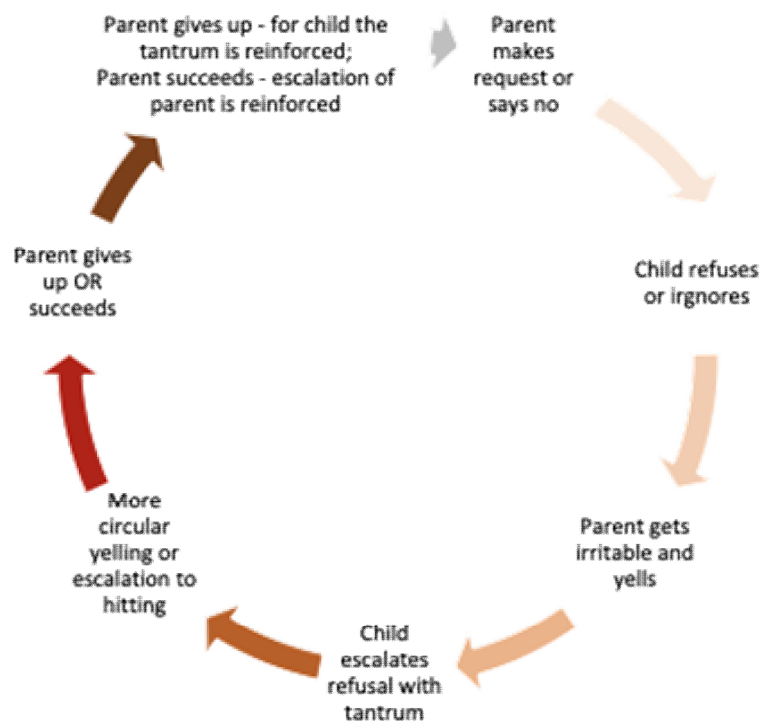
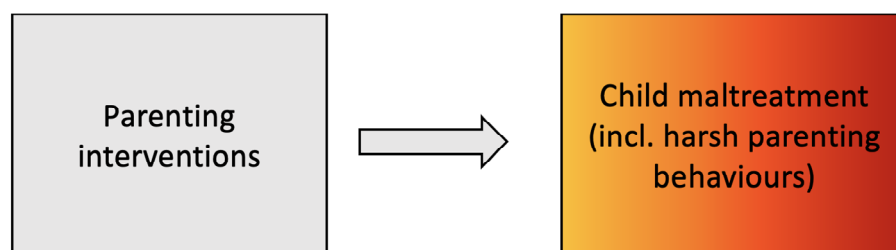


Figure 1. Adaptation of the coercive cycle (Patterson, 1982)

Child maltreatment is commonly defined as “any act or series of acts of commission or omission by parent or other caregiver that results in harm, potential for harm or threat of harm to a child” (Leeb et al., 2008). Commissive acts are grouped under physical, sexual and emotional abuse, and include words or overt actions that cause harm, potential harm or threat of harm to a child that are deliberate and intentional. Neglect includes acts of

omission – the failure to provide for a child’s basic physical, emotional or educational needs or to protect a child from harm or potential harms. In the research field of parenting and parenting interventions, researchers struggled with setting a threshold for labelling negative and potentially harmful parenting behaviours as child maltreatment. Researchers often used a third concept called “harsh parenting” that includes potentially harmful parenting behaviours that does not necessarily reach the threshold of abuse or neglect. Harsh parenting is less clearly defined, in common with maltreatment, the threshold is subjective, and harsh parenting is often described using terminology that is shared with maltreatment researchers such as verbal aggression, spanking and physical punishment. However, instruments are often used interchangeably to describe child maltreatment or harsh parenting such as the Conflict Tactics Scale by Straus and colleagues (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). In a separate research project (Backhaus, Leijten, Meinck & Gardner, 2022), we systematically compared instruments that were developed to measure child maltreatment to instruments that were developed to measure parenting behaviours that are often called “harsh”. We found a strong overlap (73%) of physical and emotional harmful parenting behaviours between maltreatment and harsh parenting instruments. As such, this review includes any parenting behaviours as maltreatment that tapped into any form of physical or emotional violence and negligent behaviours. Thus, the different measures included under maltreatment will reflect different magnitudes of maltreatment.

Figure 2. Conceptualisation of maltreatment in this review



Review questions:

1. In families of children aged 2–10 years, how effective are parenting programmes based on social learning theory compared to an inactive control in reducing child maltreatment?
2. In families of children aged 2–10 years of age, how effective are parenting programmes based on social learning theory compared to an inactive control group in improving positive parenting behaviours and parental mental health, and in reducing child behavioural problems and negative parenting behaviours?

This review will focus on randomized controlled trials of parenting interventions for parents of children aged 2–10 that are based on principles of social learning theory.

3. How do intervention effects vary by level of prevention, context, family characteristics, or delivery format?

Methods

We examine the effectiveness of social learning theory-based parenting interventions in a global review. For this, we draw on five decades of randomized controlled trials of parenting interventions implemented on six continents.

Protocol and registration

We registered our protocol for this systematic review with PROSPERO on 26 July 2019 (CRD42019141844), and this review was prepared in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page, McKenzie, Bossuyt, Boutron, Hoffmann, Mulrow, ..., & Moher, 2021).

Eligibility criteria

Eligible studies were published or unpublished randomized controlled trials, including cluster trials, that compared a parenting intervention that was largely based on principles of social learning theory to an inactive control group. Parents and caregivers who participated in the parenting interventions had children between 2 and 10 years of age on average. Table 1 shows detailed inclusion and exclusion criteria.

Search

We used three different sources to identify relevant trials. First, we updated a previous systematic review from 2014 that used the same inclusion and exclusion criteria (Leijten, Melendez-Torres, Knerr, & Gardner, 2016). Second, we screened and retrieved trials from the main LMIC systematic review. The search for the LMIC review employed a comprehensive search strategy with an exhaustive grey literature and multi-language search (CRD42018088697). The inclusion criteria for the LMIC review were wider in regard to the type of parenting intervention and age group. Hence, relevant trials for this global review would have been included in the LMIC review. Third, we systematically searched for eligible trials in 11 databases from January 2014 to August 2019 (3ie Database of Impact Evaluations, ASSIA, Campbell Library, the Cochrane Library (Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials), EMBASE, ERIC, MEDLINE, the National Criminal Justice Reference Service, the International Bibliography of the Social Sciences, PsycINFO, PILOTS) and the following trial registries: ClinicalTrials.gov, Australian New Zealand Clinical Trials Registry, WHO International Clinical Trials Registry Platform and the metaRegister of Controlled Trials (mRCT). We imposed no language restrictions. Search terms surrounded three conceptual categories: a. intervention; b. Parenting; and c. child behavioural and emotional problems. In addition, we hand-searched reference lists of 29 relevant systematic reviews. Appendix 1 lists examples of search terms.

Table 1. Eligibility criteria for global review

<i>Domain</i>	Inclusion criteria	Exclusion criteria
<i>Population</i>	Parents and other caregivers of children with a mean age between 2 and 10 years. If studies did not report the mean value, two steps were taken: a. contacting the author(s) to ask for the mean age; b. if the observed mean value remained unclear, a theoretical mean was calculated by using the minimum and maximum age value and dividing it by two.	We exclude trials specifically aimed at special groups such as physical, learning or developmental disabilities, children with severe mental illness (ADHD is included, as long as the study explicitly focused on reducing conduct problems), and children in temporary foster care. We exclude adults providing care to children in institutional settings.
<i>Intervention</i>	Parenting intervention with at least 50% of sessions or content directed at parents. The intervention has a clear theoretical foundation largely comprising social learning theory principles. Social learning theory posits that children develop disruptive behaviour when parents unwittingly reward disruptive behaviour instead of positive behaviour, and when parents model aversive behaviour. Interventions based on social learning theory teach parents behaviour management skills such as setting clear rules, using positive reinforcement and preventing negative reinforcement, and finding alternatives to harsh and abusive parenting.	We exclude interventions that focus mainly (more than 50% of sessions or content) on specific aspects of parenting, such as toileting, sexual health, feeding or HIV prevention, rather than teaching general parenting skills. In addition, we exclude interventions which: a. focus narrowly on very specific child risks such as poisoning or accidents, or which teach skills for dealing with specific medical conditions or physical disabilities, such as asthma, epilepsy, HIV, psychosis, autism, Down Syndrome or severe learning disabilities; b. primarily deliver financial, social or other support to parents but do not aim to change parents' knowledge or behaviour (e.g. conditional cash transfer programmes, unless they include a parent training component, the effects of which can be analysed separately from other components).
<i>Comparator</i>	Inactive control groups (no treatment, waiting list, minimal intervention, treatment as usual)	We exclude studies/study arms with an active condition such as a variant of the same parenting intervention, a different parenting intervention or an alternative intervention.

<p><i>Outcomes</i></p>	<p>We include measures that use systematic direct observational techniques, instruments that rely on self-report and, if available, official reports of maltreatment. The WHO GDG rated 13 outcomes by priority. Based on the availability of outcomes in LMICs and the ratings from the GDG, the following six prioritised outcomes have been identified.</p> <ul style="list-style-type: none"> ● Child maltreatment (<i>here incl. harsh parenting</i>) ● Negative parenting ● Positive parenting skills and behaviour ● Child externalizing/behavioural problems ● Child internalizing problems ● Parental mental health and stress. <p>The following outcomes, although not prioritised, will be assessed in the review:</p> <ul style="list-style-type: none"> ● Intimate partner violence ● Parental self-efficacy ● Positive parenting knowledge, attitudes and beliefs ● Parental attitudes to corporal punishment. 	<p>The following outcomes will not be addressed, either because there are very few data on them owing to their being very rarely assessed, or, in the case of child development, because this would unnecessarily duplicate work already completed for a recent WHO guideline on ECD.</p> <ul style="list-style-type: none"> ● Rate of care seeking (by child or for child by parent/caregiver) ● Child physical health ● Child development (e.g. cognition, language outcomes, growth).
<p><i>Study design</i></p>	<p>Randomized controlled trials and cluster-randomized controlled trials</p>	<p>Due to the number of available randomized controlled trials, we do not include other study designs.</p>

Study selection

One reviewer screened 100% of the titles and abstracts and retrieved and screened all relevant full-text articles for eligibility. A second reviewer double-screened 20% of titles and abstracts, and 20% of full-text articles. The inter-rater agreement was 95%. Finally, we checked the articles that met the inclusion criteria for duplicate reporting of the same randomised controlled trial.

Data extraction

The same two reviewers independently extracted the data for the included trials. Extracted information included information on the publication (authors, title, year of publication, publication type), the study setting/context (e.g. geographical location and community characteristics), the intervention characteristics (origin country, “brand” or type, delivery format, duration and intensity), the study population and participant and family demographics.

Measures

Prioritized outcomes:

Child maltreatment and subtypes – here including harsh parenting

This review defines child maltreatment as parenting behaviours on a spectrum from harsh to severely abusive parenting.

A systematic item-by-item analysis of instruments that measure child maltreatment compared to harsh parenting instruments in the parenting intervention field revealed that there is a strong overlap of parenting behaviours measured by instruments designed to measure child maltreatment and instruments designed to measure harsh parenting (Backhaus, Leijten, & Gardner, forthcoming). Therefore, this review includes both types of instruments in the analysis of maltreatment outcomes. Examples are the Corporal Punishment scale of the Parenting Questionnaire (example item: “I hit my child with a belt, strap or switch”), the Harsh/Negative Discipline scale of the Parent Behavior Checklist (example item: “I yell at my child for whining”) or for an example of neglect, the Poor Monitoring scale of the Alabama Parenting Questionnaire (example item: “You don’t tell your child where you are going”).

Negative parenting

Negative parenting includes all parenting behaviours that are either harmful (including maltreatment), ineffective for behaviour management or reflect a poor parent–child relationship. Examples of such behaviours are overprotective parenting, laxness, hostile parenting or emotional violence.

Positive parenting

Positive parenting includes all parenting behaviours that promote a positive parent–child relationship. Examples of such behaviours are appropriate disciplining, praise, warmth and nurturing behaviours.

Parenting stress

Parenting stress includes perceived stress by parents related to their parenting role. One of the most widely used instruments for measuring parenting stress is the Parenting Stress Inventory.

Parent mental health problems

Mental health problems of parents includes measures of depression, anxiety, worry, poor perceived life quality, PTSD or stress symptoms.

Child behaviour problems overall

This outcome category is an overarching category for all internalising and externalising child behaviour problems (see below).

Externalising child behaviours

Externalising behaviours include symptoms of conduct problems, oppositional, defiant, ADHD or aggressive behaviours in children.

Internalising behaviours

Internalizing behaviours include behaviours such as anxious, withdrawing, psychosomatic or depressed behaviours in children.

Non-prioritized outcomes:

Parenting efficacy and satisfaction

Parenting efficacy and satisfaction reflect the degree to which parents feel confident with their parenting role and parenting strategies.

Intimate partner violence

Intimate partner violence includes the perpetration of violence and victimization between partners.

Positive parenting knowledge, attitudes and beliefs

Most measures of positive parenting include parenting behaviours as well as attitudes and knowledge. Thus, separating out behaviours from attitudes can be very difficult. These attitudes and beliefs will be captured under positive parenting behaviours.

Parental attitudes to corporal punishment

Parental attitudes to the use of corporal punishment as a disciplinary method are measured with a self-report questionnaire.

Risk of bias assessment

The quality of the included studies was assessed by one review author using the Cochrane Risk of Bias Tool for randomized controlled trials (Higgins et al., 2011). Risk of bias was assessed in the following domains:

- Randomisation sequence generation: selection bias due to inadequate generation of a random sequence
- Allocation concealment: selection bias due to inadequate concealment of allocations prior to assignment
- Blinding of participants and personnel: performance bias due to knowledge of the allocated interventions by participants and personnel during the study (it is impossible to blind parents to the trial arm once the training has started, and impossible to blind the personnel delivering the intervention)
- Blinding of outcome assessment: detection bias due to knowledge of the allocated interventions by outcome assessors
- Incomplete outcome data: risk of attrition bias due to the amount, nature or handling of incomplete outcome data
- Selective reporting: reporting bias due to selective outcome reporting
- Other sources of bias: these may include documenting who designed the intervention and developer involvement, assessment of reliability and validity of outcome measurement instruments and associated risk of bias related to reporting agent.

A third collaborator independently assessed the risk of bias of a random 10% of the included studies. Disagreement was resolved by discussion with the main review author.

Synthesis of results

We calculated Cohen's *d* using the post sample size, means and standard deviations for intervention and control groups. Where no means and standard deviations were reported, we used relevant model statistics that were based preferably on intention-to-treat analyses. For model-derived statistics or regression coefficients, we extracted information on covariates and adjustments wherever possible. Where trials included multiple arms, we extracted each intervention control comparison with reference to a common comparator. Where cluster-randomized trials have not accounted for clustering, we inflated the standard errors of standardized mean differences using either an estimated intra-class correlation (ICC) or an ICC estimated from the variance components model in the included trial. We contacted trial authors to obtain missing data for quantitative analyses and risk of bias assessment.

Effect sizes were labelled with respect to the outcome domain and the duration of follow-up, and were grouped with dichotomous coding to pre-specified outcome groupings. Once effect sizes were assigned to the relevant outcome domain, robust variance estimation meta-analysis was used (STATA v17) to combine effect sizes from multiple studies in each outcome domain. Robust variance estimation meta-analysis is appropriate when trials report multiple relevant effect sizes for a given meta-analysis (Tanner-Smith et al., 2016). We used a random effects meta-analysis model and assumed an intercorrelation of 0.8. For each model, we estimated I^2 as a measure of heterogeneity using the estimated Q-statistic.

Where more than 10 studies were included in a meta-analysis, meta-regression was used to consider possible explanations for heterogeneity in effectiveness. Analysis focused on characteristics of the interventions and involved entering between-study variables one at a time (i.e. in bivariate analyses) into the robust variance meta-analysis. Moderators included income level of the trial country (i.e. lower/upper-low-income or lower/upper-middle-income), income level of the country where the intervention was originally developed (i.e. high-income or otherwise), prevention strategy (i.e. universal, selective, indicated or treatment), child age and length of programme.

We ran separate meta-analyses for all time points, immediate post-test, short-term and longer-term effects. For this, we used the number of weeks post-intervention for each measurement point and categorized them as either immediate post-test (up to 4 weeks post-intervention), short-term follow-up (up to 26 weeks post-intervention) or longer-term follow-up (any time point beyond 26 weeks post-intervention).

Where these results were credible (i.e. where degrees of freedom suggested the analysis was reliable), we presented these results. Where they were not, we report the estimated standardized mean difference without a confidence interval in a separate section.

Assessing the certainty of evidence

We applied the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to assess the certainty of evidence for the prioritised outcomes. We ranked and presented the certainty of evidence for the main effect analyses across all time points and that yielded a reliable estimate ($df > 4$). GRADE ranks confidence in findings from high to very low based on risk of bias, effect consistency, imprecision, indirectness and publication bias (Guyatt et al., 2011).

Results

Included trials and participants

We screened over 27,000 abstracts in total (in 2014: 13,973; in 2018: 13,055). We included a total of 278 trials in our systematic review, making it the largest review to date on parenting interventions. Of these, 260 trials (94%) provided sufficient data to be included in the meta-analyses (see Figure 3).

Global distribution of trials – country and context

Interventions were evaluated across all six WHO Regions, with the largest number of interventions ($n=125$; 45%) being tested in the Pan-American Region (PAHO), with most of these, nearly 40% of the 278 total trials, coming from the United States. Seventy-eight trials were conducted in the European Region (EURO), with most trials ($n=20$) from the United Kingdom, followed by the Netherlands ($n=14$). Trials from Australia contributed 39 of the 54 trials from the Western Pacific Region (WPRO). The remaining three regions contributed only a small number of trials: 14 trials from the Eastern Mediterranean Region (EMRO), with 13 from Iran; four trials from the African Region (AFRO), from South Africa and Liberia; and three trials from the South-East Asian Region (SEARO; see Table 2). 90% of trials came from HICs, and only 9% from upper-middle-income, with just one trial from a lower-middle-income country (Indonesia) and one from a low-income country (Liberia).

Figure 4. Map of trials included in the systematic review by income grouping

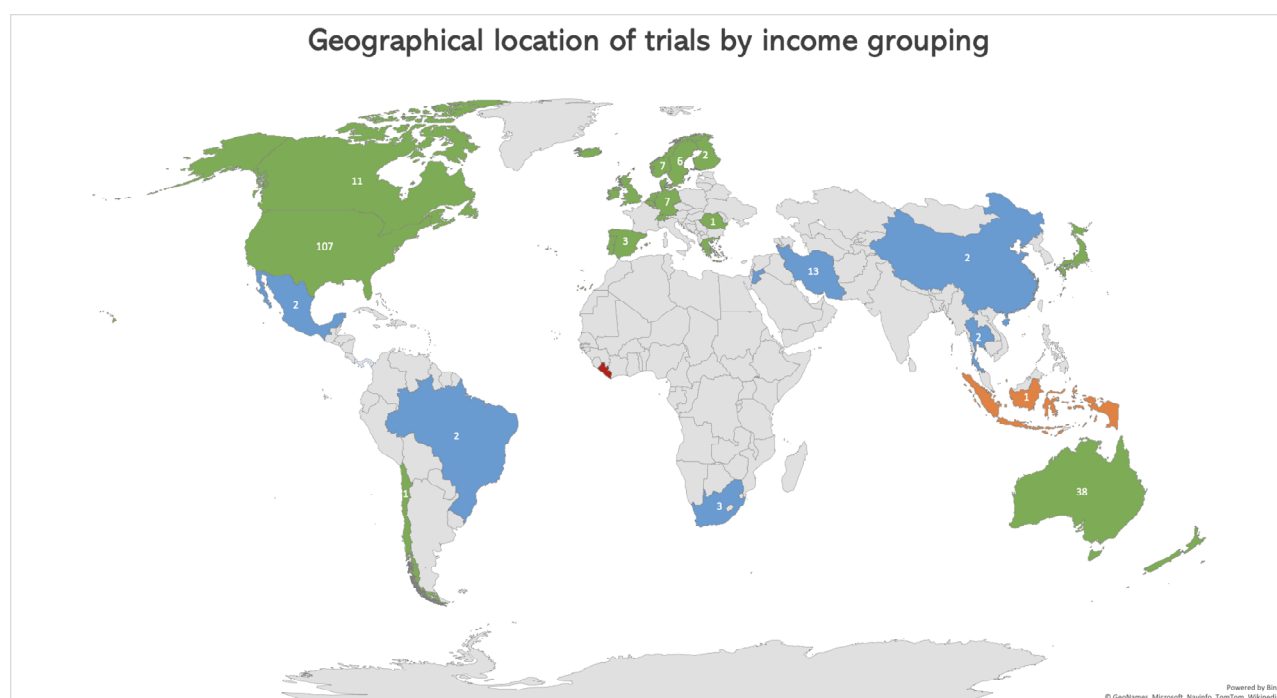


Figure 3. PRISMA flow diagram

PRISMA 2020 flow diagram for updated systematic reviews which included searches of databases, registers and other sources

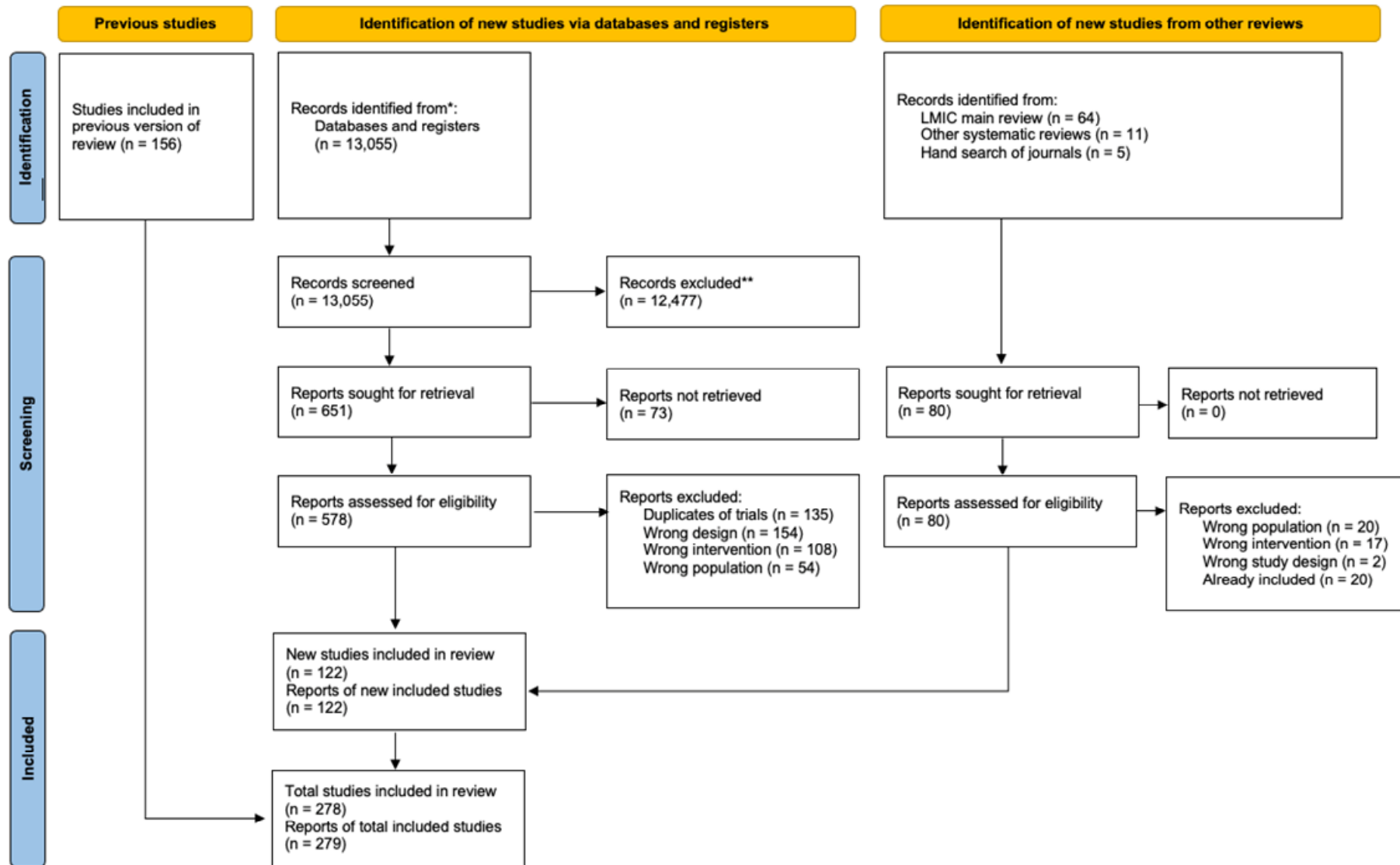


Table 2. Number of trials by country and WHO region

	WHO Region						Total
	AFRO	EMRO	EURO	PAHO	SEARO	WPRO	
Australia						39	39
Belgium			1				1
Brazil				2			2
Canada				11			11
Chile				1			1
China						2	2
Denmark			2				2
Finland			2				2
Germany			7				7
Greece			1				1
Hong Kong						8	8
Iceland			1				1
Indonesia					1		1
Iran		13					13
Ireland			7				7
Israel			1				1
Japan						2	2
Jordan		1					1
Liberia	1						1
Mexico				2			2
Netherlands			14				14
New Zealand						3	3
Norway			7				7
Panama				1			1

Portugal			4				4
Romania			1				1
South Africa	3						3
Spain			3				3
Sweden			6				6
Switzerland			2				2
Thailand					2		2
United Kingdom			20				20
United States				107			107
Total	4	14	78	125	3	54	278

WHO Regions: African Region (AFRO); Pan-American Region (PAHO); European Region (EURO); Eastern Mediterranean Region (EMRO); Western Pacific Region (WPRO); South-East Asia Region (SEARO).

Study and intervention characteristics

Eligible studies had been published between 1977 and 2021, including unpublished manuscripts. Study size ranged from 12 to 984 participants. Most programmes were delivered in group format ($n=152$, 50%), followed by individual sessions (25%), a combination of formats (15%), and self-directed interventions (10%).

Most interventions were compared to a wait-list control group (67%), followed by no treatment control and treatment-as-usual (13%, 12%), and minimal intervention control group (8%). Dosage ranged from 1 to 28 sessions.

The most evaluated intervention brand is Triple P, with 75 evaluations included in this review. A total of 49 Incredible Years trials were included, followed by 21 Parent–Child Interaction Training trials and 19 Parent Management Training Oregon. The majority (66%, $n=174$) of interventions were homegrown (developed in the trial country), whereas 34% of interventions were transported from a different country into the trial country ($n=89$).

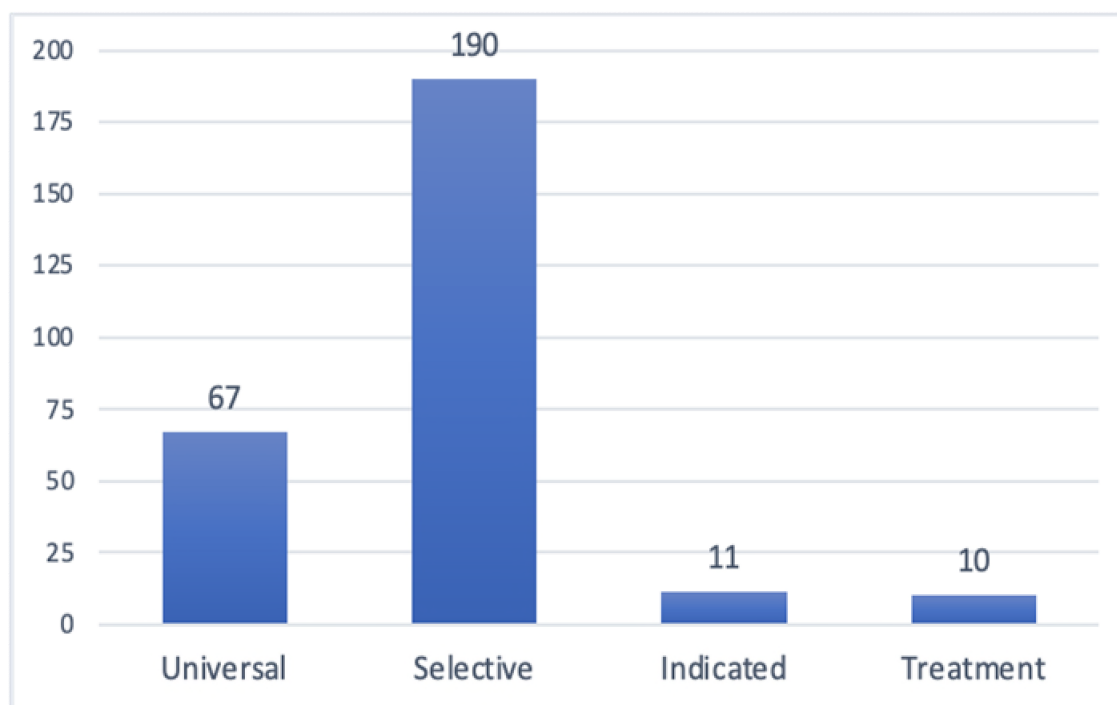
Level of prevention

As for the LMIC review, we classified the interventions into four different prevention levels: universal, selective, indicated and treatment. Level of prevention can be determined from two different perspectives based on the intervention aims.

From a maltreatment perspective, parenting trials are classified as treatment if they include parents who were referred, for example, by social services based on their levels of maltreatment, as indicated if parents score highly on child maltreatment instruments; as selective if parents are included in an intervention based on risk factors for maltreatment such as poverty or child conduct problems; and as universal if an intervention is distributed to parents regardless of any

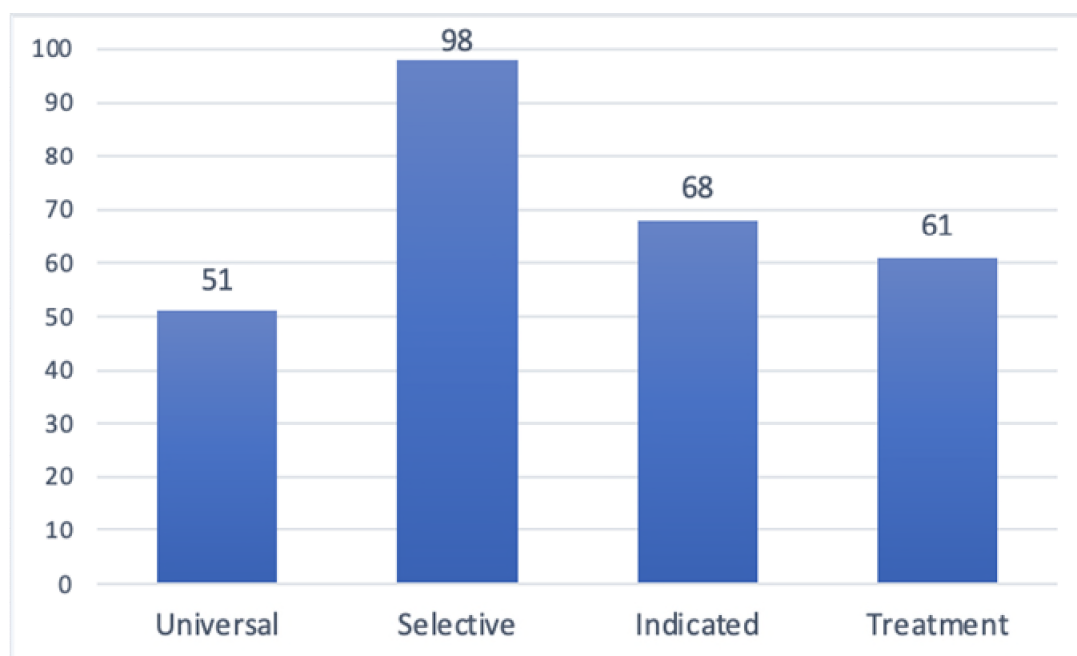
maltreatment-related criteria. In this review, nearly 70% ($n=190$) of all trials included parents based on their risk factors for maltreatment (selective), followed by universal intervention ($n=67$). Only 21 trials included parents based on their levels of maltreatment at baseline ($n=11$ indicated, $n=10$ treatment).

Figure 5. Number of trials by level of prevention from a maltreatment perspective



Trials that aim to reduce child conduct problems are classified as treatment if they include parents of children with clinically significant levels of conduct problems; as indicated if children score highly on a child conduct behaviour inventory; as selective if parents of children are included in an intervention based on risk factors for conduct problems; and as universal if an intervention is distributed to parents regardless of any child conduct-related criteria. In this review, the largest number of trials tested the effectiveness of interventions for families at risk of child conduct problems (selective; $n=98$). The remaining trials are similarly distributed among universal ($n=51$), indicated ($n=68$) and treatment trials ($n=61$) (see Figure 6).

Figure 6. Number of trials by level of prevention from a conduct perspective



Participant characteristics

A total of 33,250 families participated in the included parenting intervention trials. The mean age of children ranged from 2 to 9.78 years, with an average mean age across trials of 5.5 years. The proportion of girls chosen as the target child in the interventions ranged from 0 to 100%. Most of the caregivers were female (80%) and on average 35 years old. Parent education was divided into low and high levels of education. Slightly more trials (54%) included parents with high levels of education (anything beyond high school education). Most parents who participated in the intervention were employed (61%).

Often trials included parents from multiple ethnicities. We coded whether most parents within the trial came from the ethnic majority or an ethnic minority within a country. For example, a trial from the United States with 89% European-American, 5% Asian-American, 3% African-American and 3% Hispanic participants was coded as an ethnic majority trial. Two thirds of trials included mainly parents from an ethnic majority.

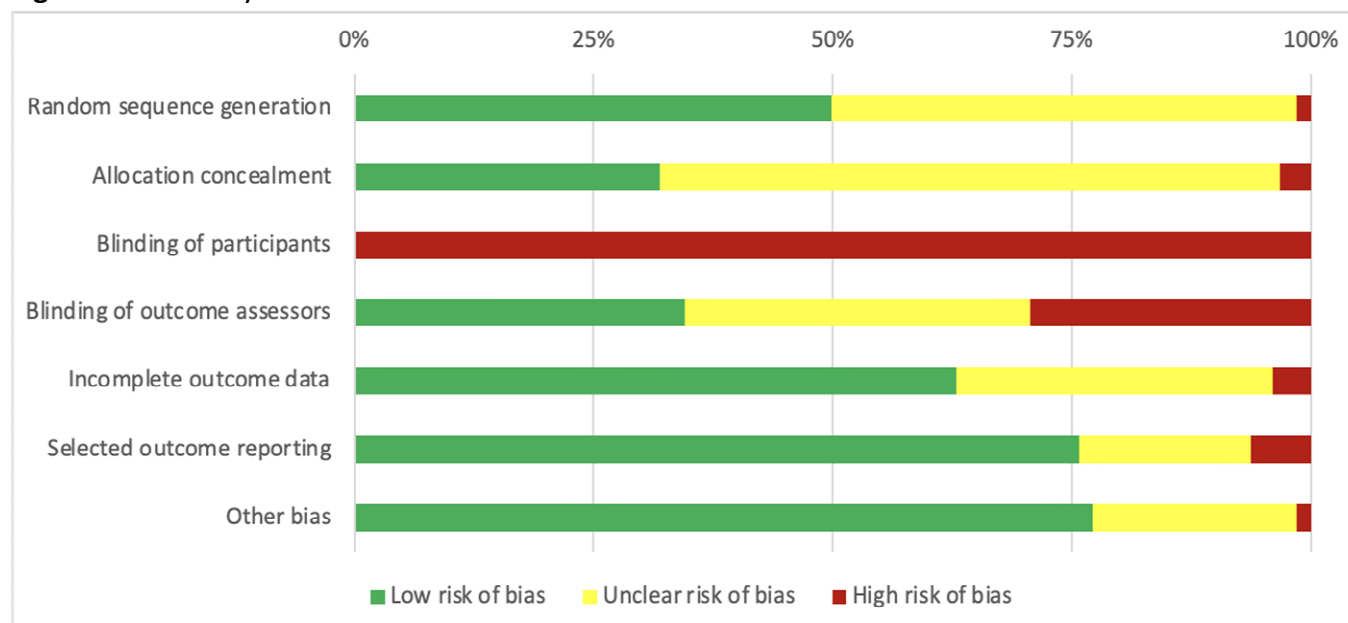
Half of the trials included families who were mainly from a disadvantaged socio-economic background (low or lower-middle background, 50%). Twenty-one trials targeted predominantly single parents.

Risk of bias of included studies

The summary chart gives an overview of the quality of the evidence included in this review (Figure 7). For most studies, risk of bias was low on selective outcome reporting, incomplete outcome data handling and other biases. Half of the trials had a low risk on random sequence generation, with a large number of trials not providing enough information on the randomization process, thus yielding

an unclear risk on allocation concealment. Because parents actively participated in trials, blinding of participants was impossible. Therefore, all trials were naturally at high risk of performance bias.

Figure 7. Summary chart of risk of bias



Trials not included in the meta-analyses

Due to efforts to contact authors for missing information, to include as many trials as possible, we ended up excluding only 18 (6%) of the 278 trials due to a lack of data that could be transformed into an effect size. Seven of these 18 trials were published before 2000, and nine trials were from the last decade. Eleven trials were conducted in the USA, three in Iran, one in Jordan, one in Canada, one in the UK, and one in Spain. Most of the trials followed a selective prevention approach ($n=11$).

Main effects results

All time points

This section reports on the main effect results across all time points ranging from immediately after the intervention up to four years after the end of the intervention. In the following sections, we divide the main effect results into immediate post-test, short-term and longer-term results.

In this section, we present the results regardless of when the measurement took place. Even though we believe that the analyses separating out the effect sizes by different time points are more meaningful, these findings are important to understand the general effect of parenting interventions on various outcomes. In addition, the moderator analyses are based on these effect sizes; thus, it is important to present the underlying statistics.

Table 3. Main effect results of all outcomes across all time points

Outcome	No. of trials	No. of effect sizes	Effect size (Cohen's d)	Confidence interval of effect size	Heterogeneity (I ²)	Certainty of evidence (GRADE)
Maltreatment	49	99	-0.34**	-0.47, -0.22	77%	⊕⊕⊕○ moderate
Physical abuse	26	38	-0.27**	-0.43, -0.12	70%	not rated
Psychological abuse	12	15	-0.40*	-0.72, -0.09	77%	not rated
Neglect	6	13	-0.08†	-0.38, 0.22	67%	not rated
Negative parenting	159	544	-0.46**	-0.54, -0.38	80%	not rated
Positive parenting	131	460	0.49**	0.38, 0.60	85%	⊕⊕⊕○ moderate
Parenting stress	77	252	-0.34**	-0.43, -0.26	69%	⊕⊕○○ low
Parent mental health problems	89	285	-0.24**	-0.30, -0.18	60%	⊕⊕⊕○ moderate
Parenting efficacy and satisfaction	81	219	0.40**	0.26, 0.53	89%	non-prioritized
Child behaviour problems	220	1289	-0.38**	-0.44, -0.31	81%	not rated
Externalizing	211	933	-0.38**	-0.44, -0.31	81%	⊕⊕⊕○ moderate
Internalizing	72	178	-0.18**	-0.27, -0.09	74%	⊕⊕○○ low

Note: Colour-coding as green = significant effect; blank = non-significant effect; grey = df<4 and untrustworthy result; p-value ranges: 0.05 – 0.01= *, 0.01 – 0.000= **, 0.05 – 0.999= †

Prioritized outcomes:

Maltreatment

Forty-nine trials reported maltreatment outcomes. Interventions had a small effect on child maltreatment, with substantial variation between studies ($d=-0.34$; 95% CI=-0.47, -0.22; $I^2=78\%$).

Physical abuse

Twenty-six trials reported physical abuse outcomes. Interventions had a small effect on physical abuse, with substantial levels of heterogeneity ($d=-0.27$; 95% CI=-0.43, -0.12; $I^2=70\%$).

Psychological abuse

Twelve trials reported psychological abuse outcomes. Interventions had a small effect on psychological abuse, with substantial levels of heterogeneity ($d=-0.40$; 95% CI=-0.72, -0.09; $I^2=77\%$).

Neglect

Six trials reported neglect outcomes. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.08$; 95% CI=-0.38, 0.22; $I^2=67\%$).

Negative parenting

159 trials reported negative parenting outcomes. Interventions had a moderate effect on negative parenting, with substantial levels of heterogeneity ($d=-0.46$; 95% CI=-0.54, -0.38; $I^2=80\%$).

Positive parenting

131 trials reported positive parenting outcomes. Interventions had a moderate effect on positive parenting, with substantial levels of heterogeneity ($d=0.49$; 95% CI=0.38, 0.60; $I^2=85\%$).

Parenting stress

Seventy-seven trials reported parenting stress outcomes. Interventions had a small effect on parenting stress, with substantial levels of heterogeneity ($d=-0.34$; 95% CI=-0.43, -0.26; $I^2=69\%$).

Parent mental health problems

Eighty-nine trials reported parental mental health outcomes. Interventions had a small effect on parental mental health, with substantial levels of heterogeneity ($d=-0.24$; 95% CI=-0.30, -0.18; $I^2=60\%$).

Child behaviour problems

220 trials reported overall child behaviour problems, including internalising and externalising behaviours. Interventions had a small effect on child behavioural problems, with substantial levels of heterogeneity ($d=-0.38$; 95% CI=-0.44, -0.31; $I^2=81\%$).

Externalising child behaviours

211 trials reported externalising behaviours including conduct problems and ADHD symptoms. Interventions had a small effect on externalising child behaviours, with substantial levels of heterogeneity ($d=-0.38$; 95% CI=-0.44, -0.31; $I^2=81\%$).

Internalising child behaviours.

Seventy-two trials reported internalising behaviours, including withdrawn child behaviours, depressive and anxious symptoms. Interventions found a small effect on internalising child behaviours, with substantial levels of heterogeneity ($d=-0.18$; 95% CI=-0.27, -0.09; $I^2=74\%$).

Non-prioritized outcomes:

Parenting efficacy and satisfaction

Eighty-one trials reported parenting efficacy and satisfaction outcomes. Interventions had a small effect on parenting efficacy and satisfaction, with substantial levels of heterogeneity ($d=0.40$; 95% CI=0.26, 0.53; $I^2=89\%$).

Intimate partner violence

Many trials measured couple conflict over parenting, marital problems and conflict or couple relationship quality/happiness, but only one trial includes a measure of violence between partners. An evaluation of the Supporting Father Involvement intervention from the United States measured intimate partner violence using items from the Couple Communication Questionnaire and the Conflict Tactics Scale. Item options were “I yell or insult my partner”, “I push, grab or shove my partner” and “I slap or try to hit my partner”. Overall, violent problem-solving between partners decreased in this sample.

Positive parenting knowledge, attitudes and beliefs

Positive parenting knowledge, attitudes and beliefs were included in the overall positive parenting outcome category. Most parenting inventories do not separate out attitudes from self-reported or observed behaviours.

Parental attitudes to corporal punishment

Two studies measured parental support for the use of corporal punishment as a method for disciplining children. One trial studied the effects of the Child–Adult Relationship Enhancement in Primary Care Intervention in the USA (Schilling et al., 2017), and one study measured the effectiveness of Parenting for Lifelong Health in Thailand (Gardner et al., 2021). Both interventions decreased parents’ positive attitudes to corporal punishment.

Certainty of evidence

For most outcomes, we are moderately confident in the effect estimate; the true effects are likely to be close to the estimate of the effect, but there is a possibility that they are substantially different. Our grading was determined based on an overarching confidence in the estimates. On the one hand, we had some serious concerns about the risk of bias and one serious concern about inconsistency. On the other hand, we took into account several criteria that increased our confidence: the consistency in effect estimates, the high relevance of the trials to our PICO questions; and our moderation results that explained some heterogeneity in the effect estimates.

Immediate post-test

This section reports on the main effect results measured immediately after the end of the intervention, up to a maximum of four weeks post-intervention. In total, we extracted 2,369 effect sizes reported at immediate post-test.

Table 4. Main effect results of all outcomes at immediate post-test

Outcome	No. of trials	No. of effect sizes	Effect size (Cohen's d)	Confidence interval of effect size	Heterogeneity (I ²)
Child maltreatment	38	54	-0.44**	-0.59, -0.28	77%
<i>Physical abuse</i>	19	22	-0.33**	-0.5, -0.15	66%
<i>Psychological abuse</i>	7	8	-0.41*	-0.81, -0.01	62%
<i>Neglect</i>	3	3	-0.10	-1.69, 1.48	80%
Negative parenting	132	341	-0.53**	-0.62, -0.44	80%
Positive parenting	106	260	0.57**	0.44, 0.71	87%
Parenting stress	67	170	-0.38**	-0.46, -0.29	69%
Parent mental health problems	71	177	-0.30**	-0.38, -0.22	57%
Parenting efficacy and satisfaction	72	147	0.40**	0.26, 0.54	82%
Child behaviour problems	181	811	-0.43**	-0.50, -0.36	77%
Externalising behaviours	173	649	-0.42**	-0.49, -0.35	77%
Internalising behaviours	57	85	-0.22**	-0.33, -0.10	69%

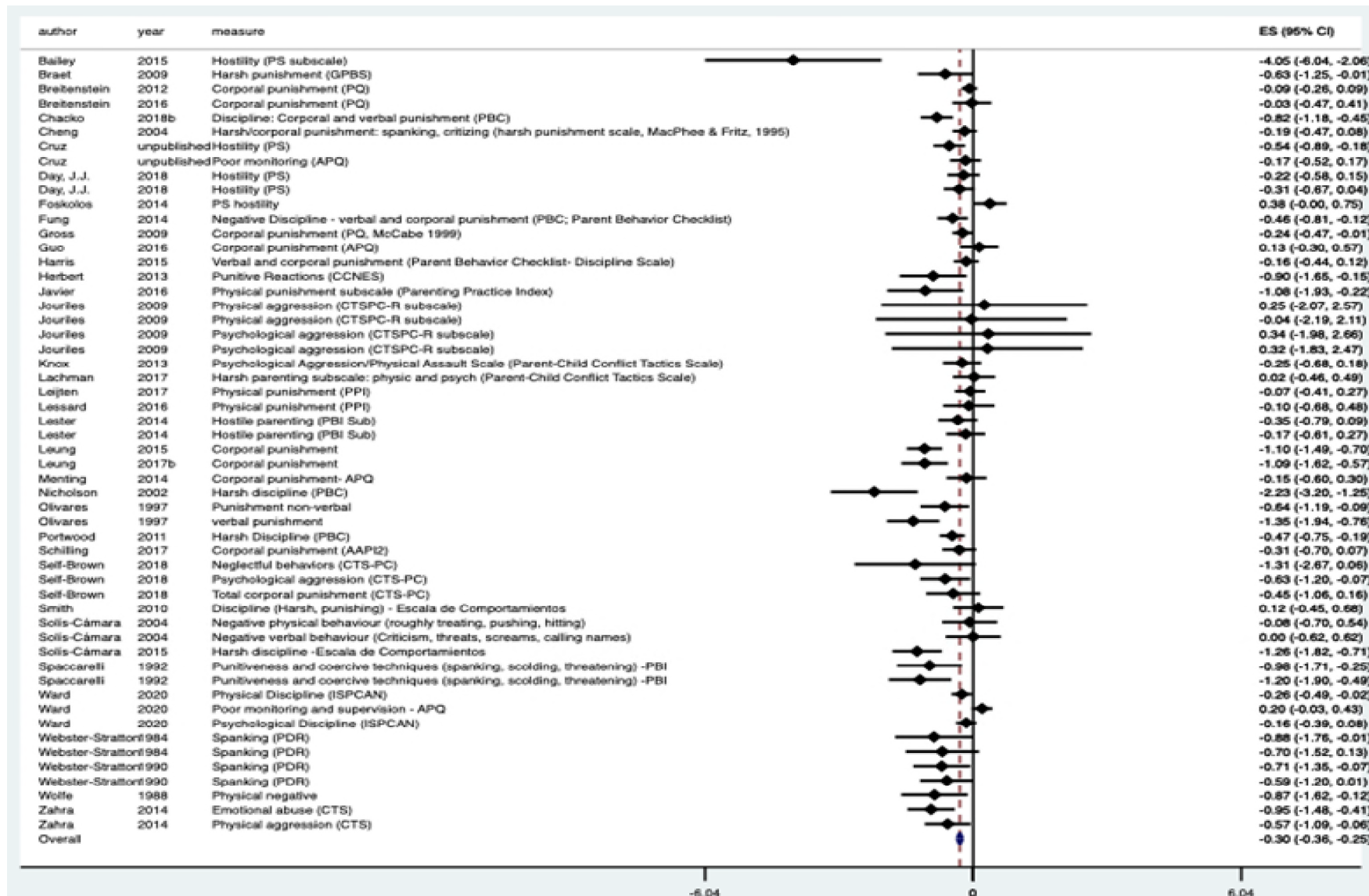
Note: Colour-coding as green = significant effect; red = non-significant effect; grey = df<4 and untrustworthy result; p-value ranges: 0.05 – 0.01= *, 0.01 – 0.000= **, 0.05 – 0.999= †

Prioritized outcomes:

Child maltreatment

Thirty-eight trials reported maltreatment outcomes. Interventions had a small effect on child maltreatment at immediate post-test, with substantial levels of heterogeneity ($d=-0.44$; 95% CI=-0.59, -0.28; $I^2=77\%$).

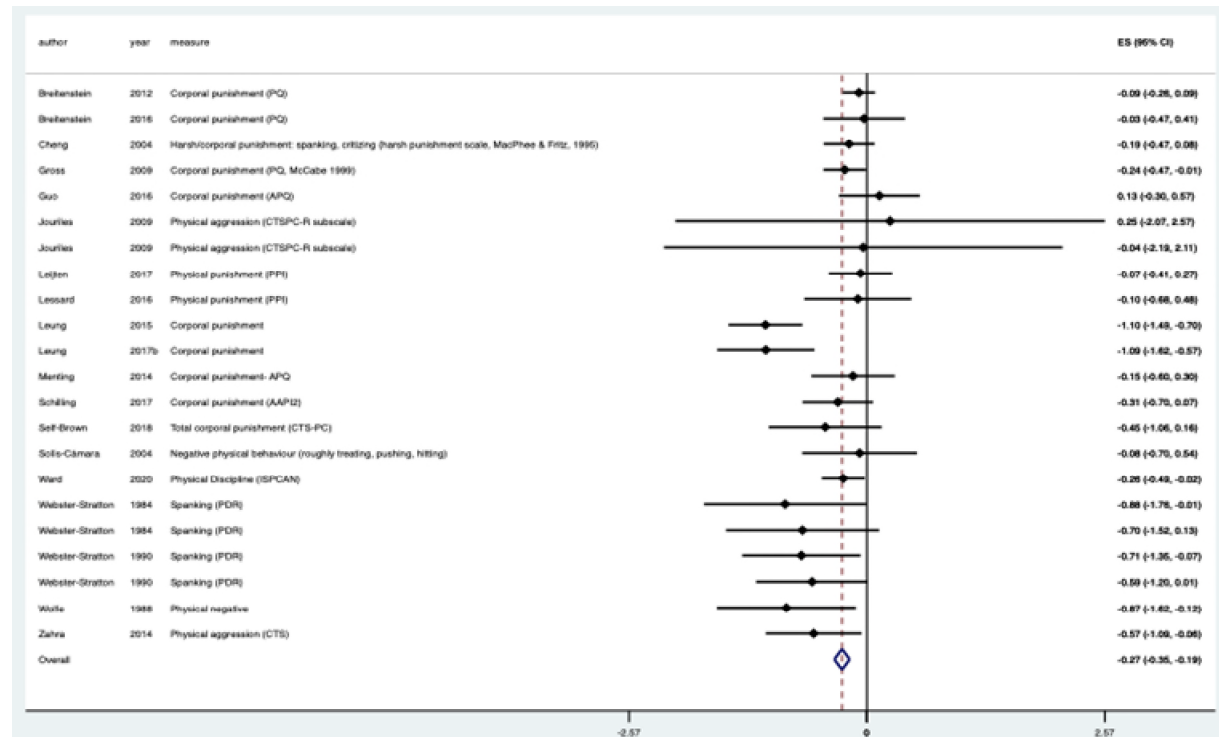
Figure 8. Forest plot showing immediate effects of parent training on child maltreatment



Physical abuse

Nineteen trials reported physical abuse outcomes. Interventions had a small effect on physical abuse, with substantial levels of heterogeneity ($d=-0.33$; 95% CI=-0.50, -0.15; $I^2=66\%$).

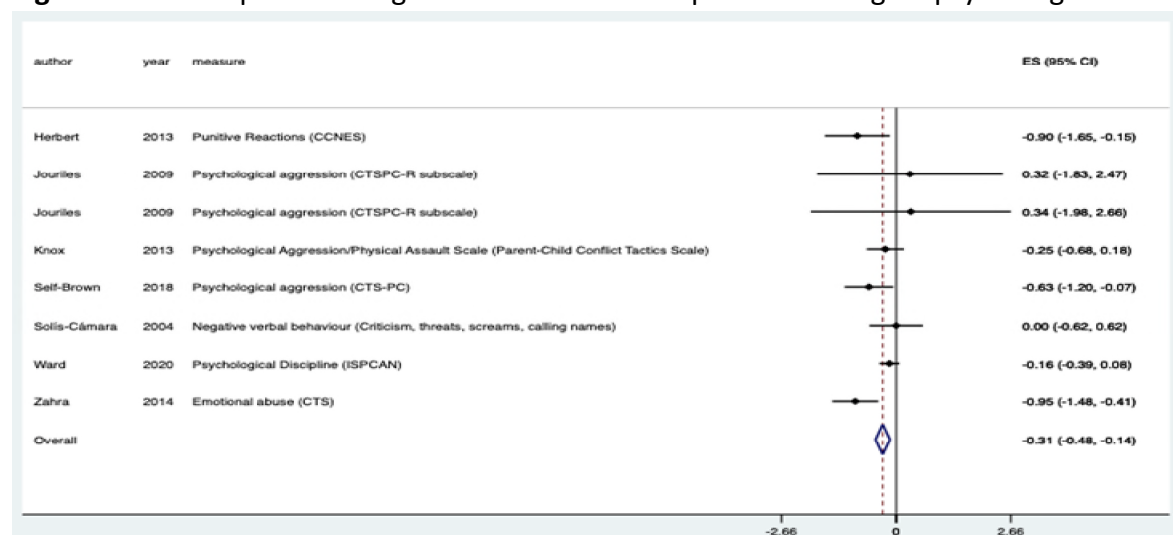
Figure 9. Forest plot showing immediate effects of parent training on physical abuse



Psychological abuse

Seven trials reported psychological abuse outcomes. Interventions had a small effect on psychological abuse, with substantial levels of heterogeneity ($d=-0.41$; 95% CI=-0.81, -0.01; $I^2=62\%$).

Figure 10. Forest plot showing immediate effects of parent training on psychological abuse



Neglect

See “Meta-analyses that did not include enough degrees of freedom” below.

Negative parenting

132 trials reported negative parenting outcomes. Interventions had a moderate effect on negative parenting, with substantial levels of heterogeneity ($d=-0.53$; 95% CI=-0.62, -0.44; $I^2=80\%$).

Positive parenting

106 trials reported positive parenting outcomes. Interventions had a moderate effect on positive parenting, with substantial levels of heterogeneity ($d=0.57$; 95% CI=0.44, 0.71; $I^2=87\%$).

Parenting stress

Sixty-seven trials reported parenting stress outcomes. Interventions had a small effect on parenting stress, with substantial levels of heterogeneity ($d=-0.38$; 95% CI=-0.46, -0.29; $I^2=69\%$).

Parent mental health problems

Seventy-one trials reported parental mental health outcomes, including measures of depressive symptoms, anxiety, PTSD and other mental health problems. Interventions had a small effect on parental mental health, with substantial levels of heterogeneity ($d=-0.30$; 95% CI=-0.38, -0.22; $I^2=57\%$).

Child behaviour problems

181 trials reported overall child behaviour problems, including both internalising and externalising behaviours. Interventions had a small effect on child behaviour problems, with substantial levels of heterogeneity ($d=-0.43$; 95% CI=-0.50, -0.36; $I^2=77\%$).

Externalising child behaviours

173 trials reported externalising behaviour problems. Interventions had a small effect on externalising behaviours, with substantial levels of heterogeneity ($d=-0.42$; 95% CI=-0.49, -0.35; $I^2=77\%$).

Internalising child behaviours

Fifty-seven trials reported internalising behaviour problems. Interventions had a small effect on internalising behaviours, with substantial levels of heterogeneity ($d=-0.22$; 95% CI=-0.33, -0.10; $I^2=69\%$).

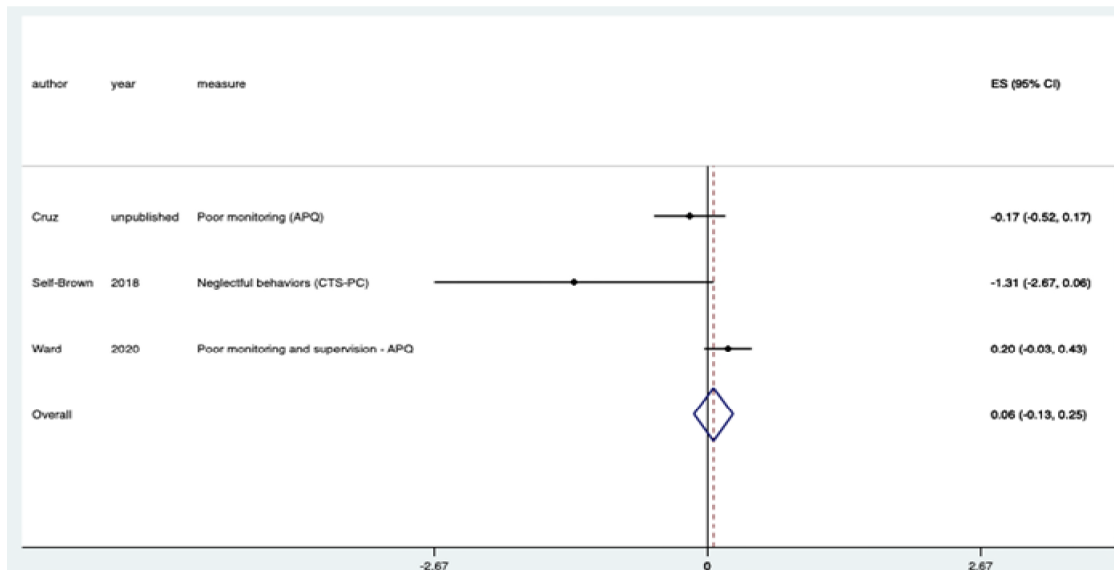
Meta-analyses that did not include enough degrees of freedom

The following analysis must be interpreted with caution. The sample size and hence degrees of freedom for this analysis were smaller than $df < 4$; therefore, the p-value is untrustworthy for the estimated average effect size.

Neglect

Three trials reported neglect, with an average decrease of Cohen's $d = -0.10$, yet due to a small number of included trials and effect sizes, the p-value is not trustworthy. Effect sizes were measured using the Poor Monitoring Scale of the Alabama Parenting Questionnaire and the Neglect Scale of the Conflict Tactics Scale. None of the effect sizes was significant. Trials were implemented in Portugal, the United States and South Africa.

Figure 11. Forest plot showing immediate effects of parent training on neglect



Non-prioritized outcomes:

Parenting efficacy and satisfaction

Seventy-two trials reported parenting efficacy and parenting satisfaction, where results found a small statistically significant effect, with substantial levels of heterogeneity ($d=0.40$; 95% CI=0.26, 0.54; $I^2=82\%$).

Due to limited available evidence, the outcomes for intimate partner violence, attitudes to corporal punishment and beliefs about positive parenting are discussed only across all time points (see page 19).

Short-term follow-up

This section reports on the main effect results measured at 4 to 26 weeks after the intervention, representing short-term effects. In total, we extracted 914 effect sizes measured at short-term follow-up.

Table 5. Main effect results of all outcomes at short-term follow-up

Outcome	No. of trials	No. of effect sizes	Effect size (Cohen's d)	Confidence interval of effect size	Heterogeneity (I^2)
Maltreatment	17	28	-0.14 [†]	-0.32, 0.03	75%
<i>Physical abuse</i>	9	12	-0.09 [†]	-0.37, 0.18	73%
<i>Psychological abuse</i>	3	3	-0.14	-0.86, 0.59	69%
<i>Neglect</i>	3	4	-0.20	-0.50, 0.10	20%
Negative parenting	48	123	-0.27**	-0.36, -0.17	73%
Positive parenting	41	112	0.27**	0.16, 0.37	72%
Parenting stress	17	63	-0.20*	-0.36, -0.04	71%
Parent mental health problems	37	72	-0.16**	-0.24, -0.09	53%
Parenting efficacy and satisfaction	25	47	0.35*	0.01, 0.69	95%
Child behaviour problems	68	296	-0.25**	-0.34, -0.16	74%
Externalising	67	208	-0.28**	-0.38, -0.19	74%
Internalising	29	61	-0.05 [†]	-0.13, 0.03	50%

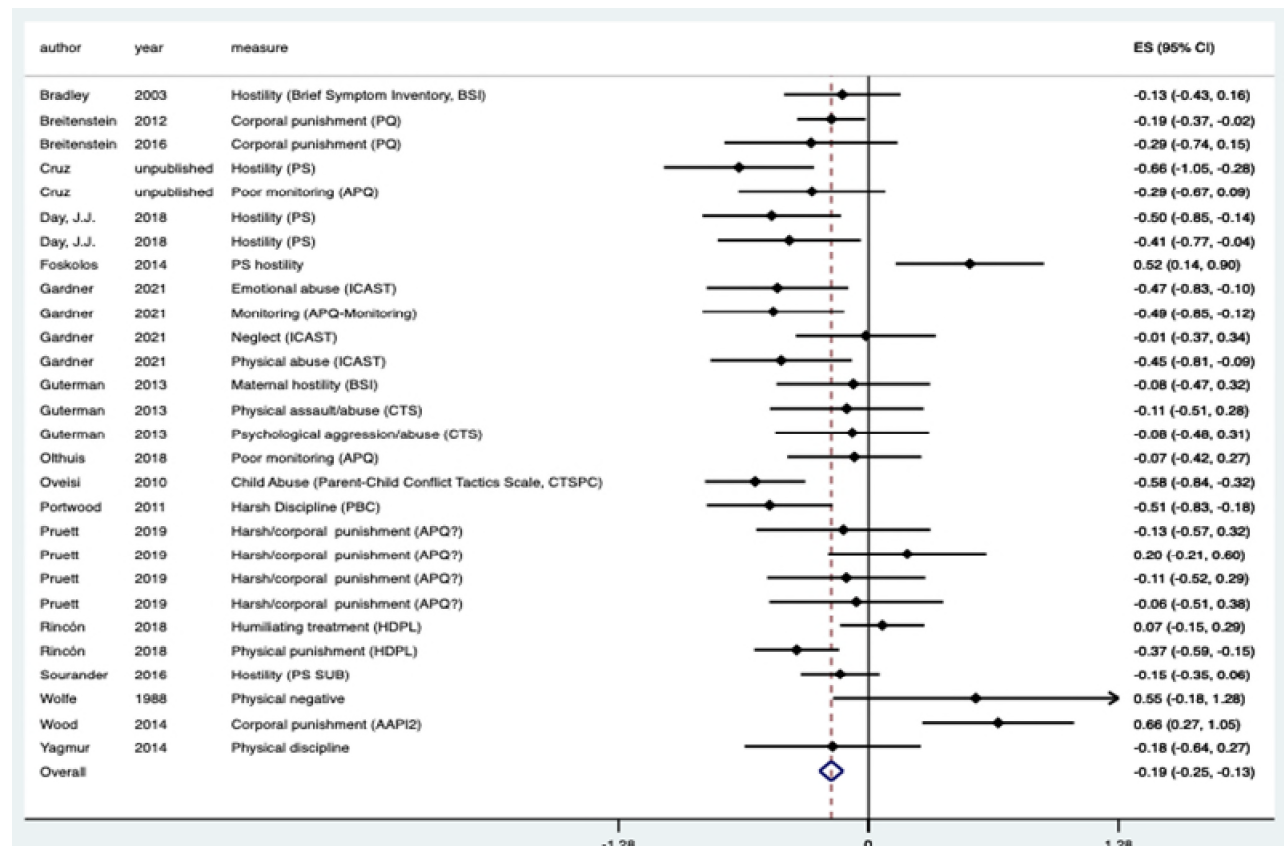
Note: Colour-coding as green = significant effect; blank = non-significant effect; grey = $df < 4$ and untrustworthy result; p-value ranges: 0.05 – 0.01 = *, 0.01 – 0.000 = **, 0.05 – 0.999 = [†]

Prioritized outcomes:

Child maltreatment

Seventeen trials reported maltreatment outcomes. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d = -0.14$; 95% CI = -0.32, 0.03; $I^2 = 75\%$).

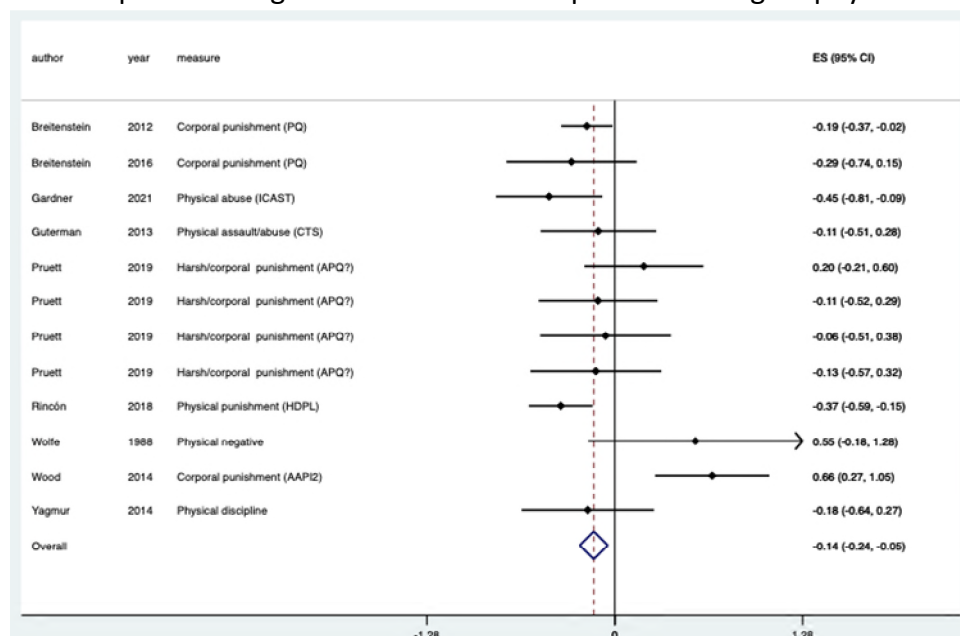
Figure 12. Forest plot showing short-term effects of parent training on child maltreatment



Physical abuse

Nine trials reported physical abuse outcomes. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.09$; 95% CI=-0.37, 0.18; $I^2=73\%$).

Figure 13. Forest plot showing short-term effects of parent training on physical abuse



Psychological abuse

See “Meta-analyses that did not include enough degrees of freedom” below.

Neglect

See “Meta-analyses that did not include enough degrees of freedom” below.

Negative parenting

Forty-eight trials reported negative parenting outcomes. Interventions had a small effect on negative parenting, with substantial levels of heterogeneity ($d=-0.27$; 95% CI=-0.36, -0.17; $I^2=73\%$).

Positive parenting

Forty-one trials reported positive parenting outcomes. Interventions had a small effect on positive parenting, with substantial levels of heterogeneity ($d=0.27$, 95% CI=0.16, 0.37; $I^2=72\%$).

Parenting stress

Seventeen trials reported parenting stress outcomes. Interventions had a small effect on parenting stress, with substantial levels of heterogeneity ($d=-0.20$; 95% CI=-0.36, -0.04; $I^2=71\%$).

Parental mental health problems

Thirty-seven trials reported parental mental health outcomes. Interventions had a small effect on parental mental health, with substantial levels of heterogeneity ($d=-0.16$; 95% CI=-0.24, -0.09; $I^2=53\%$).

Child behaviour problems

Sixty-eight trials reported overall child behaviour problems, including internalising and externalising behaviours. Interventions had a small effect on child behaviour problems, with substantial levels of heterogeneity ($d=-0.25$; 95% CI=-0.34, -0.16; $I^2=74\%$).

Externalising child behaviour

Sixty-seven trials reported externalising behaviour problems in children, including largely conduct problems and ADHD symptoms. Interventions had a small effect on externalizing child behaviours, with substantial levels of heterogeneity ($d=-0.28$; 95% CI=-0.38, -0.19; $I^2=74\%$).

Internalizing child behaviour

Twenty-nine trials reported internalizing behaviours in children including, shy, withdrawn, depressive and anxious behaviour. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.05$; 95% CI=-0.13, 0.03; $I^2=50\%$).

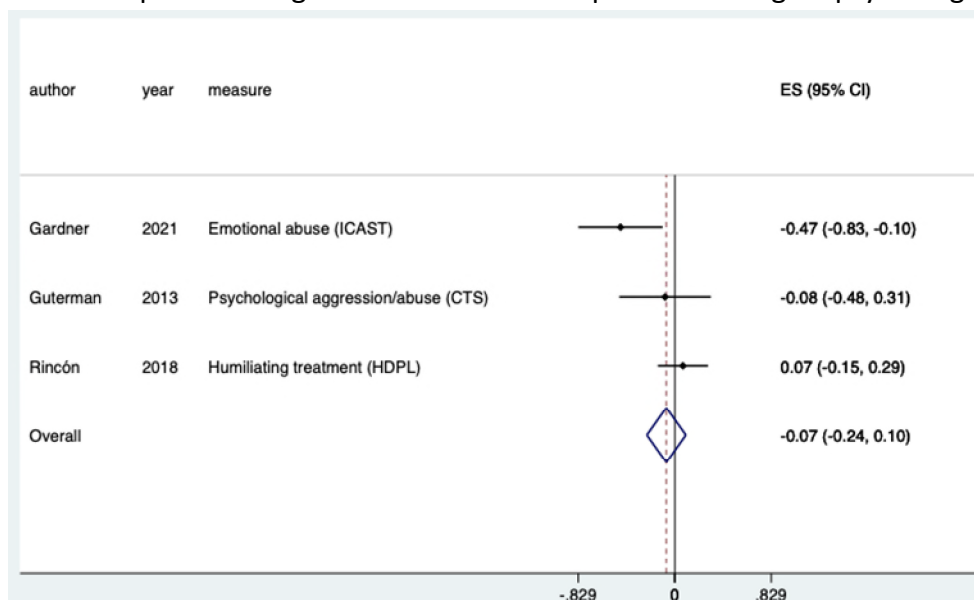
Meta-analyses that did not include enough degrees of freedom

The following analyses must be interpreted with caution. The degrees of freedom for them was smaller than $df < 4$; therefore, the p-value is untrustworthy for the estimated average effect size.

Psychological abuse

Three trials reported psychological abuse, with an average decrease of Cohen's $d = -0.14$, yet due to a small number of included trials and effect sizes, the p-value is not trustworthy. Effect sizes were measured using the humiliating treatment subscale of the Harsh Disciplining Parenting List, the emotional abuse scale of the ICAST, and the Psychological Aggression Scale of the Conflict Tactics Scale. Only one effect size showed a significant decrease. Trials were implemented in Thailand, Chile and the United States.

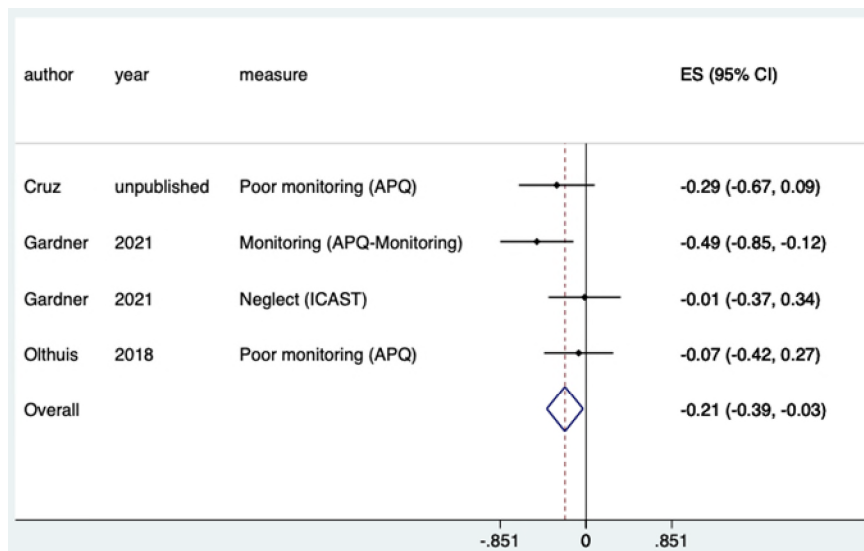
Figure 14. Forest plot showing short-term effects of parent training on psychological abuse



Neglect

Three trials reported neglect, with an average decrease of Cohen's $d = -0.20$, yet due to a small number of included trials and effect sizes, the p-value is not trustworthy. Effect sizes were measured using the Poor Monitoring Scale of the Alabama Parenting Questionnaire and the Neglect Scale of the ICAST. Only one effect size showed a significant decrease. Trials were implemented in Thailand, Portugal and Canada.

Figure 15. Forest plot showing short-term effects of parent training on neglect



Non-prioritized outcomes:

Parenting efficacy and satisfaction

Twenty-five trials reported parenting efficacy and parenting satisfaction. Interventions had a small effect on parenting efficacy and satisfaction, with substantial levels of heterogeneity ($d=0.35$; 95% CI=0.01, 0.69; $I^2=95\%$).

Due to limited available evidence, the outcomes for intimate partner violence, attitudes to corporal punishment and beliefs about positive parenting are discussed only across all time points (see page 19).

Longer-term follow-up

This section reports on the main effect results beyond 26 weeks after the intervention, representing longer-term effects. In total, we extracted 521 effect sizes reported at longer-term follow-up. The longest follow-up point was at four years post-intervention.

Table 6. Main effect results of all outcomes at longer-term follow-up

Outcome	No. of trials	No. of effect sizes	Effect size (Cohen's d)	Confidence interval of effect size	Heterogeneity (I ²)
<i>Child maltreatment</i>	8	17	-0.22 [†]	-0.47, 0.04	74%
<i>Physical abuse</i>	4	4	-0.25	-0.67, 0.18	66%
<i>Psychological abuse</i>	3	4	-0.59	-2.60, 1.42	91%
<i>Neglect</i>	3	6	0.04	-0.45, 0.54	46%
Negative parenting	23	80	-0.20**	-0.34, -0.06	73%
Positive parenting	27	88	0.26**	0.10, 0.42	78%
Parenting stress	10	19	-0.08 [†]	-0.29, 0.14	63%
Parent mental health problems	12	36	-0.11*	-0.19, -0.02	54%
Parenting efficacy and satisfaction	11	25	0.25 [†]	-0.01, 0.50	76%
Child behaviour problems	34	182	-0.06 [†]	-0.19, 0.08	89%
Externalizing	33	136	-0.06 [†]	-0.20, 0.08	88%
Internalizing	10	32	-0.04 [†]	-0.19, 0.10	89%

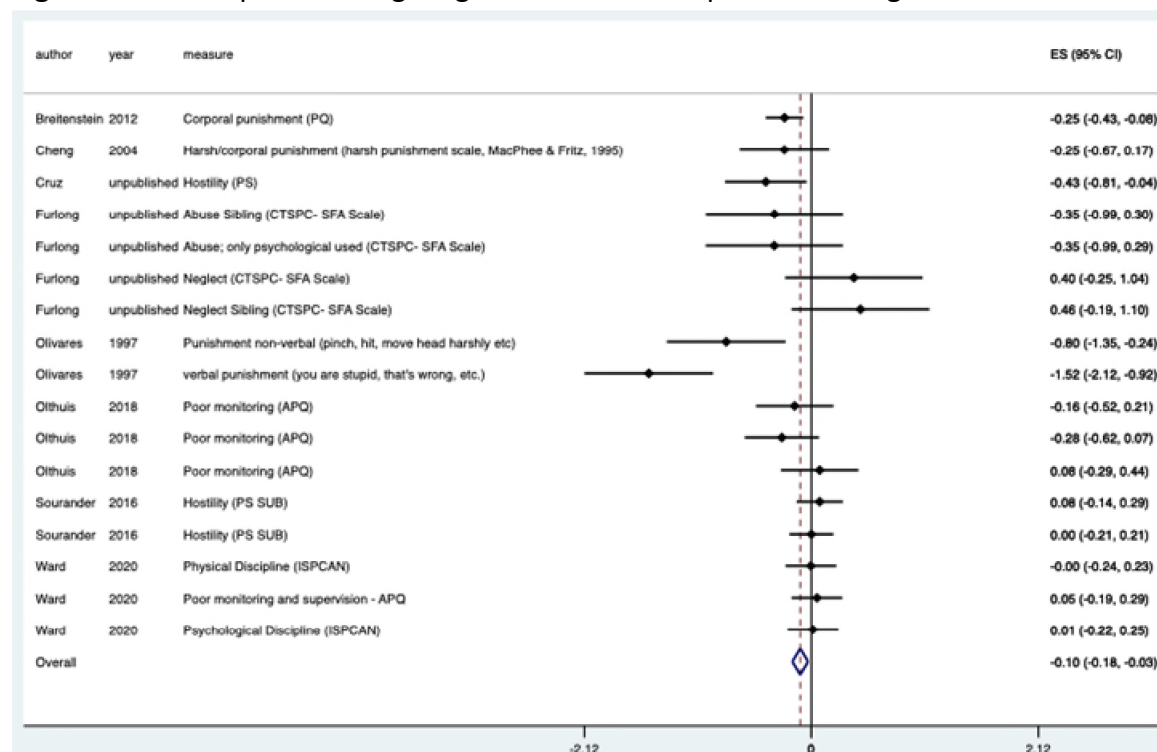
Note: Colour-coding as green = significant effect; blank = non-significant effect; grey = df<4 and untrustworthy result; p-value ranges: 0.05 – 0.01= *, 0.01 – 0.000= **, 0.05 – 0.999= †

Prioritized outcomes:

Child maltreatment

Eight trials reported maltreatment outcomes. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.22$; 95% CI=-0.47, 0.04; $I^2=74\%$).

Figure 16. Forest plot showing longer-term effects of parent training on child maltreatment



Physical abuse

See “Meta-analyses that did not include enough degrees of freedom” below.

Psychological abuse

See “Meta-analyses that did not include enough degrees of freedom” below.

Neglect

See “Meta-analyses that did not include enough degrees of freedom” below.

Negative parenting

Twenty-three trials reported negative parenting outcomes. Interventions had a small effect on negative parenting, with substantial levels of heterogeneity ($d=-0.20$; 95% CI=-0.34, -0.06; $I^2=73\%$).

Positive parenting

Twenty-seven trials reported positive parenting outcomes. Interventions had a small effect on positive parenting, with substantial levels of heterogeneity ($d=0.26$; 95% CI=0.10, 0.42; $I^2=79\%$).

Parenting stress

Ten trials reported parenting stress outcomes. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.08$; 95% CI=-0.29, 0.14; $I^2=63\%$).

Parental mental health problems

Twelve trials reported parental mental health outcomes. Interventions had a small effect on parental mental health, with substantial levels of heterogeneity ($d=-0.11$; 95% CI=-0.19, -0.02; $I^2=54\%$).

Child behaviour problems

Thirty-four trials reported overall child behaviour problems, including internalising and externalising behaviours. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.06$; 95% CI=-0.19, 0.08; $I^2=89\%$).

Externalising child behaviours

Thirty-three trials reported externalising behaviours, including conduct problems and ADHD symptoms. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.06$; 95% CI=-0.20, 0.08; $I^2=88\%$).

Internalising child behaviours

Ten trials reported internalising behaviours. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=-0.04$; 95% CI=-0.19, 0.10; $I^2=89\%$).

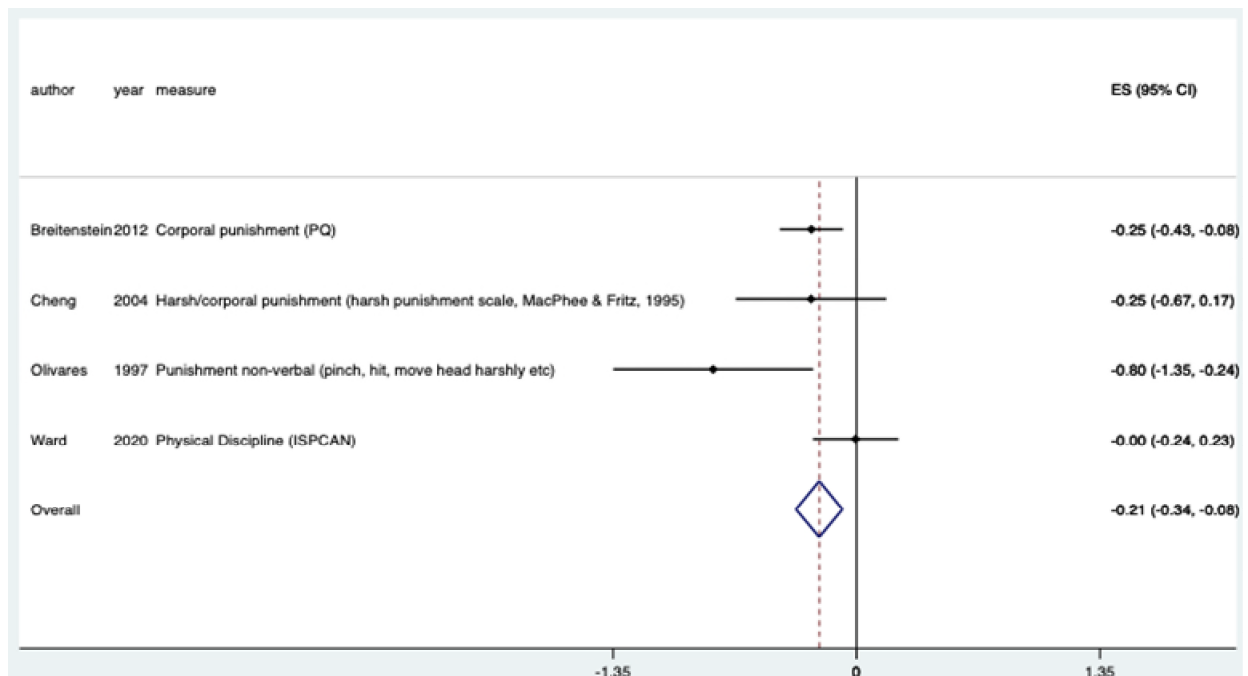
Meta-analyses that did not include enough degrees of freedom

The following analyses must be interpreted with caution. The degrees of freedom for them was smaller than $df < 4$; therefore, the p-value is untrustworthy for the estimated average effect size.

Physical abuse

Four trials reported physical abuse, with an average decrease of Cohen's $d = -0.25$, yet due to a small number of included trials and effect sizes, the p-value is not trustworthy. Effect sizes were measured using the Corporal Punishment subscale of the Parenting Questionnaire and of the Harsh Punishment Scale, using observed non-verbal punishment, including pinching, hitting etc., and the Physical Discipline scale of the IPSCAN. Two effect sizes showed a significant decrease. Trials were implemented in the United States, Spain and South Africa.

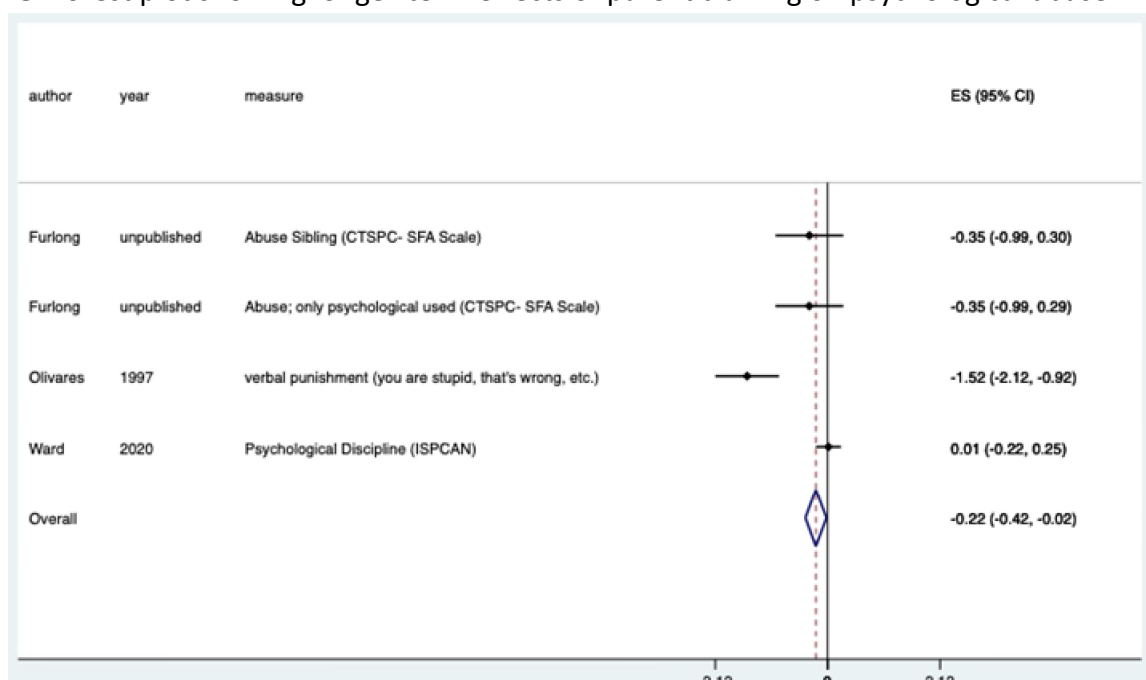
Figure 17. Forest plot showing longer-term effects of parent training on physical abuse



Psychological abuse

Three trials reported psychological abuse, with an average decrease of Cohen's $d = -0.59$, yet due to a small number of included trials and effect sizes, the p -value is not trustworthy. Effect sizes were measured using the Conflict Tactic Scale, observed verbal punishment, and the Psychological Discipline scale of the ICAST. Only one effect size showed a significant decrease, with a large effect size of $d = -1.52$. Trials were implemented in Ireland, Spain and South Africa.

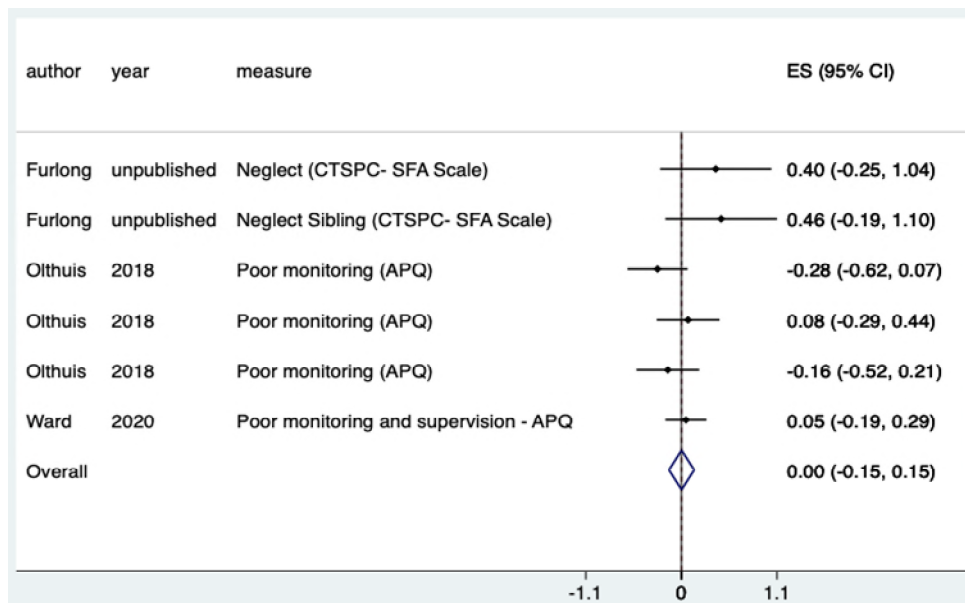
Figure 18. Forest plot showing longer-term effects of parent training on psychological abuse



Neglect

Three trials reported neglect, with an average increase of Cohen's $d = 0.04$, yet due to a small number of included trials and effect sizes, the p -value is not trustworthy. Effect sizes were measured using the Poor Monitoring Scale of the Alabama Parenting Questionnaire and the Neglect Scale of the Conflict Tactics Scale. No effect size showed a significant decrease. Trials were implemented in Ireland, South Africa and Canada.

Figure 19. Forest plot showing longer-term effects of parent training on neglect



Non-prioritized outcomes:

Parenting efficacy and satisfaction

Eleven trials reported parenting efficacy and satisfaction outcomes. Results found a small statistically non-significant effect, with substantial levels of heterogeneity ($d=0.25$; 95% CI=-0.01, 0.50; $I^2=76\%$).

Due to limited available evidence, the outcomes for intimate partner violence, attitudes to corporal punishment and beliefs about positive parenting are discussed only across all time points (see page 19).

Robustness checks – publication bias

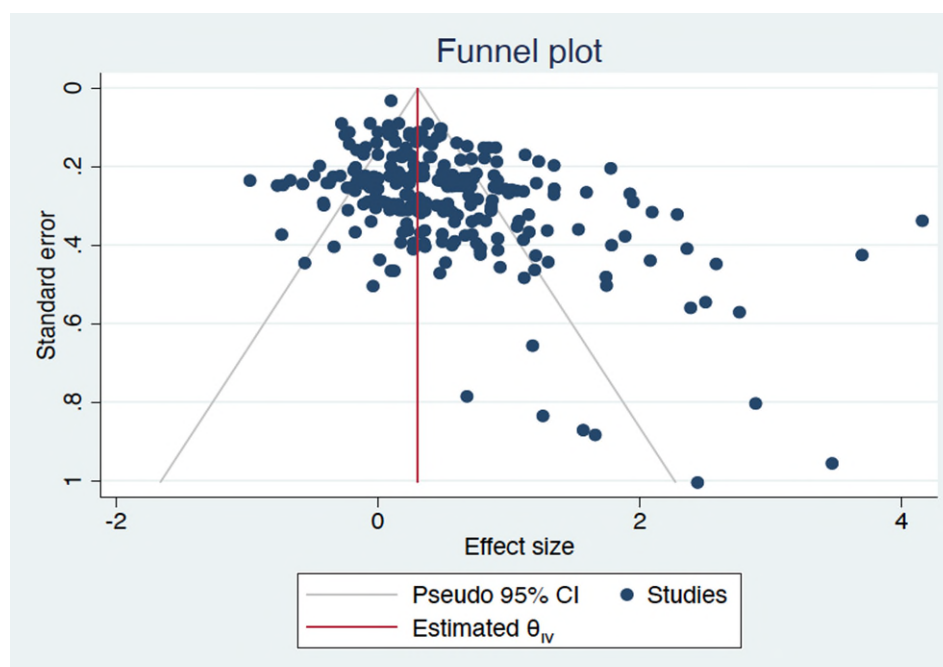
Intervention reviews are often prone to publication bias. We conducted robustness checks and plotted the effect sizes for all outcomes separately for all time points in a funnel plot. A funnel plot is a scatter plot of the effect estimates from individual studies against the standard error (study's precision of effect). In our analyses, we assume a random-effect model and thus some variation of true effects.

The most powerful studies as reflected in the sample size of each study are displaced at the top of the plot, since the precision of estimated intervention effects increases as the size of the study increases. Therefore, effect estimates from smaller studies will scatter more widely at the bottom of the graph, with the spread narrowing among larger studies (Higgins et al., 2011). In the absence of publication bias, the plot follows a symmetrical funnel.

If publication bias is present, smaller studies without statistically significant effects were not published, and the plot will appear asymmetrical with gaps in the bottom corner of the graph. Publication bias leads to overestimating intervention effects, and this bias increases with more pronounced asymmetry.

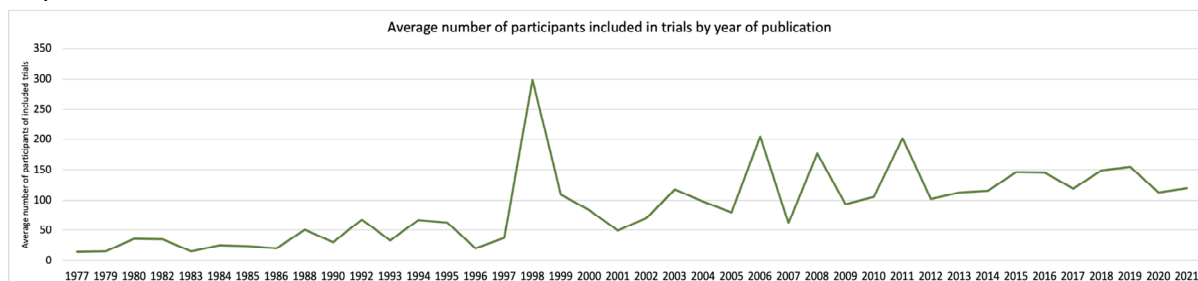
We observed asymmetry across nearly all outcomes. A clear example is positive parenting. The following plot displays on the horizontal axis the effect sizes for positive parenting immediately after the intervention.

Figure 20. Funnel plot examining publication bias for positive parenting at immediate post-test



On the vertical axis we find the precision of the effect estimate, with stronger precision (larger studies) at the top of the funnel. We can observe in this plot that there is a lack of smaller studies with non-significant or even iatrogenic results (bottom left-hand corner). Nevertheless, we would like to note that the majority of studies included in this review and consequently in our analyses seemed to provide stronger precision of effects. This is reflected in a majority of studies centring around the top of the funnel. We also wanted to check whether rigour, in the sense of larger sample size, increased over time, given that studies from 1977 to 2021 are included. Figure 21 supports this hypothesis with a gradual increase of N on average over the years (1998 is an exception).

Figure 21. Average number of participants included in randomized controlled trials by year of publication



Moderation results

We examined differential effects of the following key outcomes across all time points: child maltreatment, negative parenting, positive parenting and externalizing child behaviours. For this, we conducted subgroup analysis in relation to the level of prevention (universal vs. indicated vs. selective vs. universal) from both an abuse perspective and a conduct perspective, socio-economic status (SES) (disadvantaged vs. non-disadvantaged), ethnicity (trials including mostly ethnic minority vs. ethnic majority), delivery format (group vs. individual vs. combination), number of sessions (continuous), and country income status (low vs. upper-middle vs. high).

Level of prevention – child maltreatment perspective

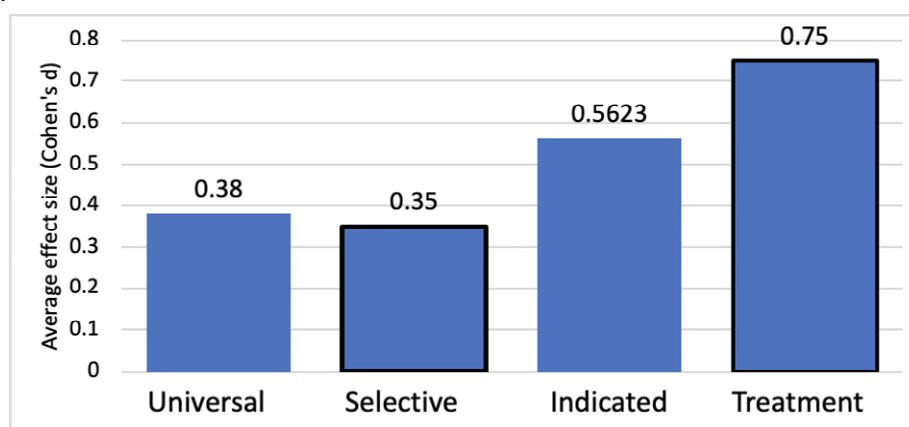
We found no evidence of any moderation effect by level of prevention from a child maltreatment perspective. In other words, the effectiveness of the intervention for reducing maltreatment, negative parenting and externalizing behaviours and improving positive parenting did not vary by the level of prevention (treatment, indicated, selective, universal) if assessed from a maltreatment perspective. We would like to note that very few trials used an indicated or treatment prevention strategy (8% of all trials). Therefore, more trials are needed to understand whether trials that target parents that use abusive parenting methods have a stronger effect on parent and child outcomes.

Level of prevention – conduct problem perspective

Level of prevention was divided into universal, selective, indicated prevention and treatment trials. We found differential effects by level of prevention for positive parenting behaviour outcomes and externalizing child behaviours.

For positive parenting, we found that treatment trials ($d=0.75$; $n=33$, $k=89$) had stronger effects compared to selective trials ($d=0.35$; $n=48$, $k=198$) on improving positive parenting ($\hat{\theta} = 0.40$; 95% CI [0.11, 0.70], $\tau^2=0.23$).

Figure 22. Main effects of parenting intervention for positive parenting by level of prevention



Moderators of outcome: Meta-regression results

Table 7. Moderator analyses for variables moderators for child maltreatment (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N subgroup	k subgroup	Mean effect size for subgroup	Difference in coefficients; 95% confidence interval (CI)	Tau-squared
Prevention strategy maltreatment – 4 levels: selective vs. treatment vs. indicated vs. universal	Selective	27	54	-0.31	Indicated	4	8	-0.75	unreliable	0.13
					Treatment	2	3	-0.25	unreliable	0.13
					Universal	15	27	-0.38	-0.07; -0.36, 0.21	0.13
Prevention strategy conduct problems – 4 levels: selective vs. indicated vs. treatment vs. universal	Selective	18	33	-0.43	Indicated	8	20	-0.34	0.09; -0.28, 0.46	0.13
					Treatment	9	16	-0.24	0.21; -0.28, 0.69	0.13
					Universal	14	30	-0.32	0.10; -0.21, 0.41	0.13
Socio-economic status – 2 levels: high/upper-middle/middle income vs. low and lower-middle	Low/lower-middle income	28	55	-0.39	Middle/upper-middle/high income	9	13	-0.34	-0.06; -0.52, 0.39	0.11
Ethnic minority – 2 levels: ethnic minority parents vs. ethnic majority parents	Most parents from ethnic majority	6	17	-0.45	Most parents from ethnic minority	22	36	-0.28	0.16; -0.27, 0.59	0.09

Delivery format – 4 levels: group vs. self-directed vs. combination vs. individual	Group	28	49	-0.33	Self-directed	4	9	-0.26	unreliable	0.12
					Combination	8	21	-0.29	0.07; -0.31, 0.45	0.12
					Individual	10	18	-0.39	-0.04; -0.39, 0.30	0.12
Country income level – 4 levels: high income vs. low income vs. upper-middle	High income	40	79	-0.35	Low	0	0			0.12
					Lower-middle	0	0			0.12
					Upper-middle	9	20	-0.33	0.02; -0.32, 0.35	0.12

Table 8. Moderator analyses for categorical variables for negative parenting (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N subgr oup	k subgr oup	Mean effect size for subgroup	Difference in coefficients; 95% confidence interval (CI)	Tau-squared
Prevention strategy maltreatment – 4 levels: selective vs. treatment vs. indicated vs. universal	Selective	109	372	-0.46	Indicated	7	24	-0.69	-0.21; -0.84, 0.43	0.17
					Treatment	7	21	-0.77	-0.29; -0.93, 0.36	0.17
					Universal	35	126	-0.41	0.06; -0.16, 0.28	0.17
Prevention strategy conduct problems – 4 levels: selective vs. indicated vs. treatment vs. universal	Selective	60	190	-0.42	Indicated	39	154	-0.44	-0.03; -0.19, 0.12	0.17
					Treatment	31	103	-0.67	-0.22; -0.48, 0.03	0.17
					Universal	28	96	-0.40	0.02; -0.24, 0.28	0.17
Socio-economic status – 2 levels: high/upper-middle/middle income vs. low and lower-middle	Low/lower middle income	63	223	-0.41	Middle/ upper-middle/ high income	57	210	-0.53	0.10; -0.08, 0.27	0.15
Ethnic minority – 2 levels: ethnic minority parents vs. ethnic majority parents	Most parents from ethnic majority	40	96	-0.29	Most parents from ethnic minority	56	217	-0.51*	0.22; 0.05, 0.39	0.13
	Group	85	278	-0.47	Self-directed	17	58	-0.32	0.17; -0.06, 0.41	0.17

Delivery format – 4 levels: group vs. self-directed vs. combination vs. individual					Combination	37	125	-0.43	0.04; -0.12, 0.21	0.17
					Individual	27	78	-0.49	-0.02; -0.26, 0.21	0.17
Country income level – 4 levels: high income vs. low income vs. upper-middle	High income	145	506	-0.42	Low	0	0			
					Lower-middle	0	0			
					Upper-middle	13	35	-0.62	-0.20; -0.97, 0.25	0.16

Table 9. Moderator analyses for categorical variables for positive parenting (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N subgroup	k subgroup	Mean effect size for subgroup	Difference in coefficients; 95% confidence interval (CI)	Tau-squared
Prevention strategy maltreatment – 4 levels: selective vs. treatment vs. indicated vs. universal	Selective	86	319	0.48	Indicated	7	19	0.71	0.26; -0.21, 0.73	0.24
					Treatment	4	13	0.73	<i>unreliable</i>	0.24
					Universal	34	109	0.45	-0.03; -0.28, 0.21	0.24
Prevention strategy conduct problems – 4 levels: selective vs. indicated vs. treatment vs. universal	Selective	48	198	0.35	Indicated	25	84	0.58	0.21; -0.11, 0.54	0.23
					Treatment	33	89	0.75	0.40**; 0.11, 0.70	0.23
					Universal	25	89	0.36	0.03; -0.22, 0.23	0.23
Socio-economic status – 2 levels – 2 levels: high/upper-middle/middle income vs. low and lower-middle	Low/lower-middle income	65	236	0.51	Middle/upper-middle/high income	39	14	0.44	0.06; -0.19, 0.31	0.26
Ethnic minority – 2 levels: ethnic minority parents vs. ethnic majority parents	Most parents from ethnic majority	42	141	0.55	Most parents from ethnic minority	39	129	0.30	-0.25; -0.51, 0.00	0.21

Delivery format – 4 levels: group vs. self-directed vs. combination vs. individual	Group	70	272	0.48	Self-directed	6	21	0.34	-0.10; -0.41, 0.24	0.24
					Individual	70	272	0.49	0.10; -0.19, 0.40	0.24
					Combination	19	65	0.38	-0.14; -0.44, 0.15	0.24
Country income level – 4 levels: high income vs. low income vs. upper-middle	High income	140	508	0.49	Low	0	0*			
					Lower-middle	0	0*			
					Upper-middle	9	20	-0.33	-0.13; -0.46, 0.71	0.25

* There were no trials from low or lower-middle income countries reporting this outcome.

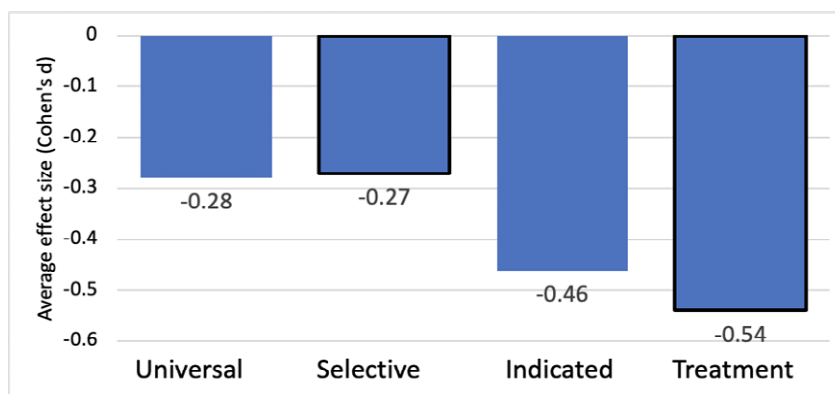
Table 10. Moderator analyses for categorical variables for externalising child behaviours (N = number of trials; k= number of effect sizes)

Moderator	Reference group (ref)	N ref group	k ref group	Mean effect size for reference group	Subgroup	N subgroup	k subgroup	Mean effect size for subgroup	Difference in coefficients; 95% confidence interval (CI)	Tau-squared
Prevention strategy maltreatment – 4 levels: selective vs. treatment vs. indicated vs. universal	Selective	149	728	-0.40	Indicated	6	29	-0.51	-0.11; -0.54, 0.33	0.18
		149	728	-0.40	Treatment	5	19	-0.18	0.22; -0.05, 0.48	0.18
		149	728	-0.40	Universal	48	205	-0.34	0.06; -0.09, 0.22	0.18
Prevention strategy conduct problems – 4 levels: selective vs. indicated vs. treatment vs. universal	Selective	71	258	-0.27	Indicated	59	303	-0.46	-0.19*; -0.36, -0.02	0.17
		71	258	-0.27	Treatment	48	277	-0.53	-0.27**; -0.43, -0.09	0.17
		71	258	-0.27	Universal	32	153	-0.28	-0.01; -0.19, 0.17	0.17
Socio-economic status – 2 levels: high/upper-	Low/lower-middle income	78	358	-0.37	Middle/upper-middle/high income	83	388	-0.41	0.04; -0.11, 0.19	0.19

middle/middle income vs. low and lower-middle										
Ethnic minority – 2 levels: ethnic minority parents vs. ethnic majority parents	Most parents from ethnic majority	87	420	-0.45	Most parents from ethnic minority	41	181	-0.21	0.24**; 0.06, 0.43	0.19
Delivery format – 4 levels: group vs. self-directed vs. combination vs. individual	Group	113	497	-0.37	Self-directed	22	105	-0.49	-0.12; -0.38, 0.14	0.18
		113	497	-0.37	Combination	40	150	-0.41	-0.05; -0.22, 0.13	0.18
		113	497	-0.37	Individual	46	225	-0.40	-0.03; -0.19, 0.13	0.18
Country income level – 4 levels: high income vs. low income vs. upper-middle	High income	198	958	-0.35	Low	1	2	-0.03	unreliable	0.17
		198	958	-0.35	Lower-middle	0	0		unreliable	0.17
		198	958	-0.35	Upper-middle	11	32	-0.82	-0.46; -1.07, 0.15	0.17

For externalizing behaviours, we found that treatment trials ($d=-0.54$; $n=48$, $k=277$) had stronger effects compared to selective trials ($d=-0.27$; $n=71$, $k=258$) on reducing child externalizing behaviours ($\delta = -0.27$; 95% CI [-0.44, -0.09], $\tau^2=0.17$). We did not find any difference by level of prevention from a conduct perspective for child maltreatment and negative parenting.

Figure 23. Main effects of parenting intervention for externalizing behaviours by level of prevention



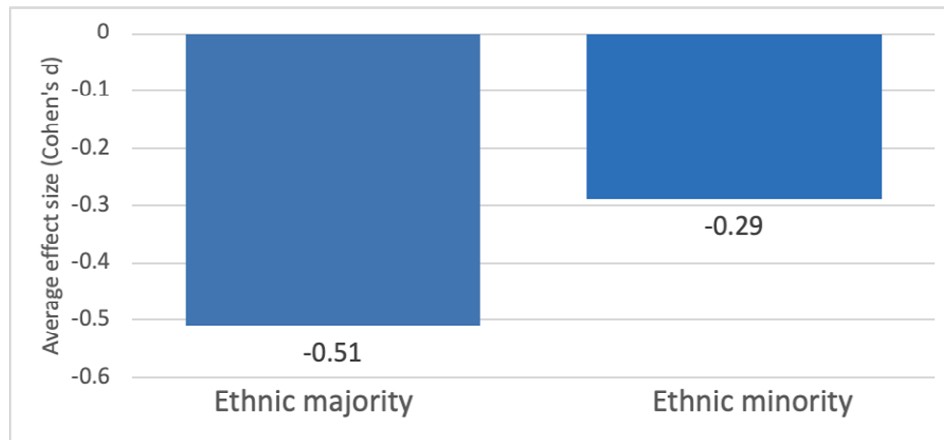
Socio-economic status of families

We built an index of SES for each trial based on average demographics of each trial. We judged the level of SES using available information such as family income, description of the trial by the study authors, level of education or occupation. SES was dichotomized into two categories: advantaged (middle to high SES) vs. disadvantaged families (low to lower-middle SES). We found no evidence of any moderation effect by family SES. In other words, the effectiveness of the intervention for reducing maltreatment, negative parenting and externalizing behaviours and improving positive parenting did not vary by the average level of income, level of education, occupation or other facets of SES of the parents in the trial.

Ethnicity

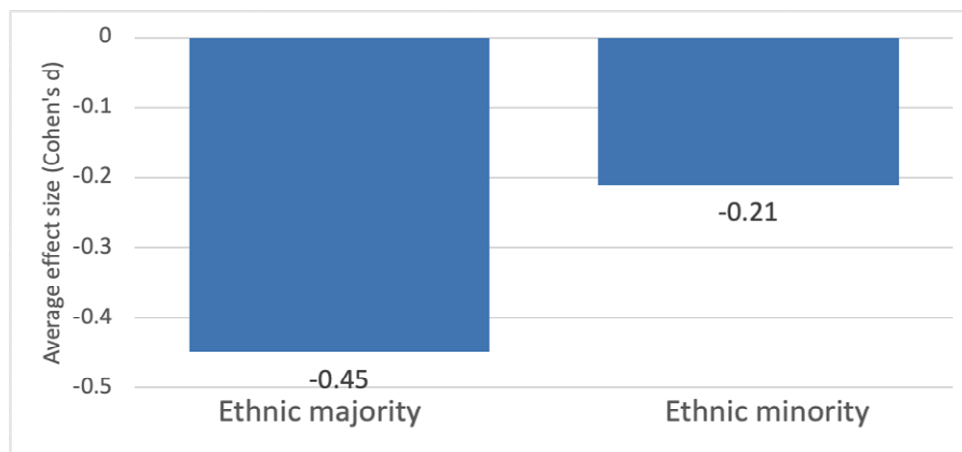
We classified trials as either ethnic minority or ethnic majority. This was based on the composition of ethnicity in each trial. For example, if a trial mainly included ethnic majority parents, the trial was labelled as an ethnic majority trial. We found evidence of a moderation effect by ethnicity for negative parenting and externalizing behaviours. For negative parenting, we found that trials including mainly parents from an ethnic minority ($d=-0.29$, $n=40$, $k=96$) showed smaller reductions in negative parenting compared to trials including mainly parents from ethnic majorities ($d=-0.51$, $n=56$, $k=217$; $\delta = 0.22$; 95% CI [0.05, 0.39], $\tau^2=0.13$) (see Figure 24).

Figure 24. Main effects of parenting intervention on negative parenting by ethnicity



For externalizing behaviours, we found that trials including mainly parents from an ethnic minority showed smaller reductions in child externalizing behaviours ($d=-0.21$, $n=41$, $k=181$) compared to trials including mainly parents from ethnic majorities ($d=-0.45$, $n=87$, $k=420$, $\hat{\sigma}^2 = 0.24$; 95% CI [0.05, 0.43], $\tau^2=0.19$) (see Figure 25).

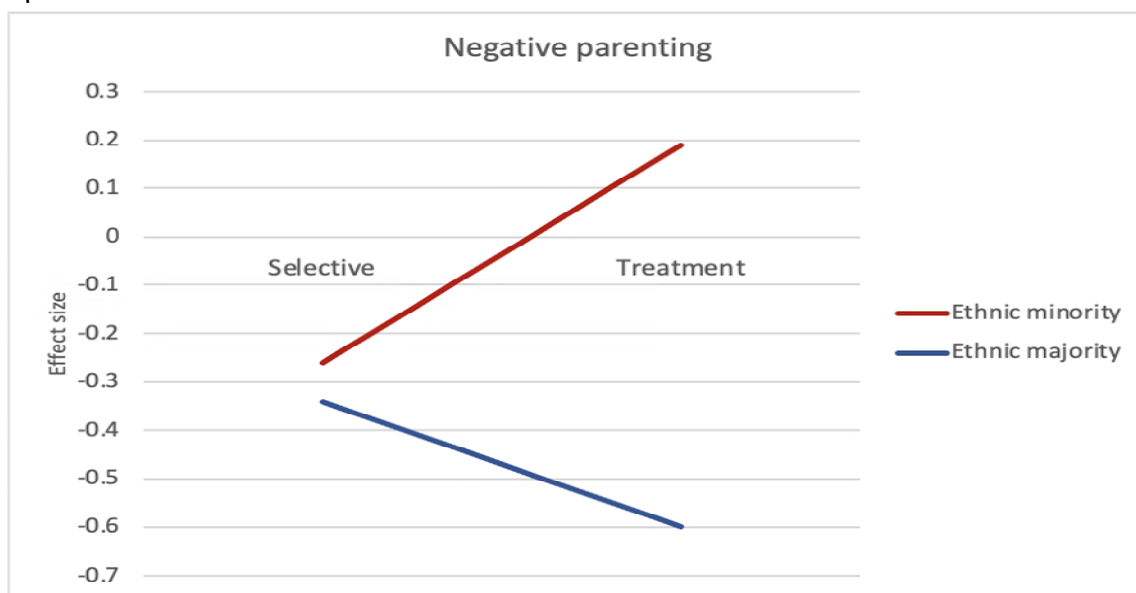
Figure 25. Main effects of parenting intervention on externalizing behaviours by ethnicity



We did not find any difference by ethnicity for child maltreatment and positive parenting outcomes. Since these findings are not in line with previous research findings, we checked whether the effect is driven effectively by level of prevention. It may be that parents from ethnic minorities were mainly included in selective prevention trials due to the challenges ethnic minority parents often have to face (e.g poverty) which are risk factors for conduct problems and maltreatment, and these trials are known from prior research (Leijten, Gardner, Melendez-Torres, Van Aar, Hutchings, et al., 2019) to find lower effect sizes than indicated prevention trials, where children are targeted due to high levels of conduct problems. We plotted the effect sizes of negative parenting and externalizing behaviours by level of prevention and ethnicity.

Figure 26 shows that our alternative explanation did not explain the moderation effect. We found that ethnic minorities consistently had less improvement in negative parenting post-intervention than ethnic majorities both for selective trials and treatment trials.

Figure 26. Effects of ethnicity on post-treatment effectiveness for negative parenting outcome, by level of prevention



For externalizing behaviours, this picture becomes clearer. In Figure 27 it is explicit that it is not the level of prevention that drives the effect, but that we find a gap between ethnic minority and ethnic majority trials, at both levels of prevention, albeit with a smaller gap for treatment trials.

Figure 27. Effects of ethnicity on post-treatment effectiveness for externalizing behaviour outcome, by level of prevention

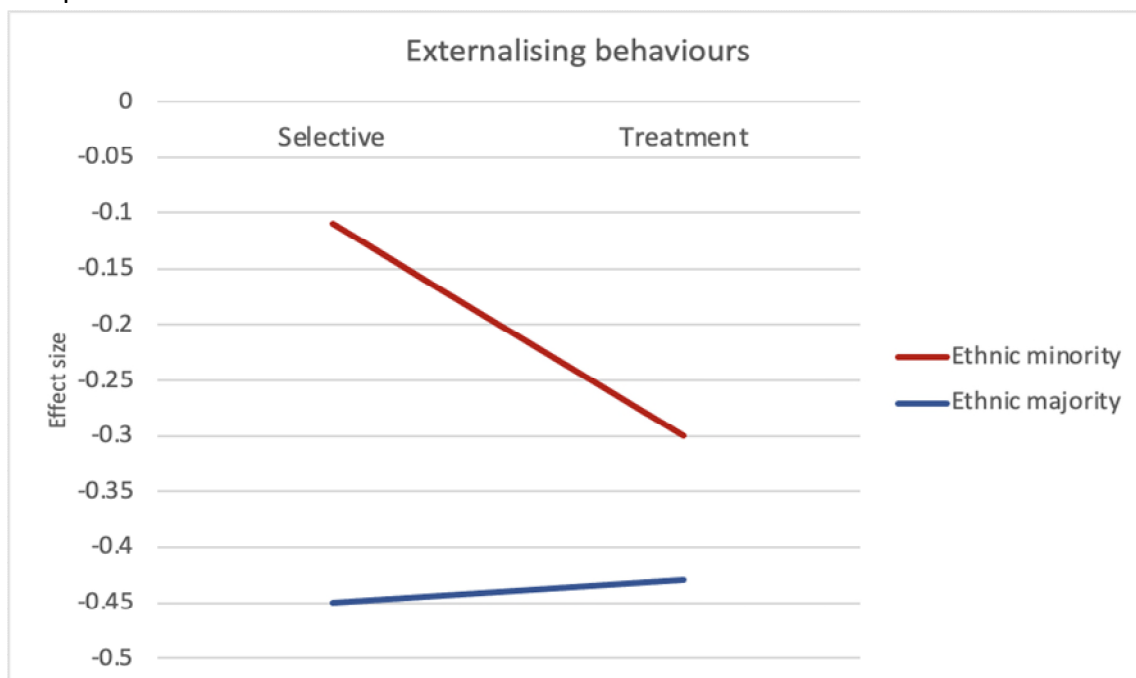


Table 11. Moderators for continuous variables for maltreatment, negative parenting, positive parenting and externalizing behaviours

Moderator	Outcome	k	N	Mean effect size for reference group	Change per standard deviation	95% confidence interval (CI)	Tau-squared
% of attended sessions	Child maltreatment	30	17	-0.28	-0.50	-1.89, 0.90	0.08
	Negative parenting	149	54	-0.34	-0.31	-0.94, 0.33	0.08
	Positive parenting	189	51	0.35	0.68*	0.05, 1.31	0.14
	Externalizing behaviours	346	66	-0.27	-1.13*	-2.24, -0.03	0.21
Number of sessions	Child maltreatment	94	47	-0.33	-0.004	-0.04, 0.04	0.12
	Negative parenting	517	151	-0.47	-0.003	-0.02, 0.02	0.18
	Positive parenting	433	122	0.49	0.007	-0.00, 0.02	0.24
	Externalizing behaviours	930	197	-0.38	0.003	-0.01, 0.02	0.18
Time point: weeks post-intervention as a moderator	Child maltreatment	99	49	-0.32	0.001	0.00, 0.01	0.11
	Negative parenting	544	159	-0.443	0.005	0.002, 0.008	0.16
	Positive parenting	460	131	0.485	-0.005	-0.008, -0.002	0.24
	Externalizing behaviours	993	211	-0.364	0.006	0.003, 0.008	0.17

Delivery format

We tested if there were differential effects on our outcomes for different modes of delivery. Four different types of delivery were tested as subgroups: group vs. self directed/individual/ combination of formats). We found no evidence of any moderation effect by delivery format. Thus, effectiveness of the intervention for reducing maltreatment, negative parenting and externalizing behaviours and improving positive parenting did not vary by the format in which the intervention was delivered.

Attended sessions (table 11)

We tested whether the percentage of sessions attended by parents was associated with effectiveness of the interventions. We found a moderation effect by percentage of attended sessions for positive parenting ($\beta = 0.68$; 95% CI [0.05, 1.31], $\tau^2=0.14$) and externalizing behaviours ($\beta = -1.13$; 95% CI [-2.24, -0.03], $\tau^2=0.21$) such that trials that had higher attendance rates among parents showed stronger effects of the interventions. We would like to note that the median attendance was 75% of sessions, suggesting that attendance was already high in most trials.

Number of intended sessions (table 11)

On average, the included parenting interventions intended to deliver 10 sessions. We found no evidence of any moderation effect by the number of intended sessions of an intervention. In other words, the effectiveness of the intervention for reducing maltreatment, negative parenting and externalizing behaviours and improving positive parenting did not vary by the number of sessions.

Country income level

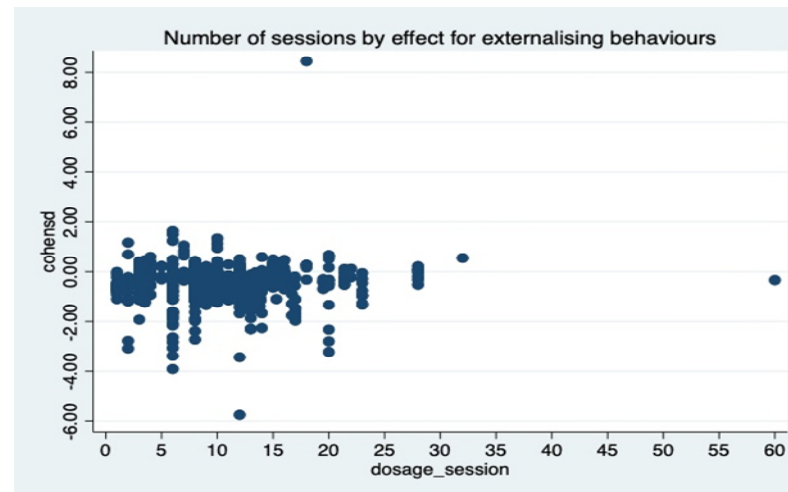
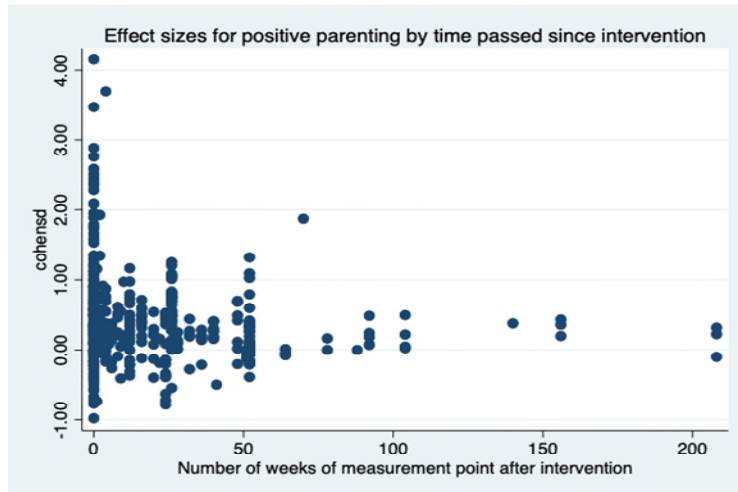
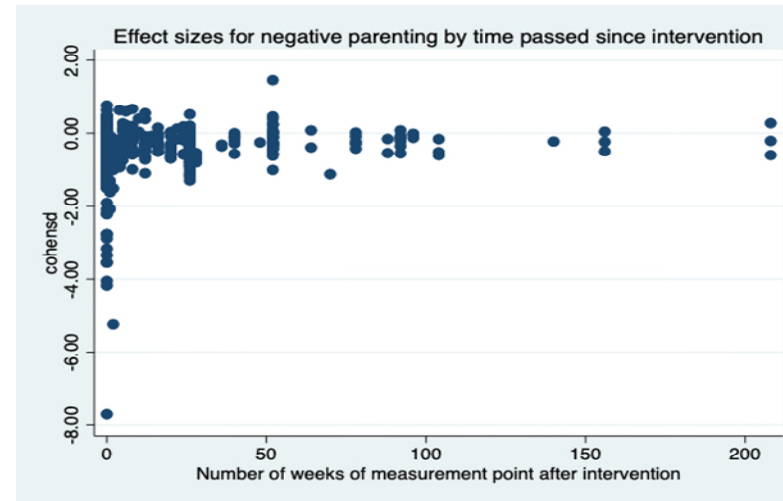
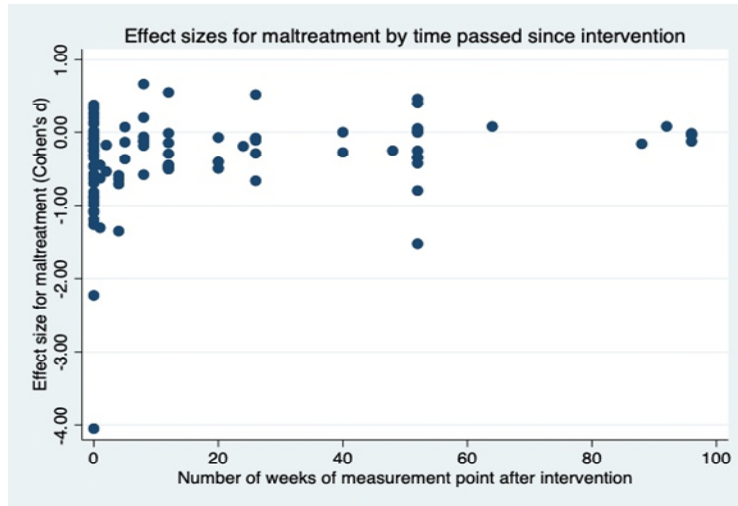
The income level of each country was grouped under low, lower-middle, upper-middle and high income. Differential effects were evaluated for HICs vs. low-income vs. lower-middle and vs. upper-middle-income countries. We did not find any difference by country income level for child maltreatment, negative parenting, positive parenting or externalizing behaviours.

Post-hoc analyses

Time point of measurement (table 11)

Based on the previous main effect finding that child maltreatment effectiveness fades out over time, we ran a post-hoc moderation analysis on the number of weeks for the measurement time point as a moderator for each outcome. We found a moderation effect of time point for all four outcomes, with effectiveness slightly decreasing constantly over time for maltreatment ($\beta = 0.01$, 95% CI [0.00, 0.01], $\tau^2=0.11$), negative parenting ($\beta = 0.005$, 95% CI [0.002, 0.008], $\tau^2=0.16$), positive parenting ($\beta = -0.005$, 95% CI [-0.008, -0.002], $\tau^2=0.24$) and externalizing behaviours ($\beta = 0.006$, 95% CI [0.003, 0.008], $\tau^2=0.17$).

Figures 28–31. Effect size for outcomes by measurement time point in weeks



Discussion

Summary of findings

In this global review, we tested whether parents of children aged 2–10 years who participated in a social learning theory-based parenting intervention reduce parenting behaviours on the spectrum of child maltreatment. We included 278 randomized controlled trials from 33 countries, which currently constitutes the largest review of parenting interventions in the world. Our findings suggest that parents significantly reduced maltreating behaviours, including physical and psychological abuse, as well as other negative parenting behaviours. In addition, interventions amplified positive parenting, improved the mental health of the participating parents and caregivers, and reduced parenting stress and problematic child behaviours such as externalizing and internalizing behaviours.

We examined how well these effects are maintained over time. For this, we divided the post-intervention measurements into three time points: immediate (4 weeks after participation), short-term (4–26 weeks after participation) and longer-term effects (beyond 26 weeks after participation in a parenting intervention). Our findings suggest that some relevant outcomes appear to fade out the more time passes after participation in an intervention, with no effect for child maltreatment and child behaviour problems beyond 26 weeks after participation in an intervention. This is not in line with previous research that suggested sustained effects for disruptive child behaviours (van Aar, Leijten, de Castro, & Overbeek, 2017). We would like to note that not all studies provided longer-term effects, which may have introduced some form of bias, yet a subsequent meta-regression analysis confirmed some moderation by time. We found a difference between intervention and control participants beyond 26 weeks for overall negative parenting, positive parenting and mental health of participating parents, with a decrease in effectiveness but a significant small effect for all three outcomes at all follow-up points. Research is needed to understand whether booster sessions as offered by only a small number of interventions help to sustain the effects on all outcomes over time.

Despite an enormous amount of included trials, only a few studies reported on the sub-types of maltreatment. Including all effect sizes regardless of the time of the measurement, we found a reduction in physical and psychological abuse; however, most analyses failed for the different time points due to too few available data. Only 3 of the 278 included trials examined the effects of parenting intervention on neglect, despite our more inclusive definition of maltreatment. The effects of parenting interventions globally to reduce intimate partner violence remain unclear due to only one intervention including a measurement of violence between parents.

We tested whether other factors such as family or country characteristics are associated with the effectiveness of the interventions. For example, conduct problems and maltreatment are much more common in disadvantaged groups; therefore, it would be of

concern if parenting interventions were less beneficial for those groups of families. We conducted meta-regression analyses on the following four main outcomes: maltreatment, negative parenting, positive parenting and child externalizing behaviours, testing for differential effects on the following moderators: level of prevention, SES, ethnicity, delivery format, number of sessions, attendance and country income status. We found that level of prevention when judged from a conduct perspective moderated the effectiveness of interventions to reduce negative parenting and externalizing behaviours in children. Families included in trials based on clinical levels of conduct problems showed stronger improvements after participation in a parenting intervention compared to families selected based on risk factors for conduct problems. We found no evidence to suggest that families with social disadvantage reflected in a low SES benefited less from parenting interventions than more advantaged families.

Surprisingly, we found that trials that included mostly parents from an ethnic minority showed less improvement in negative parenting after the intervention, and fewer reductions in externalizing behaviours of their children. We tested whether this effect is mainly driven by level of prevention, due to the assumption that ethnic minority parents are more often recruited for a trial based on their ethnicity status and often related disadvantaged background, and less based on their children's level of conduct problems. Our visual presentation of the interaction effect between ethnicity status and level of prevention did not confirm this hypothesis. Therefore, our findings suggest that families from ethnic minorities may benefit less. We would like to note that this finding is contrary to previous findings (Gardner et al., 2019) but should receive more attention in subsequent research to fully understand whether ethnic minorities show less improvement. We would like to refer here to a more in-depth analysis on equity effects in parenting interventions by the WHO Integrate team (Gardner et al. 2021; Equity chapter). We found that effectiveness of interventions on improving positive parenting and decreasing externalizing behaviours increased with the number of sessions attended by participants.

As with every moderation analysis on aggregate level, we are very careful in the interpretation of moderation results and always did some follow-up checks of the underlying data and distribution of effect sizes.

We conclude that level of prevention, percentage of attended sessions and ethnicity seem to impact the effectiveness of parenting interventions. More research is needed to confirm these findings, due to different findings across this field.

Strengths and limitations of this review

This review has several strengths and limitations. It constitutes the largest meta-analytic dataset in parenting interventions to date, with effect sizes extracted from 260 randomized controlled trials. Our meta-analytic strategy using robust variance estimation is currently seen as a state-of-the-art methodology that enhances the power for each meta-analysis by including multiple effect sizes from each study. This analysis accounts for inter-correlation within trials and produces a robust average effect size per outcome. In addition, this review

aimed to reduce the heterogeneity related to the included interventions by only focusing on the most prevalent target age group and underlying theory, and subsequently similar components. By expanding to a global focus, we included families from a variety of nationalities, needs, living conditions and settings. This enabled us to test with aggregate moderators for differential effects. This review is the most powered meta-analytic review on aggregate level and provides an overview of the current state of the field. It widened its definition of child maltreatment in parenting behaviours based on a systematic comparison of instruments in the field. Moreover, this review did not limit search terms to child maltreatment terminology and, therefore, included interventions regardless of the reported outcomes.

Limitations of our study include, first, the use of effect sizes that were predominantly based on self-report by parents, which is especially problematic, since parents were not blinded to condition. We note, however, that previous research suggested that parent self-report of maltreatment is the source with least underestimation of prevalence effects (Theodore, Chang, Runyan, Hunter, Bangdiwala, & Agans, 2005). In addition, a meta-analysis on the effectiveness of parenting intervention on disruptive child behaviours identified a similar magnitude of effectiveness for self-report measures compared to independent observations (Menting, de Castro, Matthys, 2013).

Second, not all randomized controlled trials provided follow-up data. This may impact and bias our findings of longer-term effectiveness, since risks such as publication bias cannot be ruled out.

Third, we focused only on parenting programmes that are based on social learning principles, albeit these interventions are the most prominent and evaluated parenting programmes.

Fourth, we made several assumptions during the grouping of effect sizes under outcomes, including, for example, which parenting behaviours can be classified as maltreatment. We believe that this limitation is present in every meta-analytic review, and that we tried to mitigate potential subjective assumptions through our systematic analysis of instruments.

Fifth, as with every systematic review, the quality of the review is also largely related to the quality and availability of empirical studies. We used only rigorous randomized controlled research designs, yet our assessment of risk of bias identified several areas of high or unknown risk of bias.

Sixth, although level of prevention and ethnicity explain to some extent why some families benefit more than others from parenting programmes, much heterogeneity in programme benefits remains unexplained.

Research gaps

We identified several research gaps. First, despite this review aiming to cover trials from all over the world and our extensive searching for LMIC trials, the vast majority of trials included in this review were conducted in HICs.

Only a small proportion of trials measure child maltreatment, with fewer covering the sub-types of maltreatment and intimate partner violence. Moreover, studies that include long-term effects, especially on maltreatment, are needed due to a suggested fade-out of effects over time. Finally, the number of reported baseline characteristics varies strongly between trials, making it impossible to run moderator analyses that include all trials.

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Parenting programmes for parents of adolescents in LMICs – adolescent sub-review

Key findings

- Our systematic review included extensive searching in multiple databases and languages, finding 30 randomized trials of parenting interventions delivered to parents of adolescents in LMICs.
- Twenty of these trials were potentially suitable for meta-analysis, but because different trials varied in their focus and outcomes, numbers were smaller than this (range $n=2-13$, median 6 trials) in the meta-analyses for each outcome. Thus, caution is needed in interpreting the findings.
- Parenting interventions reduce overall negative parenting behaviours and improve positive parenting.
- Overall behaviour problems in adolescents are reduced after parents participate in parenting interventions.
- This review found no difference between parents participating in the intervention or control group on parents' harsh parenting behaviours and poor monitoring of their adolescent children, although numbers of trials were small ($n=7$, $n=6$).
- Despite being the largest review on parenting interventions for adolescents (30 trials), there is a limited number of studies examining their effectiveness for key outcomes related to maltreatment.
- More trials are likely to be needed for reliable estimates of effectiveness for outcomes such as maltreatment and its sub-types – harsh parenting and intimate partner violence – and to understand effectiveness for different subgroups and intervention types, through higher-powered moderation analyses.
- For most outcomes, certainty of evidence was rated very low (one outcome was rated low).

Introduction

VAC is a global phenomenon that affects over 1 billion children across the world annually (Hillis, Mercy, Amobi, and Kress, 2016). Children who experience violence face severe, long-term consequences, including higher rates of mortality, school dropout, mental disorders, drug use, adolescent pregnancy and sexually transmitted infections (Norman et al., 2012). During adolescence, experiences of violence and child maltreatment increase, with particularly high rates found in LMICs (Patton et al., 2012; UNICEF et al., 2014). However, despite being a formative and pivotal stage of human development, adolescence is often overlooked in social policy and public health efforts (Patton et al., 2016).

Indeed, even though adolescents, and especially adolescent girls, are considered to be particularly vulnerable to certain types of violence (Marcus et al., 2020), there is a dearth of evidence surrounding violence prevention efforts targeting families with adolescents (McCoy et al., 2020). For instance, while research on parenting programmes based on social learning theory show promising results on reducing child maltreatment (Knerr et al., 2013; Mikton & Butchart, 2009), most trials to date focus primarily on younger children and are mainly from high-income countries (Barlow et al., 2011). The fact that nine out of 10 – 1 billion adolescents – reside in LMICs (UNFPA, 2015) underscores the urgent need for greater evidence and increased dissemination of effective parenting programmes that reduce violence against adolescents in LMICs (Cluver et al., 2018).

Caregivers of adolescents also often face unique parenting challenges. Changes in adolescents' behaviours and motivations, for example, can pose particular challenges for caregivers trying to offer support while also seeking to ensure the safety of their adolescents (Kobak et al., 2017). Indeed, throughout adolescence, individuals are often more likely to experiment with autonomous decision-making and engage in risky behaviours, such as substance abuse and unprotected sexual activity (Crone et al., 2016). As such, facilitating parents' ability to support their adolescents' changing needs, while still helping them provide optimal caregiving, is, therefore, pivotal in ensuring adolescents' well-being (Kobak et al., 2017). However, balancing concerns for safety while supporting adolescents' increased autonomy can often prove difficult (Wray-Lake et al., 2010). Notably, some researchers even suggest that general parenting guides may at times not be sufficient for addressing the unique needs of parenting adolescents, and that interventions would benefit from more targeted guidance that addresses adolescent development more specifically (Smetana, 2017).

The changes in family dynamics that often take place during adolescence, which are sometimes also coupled with an increase in parent–child conflict (Marceau et al., 2015), underscore the need for greater evidence on the effectiveness of parenting interventions on preventing violence against adolescents. Despite these challenges, however, research suggests that parents who are equipped with effective communication and self-regulation skills, which allow them to better communicate with and support their adolescents, are better at resolving caregiver–adolescent conflict (Kobak et al., 2017).

While there is a rapid increase in the dissemination of parenting programmes globally, there is notably a lack of research on parenting programmes that target caregivers of adolescents, especially in LMICs. In light of this, a systematic review on parenting interventions that focus on caregivers of adolescents is of utmost importance. This review is also particularly topical given recent calls by global agencies and governments that emphasize the urgent need for evidence-based interventions that improve parenting and reduce violence against adolescents (World Health Organization, 2016) and for efforts that prevent violence against girls (Guedes et al., 2016). This review also serves as a valuable complement to UNICEF's (2021) report 'Programming Guidance for Parenting of Adolescents', which offers guidance on efforts to improve evidence-based programming for

parenting of adolescents and includes a selection of case studies of existing parenting programmes. The aim of this review is, therefore, to address this gap in the literature by examining parenting interventions and their effectiveness on reducing violence against adolescents and related outcomes.

Methods

This review is a sub-review of the LMIC review 2–17. Since this review is based on the trials focused on adolescents from the LMIC 2–17 review, the search strategy, screening for eligibility and data extraction are the same and are, therefore, not repeated here (for further details on the methodology, see Chapter 7). The only difference in methodology between the LMIC review 2–17 and this sub-review is that the age inclusion criteria for this review included only trials that target parents of teenagers aged 10–17 years (see age inclusion criteria specified below), rather than 2–17 years as in the main LMIC review.

Research question

How effective are parenting programmes in preventing the risks of child maltreatment and harsh parenting among adolescents aged 10–17 in LMICs, and how does this vary for different outcomes?

Protocol and registration

The main review was registered on Prospero on 14 February 2018 (CRD42018088697).

Eligibility criteria

The detailed eligibility criteria can be found in Chapter 7 of this report. In summary, we include randomized controlled trials, including cluster-randomized controlled trials, and quasi-experimental design with a strong counterfactual. We include parenting interventions that are delivered mainly to parents and in an LMIC as defined by the World Bank. This sub-review included trials that target parents of teenagers aged 10–17 years, defined by the reported mean age of the sample at baseline.

Search

Please see Chapter 7.

Study selection

Please see Chapter 7.

Data extraction and synthesis

For this review, all eligible trials were identified based on the extracted data from the LMIC 2–17 review. The same advanced meta-analytic techniques used in the LMIC 2–17 review were adopted to estimate the overall mean effect of these interventions to reduce violence against youth and related outcomes. Due to the small number of trials eligible for the review and an even smaller number suitable for inclusion in the meta-analysis, subgroup analyses were limited. For the subgroup analyses that were possible to perform, these were conducted using moderators and outcome measurements specified a priori.

Risk of bias assessment

The quality of studies was assessed using the Cochrane Risk of Bias Tool for randomized controlled trials (Higgins et al., 2017). See Chapter 7 for the more detailed procedure.

Results

Included trials and participants

A total of 30 trials were included in this adolescent sub-review (Table 1), with 20 trials (67%) providing sufficient data to be included in one or more of the meta-analyses of the outcomes.

Table 1. Included trials in adolescent sub-review

First author	Year	Country	Intervention origin country	Intervention brand or name and focus	Included in MA
An	2020	China	China	Unbranded (SH)	Yes
Arkan	2020	Turkey	Australia	Triple P (CD)	Yes
Armistead	2014	South Africa	Australia, USA, South Africa	Imbadu Ekhaya (SH)	Yes
Baku	2017	Ghana	USA	Talking Parents, Healthy Teens (SH)	No
Bell	2008	South Africa	USA	CHAMPSA (SH)	No
Betancourt	2017	Rwanda	USA	Family Strengthening Intervention (FSI-HIV) (SH)	Yes
Bhana	2014	South Africa	South Africa	VUKA (SH)	No
Bogart	2013	South Africa	USA	Let's Talk! (SH)	No
Campero	2011	Mexico	Unclear	Unbranded (SH)	No
Cluver	2018	South Africa	South Africa	Sinovuyo Teen (VAC)	Yes
Cupp	2013	Thailand	USA	Thai Family Matters (DA, SH)	No

Foxcroft	2017	Poland	unclear	Strengthening Families Program (DA)	Yes
Ismayilova	2017/8	Burkina Faso	Burkina Faso	Trickle Up + Family Coaching (VAC)	Yes
Kauser	2019	Pakistan	Pakistan	Unbranded (CD)	Yes
Koc	2016	Turkey	Turkey	Psychoeducational Effective Parenting Program (DA, VAC)	No
Kong	2011	China	China	Family intervention (M)	Yes
Meamar	2016	Iran	Iran	Mindfulness-based parent training (M)	No
Molleda	2017	Ecuador	USA	Familias Unidas (DA)	Yes
Pourshamsian	2019	Iran	Iran	Unbranded (M)	Yes
Puffer	2016	Kenya	Kenya	READY (VAC, DA)	Yes
Lian	2021	China	Netherlands	Mindful Parenting Program (MPP)(CD)	Yes
Rousta	2019	Iran	Iran	Unbranded (SH)	Yes
Salehzadeh	submitted	Iran	Unclear	Unbranded (CD)	Yes
Sangawi	2018	Kurdistan region of Iraq	USA	Systematic Training for Effective Parenting (STEP) (CD)	Yes
Sohrabi	2015	Iran	Iran (assumed)	Unbranded (CD)	Yes
Valente	2018	Brazil	Brazil	Brief motivational intervention via telephone (DA)	No
Vasquez	2010	Honduras	USA	Familias Fuertes (DA)	Yes
Vedadian	2019	Iran	unclear	Unbranded (CD)	Yes
Villarruel	2008	Mexico	Mexico (assumed)	“¡Cuidáte!” Promueve tu Salud (SH)	No
Zhang	2007	China	China (assumed)	Unbranded (M)	Yes

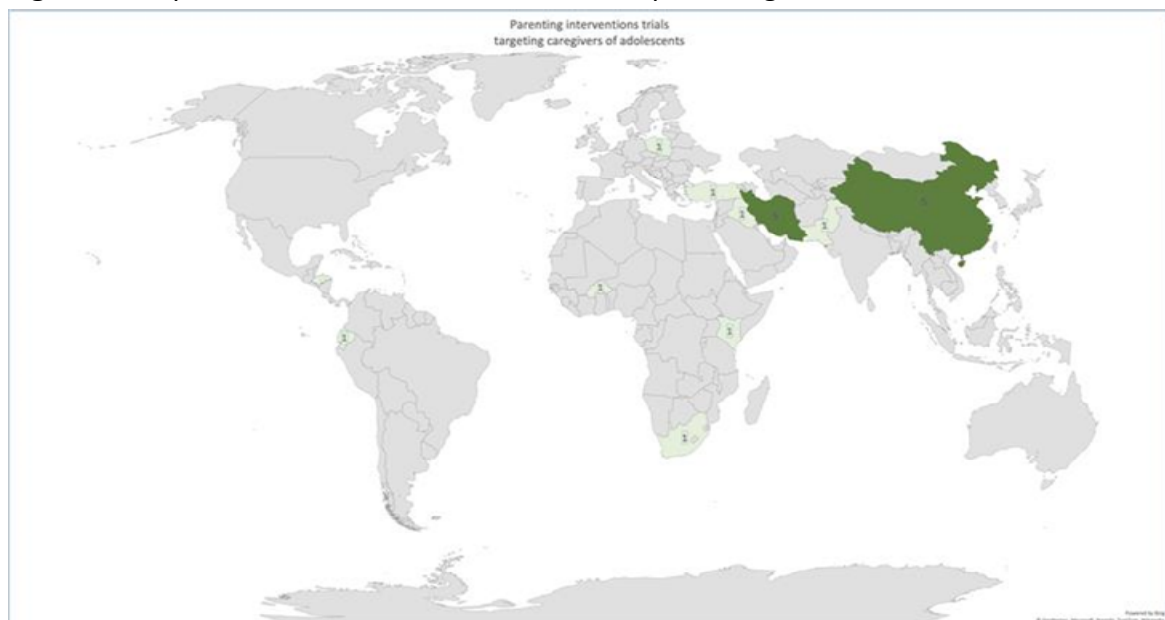
Key to 5th column: Primary focus of trial: VAC = violence against children; SH = sexual health; DA = drugs and alcohol; CD = conduct, ADHD and delinquency; M = mixed or unclear.

Global distribution of trials – country and region

The majority of the 30 adolescent studies were from the African Region (AFRO) (n=9), with trials from Burkina Faso, Ghana, Kenya, Rwanda and South Africa, as well as studies from the Eastern Mediterranean Region (EMRO) (n=8), with trials from Iran, Kurdistan Republic and Pakistan (Figure 1). There were also five studies from the Pan-American Region (PAHO), with trials from Brazil, Ecuador, Honduras and Mexico, and four studies from the Western Pacific Region (WPR), all in China. Three studies in the review came from the European

Region (EURO), with trials in Poland and Turkey, and there was also one study in the South-East Asia Region (SEAR), where the trial was from Thailand.

Figure 1. Map of included trials in the adolescent parenting review



Note: Colour-coding as follows: dark green = >1 trial from the country; light green = 1 trial

Table 2. Trial countries in adolescent review by WHO Region

	WHO Regions						Total
	AFRO	PAHO	EMRO	EURO	SEARO	WPRO	
Brazil		1					1
Burkina Faso	1						1
China						4	4
Ecuador		1					1
Ghana	1						1
Honduras		1					1
Iran			6				6
Kenya	1						1
Kurdistan Republic			1				1
Mexico		2					2
Pakistan			1				1
Poland				1			1
Rwanda	1						1
South Africa	5						5

Thailand					1		1
Turkey				2			2
Total	9	5	8	3	1	4	30

WHO Regions: African Region (AFRO); Pan-American Region (PAHO); European Region (EURO); Eastern Mediterranean Region (EMRO); Western Pacific Region (WPRO); South-East Asia Region (SEARO).

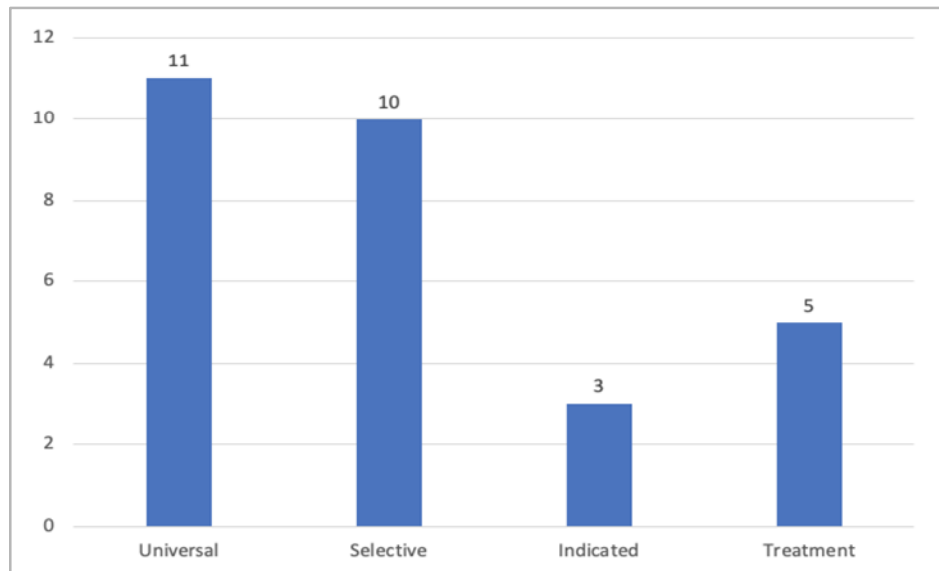
Study and intervention characteristics

The included adolescent studies were published between 2007 and 2020, plus one study currently in submission and one study unpublished. The study sizes ranged from 17 to 552 participants. The majority of the programmes were delivered in group format (n=19, 63%), followed by individually delivered programmes (n=5, 17%) and a combination of formats (n=4, 13%). Only half of the trials provided information on the qualifications of the facilitators. Eight trials included professional facilitators, five trials included semi-professional facilitators, and two trials included lay personnel. The majority of the trials had an inactive control group as comparison (no intervention n=9; wait-list n=7; service-as-usual n=4; and minimal intervention n=2;), with four trials including an active control group (active n=4; other intervention n=2). The interventions included on average a total of eight sessions. In terms of content, while all interventions included content that addressed parenting, there were slight variations in other types of intervention material. Many of the interventions included content on, for example, effective communication skills (approximately 50% of the studies), communication about safe sex practices and risky sexual behaviours (approximately 43% of the studies), and promoting mental health (approximately 30% of the studies). Various programmes also included information on substance abuse, and one study also included components addressing normative gender beliefs associated with family violence and gender roles in the family.

Level of prevention

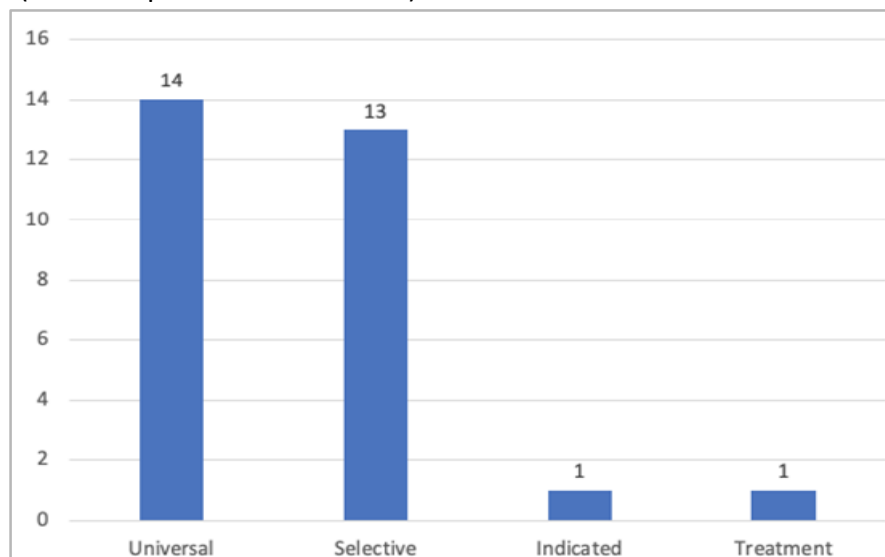
We adopted the same approach used in the other reviews by separating the level of prevention according to two perspectives, based on intervention aim. First, in relation to level of prevention from a conduct perspective, there was a mixture of interventions that were universal (37%), where they were distributed to parents regardless of any child conduct-related criteria, and selective (33%), where they were distributed by targeting families at elevated risk of conduct problems (Figure 2). There were also a few interventions categorized as treatment (17%), where they were distributed to parents of children with clinically significant levels of conduct problems, and as indicated prevention (10%), where they were distributed to children scoring highly on a child conduct behaviour inventory. One intervention was categorized as unclear due to insufficient information on the screening strategy used.

Figure 2. Number of adolescent trials by level of prevention from a conduct perspective (29 trials provided these data)



Second, in relation to level of prevention from a maltreatment perspective, most of the interventions were either universal (43%), where they were distributed to parents regardless of any abuse or maltreatment-related criteria, or selective (43%), where they screened parents based on their risk of maltreatment and abuse (Figure 3). One of the trials screened parents based on their levels of intra-family violence and, therefore, followed a treatment approach, and another trial screened parents based on whether they scored highly on levels of questions related to family arguments and stress and, thus, followed an indicated approach. One of the studies was categorized as unclear due to a lack of information regarding the screening strategy used.

Figure 3. Number of adolescent trials by level of prevention from a maltreatment perspective (29 trials provided these data)



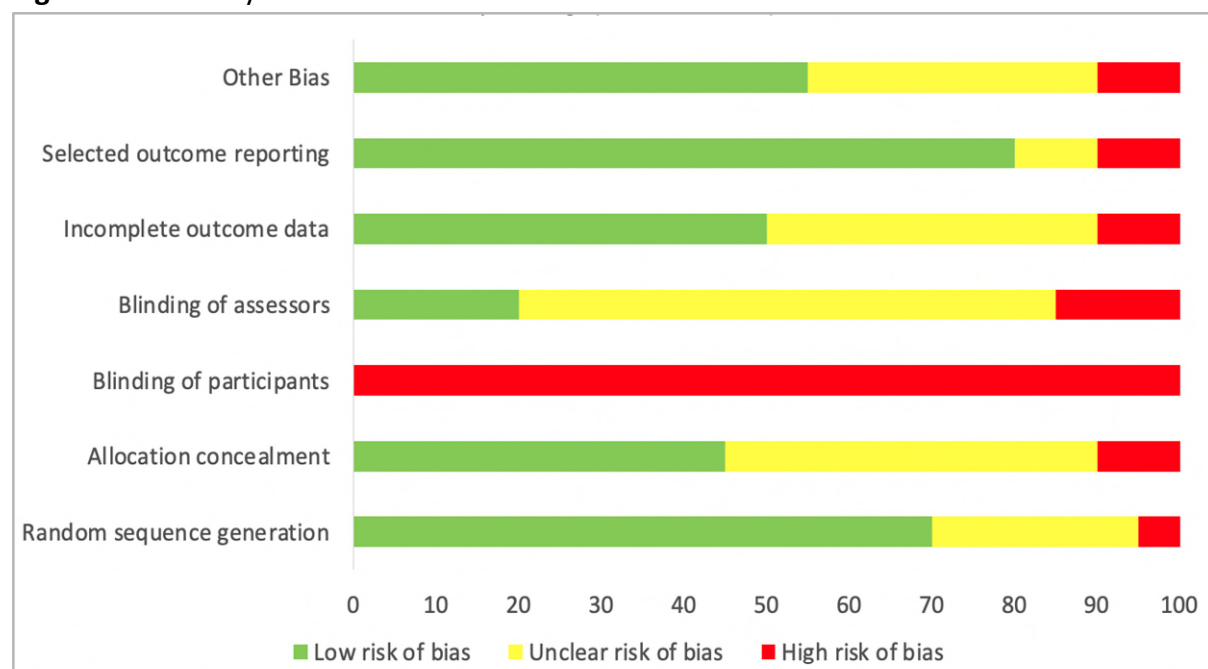
Participant characteristics

In total, 6,681 parents participated in the parenting of adolescents intervention trials. The trials included a mixture of caregivers, with only eight trials consisting of only mothers. Notably, however, on average, 85% of caregivers were female. The average age of included caregivers was 41 years old. This sub-review focused on parenting intervention trials that targeted parents of adolescents aged 10–17 years, defined by the reported mean age of the sample at baseline. The mean age of the children in the included trials was 12.7 years. On average, 49% of the trials included girls, with a range from 0% to 100% girls in the interventions. Of those trials providing information about the SES of families, most trials included families with a low SES (50%), with six trials consisting of families with a middle SES, and two trials with families mainly with a high SES.

Risk of bias of included studies

The risk of bias summary figure provides an overview of the quality of the evidence of the trials included in the analysis (Figure 4). For most of the included studies, risk of bias was assessed as low on random sequence generation, selected outcome reporting and other bias. Only half of the included trials were assessed as having a low risk of bias on incomplete outcome data and allocation concealment, with many studies not providing sufficient details about outcome data handling and allocation concealment procedures, which led to an unclear risk of bias assessment. Since the parents actively participated in the trials, blinding of participants was not possible. As such, all trials were consequently assessed as high risk of performance bias.

Figure 4. Summary of risk of bias of included adolescent trials



Studies included in the meta-analyses

There were 20 studies included in the adolescent meta-analyses. The characteristics of these studies were, in general, similar to the 30 total included studies. The median sample size was 186, and 75% of the trials were in upper-middle-income countries, with the remaining in low- and lower-middle-income countries. The 10 studies that were not part of the meta-analyses were excluded because the authors of the studies did not provide sufficient or suitable data. They took place in a variety of countries and regions, including Ghana, South Africa, Mexico, Thailand, Turkey, Iran, Brazil and Mexico.

Main effects results

This section reports on the main effect results of the interventions included in the review at post-test (Table 3).

Table 3. Meta-analysis results of adolescent outcomes at post-test

Outcome	No. of trials	No. of effect sizes	Effect size (Cohen's d)	Confidence interval of effect size	Heterogeneity (I^2)	Certainty of evidence (GRADE)
Maltreatment	4	8	-0.33	-0.66, 0.00	81%	⊕○○○ very low
Physical abuse	2	2	-0.91	-2.12, 0.30	78%	<i>not rated</i>
Neglect	1	—	—	—	—	—
Psychological abuse	2	3	-0.05	-2.62, 2.52	73%	<i>not rated</i>
Harsh parenting	7	14	-0.18	-0.72, 0.37	87%	⊕○○○ very low
Negative parenting	11	38	-0.41	-0.77, -0.05*	92%	<i>not rated</i>
Parenting stress	2	3	-0.59	-5.32, 4.15	51%	⊕○○○ very low
Positive parenting	13	68	0.55	0.17 0.93**	90%	⊕⊕○○ low

Overall child behaviour problems	12	59	-0.72	-1.37, -0.06*	91%	<i>not rated</i>
Externalizing behaviours	9	34	-0.80	-1.76, 0.17	92%	⊕○○○ very low
Internalizing behaviours	5	18	-0.25	-0.73, 0.23	70%	⊕○○○ very low
Parent mental health problems	2	3	-0.51	-1.36, 0.34	72%	⊕○○○ very low

Non-prioritized outcomes

Conduct problems	7	19	-0.98	-2.32, 0.36	93%	
ADHD	3	7	-0.22	-1.40, 0.96	68%	
Relationship enhancement	6	20	0.32	0.21, 0.44**	93%	
Poor monitoring and laxness	6	11	-0.86	-2.14, 0.43		
Child depression and anxiety	3	7	-0.24	-0.68, 0.19	52%	
Parent affective dysfunction	3	7	-0.28	-1.42, 0.86	71%	
Child substance abuse	2	10	-0.09	-5.26, 5.07	62%	

Note: Colour-coding as green = significant effect; blank = non-significant effect; grey = df<4 and untrustworthy results; # = only one trial reported on neglect, therefore we did not run a meta-analysis for neglect. P-levels: * = 0.05–0.01 ** = 0.010–0.000

Prioritized outcomes:

For child maltreatment, physical abuse and psychological abuse, please see section below “Meta-analyses that did not include enough degrees of freedom”.

It should be noted that although 20 trials had sufficient data for meta-analysis, the number of trials in the meta-analysis for each outcome are quite small. Thus only 4 trials reported maltreatment, 7 reported harsh parenting, and 13 positive parenting.

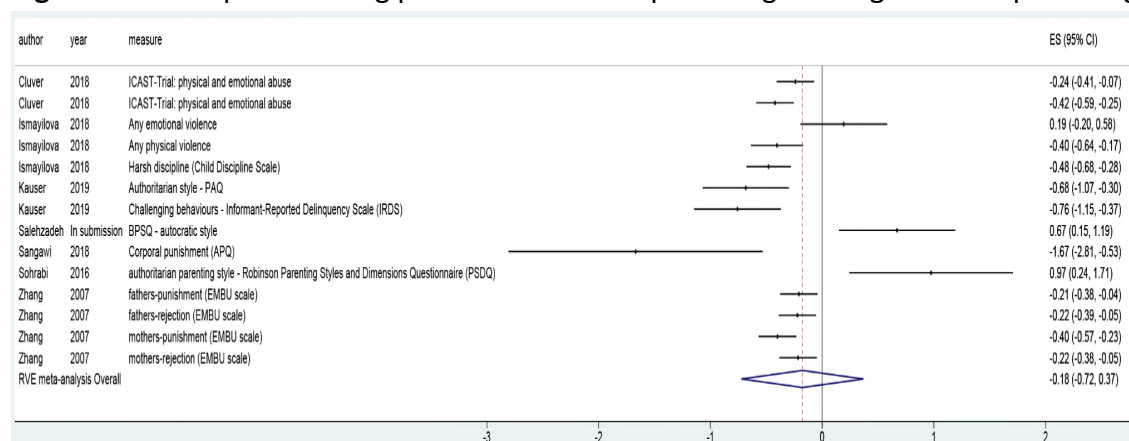
Neglect

No trial reported on neglect at post-test; thus, it was not possible to conduct a meta-analysis. One trial from South Africa measured neglect at 5–9 months post-intervention with no reduced neglect reported by caregivers.

Harsh parenting

Seven trials reported harsh parenting outcomes (Figure 5). Results found a small yet not statistically significant effect, with considerable heterogeneity (Cohen's $d=-0.18$; 95% CI=-0.72, 0.37; $I^2=87\%$). Trials were carried out in the Kurdistan Region of Iraq, Iran (2), Pakistan, China, South Africa and Burkina Faso.

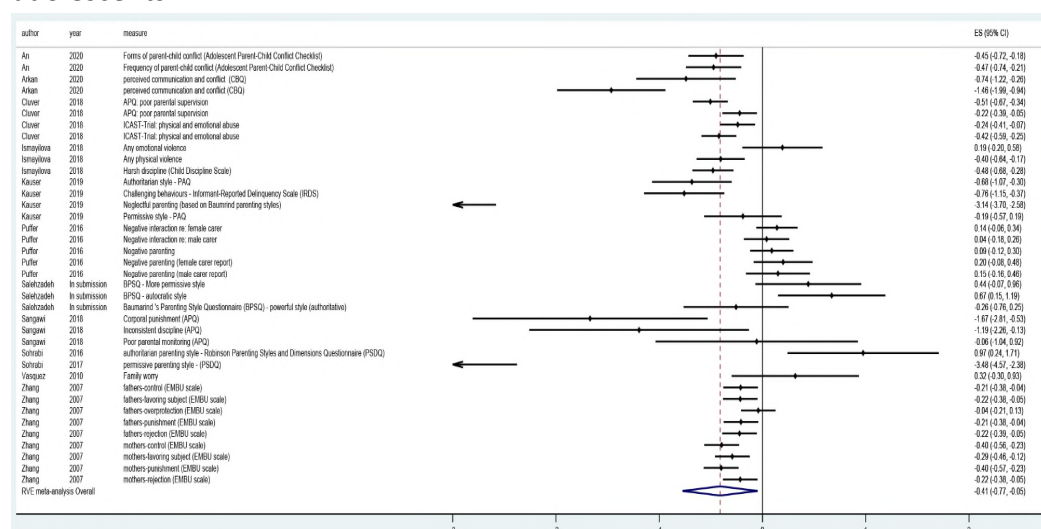
Figure 5. Forest plot showing post-test effects of parenting training on harsh parenting



Negative parenting

Eleven trials reported negative parenting outcomes. Interventions had a small effect on negative parenting, with considerable heterogeneity (Cohen's $d=-0.41^*$; 95% CI=-0.77, -0.05; $I^2=92\%$) (Figure 6).

Figure 6. Forest plot showing post-test effects of intervention on negative parenting of adolescents



Monitoring and laxness

Six trials reported monitoring and laxness. Results found a large, but not statistically significant effect, with considerable heterogeneity (Cohen's $d=-0.86$; 95% CI=-2.14, 0.43; $I^2=96\%$). Trials were carried out in the Kurdistan Region of Iraq, Iran (2), Pakistan, China and South Africa.

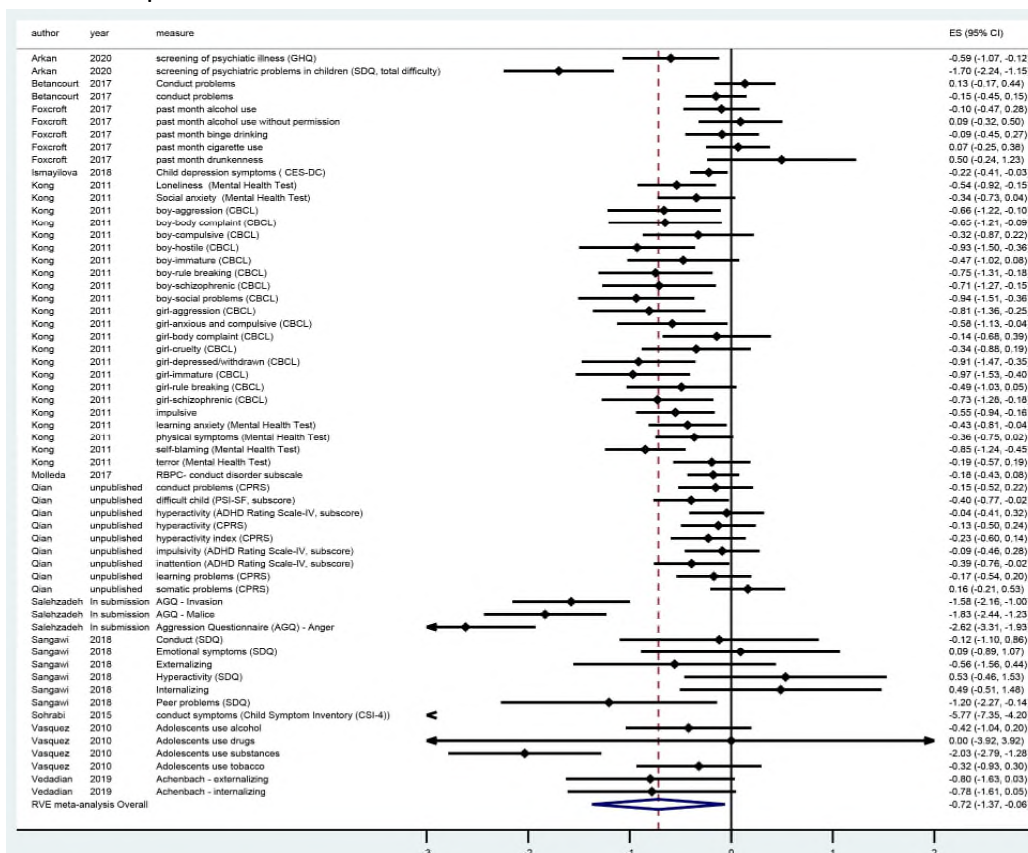
Positive parenting

Thirteen trials reported positive parenting. Interventions had a moderate effect on positive parenting, with considerable heterogeneity (Cohen's $d=0.50^*$ 95% CI=0.10, 0.90; $I^2=90\%$).

Overall child behaviour problems - Externalising and Internalising

Twelve trials reported a measure of adolescent behaviour problems – externalizing or internalizing (Figure 7). Interventions had a medium-sized effect on overall behaviour problems, with considerable heterogeneity (Cohen's $d=-0.72^*$; 95% CI=-1.37, -0.06 ; $I^2=91\%$). Nine trials reported externalizing problems. Results found a large, yet not statistically significant effect, with considerable heterogeneity (Cohen's $d=-0.80$; 95% CI=-1.76, 0.17; $I^2=92\%$). Trials were carried out in Iran (2), China (2), the Kurdistan Region of Iraq, Ecuador, Rwanda, Poland and South Africa.

Figure 7. Forest plot showing post-test effects of parenting training on overall child behaviour problems



Non-prioritized outcomes:

Intimate partner violence

None of the trials included in this review measured or reported intimate partner violence outcomes. As will be elaborated on in the discussion, the lack of this measurement is noteworthy given the high rate of co-occurrence of VAC and interpersonal violence such as violence against women and girls and intimate partner violence (Guedes and Mikton, 2013).

Parental self-efficacy

Only one trial, from Honduras (Vasquez, 2010), reported parental self-efficacy, where findings revealed an increase in parental self-efficacy with Cohen's $d=0.60$.

Positive parenting knowledge, attitudes and beliefs

As discussed in preceding chapters of this report, the majority of measurements of positive parenting include both parenting behaviours and parenting knowledge and attitudes. As such, separating behaviours from attitudes and beliefs is a complex task. Parenting attitudes and beliefs are, therefore, captured under the outcome of positive parenting behaviours.

Parental attitudes to corporal punishment

Only one study measured parental attitudes to corporal punishment, which was a trial examining the impact of the Parenting for Lifelong Health parent and adolescent programme in South Africa (Cluver et al., 2018). The study findings revealed a significant reduction in attitudes that endorsed corporal punishment ($d=-0.46$)

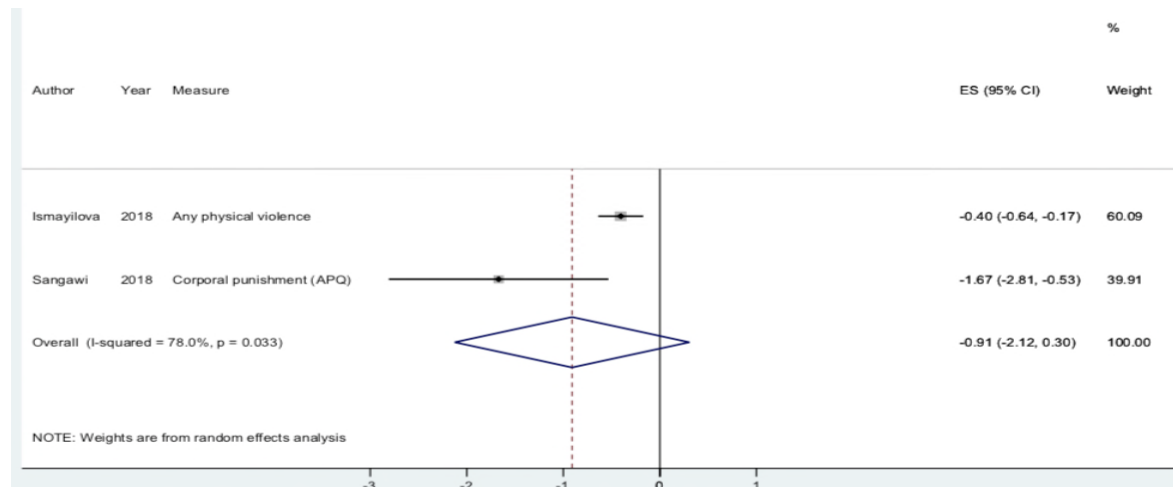
Meta-analyses that did not include enough degrees of freedom

The analyses in the following section should be interpreted with caution. The degrees of freedom for these analyses were smaller than $df < 4$, and as such, the p-value is untrustworthy for the estimated average effect sizes.

Physical abuse

Two trials in this review reported physical abuse, yielding a pooled effect size of Cohen's $d=-0.91$ (Figure 8). However, due to the small number of trials and effect sizes included in this analysis, this finding is not trustworthy and should be interpreted with caution. One of the trials that reported physical abuse included an intervention in the Kurdistan Region of Iraq which focused on helping caregivers develop effective parenting skills, and which reported a large decrease in physical abuse ($d=-1.67$). The second trial included an intervention with parents in Burkina Faso that included components on family coaching, family violence and economic strengthening, and which reported a moderate decrease in physical abuse ($d=-0.41$).

Figure 8. Forest plot showing post-test effects of parenting training on physical abuse



Maltreatment

Four trials reported maltreatment. Results found a small, not statistically significant effect, with considerable heterogeneity (Cohen's $d=-0.33^*$; 95% CI=-0.66, 0.00; $I^2=81\%$). Trials were carried out in the Kurdistan Region of Iraq, China, South Africa and Burkina Faso.

Psychological abuse

Two trials reported psychological abuse. Results found a negligible, not statistically significant effect, with considerable heterogeneity (Cohen's $d=-0.05$; 95% CI=-2.62, 2.52; $I^2=73\%$). Trials were carried out in China and Burkina Faso.

Relationship enhancement

Six trials reported relationship enhancement. Interventions had a moderate effect on relationship enhancement, with substantial heterogeneity (Cohen's $d=0.32^{**}$; 95% CI=0.21, 0.44; $I^2=64\%$).

ADHD

Three trials reported ADHD. Results found a small, not statistically significant effect, with substantial heterogeneity (Cohen's $d=-0.22$; 95% CI=-1.40, 0.96; $I^2=68\%$).

Internalizing

Five trials reported internalizing. Results found a small, not statistically significant effect, with substantial heterogeneity (Cohen's $d=-0.25$; 95% CI=-0.73, 0.23; $I^2=70\%$).

Child depression and anxiety

Three trials reported child depression and anxiety. Results found a small, not statistically significant effect, with moderate heterogeneity (Cohen's $d=-0.24$; 95% CI=-0.68, 0.19; $I^2=52\%$).

Parent depression and anxiety

Two trials reported parent depression and anxiety. Results found a moderate, yet not statistically significant effect, with substantial heterogeneity (Cohen's $d=-0.51$; 95% CI=-1.36, 0.34; $I^2=72\%$).

Parent affective dysfunction

Three trials reported parent affective dysfunction. Results found a small, not statistically significant effect, with substantial heterogeneity (Cohen's $d=-0.28$; 95% CI=-1.42, 0.86; $I^2=71\%$).

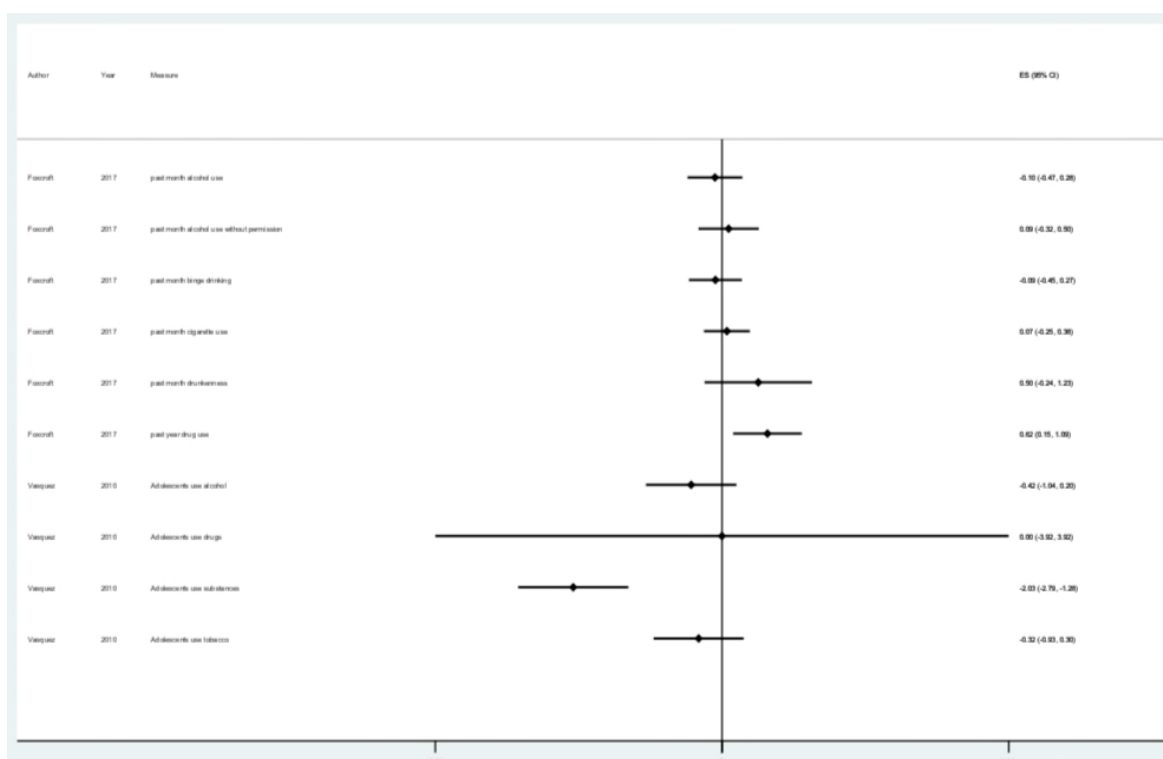
Parenting stress

Two trials reported parenting stress. Results found a moderate, yet not statistically significant effect, with substantial heterogeneity (Cohen's $d=-0.59$; 95% CI=-5.32, 4.15; $I^2=51\%$).

Child substance abuse

Two trials reported child substance abuse (Figure 9). Results found a small, not statistically significant effect, with substantial heterogeneity (Cohen's $d=-0.09$; 95% CI=-5.26, 5.07; $I^2=62\%$).

Figure 9. Forest plot showing post-test effects of parenting training on child substance abuse



Certainty of evidence (GRADE)

For most outcomes in this adolescent review, the body of evidence was graded between low and very low. In other words, we had little confidence for most outcomes in the effect estimates being close to the true effect. Our GRADE assessment was based on overall confidence in the estimates. We had some serious and very serious concerns about the risk of bias, imprecision, and inconsistency in the effect estimate. On the other hand, we considered criteria that increased our confidence: the high relevance of the trials to our PICO questions; and our moderation results that explained some heterogeneity in the effect estimates. We detected potential publication bias for four out of the twelve outcomes.

Moderation results

Subgroup analyses were conducted on the following outcomes, chosen because there were a sufficient number of trials in the adolescent review with suitable data: negative parenting, positive parenting, and child externalizing and internalizing. Subgroup analyses were conducted in relation to trial country income level (low- and lower-middle-income country vs. upper-middle-income country), delivery agent (lay vs. professional vs. semi-professional), origin of the intervention (homegrown intervention vs. imported from a different country), prevention level conduct (treatment vs. indicated vs. selective vs. universal), prevention level maltreatment (treatment vs. indicated vs. selective vs. universal), delivery format (group vs. individual vs. mixed), number of sessions (continuous), parent gender (% female participants), child gender (% girls) and parent age (mean parent age). The moderator analyses where findings yielded an insignificant difference (p-values >.05) or with degrees of freedom less than 4, hence yielding an untrustworthy p-value, should be interpreted with caution and are provided in Appendix 1. We caution also that where moderator analyses were sufficiently sized to run, numbers in each subgroup are still very small, and thus findings may not be robust in the face of new trials being added to a review.

Level of prevention – conduct problem perspective

There were no moderation effects found by level of prevention from a conduct problem perspective in the adolescent review. That is, for outcomes of negative parenting, child externalizing and internalizing behaviours, and positive parenting, there was no evidence of any differential intervention effects based on level of prevention (treatment, indicated, selective, universal).

Table 4. Moderator analyses for categorical variables for negative parenting in the adolescent review

Moderator	Reference group (ref)	Mean effect size for reference group	Subgroup	Mean effect size for subgroup	Difference in coefficients; 95% Confidence Interval (CI)	Tau-squared
Prevention strategy conduct problems – 3 levels; selective vs and indicated and treatment, vs universal	Selective	-0.21	Treatment and Indicated	-0.82	-0.61; CI: -1.46, 0.24	0.31
			Universal	-0.07	0.14; CI: -0.82, 1.11	
Prevention strategy maltreatment – 3 levels; selective vs and indicated and treatment, vs universal	Selective	-0.54	Treatment and indicated	-0.34	-0.20; CI: -0.34, 0.73	0.44
			Universal	-0.06	unreliable	
Delivery format – 3 levels: group vs combination, vs individual	Group	-0.50	Combination	-0.65	0.15; CI: -2.54, 2.24	0.47
			Individual	-0.35	-0.15; CI: -1.24, 1.54	
Country income level – 2 levels upper-middle vs low-lower-middle income	Upper-middle	-0.52	Low-lower-middle	-0.25	0.26; CI: -0.634, 1.16	0.30
Family SES – 2 levels middle vs low (too few countries with high family SES)	Low	-0.22	Middle	-1.20	-0.98; CI: -1.35, -0.60 ⁺⁺	0.21
Delivery agent – 3 levels – lay-worker, semi-professional, professional	Professional	-0.42	Lay-worker	-0.11	0.31; CI: -1.15, 1.78	0.29
			Semi-professional	-0.58	-0.15; CI: -1.23, 0.93	

Homegrown – 2 levels homegrown vs imported intervention	Imported	-0.55	Homegrown	-0.45	0.10; CI: -1.52, 1.73 (unreliable)	0.26
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⁺⁺ Middle income group was based on just 1 trial; its effect size ($d=3.1$) was an outlier; after removing this outlier no moderation effect was detected.

Table 5. Moderator analyses for categorical variables for positive parenting in the adolescent review

Moderator	Reference group (ref)	Mean effect size for reference group	Subgroup	Mean effect size for subgroup	Difference in coefficients; 95% Confidence Interval (CI)	Tau-squared
Prevention strategy conduct problems – 3 levels; selective vs indicated and treatment, vs universal	Selective	0.27	Treatment and Indicated	0.88	0.61; CI: -0.65, 1.87	0.23
			Universal	0.78	0.51; CI: -0.62, 1.64	
Delivery format – 3 levels: group vs combination, vs individual	Group	0.86	Combination	0.19	-0.67; CI: -1.65, 0.31	0.26
			Individual	0.32	-0.54; CI: -1.42, 0.34	
Country income level – 2 levels upper-middle income vs low-lower-middle income	Upper-middle income	0.60	Low-lower-middle	0.48	-0.13; CI: -0.96, 0.71	0.23
Delivery agent – lay-worker, semi-professional, professional	Professional	0.58	Lay-worker	0.32	-0.27; CI: -1.83, 1.30	0.24
			Semi-professional	0.37	-0.21; CI: -1.09, 0.67	

Homegrown – 2 levels homegrown vs imported intervention	Imported	0.28	Homegrown	0.75	0.47; CI: -0.20, 1.14	0.21
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Note: analyses did not run for prevention level maltreatment and family SES because too few trials could be included

Table 6. Moderator analyses for categorical variables for child emotional & behavioural problems in the adolescent review

Moderator	Reference group (ref)	Mean effect size for reference group	Subgroup	Mean effect size for subgroup	Difference in coefficients; 95% Confidence Interval (CI)	Tau-squared
Prevention strategy conduct problems – 3 levels; selective vs treatment and indicated, vs universal	Selective	-0.31	Treatment and Indicated	-1.45	-1.14; CI: -2.96, 0.67	0.50
			Universal	-0.05	0.26; CI: -0.54, 1.06	
Prevention strategy maltreatment – 3 levels; selective vs treatment and indicated, vs universal	Selective	-1.07	Treatment and Indicated		<i>too few trials</i>	0.48
			Universal	-0.03	1.04; CI: -0.25, 2.33	
Delivery format – 3 levels: group vs combination, vs individual	Group	-0.95	Combination	-0.12	0.84; CI: -1.76, 3.44	0.43
			Individual	-0.48	0.48; CI: -1.38, 2.33	
Country income level – 2 levels upper-middle income vs low-lower-middle income	Upper-middle income	-0.92	Low-lower-middle	-0.20	0.72; CI: -1.84, 0.01	0.50

Family SES – 2 levels middle vs low (too few countries with high family SES)	Middle	-0.12	Low	-0.28	-0.17; CI: -1.82, 1.49 (unreliable)	0.21
Delivery agent – 2 levels: professional vs semi-professional	Professional	-0.72	Semi-professional	-0.64	0.07; CI: -1.67, 1.83	0.45
Homegrown – 2 levels homegrown vs imported intervention	Imported	-0.27	Homegrown	-1.35	-1.08; CI: -4.62, 2.47 (unreliable)	0.42

P-levels: * = 0.05–0.01 ** = 0.010–0.000

Level of prevention – child maltreatment perspective

There were no moderation effects found by level of prevention from a child maltreatment perspective in the adolescent review. That is, for outcomes of negative parenting, child externalizing and internalizing behaviours, and positive parenting, there was no evidence of any differential intervention effects based on level of prevention (treatment, indicated, selective, universal) from a maltreatment perspective.

Socio-economic status of families

An index of SES was developed for each trial based on the average demographics of each trial. The level of SES was judged based on family income, description of the trial by the authors, education level or occupation. We found evidence of a moderation effect by family SES for negative parenting (Cohen's $d=-0.98^{**}$; 95% CI= [1.35;-0.60]; $\tau^2=0.21$), where trials with middle-income families had stronger effects (Cohen's $d=-1.19$) than studies with low-income families (Cohen's $d=-0.22$). However, this effect was driven by one effect size with a Cohen's d of -3.14. After exclusion of this one outlier, we could not find a moderation effect on SES. We did not find any difference by family SES for positive parenting or child externalizing and internalizing behaviour.

Delivery format

Analyses were conducted to test for interaction effects between delivery formats (group vs. self-directed vs. individual vs. combination of formats). There was no evidence found of any moderation effects by delivery format. That is, the effectiveness of the interventions for reducing negative parenting and child externalizing and internalizing behaviours and improving positive parenting did not vary based on the format in which the intervention was delivered.

Number of sessions

The included parenting interventions had, on average, eight intended sessions, (range 2–18 of those in the meta-analysis). There was no evidence found of any moderation effects based on the length of the programme. That is, the effectiveness of the interventions for reducing negative parenting and child externalizing and internalizing behaviours and improving positive parenting did not vary based on the number of intended sessions of the intervention.

Country income level

The income level of each country in the adolescent review was categorized as low, lower-middle or upper-middle. We did not find any evidence of moderation effects by country income level. That is, the effectiveness of interventions for reducing negative parenting and child externalizing and internalizing behaviours and improving positive parenting did not

vary between trials in low- and lower-middle-income countries and trials in upper-middle-income countries.

Parent gender

We examined whether the gender of the parent participating in the included parenting interventions was associated with effectiveness of the interventions. On average, 86% of the parents participating in the included parenting interventions were female. We did not find any evidence of moderation effects by parent gender. That is, the effectiveness of interventions for reducing negative parenting and child externalizing and internalizing behaviours and improving positive parenting did not vary based on the proportion of male vs. female parents in the trial. However, it is worth noting that one possible reason why we did not find any evidence of moderation effects is that most trials consisted of around 90% female parents (the median of female parent participants was 91%).

Child gender

We investigated whether the gender of children participating in the included parenting interventions influenced the effectiveness of the interventions. On average, 47% of the children participating in the included parenting interventions were female. We did not find any evidence of moderation effects by child gender. That is, the effectiveness of interventions for reducing negative parenting and child externalizing and internalizing behaviours and improving positive parenting did not vary based on the proportion of male vs. female children in the trial.

Parent age

We tested whether the age of the primary parent participating in the included parenting interventions influenced the effectiveness of the interventions. On average, the age of the primary parent participating in the included parenting interventions was 40 years. Primary parents could be mothers, fathers, grandparents or other caregivers. We did not find any evidence of moderation effects by parent age. That is, the effectiveness of interventions for reducing negative parenting and child externalizing and internalizing behaviours and improving positive parenting did not vary based on the age of the parent.

Homegrown or imported intervention

We tested whether the origin of the intervention – that is, whether it was homegrown (developed in the trial country) or transported from a different country into the trial country – influenced its effectiveness. We categorized trials as having an intervention that was either homegrown or imported. We found no evidence of any moderation effects based on whether the intervention was homegrown or imported. That is, the effectiveness of interventions for reducing negative parenting and child externalizing and internalizing behaviours and improving positive parenting did not vary based on the intervention being homegrown or imported.

Table 7. Moderators for continuous variables for all outcomes in the adolescent review

Moderator	Outcome	k	N	Mean effect size for reference group	Change per standard deviation	95% Confidence Interval (CI)	Tau-squared
Number of sessions	Negative parenting	38	11	-0.47	0.01	CI: -0.09, 0.12	0.33
	Positive parenting	68	13	0.54	-0.07	unreliable	0.23
	Externalising & Internalising behaviours	59	12	-0.83	-0.06	unreliable	0.55
Parent gender (% female)	Negative parenting	24	8	-0.55	-0.05	unreliable	0.68
	Positive parenting	61	11	0.56	0.16	unreliable	0.36
	Externalising & Internalising behaviours	28	9	-0.71	-0.09	unreliable	0.40
Child gender (% female)	Negative parenting	38	11	-0.47	0.00	unreliable	0.30
	Positive parenting	68	13	0.55	-0.00	unreliable	0.23
	Externalising & Internalising behaviours	59	12	-0.97	-0.03	unreliable	0.27
Parent age	Negative parenting	27	7	-0.18	0.08	unreliable	0.08
	Positive parenting	67	12	0.62	-0.39	unreliable	0.21
	Externalising & Internalising behaviours	25	7	-0.16	-0.14	unreliable	0.02

P-levels: * = 0.05–0.01 ** = 0.01–0.000

Delivery agent

We tested whether the type of delivery agent, categorized as lay worker, professional or semi-professional, influenced the effectiveness of the interventions. We found no evidence of any moderation effects by type of delivery agent. That is, the effectiveness of interventions for reducing negative parenting and child externalizing and internalizing

behaviours and improving positive parenting did not vary based on the type of delivery agent.

Discussion

Summary of findings

This review was conducted to improve our understanding of the effectiveness of parenting interventions for parents of adolescents aged 10–17 years in LMICs. The findings of this review contribute to the current parenting intervention evidence base, by shedding light specifically on parenting interventions that involve parents of adolescents, a particularly important demographic in relation to violence prevention and youth well-being (Marcus et al., 2020; Patton et al., 2016). The present sub-review is the most comprehensive to date, based on screening over 75,000 studies retrieved from highly sensitive searches in multiple electronic global, regional and grey literature databases in several languages. A total of 30 randomized controlled trials in the adolescent age group met our inclusion criteria, from 16 LMICs. Almost a third of the studies were conducted in the African Region, followed by a quarter in the Eastern Mediterranean Region, with a majority of the studies focusing on families from low-income households. There were also a few trials conducted in the Pan-American Region, the Western Pacific Region, the European Region and the South-East Asia Region.

One of the main findings of this comprehensive review is the very limited number of parenting intervention trials with adolescents that measure and report maltreatment-related outcomes. Indeed, very few of the trials included in this review measured harsh parenting ($n=7$), and even fewer measured maltreatment ($n=4$), underscoring the need for further research in this area. As such, given the few trials included in these analyses, it is important to interpret these findings with caution, as many of the findings are not trustworthy, especially the findings for maltreatment, due to the very low number of trials – meaning the degrees of freedom for these analyses were smaller than $df<4$. As such, future research would benefit from better-powered analyses. Indeed, seeing as only four and seven studies, respectively, were included in the analyses, a more powered analysis may have been able to provide better insight into the effectiveness of the interventions in relation to these outcomes.

This review provides promising findings in relation to the effectiveness of parenting interventions for reducing negative parenting behaviours. Negative parenting includes harsh and maltreating parenting, and other ineffective parenting strategies, such as poor monitoring and laxness. Notably, in contrast to the maltreatment and harsh parenting meta-analyses, which were based on very few studies and yielded relatively poorly powered analyses, the negative parenting meta-analyses included a greater number of studies ($n=11$), yielding a better-powered analysis.

The results of this review also provided encouraging findings with regards to child behaviour problems, with results suggesting that parenting interventions are effective in

improving overall behaviour problems. It should be noted, however, that when analysing these outcomes separately, by including only externalizing instruments in the analysis, numbers of trials were smaller, and the effects non-significant. This was also the case when including only internalizing outcomes (e.g child anxiety, fears, depression) in the analysis, which also yielded non-significant results. Accordingly, it would be important for future research to examine these outcomes further, to obtain a better understanding of intervention effects on these important indicators of young people's mental health and well-being.

Of note, this review did not find any effect of parenting interventions on improving mental health problems in parents of adolescents. Similarly, the review also did not find any effect on improving mental health problems in adolescents. This is notable given that research suggests that parent–adolescent relationships are an important element of family functioning (Alderfer et al., 2008), and observational studies suggest they can have a substantial impact on adolescent mental health (Willis et al., 2018). Indeed, given that approximately 50% of mental health disorders are established by the age of 14 (Kessler et al., 2007), and that mental health difficulties during adolescence can have long-term impacts (Copeland et al., 2015), and in light of evidence which suggests that some parenting interventions can have a positive impact on some mental health symptoms experienced by adolescents (Cluver et al., 2018; Shenderovich et al., 2021), it would be valuable to examine this further in future research.

In addition, the review did not find any effect of parenting interventions on improving adolescents' substance abuse. However, this finding should be interpreted with caution, as although several trials had a primary focus on prevention of drug or alcohol use, only two studies reported suitable data to be included in the meta-analysis. Thus, it would be valuable to conduct subgroup analyses to examine whether differences in child substance abuse were related to the type of content included in the different parenting programmes.

Likewise, there was also a paucity of studies that measured intimate partner violence. Given the major intersections between VAC, violence against women and girls, and intimate partner violence (Guedes et al., 2016), this is an area that merits further research. As the overlap between the fields of VAC and violence against women are receiving increasing attention, and calls for prevention efforts to address both forms of violence simultaneously are growing (Guedes and Mikton, 2013; Maternowska et al., 2020), it is important for future trials of parenting interventions to measure and report on intimate partner violence.

Strengths and limitations of this review

This review has several important strengths. It answers the review question by drawing on limited yet rigorous research on whether parenting interventions are effective in reducing child maltreatment and harsh parenting, along with a number of related outcomes, in adolescents aged 10–17. The review is also, to our knowledge, the most comprehensive

synthesis of randomized controlled trials of parenting interventions involving adolescents, consisting of a total of 30 included trials and 329 effect sizes. Furthermore, the meta-analyses approach adopted in the review utilizes robust variance estimation, which is a methodologically rigorous strategy which strengthens the power for each meta-analysis by using multiple effect sizes from each study. Furthermore, seeing as only randomized controlled trials were included in the review, this also allowed the analyses to test causal relationships between parenting interventions involving adolescents and the noted outcomes of interest.

Despite drawing on this advanced methodological technique, however, due to the low number of trials available for each outcome, our ability to detect underlying moderators was limited. As discussed in the preceding section, this highlights the need for more systematic measuring and reporting of key outcomes, to better understand the effectiveness of parenting interventions for parents of adolescents. Another limitation worth noting, which is also a limitation in the LMIC 2–17 review, is related to the decisions made during the review process, such as the selection of studies or outcomes. For example, the operationalization and categorization of some of the outcomes, such as deciding whether to categorize corporal punishment as harsh parenting or maltreatment, may have introduced bias. In addition, it should also be noted that we used parent-report outcomes of intervention effects, for which participants are not blinded for condition. This may, therefore, have introduced social desirability bias. Furthermore, given that very few studies collected longer-term data, this review only examined effect sizes at post-intervention; thus, it has limited ability to draw conclusions surrounding the longer-term effects of parenting interventions with adolescents.

Research gaps

This review provides valuable insight into the effectiveness of parenting interventions targeting parents of adolescents aged 10–17 years in preventing child maltreatment and harsh parenting, as well as a number of associated outcomes. It also serves as an important complement to UNICEF's (2021) recent report 'Programming Guidance for Parenting of Adolescents', which provides an overview of key considerations for programmes on parenting of adolescents and information on how to develop programme responses, and contains a number of case studies of existing parenting programmes. Due to a lack of trials measuring some of these outcomes, however, further research is still needed to provide more conclusive answers. For example, only four trials in the review measured maltreatment, with even fewer trials measuring sub-types of maltreatment such as physical abuse (two trials), psychological abuse (two trials) and neglect (no trials). Accordingly, the low number of trials available for these outcomes precluded us from calculating trustworthy confidence intervals of the pooled effect sizes due to limited power. This was also the case for a number of other important outcomes, such as child substance abuse. Additionally, none of the included studies measured intimate partner violence, even though research suggests there is a high co-occurrence between VAC and intimate partner violence and

violence against women and girls (Guedes and Mikton,, 2013). Indeed, in light of suggestions that the intersection between VAC and violence against women and girls has often been overlooked in the past, particularly in relation to violence against adolescent girls (Guedes et al., 2016), it is vital that more prevention efforts and studies in the future seek to address this gap.

Indeed, as highlighted in the limitations discussion, a major shortcoming of the existing evidence base is the lack of measurements of outcomes such as child substance abuse and sub-types of maltreatment. Consequently, this limitation in the existing evidence base prevented us from performing certain moderator analyses to better understand the differential effects that were suggested by the high levels of heterogeneity within the average effects of the interventions. Future research would also benefit from examining more follow-up measures of these key outcomes, to provide more conclusive answers regarding the long-term effectiveness of parenting interventions involving adolescents. Indeed, it would be important to understand whether the detected effects are sustained or decrease over time, and whether booster sessions might be needed to sustain intervention effects. Furthermore, as discussed earlier in this review and as highlighted in previous studies, there is also a general lack of trials on parenting interventions that target parents of adolescents (McCoy, Melendez-Torres, and Gardner, 2020). As such, further studies focusing on interventions that specifically target parents and caregivers of adolescents would be important to address this gap and improve the evidence base of the field.

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Systematic review on parenting interventions in humanitarian settings in LMICs

Key findings

- Our systematic review expanded our extensive search in multiple databases and languages, finding 18 randomized trials of parenting interventions delivered to parents in humanitarian settings in LMICs.
- All 18 of these trials were potentially suitable for meta-analysis, but because different trials varied in their focus and outcomes, the numbers of trials were smaller than this (range $n=1-12$, median 7 trials) in the meta-analyses for each outcome.
- Parenting interventions reduce overall negative parenting, including harmful and ineffective parenting behaviours, and improve positive parenting.
- Harsh parenting, including maltreatment and other harsh and aggressive parenting behaviours, is reduced after parents participate in parenting interventions.
- No differences were found for maltreatment outcomes between parents participating in intervention or control groups, although the number of trials included in analyses was small ($n=7$).
- Analyses examining the effectiveness of interventions on child behaviour problems did not find a significant effect.
- Despite this being the largest review on parenting interventions in humanitarian settings ($n=18$ trials), few studies examined the effectiveness of these interventions on key outcomes related to maltreatment. Thus caution is needed in interpreting the findings.
- Future research on parenting interventions in humanitarian settings is recommended to include outcomes such as maltreatment and its sub-types, child behaviour problems and parent mental health.
- Certainty of evidence was rated moderate to very low.

Introduction

Health emergencies, armed conflicts and natural disasters can have significant psychological and social ramifications for affected populations. For many individuals, those emergencies transform their day-to-day lives into a humanitarian setting. Some stay and try to adjust to the ongoing conflict around them, and some want or have to leave. More than 29 million children were born into conflict-affected areas in 2018 (UNICEF et al., 2018), and an estimated 82 million people have been forcibly displaced worldwide; of these 42% are children (UNHCR, 2021). Children who live in humanitarian settings depend largely on the support they receive from their families and communities. Yet parents and caregivers may not be able to provide care and love because of emotional suffering, exhaustion and

disrupted services (WHO, 2020). Even the most caring parents face a series of adversities during prolonged conflicts, displacement or disasters that might impact parent–child interactions. Evidence supports this assumption: a systematic review on parenting found that war-exposed parents showed less warmth and more harshness towards their children (Eltanamy, Leijten, Jak, & Overbeek, 2021). Parents who are unable to provide the necessary care and seek parenting support often have no or limited access to those services in humanitarian settings (UNICEF, 2018). The Inter-Agency Standing Committee (IASC) guidelines on mental health and psychosocial interventions in emergencies stress the importance of facilitating support for young children and their caregivers.

The IASC recommends for services to be organized along a layered system of complementary support, including family support through the distribution of parenting interventions. These are implemented along with those different levels of prevention and intervention services provided to the entire population up to services tailored to the most affected parents and children (WHO 2020).

Parenting interventions have been found to foster positive parenting, decrease harsh and abusive parenting and enhance child mental health (Chen & Chan, 2016; Fluja-Contreras, García-Palacios, & Gómez, 2019; Knerr, Gardner, & Cluver, 2013; Leijten, Melendez-Torres, Knerr, & Gardner, 2016). Moreover, evidence suggests they can be effective for families living in adversity – for example, where there is family or community violence and high levels of poverty (Cluver et al., 2018; Ismayilova et al., 2020). However, there is a clear and urgent need to understand the evidence on effectiveness of parenting interventions under conditions of extreme adversity, in humanitarian settings. In those contexts, as well as reducing violence against children, parenting interventions may help alleviate the impact that humanitarian crises have on the child’s mental health problems such as post-traumatic stress, anxiety and depression (Kadir, Pitterman, & Goldhagen, 2018). The effectiveness of parenting interventions in humanitarian settings remains unclear: several reviews have investigated the effectiveness of interventions that target child psychosocial well-being, with a range of mainly child-focused interventions (i.e. Ager, Metzler, Vojta, & Savage, 2013; Tol et al., 2011; Betancourt, Meyers-Ohki, Charrow, & Tol, 2013). Five reviews included one or two trials of parenting interventions, of which four reviews included the same single trial of a parenting intervention – the International Child Development Programme (ICDP), with trauma-focused discussion – in Bosnia (Dybdahl, 2001). O’Sullivan, Bosqui, & Shannon (2016) included additionally a pilot trial from the Democratic Republic of the Congo (O’Callaghan, Branham, Shannon, Betancourt, Dempster, & McMullen, 2014). The review by Jordans, Pigott and Tol (2016) concluded that there are too few publications focusing on parents and families despite existing evidence supporting the effectiveness of parenting interventions globally. In addition, most reviewed studies used less rigorous study designs. Finally, a recent, unpublished systematic review focused on parenting interventions in contexts of armed conflict (Toufaily, 2021); however, this review was limited in conducting searches in only three databases, and included just two randomized trials, including the Bosnian trial, in addition to a more recent trial from Liberia

(Puffer et al., 2015) – much lower numbers than found in our preliminary searches. Thus it provides an incomplete picture of the evidence in these settings.

Since evidence from LMICs is rapidly evolving (see Chapter 13, Figure 2), a new, more comprehensive systematic review focusing on parenting interventions in humanitarian settings is needed. Given the limited evidence in these settings, this review used a lower criterion for the proportion of the intervention with parenting content: we focused on interventions that had at least 20% of sessions (compared to over 50% in the main LMIC review) directed at parents in humanitarian settings, including natural disasters, post-conflict settings, war-affected areas and trials with displaced populations. For several reasons we focus on LMICs, rather than on people displaced from LMICs to HICs. First, in LMICs services for families may be particularly limited, compared to in HICs, and second, where communities are displaced, numbers of displaced people are typically much higher, and located much closer to the source of the humanitarian crisis.

Methods

We examined the effectiveness of parenting interventions on various parent and child outcomes in LMIC humanitarian settings. While we largely based this review on our search results from the main LMIC review (see Chapter 7), we expanded the search and inclusion and exclusion criteria for this subreview.

Research question

How effective are parenting interventions in humanitarian settings for parents of children aged 0–17 years, compared to a control condition, in reducing child maltreatment and related parent and child outcomes?

Protocol and registration

The main review was registered on Prospero on 14 February 2018 (CRD42018088697). We also wrote an internal unpublished protocol for this specific review on parenting interventions in humanitarian settings which can be found in the appendix.

Eligibility criteria

Eligible studies included randomized controlled trials, including cluster-randomized controlled trials, and quasi-experimental design with a strong counterfactual. We included studies on parenting interventions that were delivered to parents and their children. For this review, eligible studies did not need to solely focus on parenting interventions, in that the interventions under review can be part of a multi-layer intervention. However, the component on parenting needed to comprise at least 20% of the sessions. This broader definition aimed to include interventions that also focused on mental health or other outcomes.

We defined as a humanitarian context current or recent:

- War
- Displacement, including long-term refugees
- Health emergencies
- Natural disasters
- Industrial disasters.

We included parents and other caregivers of children aged 0–17 and their children living in LMICs as defined by the World Bank. We excluded adults providing care to children in institutional settings, and specialized groups with specific needs or circumstances (i.e. physical disabilities, illness, autism etc.). For inclusion, interventions needed to be compared to an inactive or active control condition.

Search

In addition to the search process as described in Chapter 7, we used the following additional resources:

- Checking reference lists of relevant existing reviews
- Searching trial registries with humanitarian key terms
- Searching in the global review with humanitarian key terms (Chapter 8)
- Searching the list of excluded studies from the previous 2018 search.

Study selection

See Chapter 7.

Data extraction

Extracted information included information on the publication (authors, title, year of publication, publication type), the type of humanitarian context (e.g. refugee settlement, post-conflict phase, natural disaster), the study setting/context (e.g. geographical location and community characteristics), the intervention characteristics (origin country, “brand” or type, delivery format, duration and intensity) and the study population, participant and family demographics.

Risk of bias assessment

The quality of the included studies was assessed by one review author using the Cochrane Risk of Bias Tool for randomized controlled trials (Higgins et al., 2017). Risk of bias was assessed on the following domains:

- Randomization sequence generation: selection bias due to inadequate generation of a random sequence
- Allocation concealment: selection bias due to inadequate concealment of allocations prior to assignment

- Blinding of participants and personnel: performance bias due to knowledge of the allocated interventions by participants and personnel during the study (it is impossible to blind parents to the trial arm once the training has started, and impossible to blind the personnel delivering the intervention)
- Blinding of outcome assessment: detection bias due to knowledge of the allocated interventions by outcome assessors
- Incomplete outcome data: risk of attrition bias due to the amount, nature or handling of incomplete outcome data
- Selective reporting: reporting bias due to selective outcome reporting
- Other sources of bias: these may include documenting who designed the intervention and developer involvement, assessment of reliability and validity of outcome measurement instruments, and associated risk of bias related to reporting agent.

Synthesis of results

We calculated Cohen's d for each study outcome using the post sample size, means and standard deviations for intervention and control group. Where no means and standard deviations were reported, we used relevant model statistics that were based preferably on intention-to-treat analyses. For model-derived statistics or regression coefficients, we extracted information on covariates and adjustments wherever possible. Where trials included multiple arms, we extracted each intervention control comparison with reference to a common comparator. We contacted trial authors to obtain missing data for quantitative analyses and risk of bias assessment. Effect sizes were labelled with respect to the outcome domain, and were grouped with dichotomous coding to pre-specified outcome groupings. Robust variance estimation was used to synthesize effect sizes, including all relevant effect sizes from the same outcome domain (Tanner-Smith et al., 2016). See Chapter 7 for more information.

Assessing the certainty of evidence (GRADE)

We applied the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to assess the certainty of evidence for the prioritized outcomes. We ranked and presented the certainty of evidence for the main effect analyses that yielded a reliable estimate ($df > 4$). GRADE ranks confidence in findings from high to very low based on risk of bias, effect consistency, imprecision, indirectness and publication bias (Guyatt et al., 2011).

Results

Included trials and participants

A total of 18 parenting intervention trials in humanitarian settings published in 19 separate publications were included in our review. We extracted or received from all trials sufficient data to be included in the meta-analyses.

Table 1. Included trials in humanitarian settings

First author	Year	Country	Humanitarian context	Intervention origin country	Intervention brand or name
Annan*	2017	Thailand	Refugees – conflict	USA	Happy Families
Barnhart	2020	Rwanda	Post-conflict	Rwanda	Sugira Muryango
Betancourt	2020	Rwanda	Post-conflict	Rwanda	Sugira Muryango
Dybdahl	2001	Bosnia	Post-conflict	Norway	Trauma-focused discussion + International Child Development Programme (ICDP)
El-Khani	2020	Palestine	War/conflict	Palestine	Caregiving for Children Through Conflict and Displacement
Karimli	2018	Burkina Faso	War/conflict	Burkina Faso	Trickle Up + Family Coaching
Kim	2018	Nepal	Natural disaster	USA	Unbranded (Play therapy)
Miller	2020	Lebanon	Refugees – war	Lebanon	War Child Holland’s Caregiver Support Intervention
O’Callaghan	2014	DRC	War/conflict	Tanzania	Chuo Cha Maisha
Ofoha	2014	Nigeria	Post-conflict	Nigeria	Parent Education Package (PEP)
Ofoha	2019	Nigeria	Post-conflict	Nigeria	Parenting Education Programme for Corporal Punishment Prevention (PEP)
Ponguta	2020	Lebanon	Refugees – war	Turkey	Mother–Child Education Program (MOCEP)
Puffer	2015	Liberia	Post-conflict	Liberia	Parents Make the Difference
Sangawi	2018	Kurdistan Region of Iraq	Post-conflict	USA	Systematic Training for Effective Parenting (STEP)

Shaw	2020	Malaysia	Refugees – war	Largely Canada	Unbranded (draws on Save the Children’s PDEP)
Skar	2017	Colombia	Post-conflict	Norway	International Child Development Programme (ICDP)
Stark	2018	Ethiopia	Refugees – war	Multiple	COMPASS
Stark	2018	DRC	War/conflict	Multiple	COMPASS

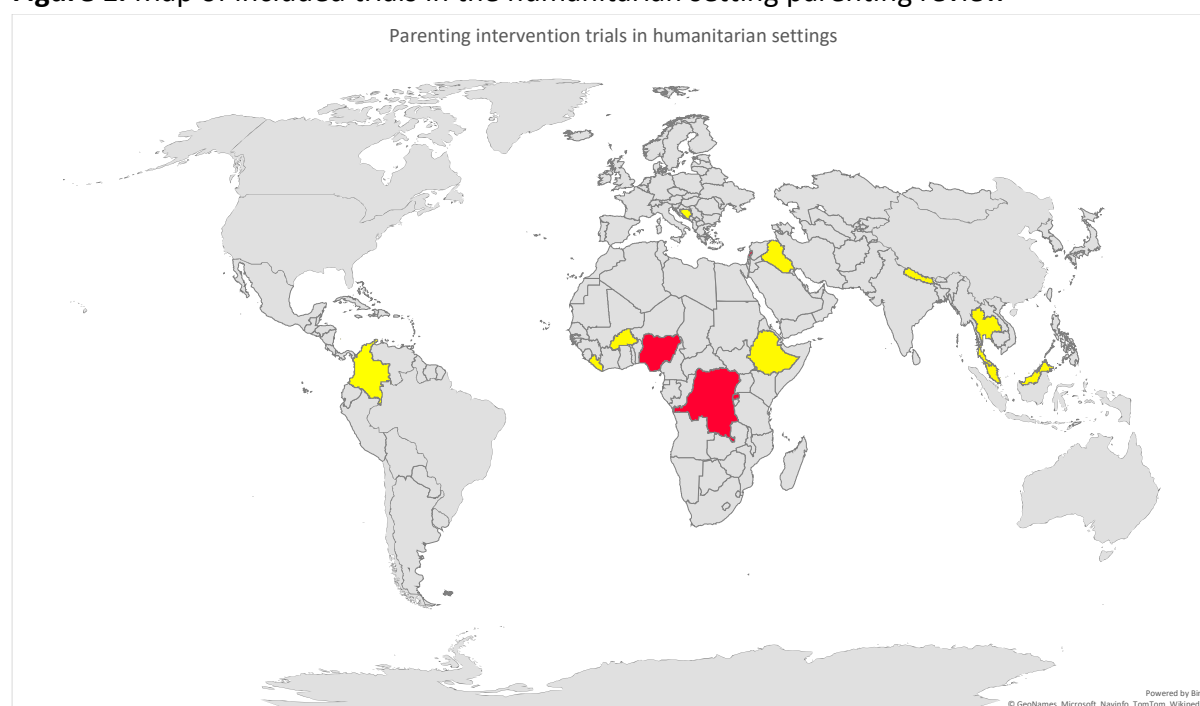
* We extracted the parent and parenting data from Puffer et al. (2017).

DRC: the Democratic Republic of the Congo

Global distribution of trials in humanitarian settings – country and context

Interventions were evaluated across all six WHO Regions. Most trials took place in the African Region (AFRO), with a total of nine trials from Burkina Faso, Democratic Republic of the Congo, Ethiopia, Liberia, Nigeria and Rwanda (see Table 2). Four trials took place in the Eastern Mediterranean Region (EMRO), with trials from the Kurdistan Region in Iraq, Lebanon and Palestine, followed by two trials from the South-East Asian Region (SEARO), in Nepal and Thailand. One trial was conducted in the Western Pacific Region (WPRO), in Malaysia, and one trial in Columbia (Pan-American Region; PAHO). One trial from the European Region in Bosnia and Herzegovina (EURO) was included in the review. Over half (59%) of the trials were developed in the implementation country, whereas 41% of trials were imported to the country and setting.

Figure 1. Map of included trials in the humanitarian setting parenting review



Note: Colour-coding as follows: red = two trials from the country; yellow = one trial

Most interventions (42%) were tested in a post-conflict setting, including trials from Nigeria, Rwanda, Bosnia and Iraq. A third (32%) of trials recruited refugee families, including trials with Burmese refugees in Thailand, Syrian displaced families in Lebanon, and adolescent refugee girls from several bordering countries in Ethiopia. Four trials were evaluated in ongoing war or conflict settings, including one in Palestine, one in Burkina Faso and two in the Democratic Republic of the Congo. We found only one trial from a natural disaster setting: it targeted families displaced due to an earthquake in Nepal.

Table 2. Trial countries in humanitarian settings by WHO Region

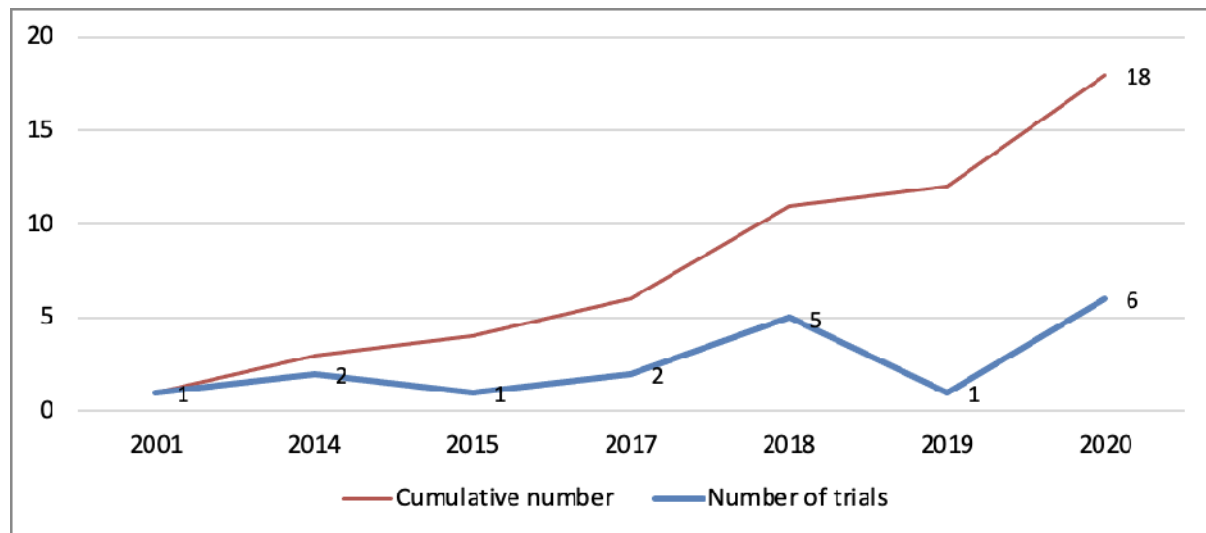
	WHO Regions						Total
	AFRO	EMRO	EURO	PAHO	SEARO	WPRO	
Bosnia			1				1
Burkina Faso	1						1
Colombia				1			1
DRC	2						2
Ethiopia	1						1
Iraq		1					1
Lebanon		2					2
Liberia	1						1
Malaysia						1	1
Nepal					1		1
Nigeria	2						2
Palestine		1					1
Rwanda	2						2
Thailand					1		1
Total	9	4	1	1	2	1	18

WHO Regions: African Region (AFRO); Pan-American Region (PAHO); European Region (EURO); Eastern Mediterranean Region (EMRO); Western Pacific Region (WPRO); South-East Asia Region (SEARO)

Study and intervention characteristics

All studies used a randomized controlled trial design; none used a high-quality quasi-experimental design. One study was published in 2001, and the rest of the studies were published between 2014 and 2020.

Figure 1. Number of trials by year of publication in humanitarian settings



The majority of interventions were specifically designed for the humanitarian context; thus, only a few of the more widely distributed parenting interventions globally were adapted and then evaluated in humanitarian contexts (see Table 1; also Chapter 8).

Study sample sizes ranged from 17 to 1,049 participants. Most programmes were delivered in group format ($n=14$, 77%), followed by individual sessions ($n=3$, 17%) and a combination of formats ($n=1$, 6%). Only 10 of the 18 trials provided some information on the qualification of the facilitators. Two trials included professional facilitators, five trials semi-professional staff, and three trials trained lay personnel to facilitate the interventions. Most trials used an inactive control group as comparison (no intervention $n=2$, service-as-usual $n=3$, minimal intervention $n=2$, wait-list $n=10$; active $n=1$). On average, interventions included a total of 12 sessions.

On average, 74% of the content of the included interventions addressed parenting. This ranged from 20% of the programme (Ismayilova, 2018) to trials that included only parenting as the content of the interventions (100%; $n=9$). Parents were the main target group in all but three trials. One of those three trials targeted parents as well as the children, with 50% of sessions taught to each group (O'Callaghan et al., 2014), and two trials offered some complementary parenting support to the main interventions that offered life skill sessions for adolescents girls (Stark, 2018a; Stark, 2018b).

Level of prevention

We followed the same approach as for the other reviews, separating out the level of prevention based on two perspectives. First, assessing the level of prevention from a maltreatment perspective, most trials (89%) screened parents based on their risk of abuse and maltreatment (selective level of prevention). Two trials screened parents based on their levels of physical punishment and, thus, followed a treatment approach. Second, assessing the level of prevention from a conduct perspective, most interventions were selective in targeting families at risk of conduct problems (95%). The intervention in one trial operated

at an indicated prevention level by screening children based on a behaviour problem cut-off score on the parent-reported Strength and Difficulties Questionnaire.

Participant characteristics

A total of 5,279 families participated in the included trials in humanitarian settings. Five trials included only mothers, three also included grandparents, and, on average, 80% of the caregivers were female. Caregivers were on average 36 years old. The mean age of children for each trial ranged from 20.5 months to 14.5 years, with an average child age across all trials of 7.1 years. The percentage of girls included in the trials ranged from 25% to 100%. All families came from a low socio-economic background (100%).

Risk of bias of included studies

The summary chart gives an overview of the quality of the evidence included in this review (Figure 2). For most studies, the risk of bias was low on random sequence generation, selected outcome reporting, blinding of outcome assessors and other bias. Only half of trials had a low risk of bias for allocation concealment, with many trials not sufficiently reporting the allocation of experimental groups. We assigned a high risk if allocation to treatment vs. control group was conducted by investigators, rather than independently, which was the case for two trials. Because parents actively participate in trials, blinding of participants is impossible. Therefore, all trials were naturally at high risk of performance bias.

Figure 2. Summary of risk of bias of included trials in humanitarian settings

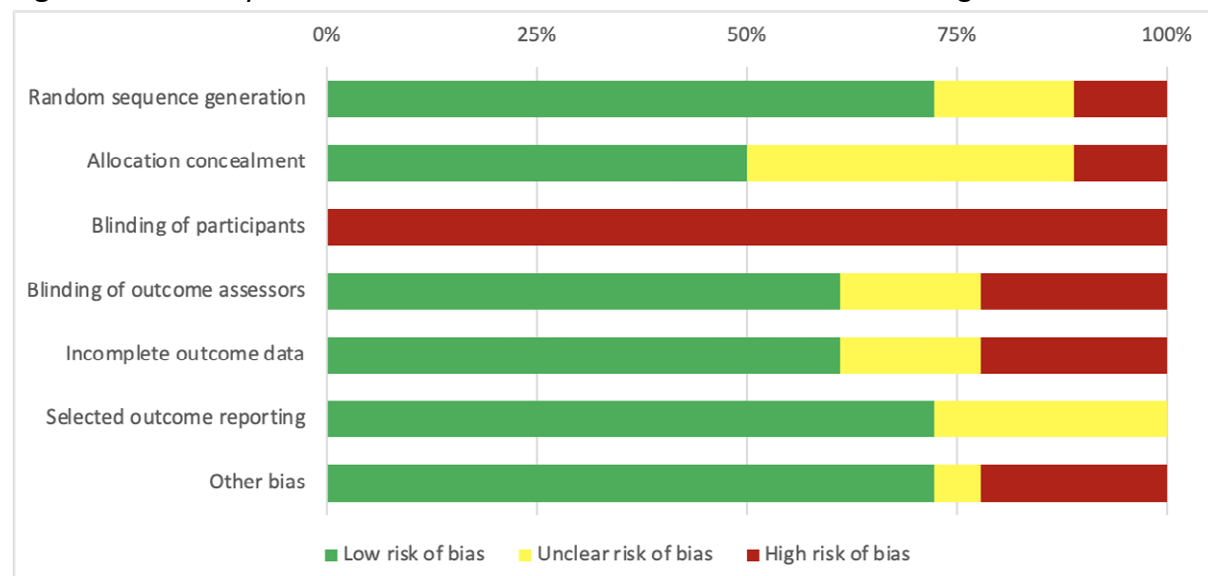


Table 3. Meta-analysis results, humanitarian settings

Outcome	No. of trials	No. of effect sizes	Effect size (Cohen's d)	Confidence interval of effect size	Heterogeneity (I ²)	Certainty of evidence (GRADE)
Prioritized outcomes						
Maltreatment	7	28	-0.61 [†]	-1.35, 0.13	95%	⊕○○○ very low
Physical abuse	6	7	-0.72	-1.62, 0.18	95%	<i>not rated</i>
Psychological abuse	3	3	0.02	-0.46, 0.50	56%	<i>not rated</i>
Sexual abuse	2	10	-0.00	-0.33, 0.33	0	<i>not rated</i>
Neglect*	1	1	-	-	-	<i>not rated</i>
Harsh parenting	11	21	-0.50*	-0.96, -0.05	94%	⊕⊕○○ low
Negative parenting	12	42	-0.48*	-0.84, -0.12	94%	<i>not rated</i>
Positive parenting	11	35	0.42**	0.17, 0.66	85%	⊕⊕⊕○ moderate
Parent mental health problems	6	9	-0.41 [†]	-0.96, 0.14	88%	⊕⊕○○ low
Parenting stress	3	3	-0.66	-2.08, 0.77	72%	⊕○○○ very low
Child behaviour problems	10	32	-0.39 [†]	-0.83, 0.05	88%	<i>not rated</i>
Externalizing behaviours	8	13	-0.14 [†]	-0.62, 0.35	84.70	⊕○○○ very low
Internalizing behaviours	9	16	-0.39 [†]	-0.83, 0.06	86.12	⊕⊕○○ low
Non-prioritized outcomes						
IPV	2	6	-0.04	-0.71, 0.62	28.27	
Conduct problems	7	9	-0.14 [†]	-0.73, 0.45	86.97	

Child depression, anxiety, PTSD	3	5	-0.22	-0.30, -0.13	28.64
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Note: Colour-coding as green = significant effect; blank = non-significant effect; grey = df<4 and untrustworthy results; * = only one trial reported on neglect; therefore, we did not run a meta-analysis for neglect; p-value ranges: 0.05 – 0.01= *, 0.01 – 0.000= **, 0.05 – 0.999= +

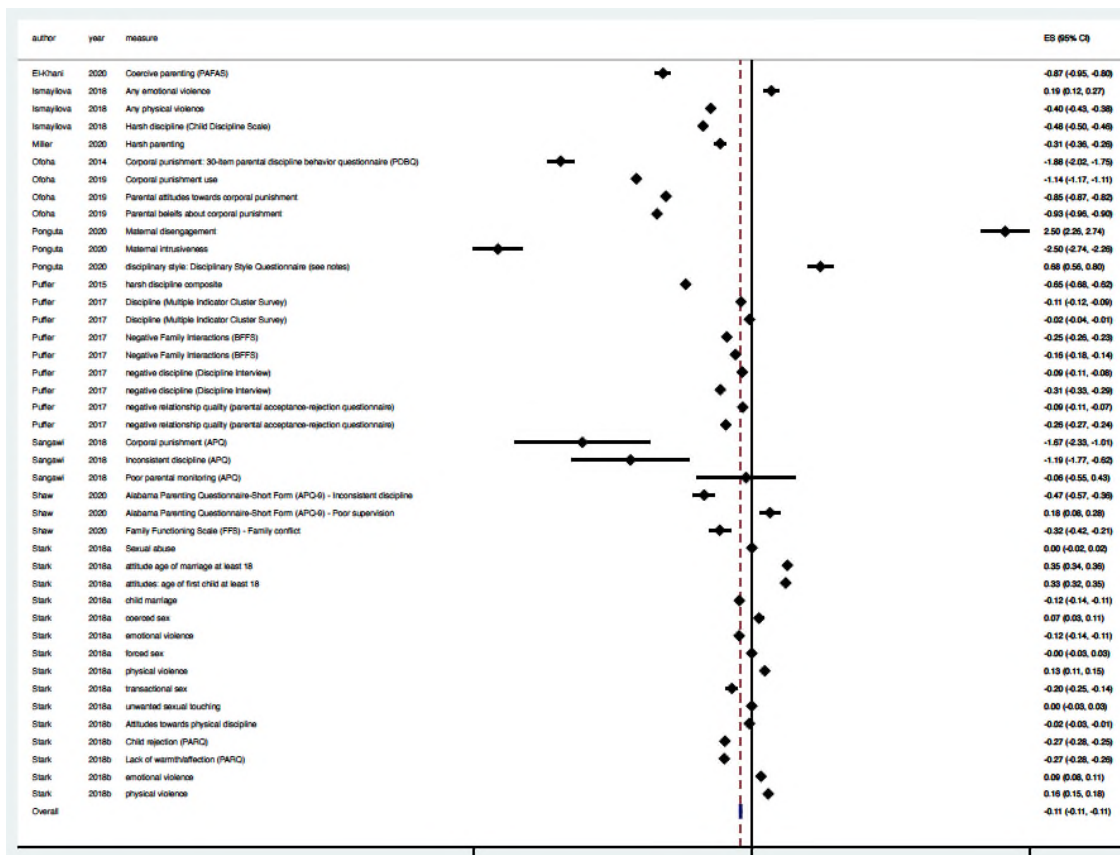
Prioritized outcomes:

It should be noted that although 18 trials in humanitarian settings had sufficient data for meta-analysis, the number of trials in the meta-analysis for each outcome is quite small. Thus only 7 trials reported maltreatment, 11 reported harsh parenting, and 11 positive parenting.

Maltreatment

Seven trials reported maltreatment, where results found a moderate non-statistically significant effect, with high levels of heterogeneity ($d = -0.61$; 95% CI= -1.35, 0.13; $I^2=95\%$). Maltreatment included parenting behaviours such as emotional violence, corporal punishment, physical aggression and neglect. Trials were implemented in the following countries and humanitarian settings: Burkina Faso (war/conflict), Nigeria (2 post-conflict), Thailand (refugees), Iraq (post-conflict), Ethiopia (refugees) and the Democratic Republic of the Congo (war/conflict).

Figure 3. Forest plot for child maltreatment in humanitarian settings



Harsh parenting

Eleven trials reported harsh parenting in humanitarian settings. Harsh parenting included maltreatment items and items that may be labelled as harsh parenting such as harsh disciplining, corporal punishment or child rejection. Results found a moderate statistically significant effect, with high levels of heterogeneity ($d = -0.50$; 95% CI= -0.96, -0.05; $I^2=94\%$). Trials were implemented in the following countries and humanitarian settings: Palestine (war/conflict), Burkina Faso (war/conflict), Lebanon (2, refugees), Nigeria (2, post-conflict), Thailand (refugees), Liberia (post-conflict), Iraq (post-conflict), Ethiopia (refugees) and The Democratic Republic of the Congo (war/conflict).

Negative parenting

Twelve trials reported on aspects of negative parenting, including harsh parenting, maltreatment and other facets of ineffective or harmful parenting such as maternal disengagement, negative relationship quality between child and parent, and inconsistency. Results found a moderate statistically significant effect, with high levels of heterogeneity ($d = -0.48$; 95% CI= -0.84, -0.12; $I^2=94\%$). Trials were implemented in the following countries and humanitarian settings: Palestine (war/conflict), Burkina Faso (war/conflict), Lebanon (2, refugees), Nigeria (2, post-conflict), Thailand (refugees), Liberia (post-conflict), Iraq (post-conflict), Malaysia (refugees), Ethiopia (refugees) and the Democratic Republic of the Congo (war/conflict).

Positive parenting

Eleven trials reported on aspects of positive parenting such as warmth and responsiveness, effective behaviour management, and positive interactions observed between parent and child. Results found a small statistically significant effect, with high levels of heterogeneity ($d = 0.42$; 95% CI= 0.17, 0.66; $I^2=85\%$). Trials were implemented in the following countries and humanitarian settings: Rwanda (2, post-conflict), Palestine (war/conflict), Burkina Faso (war/conflict), Nepal (natural disaster), Lebanon (2, refugees), Thailand (refugees), Liberia (post-conflict), Iraq (post-conflict) and Malaysia (refugees).

Poor mental health: parental depression and anxiety

Parental depression and anxiety were reported by six trials in humanitarian settings. Results found a small non-significant effect, with high levels of heterogeneity ($d = -0.41$; 95% CI= -0.96, 0.14; $I^2=88\%$). Trials were implemented in the following countries and humanitarian settings: Rwanda (2, post-conflict), Bosnia (post-conflict), Lebanon (refugees), Malaysia (refugees) and Colombia (post-conflict).

Child behaviour problems overall

Children's behaviour problems, including externalizing and internalizing behaviours, were reported by 10 trials. Results found a small non-significant effect, with high levels of heterogeneity ($d = -0.39$; 95% CI= -0.83, 0.05; $I^2=88\%$). Trials were implemented in the following countries and humanitarian settings: Thailand (refugees), Bosnia (post-conflict), Palestine (war/conflict), Burkina Faso (war/conflict), Nepal (natural disaster), Democratic Republic of the Congo (war/conflict), Lebanon (refugees), Liberia (post-conflict), Iraq (war/conflict) and Malaysia (refugees).

Child externalizing behaviours

Eight trials reported on externalizing behaviours in children. Results found a small non-significant effect, with high levels of heterogeneity ($d = -0.14$; 95% CI= -0.62, 0.35; $I^2=85\%$). Trials were implemented in the following countries and humanitarian settings: Thailand (refugees), Bosnia (post-conflict), Palestine (war/conflict), Democratic Republic of the Congo (war/conflict), Lebanon (refugees), Liberia (post-conflict), Iraq (war/conflict) and Malaysia (refugees).

Child internalizing behaviours

Nine trials reported on internalizing behaviours in children. Results found a small non-significant effect, with high levels of heterogeneity ($d = -0.39$; 95% CI= -0.83, 0.06; $I^2=86\%$). Trials were implemented in the following countries and humanitarian settings: Thailand (refugees), Bosnia (post-conflict), Palestine (war/conflict), Burkina Faso (war/conflict), Nepal (natural disaster), Democratic Republic of the Congo (war/conflict), Lebanon (refugees), Liberia (post-conflict) and Iraq (war/conflict).

Child conduct problems

Seven trials reported on externalizing behaviours in children in humanitarian settings. Results found a small non-significant effect, with high levels of heterogeneity ($d = -0.14$; 95% CI = -0.73, 0.45; $I^2=87\%$). Trials were implemented in the following countries and humanitarian settings: Thailand (refugees), Palestine (war/conflict), Democratic Republic of the Congo (war/conflict), Lebanon (refugees), Liberia (post-conflict), Iraq (war/conflict) and Malaysia (refugees).

Meta-analyses that did not include enough degrees of freedom

The following analyses in the review of trials in humanitarian settings must be interpreted with caution. The degrees of freedom for them was smaller than $df < 4$, therefore, the p-value is untrustworthy for the estimated average effect size.

Physical abuse

Six trials reported physical abuse, with an average decrease of Cohen's $d = -0.72$, yet due to the small number of included trials and effect sizes, the p-value is not trustworthy. Trials were implemented in the following countries and humanitarian settings: Burkina Faso (war/conflict), Nigeria (2, post-conflict), Iraq (post-conflict), Ethiopia (refugees) and the Democratic Republic of the Congo (war/conflict).

Psychological abuse

Three trials reported psychological abuse, which was often labelled as emotional violence, with an average decrease of Cohen's $d = -0.46$, yet due to the small number of included trials and effect sizes, the p-value is not trustworthy. Trials were implemented in the following countries and humanitarian settings: Burkina Faso (war/conflict), Ethiopia (refugees) and the Democratic Republic of the Congo (war/conflict).

Sexual abuse

In this review, two trials reported sexual abuse, with an average decrease of Cohen's $d = -0.003$, yet due to the small number of included trials and effect sizes, the p-value is not trustworthy. Two trials contributed to a total of 10 effect sizes that measured the experiences of adolescents of sexual abuse, unwanted touching and transactional, forced or coerced sex. Both trials only included girls. They were implemented in Ethiopia among refugees and in the Democratic Republic of the Congo in a war/conflict setting.

Neglect

Only one trial measured neglect as an outcome of intervention effectiveness. Therefore, a meta-analysis could not be conducted. The trial included an intervention with adolescent

girls and their parents in the Democratic Republic of the Congo. The effect size for neglect in that trial was $d = 0.02$.

Parenting stress

Three trials reported parenting stress, with an average decrease of Cohen's $d = -0.66$, yet due to the small number of included trials and effect sizes, the p-value is not trustworthy. Two of the trials were implemented in Lebanon among refugees, and one was in Iraq in a post-conflict setting.

Poor child mental health: depression, anxiety, post-traumatic stress disorder (PTSD)

Three trials reported a decrease in depression, anxiety or post-traumatic stress symptoms in children post-intervention, with an average decrease of Cohen's $d = -0.22$, yet due to the small number of included trials and effect sizes, the p-value is not trustworthy. Trials were implemented in the following countries and humanitarian settings: Bosnia (post-conflict), Burkina Faso (war/conflict) and the Democratic Republic of the Congo (war/conflict).

Non-prioritized outcomes:

Intimate partner violence

Two trials reported violence between parents, with an average decrease of Cohen's $d = -0.04$, yet due to the small number of included trials and effect sizes, the p-value is not trustworthy. The trials measured both intimate partner violence victimization and perpetration. They were implemented in post-conflict settings in Rwanda and Colombia.

Parental self-efficacy

Two trials reported on parenting efficacy, with effect sizes ranging from Cohen's $d = 0.23$ to $d = 2.19$. They were implemented among refugees in Malaysia and China.

Positive parenting knowledge, attitudes and beliefs

Positive parenting knowledge, attitudes and beliefs were included in the overall positive parenting outcome category. Most parenting inventories do not separate out attitudes from self-reported or observed behaviours.

Parental attitudes to corporal punishment

One trial measured beliefs about and attitudes to corporal punishment, with reductions of Cohen's $d = -0.93$ and $d = -0.84$. The trial was conducted in a post-conflict setting in Nigeria.

Certainty of evidence

Certainty of evidence ranged from very low to moderate confidence in the effect estimate. This judgement was based on serious and very serious concerns of imprecision (wide confidence intervals overlapping the null effect), serious concerns about indirectness,

serious and very serious risk of bias for most outcomes, and one serious inconsistency concern (high levels of heterogeneity suggesting possible harmful effects).

Discussion

Summary of findings

This review was conducted to strengthen our understanding of the effectiveness of parenting interventions on reducing child maltreatment and related parent and child outcomes in humanitarian settings. We identified 18 randomized controlled trials that were conducted in LMICs in war or conflict zones, post-conflict settings, refugee camps with displaced families or in the aftermath of a natural disaster. This review adds to the literature on psychosocial interventions in humanitarian settings by expanding on previous reviews of parenting interventions in conflict settings (Jordans et al., 2016; Toufaily, 2021) that included much lower numbers of randomized trials. The present review included a total of 18 randomized controlled trials from 14 LMICs. Half of all trials were conducted in the African Region and focused on populations that had previously been affected by conflict, such as trials in post-conflict zones or with displaced families.

Although we found non-significant effects for child maltreatment, our results suggest that parenting interventions in humanitarian settings are effective in reducing harsh parenting behaviours, which include behaviours classified as maltreatment such as emotional violence, physical abuse and corporal punishment, in addition to harsh discipline. Only a few trials ($k=7$) measured maltreatment, with even fewer examining the effects of parenting interventions on the sub-types of maltreatment: six measured physical abuse as a sub-type, three psychological abuse, two sexual abuse, and one study measured neglect. These few studies could not be meta-analysed with a robust effect estimate. A better-powered analysis may have been more capable of understanding whether parenting interventions may reduce child maltreatment as well as sub-types of maltreatment. In addition, we had low confidence in the certainty of this outcome due to very serious concerns about inconsistency, indirectness of effect, and high risk of bias. However, the distinction between harsh parenting and maltreatment is not clear-cut, and options for merging harsh parenting under maltreatment are discussed elsewhere (see Chapter 8).

Findings indicate that parenting interventions in humanitarian settings are modestly but significantly effective in improving positive parenting and decreasing negative parenting behaviours. Positive parenting includes effective behaviour management, warmth or other nurturing and responsive behaviours. Negative parenting includes harsh and abusive parenting and other ineffective parenting strategies, such as poor monitoring and laxness. Notably, in contrast to the maltreatment and harsh parenting meta-analyses, which were based on very few studies and yielded relatively poorly powered analyses, the negative parenting meta-analyses included a greater number of studies ($n=11$), yielding a better-powered analysis.

Interestingly, and contrary to previous research on the effectiveness of parenting interventions in general (Leijten et al., 2016), parenting interventions in humanitarian settings appear not to be effective in reducing child externalizing problems such as conduct problems or aggressive child behaviours, and internalizing behaviours such as child anxiety, fear or depression. This may be explained by the heterogeneity of intervention content with some interventions focusing on coping with trauma rather than child behaviour management strategies. Another explanation may be that the level of prevention impacted the findings. Previous research (Leijten et al., 2016) found that selective interventions are less effective for reducing conduct problems (including the review in Chapter 8). Parents in these interventions were mainly screened for their living conditions that place families at risk (selective) rather than levels of problem behaviours of children (treatment). Another note of caution relates to the low number of trials (externalizing $n=8$; internalizing $n=9$) included in the meta-analyses.

In addition, this review did not find any effect of parenting interventions on improving the mental health of parents. This is surprising, since these parents are particularly in need of mental health support, and previous reviews find improvements in parental mental health after participation in a parenting intervention (for example, Chapter 7 of this report), with effects being more stable than maltreatment effects (Chapter 8). In line with this, a controlled but not randomized evaluation of a parenting intervention in Burundi did not find any effect of the intervention on parent depression (Jordans, Tol, Ndayisaba, & Komproe, 2013). It may be that the included interventions lacked sufficient content on addressing trauma and parental mental health which was found to be linked to parenting with displaced populations (Sim, Fazel, Bowes, & Gardner, 2018). We would like to note that the analyses on parent depression and anxiety were based on seven trials in this review, reflecting a rather small analysis.

Strengths and limitations of this review

This review is, to our knowledge, the most comprehensive evidence synthesis of randomized controlled trials of parenting interventions in the context of a humanitarian setting, with 18 included trials and a total of 181 effect sizes. In addition, our meta-analytic strategy using robust variance estimation is currently seen as a state-of-the-art methodology that enhances the power for each meta-analysis by including multiple effect sizes from each study. This analysis accounts for inter-correlation within trials and produces a robust average effect size per outcome. In addition, by including only randomized trials, this review tested causal relationships between treatment (here, parenting interventions) and the outcome of interest.

There are a number of limitations to consider. Most analyses yielded large heterogeneity in the treatment effects. However, since the number of trials for each outcome was too limited to rigorously test for subgroup effects, we were not able to systematically investigate these sources of heterogeneity.

A related limitation is that we increased heterogeneity between the trials by widening the eligibility criteria in this review, including trials that had parenting as a secondary component in the intervention. Therefore, this review is not purely about parenting interventions, but rather one that although it mainly includes interventions focusing primarily on parenting also includes some interventions that used parenting support as an additional component.

As with every systematic review, decisions made during the selection of studies and the grouping of outcomes may have introduced bias. In this review, this may be connected to the definition of post-conflict settings (such as the maximum number of years after conflict to be classified as post-conflict), the wider definition of a parenting intervention, and the operationalization of harsh parenting and maltreatment (for example, classifying corporal punishment as maltreatment vs. harsh parenting). In addition, we relied on parent-report outcomes of programme effect, which are not blinded for condition. This may have induced biases such as social desirability.

Lastly, given that very few studies collected longer-term data, this review only included effect sizes post-intervention. Therefore, long-term effects of parenting interventions in humanitarian settings remain unclear.

Research gaps

This systematic review examined the effectiveness of parenting interventions in humanitarian settings for a range of outcomes. However, some questions remain unanswered due to limited evidence available. Only seven trials included maltreatment outcomes: three measuring psychological abuse, two sexual abuse, and one study neglect. Consequently, we could not create a trustworthy confidence interval of the averaged effect size of the sub-types of maltreatment due to limited power. In addition, we were unable to robustly meta-analyse the effects of parenting interventions on other outcomes related to child maltreatment, such as parenting stress, intimate partner violence and child mental health problems. Furthermore, since most of the effect sizes were based on immediate post-intervention assessments, it remains unclear whether the effects will remain or fade out over time. Future studies examining parenting interventions in humanitarian contexts should include post- and follow-up measures of maltreatment, including sub-types, as well as the effects on violence between partners, parenting stress, and child depression and anxiety.

Moreover, despite high levels of heterogeneity within the average effects of the interventions, we were unable to examine potential differential effects due to limited power. Therefore, unpacking surprising findings such as the lack of effect on parental mental health or child conduct problems will only be possible with more emerging evidence.

Finally, the analyses are limited to a few countries and settings. We found a great amount of variation in regard to the implementation region and humanitarian setting, including war, post-conflict settings and displaced families. There was only one study from a

natural disaster (post-earthquake in Nepal; Kim et al., 2018), and none focusing on the aftermath of other natural disasters such as heavy droughts, flooding or typhoons. In the context of increasing humanitarian crises due to climate change, future studies on the effectiveness of parenting interventions in these settings are recommended. Despite these limitations and research gaps, this review greatly expands our knowledge on the existing evidence of how parenting interventions may be effective at reducing negative parenting while improving positive parenting under particularly challenging circumstances in the global South.

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Parenting interventions for parents of very young children (age 0–2) in low- and middle-income countries: a narrative review

Introduction

Early childhood is a critical period for children to receive the care and love they need to grow and thrive. The WHO Nurturing Care Framework (WHO, 2018) identifies five crucial components for optimal child development, one of which is responsive caregiving. Young children spend most of their time with their parents and other caregivers and are highly dependent on them, and interactions between child and caregiver play a crucial role in the development of children. Responsive caregiving refers to the ability of a caregiver to notice, understand and respond in a timely way to their infant's signals, and in particular those that indicate the need for reassurance and comfort when they are distressed. As infants become more mobile, they have a need for reassurance in terms of their bids to explore their environment, and for the parent to act as a safe base. Older infants (i.e. 15–24 months) also also need parenting that is associated with positive emotional and behavioural development, including the use of praise, positive discipline and supervision. As a result of the greater diversity in terms of parenting that is needed across the 0–2 year age group, interventions for parents of children less than two years of age are similarly diverse and include sensitivity and attachment-based interventions that are primarily aimed at promoting sensitive interaction and infant attachment security, through to more standard behaviourally based parenting programmes focused on teaching parents positive behaviour management skills aimed at preventing or reducing disruptive behaviours and maltreatment (Bakermans-Kranenburg, Van Ijzendoorn, & Juffer, 2003; McCoy, Melendez-Torres, & Gardner, 2020).

Previous systematic reviews focusing on parenting interventions that are delivered in the first two years of a child's life show mixed results. One of the most prominent reviews, published by Britto et al. (2017) as part of *The Lancet* series on ECD, found significant small-sized effects of parenting interventions on various child developmental outcomes. However, this review did not include parenting outcomes. Other reviews focusing on the effects of parenting interventions in the early years largely included trials from high-income countries (Levey et al., 2017; Pontoppidan et al., 2016; Rayce et al, 2017; Herd et al., 2014). Jeong and colleagues were thus tasked by the WHO to fill this evidence gap as part of the development process for the 'Guideline on Improving Early Childhood Development' (WHO, 2020). The report of the systematic review was published by the WHO, with a shorter version published by the authors in 2018 (Jeong, Pitchik, & Yousafzai, 2018). They found medium to large

effects for maternal knowledge, overall parenting practices and mother–child interactions. The search for this review was conducted in 2017. Since then new evidence has emerged, especially from LMICs, and the authors expanded their findings by updating their search and including trials from around the globe (Jeong et al. 2021).

The current narrative review summarizes the evidence from LMICs identified by the Jeong et al. (2021) review, and adds trials from our own search that used a multitude of languages and extensive grey literature searching.

Methods

The current review comprises a narrative summary and update of the most recent review of interventions for children aged 0–2 years. For this, it will draw on the relevant sections of the existing WHO ‘Guideline on Improving Early Childhood Development’ and supporting materials published by Jeong et al. (2018; 2021). We will also add to the findings from our recent and wider search of the literature that will include studies focused on parenting outcomes such as harsh parenting and child maltreatment.

Research question

How effective are parenting programmes in improving sensitive parenting, and preventing insensitive, harsh and abusive parenting among children aged 0–2 years in LMICs?

Protocol and registration

This narrative review is based on the reviews published by Jeong et al. (2018; 2021) which were registered on Prospero on 2 May 2017 (CRD42017064902), and the additional search is based on the main LMIC review, which was registered on Prospero on 14 February 2018 (CRD42018088697).

Eligibility criteria

The following eligibility criteria were used for this review.

Participants/population

We include interventions that target parents and other main caregivers of children aged 0 (birth) to mean age 2 years. We exclude trials with women who are pregnant or expectant couples, unless the majority (50% or more) of the study’s components were intended to be delivered postnatally, or if the participants include both pregnant women and mothers and the majority of participants are mothers. In addition, we exclude interventions with adults providing care to children in institutional and non-residential settings, or with specialized groups with specific needs or circumstances, such as parents of children with physical disabilities or illness, psychosis, autism or severe learning disabilities, and child-led households.

Interventions

We include parenting interventions with parents or caregivers that aim to improve parental sensitivity to increase infant attachment security and/or teach positive child behaviour management strategies aimed at reducing child maltreatment, harsh or dysfunctional parenting and conduct problems, through changes in parenting knowledge, attitudes, skills or behaviour. This includes programmes that are delivered either dyadically (i.e. to parents and their children together) or to parents on their own (i.e. with no infant present).

We will exclude interventions with parents that: a. focus narrowly on very specific child risks such as poisoning or accidents, or that teach skills for dealing with specific problems such as preterm birth or other medical conditions and disabilities; and b. primarily deliver financial support or other support to parents but do not aim to change parents' knowledge or behaviour (e.g. conditional cash transfer programmes, unless they include a parent training component, the effects of which can be analysed separately from other components).

Comparator(s)/control

We will include studies with inactive or active control conditions.

Types of study to be included

We will include randomized controlled trials, including cluster-randomized controlled trials, and quasi-experimental designs with strong counterfactuals, such as high-quality regression discontinuity designs, propensity score matching studies or a stepped-wedge design.

Context

Countries categorized by the World Bank as low- or middle-income at the time the trial was conducted will be included. The full list of included countries is described as part of the main review in this report (Chapter 7).

Outcomes

Jeong et al. (2021) only included trials that had at least one ECD-related outcome. However, we base our outcome criterion on the WHO GDG prioritized outcomes. Based on the availability of outcomes in LMICs and the ratings from the GDG, the following six prioritized outcomes have been identified:

- Child maltreatment
- Harsh and negative parenting
- Positive parenting skills and behaviour (subsumes positive parenting skills and behaviour, parental monitoring and supervision, and parent–child relationship and communication)
- Child emotional and behavioural problems.

Search terms

We used the same search terms and databases as described in Chapter 7. To identify relevant trials for this review, we used key early childhood terms to conduct a search within all records of approximately 11,000 titles and abstracts from the updated search of the main LMICs review using Endnote Libraries. We used the following key terms: early OR months OR infant OR infants OR feeding OR breastfeeding OR antenatal OR neonatal OR postnatal OR babies OR baby OR attachment OR toddler OR toddlers OR newborn OR newborns.

Data extraction

As Jeong and colleagues have conducted a comprehensive, global, rigorous review in this age group, we extracted and summarized LMIC studies with relevant outcomes from Tables 1 and 2 of their published journal article. This includes the data available about study country, child age at baseline, sample size, description of the intervention(s), delivery format, delivery setting, intended number of sessions, session duration and frequency, length of programme in months, and who delivered the intervention. We also extracted outcome data/results as reported in Figures 5–11 of the Jeong et al. (2021) review.

Studies not included in the Jeong et al. review, and identified either from the included studies list of Knerr et al. (2013) or through our updated searches, were screened to determine whether they met the inclusion criteria outlined above. The full text of all potentially eligible studies was retrieved and assessed for eligibility. For those meeting the criteria, we used a standardized spreadsheet to collect and code data for assessment of study quality and evidence synthesis. Extracted information includes: study setting/context (e.g. geographical location); intervention characteristics; delivery format (i.e. group, individual or self-directed), duration and intensity; study population and participant demographics and baseline characteristics; details of the intervention and control conditions; and information for assessment of the risk of bias.

Risk of bias assessment

The risk of bias in newly included studies was assessed using the Cochrane Risk of Bias Tool, which is described in detail in Chapter 7 of this report.

Data synthesis

We summarized the results from the comprehensive global review by Jeong et al., focusing on studies from LMICs which measure our outcomes of interest. In brief, Jeong et al. conducted meta-analyses of each ECD and parenting outcome by calculating a standardized mean difference (SMD) between the intervention and comparison arms, in relation to the change in mean values from baseline to endline after standardization by pooled standard deviation (SD). Pooled effect size estimates were based on random effects models. We report their SMDs, 95% confidence intervals (CI) and sample size of each relevant LMIC study in a table and summarize the results in the text. Jeong and colleagues also conducted

moderator analyses on all outcomes using random effects meta-regression to explore potential sources of heterogeneity. We summarize the results of their moderator analysis by country income level (LMICs compared to high-income countries). The results from our updated searches and review are narratively assessed and reported.

Results

Overall summary:

Sources and quality of evidence:

Research evidence regarding the effectiveness of parenting interventions in 0-3s was derived from: i) a systematic review of 40 randomized trials assessing effectiveness of parenting programs in LMICs delivered to parents of children aged 0-3 years for a range of outcomes (published by Jeong and colleagues (2021)) (“Jeong effectiveness review”), ii) searches to update the Jeong review, and narrative synthesis of 11 additional RCTs (“Updated ECD review”), and iii) indirect evidence from LMIC effectiveness review focusing on ages 2-17 years.

The Jeong effectiveness review did not specifically focus on child maltreatment but addressed related outcomes (i.e., child development and parenting skills). Jeong included studies if they reported on child development outcomes. The Updated ECD review found an additional 11 RCTs, of which 4 included child maltreatment / harsh parenting outcomes. No meta-analysis was conducted.

In the Jeong effectiveness review, total risk of bias scores across all studies was moderate, with unclear risk for allocation concealment and selective reporting for most studies. In the Updated ECD review, risk of bias was low for most domains except unclear risks on random sequence generation and allocation concealment and high risk for blinding of participants.

Overall descriptive summary:

Jeong and colleagues undertook a systematic review of parenting interventions in LMICs aimed at children aged 0-3 years, which informed the WHO ‘Guideline on Improving Early Childhood Development’. Jeong and team (2021) subsequently expanded the review, with an updated search strategy and additional studies from high-income countries, and published in 2021. From Jeong’s global review, we drew only on the data from LMICs. The largest number of studies were from the South-East Asian Region (n=11), while there were 9 studies from the Pan-American Region, 8 from the African Region, 3 from the Western Pacific Region, 2 from the Eastern Mediterranean Region and 1 from the European Region (Lithuania; while not currently an LMIC, Lithuania was a middle-income country at the time of the trial).

Sample sizes ranged from 44 to 1957, and the mean age of children at baseline ranged from 0 to 27 months. The interventions were delivered to individual parents or

parent–child dyads (n=16), to both individuals and groups (n=12) or only to groups (n=6), and most were delivered in homes (n=14) or in a combination of homes, community settings and health settings (n=10). The parenting programs took place, on average, for 12 months, with the shortest lasting 2 months (n=1), and the longest 24 months (n=4).

Evidence from the Jeong effectiveness review was unclear for child maltreatment. None of the 40 studies identified by the Jeong effectiveness review assessed effects on child abuse and neglect or other negative parenting outcomes. However, the review observed for most studies beneficial effects on child maltreatment-related outcomes including parenting knowledge, positive parenting practices and parent-child interaction, and parent depression. Beneficial broader spill-over effects were found for child socio-emotional development. Findings were inconclusive for child behavior problems. Jeong and colleagues ran various moderation analyses. They found for some outcomes stronger effects in LMICs compared to high-income countries. However, no additional intervention moderator effects were detected: interventions were equally effective for children under and above 1 year of age, for parents participating in short (<12 months) or long (>12 months) interventions, when delivered individually, in group format, or in a combination of formats, and when delivered in various settings.

For the Updated ECD review, we ran additional searches using search terms described in the LMIC effectiveness review. We identified 11 studies that were not in the Jeong review. Studies were conducted across three WHO Regions: five trials in the African Region (AFRO) from Rwanda (n=3), Ethiopia (n=1) and Zimbabwe (n=1); four trials in the Pan-American Region (PAHO) from Brazil (n=2), Chile (n=1), and Columbia (n=1); and two trials in the Eastern Mediterranean Region (EMRO) from Pakistan (n=2).

Sample sizes ranged from 25 to 1,613 participants, and mean age of children at baseline ranged from 1 month to 25 months. The interventions were delivered individually to parents (n=9) or in parent groups (n=2); at home (n=8) or in community or health settings (n=2); (not reported, n=1). The parenting programs met the parents on average 13.7 times, with the number of intended sessions ranging from 1 to 28 sessions. Interventions were delivered either by lay personnel (n=3), semi-professionals (n=3) or professionals (n=3); unclear (n=2).

Evidence from the Updated ECD review showed for two studies beneficial effects on violent disciplining (one of those no effect at follow-up). One additional study found an effect of an intervention on negative disciplining which also included harsh parenting. One further study measured child maltreatment assessed by social workers, however, no case of abuse or neglect was detected in either group. Most studies observed beneficial effects on positive parenting practices and parent mental health.

Evidence from moderator analyses in the larger LMICs effectiveness review show that for all outcomes, including maltreatment, effects are similar in the preschool age group (mean age 2-5, which has some overlap with the 0-2 population) as in studies of older children. Across all ages 2-17, the data also suggest that effects held across universal,

selective, and indicated prevention programs, targeting varying levels of risk for maltreatment.

Summary by source:

WHO Recommendations on Caregiving Interventions to Support Early Child Development in the First Three Years of Life: Summary of results from LMICs

Study characteristics

Jeong and colleagues undertook a comprehensive systematic review of parenting interventions in LMICs aimed at children aged 0–3 years, which informed the WHO ‘Guidelines on Improving Early Childhood Development’. The review was subsequently expanded, with an updated search strategy and additional studies from high-income countries, and published in 2021. In this section, we summarize the results of the 2021 review relevant to LMICs and to parent and child behavioural outcomes, as defined above under “Outcomes”.

The paper by Jeong and colleagues (2021) identified 40 unique trials of parenting interventions in 19 LMICs eligible for this summary. Most measured relevant parenting and child behaviour outcomes, with the exception of 6 studies that measured only child cognitive, language or motor outcomes and, thus, do not have relevant data for our review, leaving 34 studies to summarize here. The largest proportion of studies were from the South-East Asian Region (n=11), while there were 9 studies from the Pan-American Region, 8 from the African Region, 3 from the Western Pacific Region, 2 from the Eastern Mediterranean Region and 1 from the European Region (Lithuania; while not currently an LMIC, Lithuania was a middle-income country at the time of the trial).

Sample sizes ranged from 44 to 1957, and the mean age of children at baseline ranged from 0 to 27 months. The interventions were delivered to individual parents or parent–child dyads (n=16), to both individuals and groups (n=12) or only to groups (n=6), and most were delivered in homes (n=14) or at a combination of homes, community settings and health settings (n=10). The parenting programmes took place, on average, for 12 months, with the shortest lasting 2 months (n=1), and the longest 24 months (n=4).

Risk of bias

Jeong and colleagues report total risk of bias scores across all studies in their review as moderate, with low risk for random sequence generation, blinding of outcome assessors and incomplete outcome data, and unclear risk for allocation concealment and selective reporting for the majority of studies. It was not feasible for us to extrapolate risk of bias data for only the trials of interest for our review (i.e. those from LMICs with relevant outcomes).

Main effects

Summary of individual outcomes in Jeong et al. 2021

Table 1 lists the outcome results from the LMIC studies in the Jeong et al. review. There were seven outcomes of interest for our review. The results favoured the intervention condition for most or all studies for four of the following outcomes. Fourteen studies included measures of child socio-emotional development (n=9793). Of those fourteen studies, eleven studies reported a post intervention effect size that favoured the intervention group (6 significant, 5 non-significant). Eleven studies measured parenting knowledge (n=7015), of which all post intervention effect sizes favoured the intervention group (9 significant, 2 non-significant). Six studies measured parenting practices (n=3323) of which all effect sizes favoured the intervention group at post test (all significant). Six studies measured parent-child interaction at post-test (n=2034), and all effect sizes favoured the intervention group (5 significant, 1 non-significant). Results were mixed for 2 outcomes. Child behaviour problems were measured by two studies. One study found no effect favouring any experimental group, and the other study yielded a non-significant effect favouring the intervention group on externalising behaviours, and a non-significant effect for internalising behaviours favouring the control group. For attachment, effect sizes from two studies favoured the intervention group (1 significant, 1 non-significant), and one study found no effect on attachment for any group. Finally, most results favoured the intervention group for parent depression (9 studies; all significant), whereas 4 studies found non significant effects favouring the control group. One study could not find an effect favouring either experimental group. Since this narrative review is being conducted to inform the decisions of the GDG, we went back to the individual studies and identified those that measured child maltreatment related outcomes. None of the included studies from LMICs assessed effects on child abuse and neglect or other negative parenting related outcomes.

Table 1. Standardized mean difference, confidence intervals and direction of effect for LMIC studies from Jeong et al. 2021, by outcome

<i>Outcome measure</i>	<i>Direction of effect</i>	<i>Study first author and year</i>	<i>n</i>	<i>SMD</i>	<i>95% CI</i>
Child socioemotional development	Favours intervention	Hamadani et al 2019	687	0.90	0.74, 1.06
		Hartinger et al 2017	435	0.44	0.25, 0.63
		Abimpaye et al 2019	965	0.33	0.20, 0.45
		Shi et al 2020	140	0.30	-0.03, 0.63
		Ara 2019	191	0.29	0.01, 0.58
		Khan et al 2018	1957	0.21	0.12, 0.30
		Muhoozi et al 2017; Atukunda et al 2019	455	0.20	0.02, 0.39
		Abessa et al 2019	211	0.17	-0.10, 0.44
		Jin et al 2007	87	0.17	-0.22, 0.57
		Grantham-McGregor 2020	1308	0.12	-0.03, 0.28
		Luo et al 2019	390	0.10	-0.10, 0.30
	Favours control	Yousafzai et al 2014, 2015	1298	-0.06	-0.21, 0.09
		Galasso 2019	1468	-0.07	-0.17, 0.04
		Lozoff et al 2010	201	-0.16	-0.53, 0.22
Child behaviour problems	Favours intervention	Grantham-McGregor 2020 (SDQ: externalising)	1298	-0.01	-0.17, 0.16
	Neutral	Alvarenga et al 2019	44	0.00	-0.60, 0.60
	Favours control	Grantham-McGregor 2020 (SDQ: internalising)	1298	0.04	-0.11, 0.19
Attachment	Favours intervention	Santelices et al 2010	72	0.40	-0.16, 0.43
		Cooper et al 2009, Murray et al 2016	263	0.28	0.02, 0.55
	Neutral	Kalinauskiene et al 2009 *	54	0.00	-0.53, 0.53
Parenting knowledge	Favours intervention	Hamadani et al 2019	687	1.7	1.51, 1.89

		Powell et al 2004, Baker-Henningham et al 2005	129	1.17	0.82, 1.52
		Hamadani et al., 2006	193	0.93	0.64, 1.21
		Aboud et al 2013	447	0.7	0.52, 0.88
		Yousafzai et al 2014, 2015	1298	0.62	0.52, 0.73
		Singla et al 2015	291	0.57	0.35, 0.79
		Chang et al 2015	426	0.47	0.27, 0.66
		Luo et al 2019	390	0.25	0.05, 0.45
		Galasso 2019	1468	0.17	0.06, 0.27
		Andrew 2020	378	0.07	-0.13, 0.27
		Grantham-McGregor 2020	1308	0.06	-0.02, 0.14
Parenting practices	Favours intervention	Abimpaye et al 2019 (responsive care activities)	965	0.59	0.46, 0.72
		Hamadani et al 2019	687	0.80	0.64, 0.96
		Murray et al 2016	82	0.86	0.45, 1.28
		Yousafzai et al 2014, 2015	1298	0.95	0.84, 1.06
		Singla et al 2015	291	1.07	0.82, 1.32
		Abimpaye et al 2019 (learning/play activities)	965	1.30	1.16, 1.44
Parent-child interaction	Favours intervention	Cooper et al 2009, Murray et al 2016	263	0.24	0.01, 0.46
		Aboud and Akhter 2011	293	0.29	0.01, 0.46
		Alvarenga et al 2019	44	0.52	-0.07, 1.12
		Vally et al 2015, Murray et al 2016	82	0.63	0.21, 1.04
		Yousafzai et al 2014, 2015	1298	0.68	0.58, 0.79
		Kalinauskiene et al 2009	54	0.79	0.26, 1.33
Parent depression	Favours intervention	Nahar et al 2012, 2012b, 2015	322	-0.05	-0.27, 0.18
		Andrew 2020	378	-0.22	-0.41, -0.02

	Cooper et al 2009, Murray et al 2016	263	-0.22	-0.43, -0.01
	Kalinauskiene et al 2009 *	54	-0.26	-0.79, 0.27
	Hamadani et al 2019	687	-0.30	-0.46, -0.14
	Singla et al 2015	291	-0.39	-0.62, -0.16
	Powell et al 2004, Baker-Henningham et al 2005	129	-0.40	-0.76, -0.05
	Atukunda et al 2019 (BDI - II)	455	-0.68	-1.01, -0.35
	Atukunda et al 2019 (CES - D)	455	-0.70	-1.03, -0.37
Neutral	Yousafzai et al 2014, 2015	1298	0.00	-0.11, 0.11
Favours control	Aboud et al 2013	447	0.18	-0.00, 0.36
	Chang et al 2015	426	0.09	-0.10, 0.28
	Rockers et al 2016	435	0.03	-0.16, 0.22
	Attanasio et al 2014	1263	0.02	-0.09, 0.13

Jeong and colleagues also ran moderator analyses comparing results from LMICs with those from high-income countries. They reported that although effects on child socio-emotional development, parenting knowledge, parent–child interaction and parent depression did not differ significantly by country income level, the magnitudes of the effect estimates were consistently greater for all outcomes in LMICs than in high-income countries.

Moderator analyses tended to show greater effects for most outcomes in LMICs compared to high-income countries, but these results reached statistical significance for only one measure: parenting practices (LMICs: 20 studies, SMD 0.47, 95% CI 0.34–0.61; high-income countries: 15 studies, SMD 0.08, 95% CI -0.01–0.16; $p < 0.001$). Jeong et al. report that effects of interventions may be greater in LMICs due to the presence of multiple risk factors (e.g. malnutrition, fewer early learning opportunities) which hinder supportive or positive parenting practices and ECD. They point out that none of the studies in their review compared the same intervention in an LMIC and a high-income country. However, it is worth noting that in a previous review, Gardner, Montgomery and Knerr (2015) compared parenting interventions for older children (age 3–10) that were designed in one country and transported to another, and found that the effects were at least as strong when the same programmes were transported from high-income countries to other countries, including to places that were culturally very different from the origin country.

On one measure – parental depressive symptoms – results did not favour the intervention at either country income level (LMICs: 12 studies, SMD -0.13, 95% CI -0.27–0.01; high-income countries: 12 studies, SMD -0.02, 95% CI -0.09–0.05), although results were not statistically significant ($p = 0.13$). Jeong et al. report that the lack of effect on depression in LMICs concurs with some previous meta-analyses. However, it contrasts with the moderate effect size (SMD = .57) found for parent mental health problems across 29 trials in our review of parenting interventions in LMICs for 2-17 year olds.

Updated and expanded results

Knerr et al. (2013) additional trials

Study characteristics

We identified three studies that were not in the Jeong review. They were conducted in Chile, Pakistan and Brazil. Aracena et al. (2009) tested the effectiveness of a home visiting service delivered by community health workers to adolescent mothers and aimed at preventing abuse. Rahman et al. (2009) conducted a trial of the Learning Through Play intervention that is delivered by community health workers through home visiting. Wendland-Carro et al.'s (1999) trial examined the effectiveness of an intervention that aims to enhance mother–infant interaction. Mothers viewed a video presenting information on interaction affectionately with infants. The three studies varied greatly in outcome measures.

Summary of relevant outcomes

Only one study evaluated the effectiveness of the intervention on child maltreatment (Aracena et al., 2009). In this study, social workers assessed indicators for child abuse throughout the duration of the intervention. Since no cases of abuse or negligence were

Table 2. Outcomes and effects of additional Knerr 2013 trials

Study	N	Intervention	Country	Child age (months)	Relevant outcome measures	Measurement type	Summary of effects	Reported effect size or statistics
Aracena et al. 2009	90	Unbranded: home-visiting programme	Chile	12	Maltreatment: indicators for child abuse	Evaluation by social workers	Unclear – both groups had no abuse cases detected	None reported
Rahman et al. 2009	309	Learning Through Play	Pakistan	2	Positive attitudes and knowledge about infant development	Questionnaire	Increase in IG compared to CG	Reported intervention effect 4.28; CI=3.68, 4.89
					Parental mental health	Questionnaire	No difference between IG and CG	Reported intervention effect -0.42; CI=-1.53, 0.68
Wendland-Carro et al. 1999	36	Unbranded: mother–infant interaction intervention	Brazil	1	Positive parenting: mother–infant synchronous behaviours	Observation	Increase in IG compared to CG	Wilks's λ =.56; $F(2,30) = 27.08$, $p < .01$

detected in either group, we cannot draw conclusions about the effectiveness of the intervention to reduce child maltreatment ($d=0.00$).

Wendland-Carro and colleagues (1999) measured mother–infant synchronous exchanges. This observational measure includes a range of positive parenting skills such as responding to the infant’s needs. The experimental group showed a greater frequency of positive parenting behaviours compared to the control group (Wilks’s $\lambda = .356$, $p < .01$).

The study by Rahman et al. (2009) did not measure parenting behaviour but knowledge of child development and child needs, which could be categorized under positive parenting skills and knowledge. The authors found a large significant increase in mothers’ positive attitudes and knowledge about infant development in the intervention group compared to the control group (calculated by authors of this review: $d=2.22$; CI 95% 1.94, 2.50).

Additional search results 2018–2020

We screened after deduplication 2,329 of the 11,973 abstracts from the 2021 update of the LMIC main search. We included 25 articles in the full-text screening stage, of which 9 unique trials were included in this narrative review. Exclusion of the 16 trials included: a. already being included in the Jeong review; b. not fulfilling criteria for a parenting intervention; c. duplicate of a trial; and d. main effects not reported. Table 2 provides an overview of the included studies.

Study characteristics

Interventions were evaluated across three WHO Regions: five trials in the African Region (AFRO) from Rwanda ($n=3$), Ethiopia ($n=1$) and Zimbabwe ($n=1$); two trials in the Pan-American Region (PAHO) from Brazil ($n=1$) and Columbia ($n=1$); and one trial in the Eastern Mediterranean Region (EMRO) from Pakistan ($n=1$).

Sample sizes ranged from 25 to 1,613 participants, and mean age of children at baseline ranged from 1 month to 25 months. The interventions were delivered individually to parents ($n=9$), mainly at home ($n=8$) or in parent groups ($n=2$) in community or health settings. The parenting programmes met the parents on average 13.7 times, with the number of intended sessions ranging from 1 to 28 sessions. Interventions were delivered either by lay personnel ($n=3$), semi-professionals ($n=3$) or professionals ($n=3$).

Summary of relevant outcomes

Three studies measured violent disciplining (Barnhart et al., 2020; Betancourt et al., 2020; Justino et al., 2020), with two of them evaluating the same intervention (Barnhart et al., 2020; Betancourt et al., 2020). Two of the three studies reported a significant ($p < 0.5$) decrease in violent disciplining as reported by the parents (Betancourt et al., 2020; Justino et al., 2020).

Positive parenting was measured in five trials. Positive parenting included outcomes such as maternal sensitivity (Barone et al., 2020), stimulating activities and caregiver

engagement (Betancourt et al., 2020), reports on caretaking, playing, time spent together etc. (Fatori et al., 2020), maternal attachment (Husain et al., 2021), and positive disciplining (Justino et al., 2020; Barnhart et al., 2020; Betancourt et al., 2020). Most trials found an increase in positive parenting in the intervention group compared to the control group. One trial from Rwanda did not find a difference in non-violent disciplining post-intervention between the groups (Barnhart et al., 2020), and the trial from Brazil could only find an improvement post-intervention for some of the positive parenting behaviours.

Findings in regard to improved parental mental health were mixed. In total, five trials examined the effectiveness of a parenting intervention on mental health-related outcomes such as anxiety or depression. One trial from Rwanda (Betancourt et al., 2020), one from Brazil (Fatori et al., 2020) and one from Pakistan (Husain et al., 2017) found an improvement in parental mental health after the intervention. A second trial from Rwanda found only a decrease in anxiety and internalizing problems of the participating parents compared to the control group, but not in depressive symptoms (Barnhart et al., 2020), and a trial from Zimbabwe did not find any difference between the intervention and control groups on the levels of poor mental health post-intervention (Mebrahtu et al., 2018).

Additional outcomes included parenting stress (improved after intervention; Mebrahtu et al., 2018), intimate partner violence victimization (decreased after intervention; Betancourt et al., 2020), intimate partner violence perpetration (no difference; Betancourt et al., 2020) and child socio-emotional development (improved after intervention; Worku et al., 2018).

Risk of bias of included studies

The summary chart gives an overview of the quality of the evidence of the additional studies (not in Jeong et al.) included in this review (Figure 1). For most studies, risk of bias was low on blinding of outcome assessors, incomplete outcome data, selected outcome reporting and other bias. Only 45% of trials had a low risk on random sequence generation and allocation concealment, with many trials not sufficiently reporting the randomization procedure. Because parents actively participate in trials, blinding of participants is impossible. Therefore, all trials were naturally at high risk of performance bias.

Figure 1. Summary of risk of bias of included trials

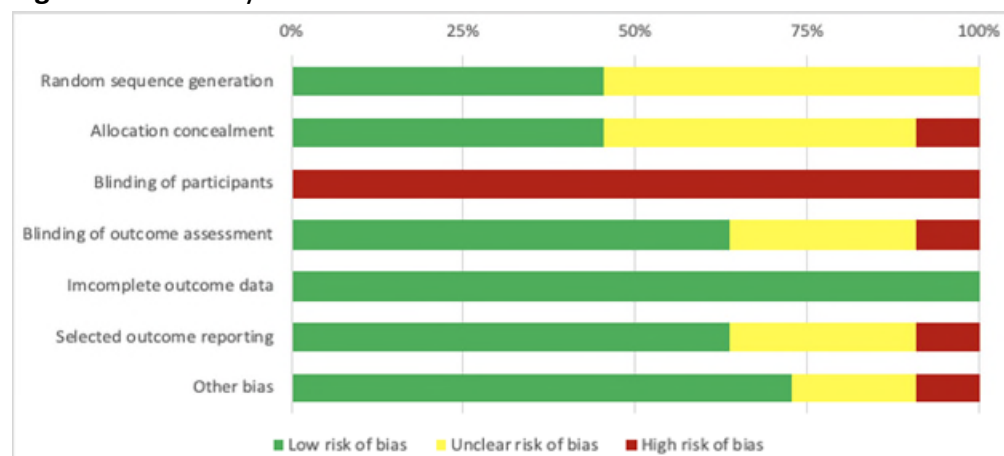


Table 3. Included trials identified from updated search (2018–2021)

Study	N	Intervention	Country	Child age (months)	Relevant outcome measures	Measurement type	Summary of effects	Reported effect size
Barnhart et al. 2020	64	Sugira Muryango	Rwanda	23	Violent disciplining	Questionnaire	Decrease in IG compared to CG at post-test but not at FU	
					Non-violent disciplining	Questionnaire	No difference between IG and CG	
					Parental mental health	Questionnaire	Decrease in anxiety and internalizing problems in IG compared to CG – not for depression	
Barone et al. 2020	25	VIPP-SD	Columbia	25	Positive parenting: maternal sensitivity	Observation	Increase in IG compared to CG	$d=0.77$
Betancourt et al. 2020	104 9	Sugira Muryango	Rwanda	21	Positive parenting	Questionnaire	Increase in IG compared to CG	$d=0.87$ (0.74, 0.99)
					Violent disciplining	Questionnaire	Decrease in IG compared to CG	$d=0.30$ (0.19, 0.47)
					Non-violent disciplining	Questionnaire	Increase in IG compared to CG	$d=2.50$ (1.17, 5.34)

					IPV victimization	Questionnaire	Decrease in IG compared to CG	$d=0.49$ (0.24, 1.00)
					Intimate partner violence perpetration	Questionnaire	No difference between IG and CG	$d=0.90$ (0.38, 2.12)
					Parental mental health	Questionnaire	Increase in IG compared to CG	$d=0.58$ (0.38, 0.88)
Fatori et al. 2020	80	Primeiros Laços	Brazil	18	Parental mental health	Questionnaire	Increase in IG compared to CG	
					Positive parenting: caregiving, playing, time together etc.	Questionnaire	For some outcomes increase in IG compared to CG	
Husain et al. 2021	107	Learning Through Play Plus	Pakistan	15	Parental mental health: depression	Questionnaire	Increase in IG compared to CG	...
					Positive parenting: maternal attachment	Questionnaire	Increase in IG compared to CG	
Justino et al. 2020	1613	First Steps	Rwanda	15	Positive parenting: positive disciplining	Observation	Increase in IG compared to CG	
					Negative disciplining, including harsh parenting	Observation	Decrease in IG compared to CG	

Mebrahtu et al. 2018	574	CHIDO	Zimbabwe	unclear	Parental stress	Questionnaire	Decrease in IG compared to CG
					Parental mental health	Questionnaire	No difference between IG and CG
Worku et al. 2018	78	Unbranded: home-based play-assisted stimulation	Ethiopia	21	Child socio-emotional development	Screening tool	Increase in IG compared to CG

Discussion

Summary of findings

This narrative review summarized the evidence on the effectiveness of parenting interventions for children aged 0–2 years in LMICs. For this, we drew on a very recent review published by Jeong et al. (2021). In addition, we added trials from our 2021 search updates for the main LMIC review that is described in more detail in Chapter 7 of this report. Our main LMIC review used an exhaustive search strategy that involved searching a range of grey literature sources and languages such as Mandarin, Russian and Thai. We summarize the findings of a total of 45 trials, of which 34 have been identified by Jeong et al. (2021), 8 were added through our additional search, and 3 were identified from a previous LMIC review (Knerr et al., 2013).

Results of this narrative review suggest that parenting interventions in LMICs for very young children improve overall positive parenting practices. For this age group, typical positive parenting behaviours include parental responsiveness, sensitivity, praise and warmth. Jeong et al. (2021) found overall improvements in parenting knowledge, parent–child interactions, child socio-emotional development and positive parenting practices, all of which seem to improve quite consistently after participation in a parenting intervention. Findings are mixed in regard to attachment; therefore, more evidence is needed from primary studies. Although Jeong et al. (2021) could not find a mean effect across all studies on parent depression, many studies from LMICs, including those in Jeong et al. (2021) and the additional studies we identified, tend to favour the intervention in regard to a reduction of mental health problems and symptoms more generally.

While very few studies ($n=3$) measured negative and harmful parenting practices such as violent discipline directly, the overall increase in both positive parenting and positive child outcomes may suggest that the included programmes may also be effective in helping to prevent harsh and abusive parenting in this age group. Based on our review, we cannot conclude whether parenting interventions for parents of children aged 0–2 years prevent maltreatment. Yet a previous systematic review evaluating the effectiveness of parenting interventions in preventing child abuse in high-risk parents during the perinatal period (Levey et al., 2017) found few studies that had measured maltreatment, and none in LMICs, but some evidence to suggest reduced maltreatment following interventions such as home-visiting programmes that improved parental sensitivity. Further research is thus needed on violence prevention in this age group.

Strengths and limitations of this narrative review

This narrative review aimed to summarize the evidence regarding the effectiveness of parenting interventions in improving outcomes for very young children (i.e. the first two years of life). In addition to the comprehensive review by Jeong et al. (2021), we found a further 11 trials that provided evidence to address our research question. However, we did not use meta-analytic

methods to average the effectiveness for the separate outcomes. In addition, we relied mainly on parent-report outcomes of programme effect, which are not blind to condition and may have induced biases such as social desirability.

This review may have missed a few trials, since Jeong et al. (2021) used slightly different inclusion criteria, such as the need for at least one ECD outcome measured in a trial. Therefore, our search only picked up additional trials from October 2018 and before 2010 (Knerr et al., 2013).

Research gaps

There is currently a lack of evidence regarding the effects of early childhood parenting interventions on child maltreatment. Our systematic reviews of trials for older age groups reported in Chapters 7, 8, 9 and 10 found that parenting interventions can reduce abuse and neglect. However, it seems that trials focusing on the youngest age group tend to focus strongly on ECD outcomes, often measuring parenting practices as a secondary outcome, and usually including only positive parenting practices such as stimulation and responsiveness. Given that this group of children is at high risk of abusive practices such as shaken baby syndrome and other forms of violence, in addition to tremendous implications of neglect for these young children, evidence for this age group is urgently needed.

Although we found 45 trials in LMICs, evidence on interventions tested in LMICs is limited relative to those tested in high-income countries. Jeong et al. (2021) found that the majority of trials were conducted in high-income countries – a finding that echoes those of previous reviews (Barlow et al., 2006; Levey et al., 2017; Pontoppidan et al., 2016; Rayce et al., 2017; Herd et al., 2014).

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Overarching findings across all reviews

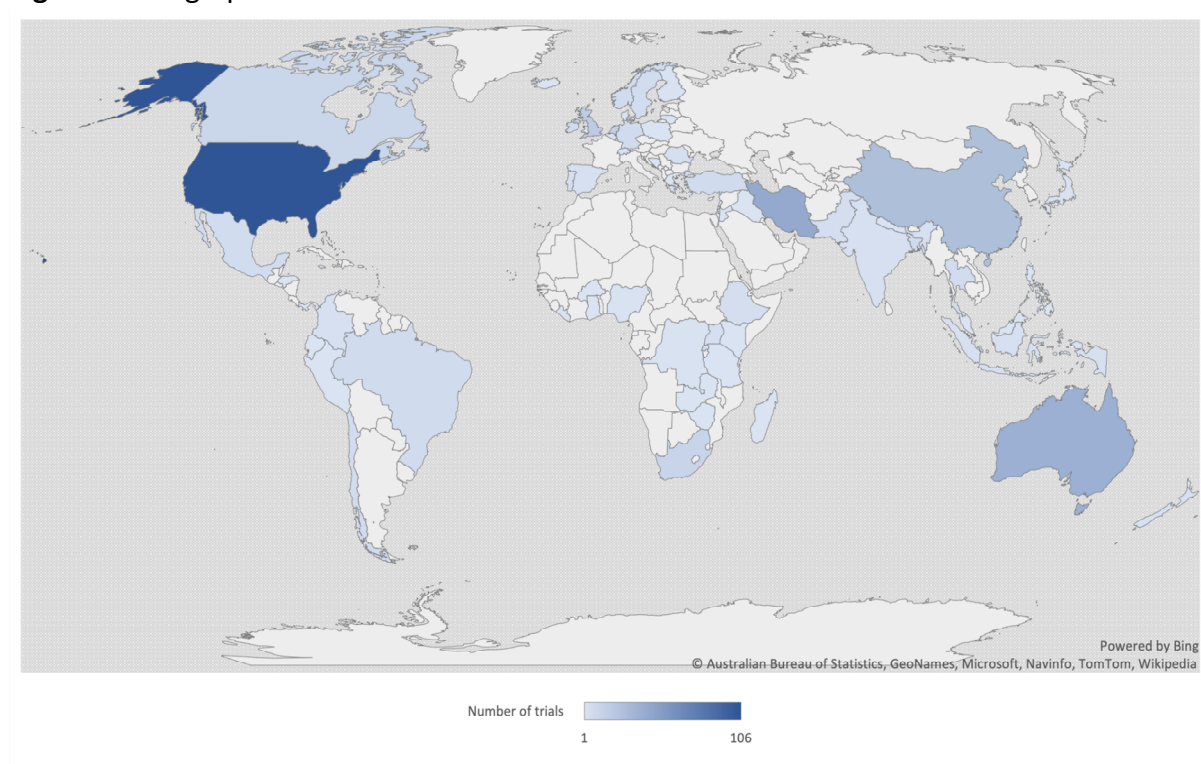
We systematically reviewed the evidence on the effectiveness of parenting interventions to reduce child maltreatment and related outcomes. In total, we conducted two main systematic reviews, two sub-reviews and one narrative review. Each review has its own distinctive focus. Across all reviews, we provided evidence on the effectiveness of parenting interventions for families with children aged 2–17 years in low- and middle-income countries (LMICs) (Chapter 7), for families of children aged 2–10 across the globe (Chapter 8), for families with adolescents in LMICs (Chapter 9), for families in LMIC humanitarian settings (Chapter 10), and for families with very young children (aged 0–2 years) in LMICs (Chapter 11).

The evidence is based on rigorous study designs, with almost all included studies using randomized controlled designs, and very few trials ($n < 10$) using a high-quality quasi-experimental design.

We included 435 trials from 65 countries across all six continents. The largest number of studies, a quarter of the total, were conducted in the United States ($n=107$), followed by Iran ($n=43$), Australia ($n=39$) and China ($n=28$). Figure 1 provides an overview of the geographical location of the included trials across all reviews.

More than half of trials were conducted in high-income countries ($n=248$; 57%), a third in upper-middle-income countries ($n=138$; 32%), and only one in nine studies were conducted in low- or lower-middle-income countries ($n=49$; 11%).

Figure 1. Geographical location across all included studies



These numbers are reflected in the percentage of trials conducted in each WHO Region. The largest group of trials came from the Pan-American Region (PAHO; 34%), followed by the European Region (EURO; 21%), Western Pacific Region (WPRO; 19%), Eastern Mediterranean Region (EMRO; 13%) and the African Region (AFRO; 9%), with the smallest number of trials coming from the South-East Asian Region (SEARO; 5%); see Table 1.

Table 1. Number of trials included across all reviews by country and WHO Region

Country	AFRO	EMRO	EURO	PAHO	SEARO	WPRO	Total
Australia						39	39
Bangladesh					7		7
Belgium			1				1
Bosnia and Herzegovina			1				1
Brazil				7			7
Burkina Faso	1						1
Canada				11			11
Chile				6			6
China						28	28
Colombia				3			3
Denmark			2				2
Democratic Rep. Congo	2						2
Ecuador				1			1
Ethiopia	5						5
Finland			2				2
Germany			7				7
Ghana	1						1
Greece			1				1
Honduras				1			1
Hong Kong						8	8
Iceland			1				1
India					3		3
Indonesia					3		3
Iran		44					44
Ireland			7				7
Israel			1				1
Jamaica				3			3
Japan						2	2
Jordan		2					2
Kenya	1						1
Kurdistan Region of Iraq		1					1
Lebanon		2					2
Liberia	2						2

Lithuania			1				1
Madagascar	1						1
Malaysia						1	1
Mexico				6			6
Nepal					1		1
Netherlands			14				14
New Zealand						3	3
Nigeria	2						2
Norway			7				7
Pakistan		5					5
Palestine		1					1
Panama				1			1
Peru				1			1
Philippines						1	1
Poland			1				1
Portugal			4				4
Romania			4				4
Rwanda	5						5
South Africa	12						12
Spain			3				3
Sweden			6				6
Switzerland			2				2
Tanzania	1						1
Thailand					6		6
Turkey			7				7
Uganda	4						4
United Kingdom			20				20
United States of America				107			107
Zambia	1						1
Zimbabwe	1						1
Total	39	55	91	148	20	82	435

Trials – level of prevention, implementation, population

Across all trials, 52,157 families participated in the studies. A few trials did not provide the number of participants, suggesting that the number is higher.

Most trials included parents that were at risk of maltreating their children, or families with children at risk of developing conduct problems, following a selective prevention approach. The level of prevention can be classified from either a child conduct problem perspective or a maltreatment perspective. When judged from a maltreatment perspective, 26% of trials used a

universal prevention approach including the general parenting population, 67% included parents based on their risk factors for maltreatment (selective prevention), and only 6% of trials included parents based on their levels of harsh, aggressive or maltreating parenting behaviours (indicated/treatment). We would like to note that level of prevention may also depend on the country context. For example, a universal parenting programme implemented in a low-income country may include more parents with higher levels of harsh parenting practices than a selective or indicated intervention in a high-income country. This assumption is based on the higher prevalence of maltreatment in many LMICs (UNICEF, 2014).

When judged from a conduct perspective, 23% included parents regardless of their child's levels of conduct problems (universal), 43% of trials employed a selective level of prevention aimed at children at risk of conduct problems, 8% of trials screened children based on high scores on a behaviour problem inventory (indicated), and 27% included parents of children with a clinical diagnosis of behavioural problems such as ADHD or conduct disorder (treatment).

Overarching main effect findings

In this section, we will summarize the effectiveness findings across all reviews.

Outcomes prioritized by the Guideline Development Group

Child maltreatment

Only a small proportion of trials across all reviews measured maltreatment, including physical abuse, psychological abuse and neglect. Therefore, our effectiveness analyses are based on this subgroup of trials that reported maltreatment. In our main LMIC review that included parents of children aged 2–17, we found a moderate decrease in maltreatment ($n=20$, $k=47$; $d=-0.39$, 95% $CI=-0.61$, -0.17 ; $I^2=78\%$) due to intervention. In our global review that included parents of children aged 2–10, we included more than double the number of trials and found a similar moderate effect ($n=49$, $k=99$, $d=-0.34$, 95% $CI=-0.47$, -0.22 ; $I^2=77\%$). We could not replicate those findings in the smaller sub-reviews. The number of trials included in the adolescent review that measured maltreatment was too small for a reliable precision estimate. In our humanitarian review, we included sufficient trials for trustworthy statistics, yet our non-significant standardized mean effect was based on only seven trials ($n=7$, $k=28$, $d=-0.61$, 95% $CI=-1.35$, 0.13 ; $I^2=95\%$) with huge heterogeneity between the trials.

Only one trial examining the effectiveness of parenting intervention in LMICs in the very early years (0–2 years) measured maltreatment. There were no reports of maltreatment in either group; hence, the effectiveness of parenting interventions with very young children in LMICs for reducing maltreatment is unclear.

Physical abuse

Evidence from the LMIC review suggests that parenting interventions can reduce physical abuse ($n=13$, $k=21$; $d=-0.59$, 95% $CI=-0.92$, -0.26 ; $I^2=89\%$) with parents in LMICs. Our global systematic

review is in line with this finding, with a smaller but significant reduction in physical abuse for parents participating in a parenting intervention ($n=26$, $k=38$; $d=-0.27$, 95% CI=-0.43,-0.12; $I^2=70\%$). The analyses in our sub-reviews could not provide a reliable estimate, since few studies measured physical abuse. No study in our ECD review examined the effectiveness of the intervention to reduce physical abuse.

Psychological abuse

Findings from the LMIC and global systematic reviews suggest that parenting interventions can reduce psychological abuse (LMIC: $n=10$, $k=20$; $d=-0.26$, 95% CI=-0.48,-0.04; $I^2=85\%$; global: $n=12$, $k=15$; $d=-0.40$, 95% CI=-0.78,-0.09; $I^2=77\%$). As with physical abuse, our sub-reviews did not include enough trials that measured psychological abuse for a reliable estimate; no study in the ECD review measured psychological abuse.

Neglect

Only 9 of the 435 included trials measured neglect. Therefore, across all reviews, we could not provide a meaningful estimate of intervention effects on neglect. The analyses failed due to a small number of trials yielding a non-significant effect for neglect in all reviews except the global review ($n=6$, $k=13$; $d=-0.08$, 95% CI=-0.38, 0.22; $I^2=67\%$). We note that this analysis is based on only 2% of the studies included in this review.

Harsh parenting

We found that parenting interventions can reduce harsh parenting behaviours, including abusive and other aggressive behaviours towards children ($n=44$, $k=95$; $d=-0.37$, 95% CI=-0.54, -0.19; $I^2=89\%$), in LMICs. Our global review used a different conceptualization of harsh parenting and, therefore, did not examine harsh parenting separately from maltreatment (see Chapter 8). Our analysis of harsh parenting in trials with parents of adolescents in LMICs did not yield a significant effect ($n=7$, $k=14$; $d=-0.18$, 95% CI=-0.72, 0.37; $I^2=87\%$); however, we caution that the number of trials included in this analysis is small. We found that parenting interventions in humanitarian settings in LMICs moderately reduce harsh parenting ($n=11$, $k=21$; $d=-0.50$, -0.95, -0.05; $I^2=94\%$). Three trials in our ECD review measured parenting behaviours that could be categorized under harsh parenting (violent disciplining), with two of the three trials showing a significant decrease post-intervention for participating parents.

Negative parenting

Negative parenting includes behaviours such as ineffective disciplining, harshness, inconsistency, overprotection and abusive parenting behaviours. We found across all systematic reviews a moderate reduction in negative parenting behaviours. In the meta-analyses on negative parenting, we included data from 58 trials in our LMIC review ($k=207$ effect sizes, $d=-0.47$, 95% CI -0.61, -0.32; $I^2=90\%$), 159 trials in our global review ($k=544$, $d=-0.46$, 95% CI -0.54, -0.38; $I^2=80\%$), 11 trials in our adolescent sub-review in LMICs ($k=38$ $d=-0.41$, 95% CI -0.77, -0.05; $I^2=92\%$) and 12 trials in our humanitarian sub-review ($k=42$, $d=-0.48$, 95% CI -0.84, -0.12;

$I^2=94\%$). In the ECD review, four trials measured negative parenting by examining intervention effects on maltreatment ($n=1$) and harsh parenting ($n=3$). Since the findings were mixed – null effect for maltreatment and for harsh parenting in one trial, and a decrease in violent disciplining in two trials – we cannot yet conclude that parenting interventions for very young children decrease negative parenting behaviours.

Positive parenting

Across all systematic reviews, we consistently found a moderate increase in positive parenting behaviours such as effective behaviour management, warmth, affection and nurturing behaviours. In the effectiveness analyses on positive parenting, we included 64 trials in the LMIC review ($k=219$ effect sizes, $d=0.46$, 95% CI=0.29, 0.64; $I^2=88\%$), 131 trials in the global review ($k=460$, $d=0.49$, 95% CI=0.38, 0.60 $I^2=85\%$), 13 trials in the adolescent sub-review ($k=68$, $d=0.50$, 95% CI=0.10, 0.90; $I^2=90\%$) and 12 trials in the positive parenting main effect meta-analyses in the humanitarian review ($k=40$, $d=0.42$, 95% CI=0.20, 0.64; $I^2=85\%$). A total of 15 trials measured positive parenting behaviours in the ECD review. Positive parenting behaviours were among the most measured outcomes in the trials for this age group: 13 of the 15 trials found an increase in positive parenting behaviours for intervention parents, one trial found improvement in some of the positive parenting outcomes, and one trial found no difference between the control and intervention groups at post-test. For this age group, typical positive parenting behaviours include parental responsiveness, stimulation, play interactions and sensitivity.

Child behaviour problems

We found a reduction in child behaviour problems overall in three of the four systematic reviews, with strongest effects in the main LMIC review ($n=70$, $k=293$; $d=-0.62$, 95% CI=-0.81, -0.43; $I^2=90\%$) and the adolescent sub-review ($n=12$, $k=59$; $d=-0.72$, 95% CI=-1.37, -0.06; $I^2=91\%$). Behaviours in this outcome category include externalizing and internalizing behaviours. We included a total of 1,289 effect sizes in the global review, constituting the largest meta-analysis in this report ($n=220$, $k=1,289$; $d=-0.38$, 95% CI=-0.44, -0.31; $I^2=81\%$). We would like to note that the effect may be largely driven by effect sizes of externalizing behaviours, with the global review including five times more effect sizes for externalizing than internalizing behaviours, and nearly twice as many effect sizes assessing externalizing behaviours than internalizing in the LMIC main review.

The main effect analysis on child behaviour problems in the humanitarian review yielded a small and imprecise effect ($n=10$, $k=32$; $d=-0.39$, 95% CI=-0.83, 0.05; $I^2=88\%$). This lack of effectiveness in humanitarian settings may potentially be explained by the types of interventions delivered in those settings. Descriptive findings in the humanitarian review suggest that many interventions have a focus on trauma; parenting, including effective management of disruptive child behaviours, tends to be a secondary focus. Our review of ECD interventions in LMICs found mixed results. Three trials measured child behaviour problems, none of which found a significant reduction in child behaviour problems.

Child externalizing behaviours

Externalizing behaviours in children include symptoms of oppositional, defiant, adhd, or aggressive behaviours. Our two main reviews found that interventions reduced child externalising behaviours, with larger effects in LMICs (LMIC: $n=54$, $k=158$; $d=-0.59$, 95% CI=-0.80, -0.37 ; $I^2=89\%$; global: $n=211$, $k=933$; $d=-0.38$, 95% CI=-0.44, -0.31 ; $I^2=81\%$). These findings were not replicated in our sub reviews (adolescent: $n=9$, $k=34$; $d=-0.80$, 95% CI=-1.76, 0.17; $I^2=92\%$; humanitarian: $n=8$, $k=13$; $d=-0.14$, 95% CI=-0.62, 0.35 ; $I^2=85\%$). We would like to caution here that the analyses in the sub reviews included a very limited number of trials.

Child internalizing behaviours

Internalizing behaviours in children include anxious, withdrawing, psychosomatic or depressed behaviours. As with externalising behaviours, we found a reduction in internalizing behaviours in our two largest main reviews with a stronger effect in the LMIC review ($n=35$, $k=90$; $d=-0.46$, 95% CI=-0.65, -0.27; $I^2=84\%$) than in the global review ($n=72$, $k=178$; $d=-0.18$, 95% CI=-0.27, -0.09; $I^2=74\%$). We did not find a significant effect on internalising behaviours in the sub reviews (adolescent: $n=5$, $k=18$; $d=-0.25$, 95% CI=-0.73, 0.23; $I^2=70\%$; humanitarian: $n=9$, $k=16$; $d=-0.39$, 95% CI=-0.83, 0.06 ; $I^2=86\%$). We would like to caution here that the analyses in the sub reviews included a very limited number of trials.

Parent mental health

We found promising evidence that parenting interventions can reduce parental mental health problems such anxiety, depression, or PTSD. Findings from our LMIC review show a moderate-sized improvement in the mental health of parents that participated in a parenting intervention ($n=29$, $k=55$; $d=-0.57$, 95% CI=-0.88, -0.27; $I^2=90\%$). These effects, although smaller, were replicated in the global review with 285 effect sizes included in the analysis ($n=89$, $d=-0.24$, 95% CI=-0.30, -0.18 ; $I^2=60\%$).

When testing the effectiveness of parenting interventions in humanitarian settings, we did not find a significant improvement in parent mental health despite the strong need for mental health support of those parents ($n=6$, $k=9$; $d=-0.41$, 95% CI=-0.96, 0.14; $I^2=88\%$).

We would like to caution here that the analysis included a very limited number of trials ($n=6$). Our analysis in the adolescent sub review did not yield a reliable estimate due to too few trials that could be included in this analysis.

Seventeen trials in the ECD review measured the effects of parenting interventions with parents of young children on the mental health of parents. The majority of outcomes included measures of depression due to the risk of postnatal depression for this parent population. Findings were mixed with many studies finding an improvement in the mental health of participating parents, and others that did not.

Non-prioritized outcomes

Intimate partner violence

Just 10 of 435 included trials across all reviews measured intimate partner violence despite the high rate of co-occurrence of child maltreatment and IPV. Overall, we found a trend towards a decrease in intimate partner violence after participation in a parenting intervention, with a marginal effect of IPV in the main effect analysis of the LMIC review ($n=8$, $k=16$; $d=-0.24$, 95% CI=-0.50, 0.00; $I^2=70\%$). In the global review, one study included IPV by measuring violent problem solving between parents ($d=-0.60$). Two studies included in the humanitarian review measured IPV victimisation and perpetration with an average effect size of $d=-0.04$. No trials included in the adolescent review measured violence between parents.

Parenting self-efficacy

Findings related to the effectiveness of parenting interventions to improve parenting self-efficacy are very promising. In our main LMIC review, we found an increase of $d=0.41$ ($n=16$, $k=21$; 95% CI=0.01, 0.83; $I^2=90\%$), and a very similar effect in our global review ($n=81$, $k=219$; $d=0.40$, 95% CI=0.26, 0.53, ; $I^2=89\%$). One trial in the adolescent review measured parenting self-efficacy ($d=0.60$), and two trials in the humanitarian review ($d=0.23$; $d=2.19$).

Parental attitudes towards corporal punishment

Parental attitudes towards corporal punishment were assessed in nine trials across all reviews. The findings overall are quite promising with evidence mostly favouring the intervention group. Six trials in the LMIC review found effect sizes ranging from $d=-0.85$ to $d=0.6$, with most trials finding reductions in support for corporal punishment. In the global review, two trials measured attitudes towards corporal punishment with effect sizes of $d=-0.52$ and $d=-0.25$. One trial in the humanitarian review measured and showed decreased attitudes supporting corporal punishment ($d=-0.93$, $d=-0.84$), and one trial in the adolescent review measured and showed reduced support for corporal punishment ($d=-0.46$). We are not aware of any ECD trial measuring parenting attitudes towards corporal punishment.

Positive parenting knowledge, attitudes and beliefs

Positive parenting knowledge, attitudes, and beliefs were included in the overall positive parenting outcome category. Many parenting inventories did not separate out attitudes from self-reported or observed behaviours.

Long-term effects

Findings from the global review suggest a fade-out effect for some of the main outcomes including child maltreatment. At post-test, 38 trials reported maltreatment, where results found a small statistically significant effect ($d=-0.44$; 95% CI=-0.59, -0.28). This effect became non-significant at short-term follow-up (4 to 26 weeks post-intervention) ($n=17$, $k=28$; $d=-0.14$, 95% CI=-0.32, 0.03; $I^2=75\%$), and at long-term follow-up (beyond 26 weeks post-intervention) ($n=8$,

$k=17$; $d=-0.22$, 95% CI=-0.47, 0.04; $I^2=74\%$). However, for a range of outcomes such as negative parenting behaviours, an outcome group that includes child maltreating behaviours, effects sustained over time. At short-term follow-up, we found effects for overall negative parenting ($d=-0.27$, 95% CI=-0.36, -0.17), positive parenting ($d=0.27$, 95% CI=0.16, 0.37), child behaviour problems ($d=-0.25$, 95% CI=-0.34, -0.16), and parental mental health ($d=-0.16$, 95% CI=-0.24, -0.09). At longer-term follow-up (beyond 26 weeks post intervention), we found sustained effects for negative parenting ($d=-0.20$, 95% CI=-0.34, -0.06), positive parenting ($d=0.26$, 95% CI=0.10, 0.42), and parental mental health ($d=-0.11$, 95% CI= -0.19, -0.02).

We conducted a search for published long-term effects on harsh parenting and maltreatment in LMICs. Few studies assessed longer-term evidence, with most showing sustained reductions in maltreatment or harsh parenting over follow up periods ranging from 3-14 months.

Overarching moderation results

High and substantial heterogeneity across all main effect analyses suggest differential effectiveness based on differences present at baseline, or due to variability in the interventions. These could include population characteristics, intervention characteristics, or variation in regard to the trial setting. In an attempt to reduce heterogeneity related to the interventions, we included in our global review only interventions that were similar in regard to the theoretical foundations and, consequently, intervention content. Thus, we observed the lowest yet still substantial levels of heterogeneity in the main effect analyses in the global review.

Our moderator analyses tested potential sources of this heterogeneity, including whether intervention effects are greater or smaller in trials that target families in greatest need due to poverty, low education, the risk for maltreatment, or child behavioural problems. However, we interpret these analyses with caution, given that the sample of trials was often small for some outcomes and moderators, that interactions between outcomes and contextual effects are likely to be complex, and that hypothesized moderators only operate at the trial level and may be confounded with other unmeasured trial-level factors. In addition, we observed often a small number of trials included in subgroups, therefore, representing only a small portion of the overall effectiveness in the moderation analyses.

Summarizing the moderator analyses of the LMICs review, we found very little evidence of differential effects. Thus, the effect of parenting interventions on child maltreatment and harsh/ negative parenting outcomes did not vary by poverty level of the country, gender of the child, education level of the parent, family-level poverty, or child or parent age. For most trials, family ethnicity was either not reported, or was the same as the majority for the country. Thus, there was insufficient data to test if there were differential effects by minority status.

For child behaviour problem outcomes in LMICs, there were similarly no differential effects by parent education level or poverty, or child or parent age. However, intervention effects on child behaviour problems were somewhat lower in trials in the lowest-income

countries, and somewhat higher in trials where there was a higher percent of girls (i.e., girls who were the target child for the outcome assessments). There were no trials focusing purely on fathers, hence trials were classified by whether the participants were all mothers, or a mix of mothers and fathers; data on the percent of female caregiver participants were also analysed. No differential effects were found by gender composition of the group. A few trials reported interventions that included grandparents, almost all female.

Moderator findings from the global review partly echoed those in the LMICs review, in that there was no evidence of differential effects on any outcomes by family socioeconomic status. There was evidence of some differential effects by ethnicity, with trials that included mostly ethnic minority families showing smaller improvements in negative parenting and child behaviour problem outcomes, compared to trials including mostly majority families. Trials that focused on children with higher levels of behaviour problems showed stronger effects on improving behaviour problems, and positive parenting, post-intervention.

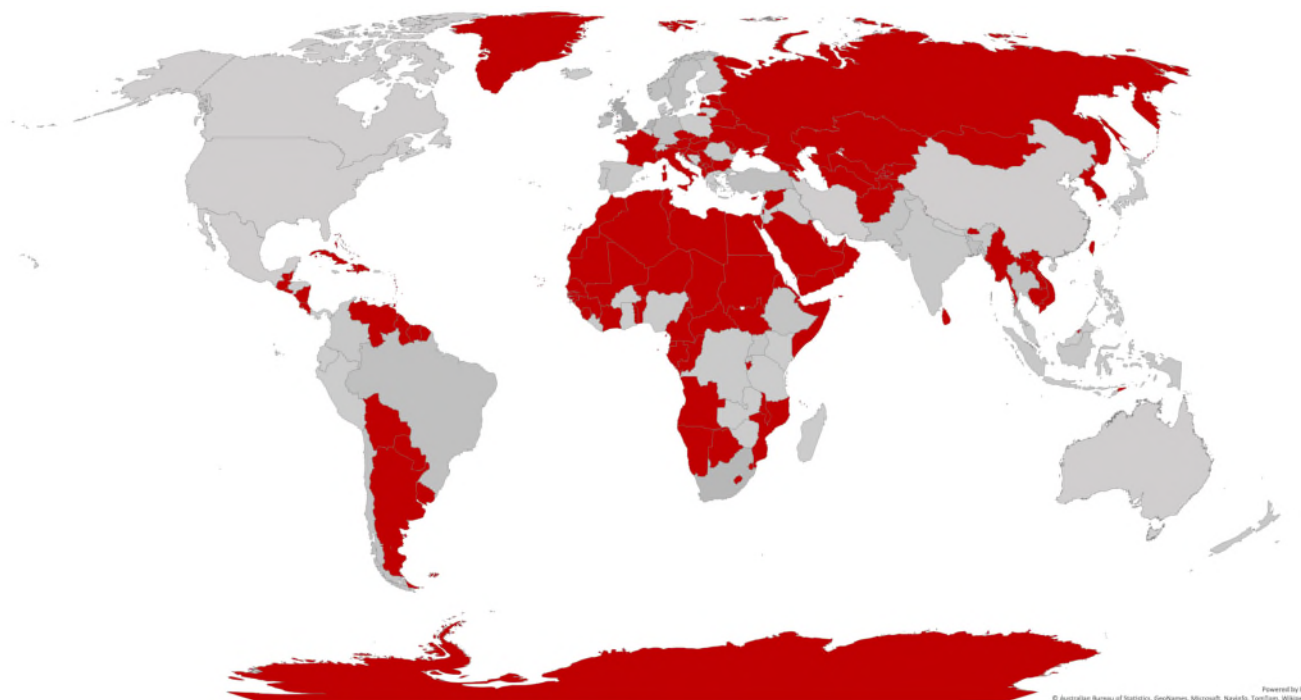
Higher programme attendance rates by parents were associated with greater effects on positive parenting, and externalising behaviours problems.

Overarching gaps in research

We found trials from 65 countries representing a global distribution of randomized trials assessing the effectiveness of parenting interventions. Yet 131 countries remain unstudied, with the largest number of countries lacking trial evidence found in the region with the highest rates of violence against children, the African Region. In our systematic reviews, we included trials from Burkina Faso, the Democratic Republic of the Congo, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.

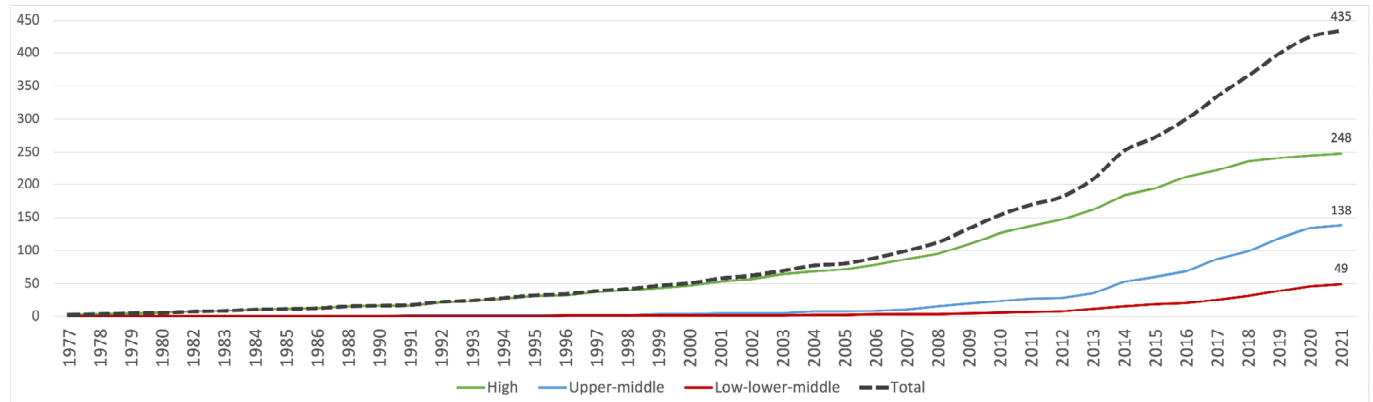
We also found gaps in trial evidence from LMICs in several WHO regions, including a lack of trials from South-East Asian countries such as Myanmar, North Korea and Sri Lanka (and only three, all for children aged 0–2 years, in India), the Pan American Region in countries such as Bolivia, Paraguay or Venezuela, the European Region such as Georgia, Kazakhstan or Turkmenistan, the Eastern Mediterranean Region such as Afghanistan or Syria or any countries in Mediterranean Africa, and the Western-Pacific Region such as Cambodia, Mongolia or Papua New Guinea. Figure 1 shows the countries in red that were not included in our systematic reviews.

Figure 1. Evidence gaps based on the geographical location of trials



Despite the need for more trials from LMICs, we observe a promising trend with more evidence coming from LMICs within the past decade (Figure 2). Until 2010, there were only five trials from low- and lower-middle-income countries compared to 126 in high-income countries. Eleven years later, we found 49 randomized controlled trials from low- and lower-middle-income and 138 from upper-middle-income countries.

Figure 2. Number of trials by year of publication and income grouping across all included randomized controlled trials



Populations – who is missing?

Trials remain limited for parents of adolescents (30 trials in LMICs), and for populations in humanitarian settings (19 trials in LMICs), despite our sub-reviews being the largest to date focusing on these populations. Moreover, a review focusing on families living in extreme poverty is needed. A few trials from our reviews could be easily identified as trials focusing on parents living in extreme poverty. These include parents from Rwanda, Ethiopia and Burkina Faso, for example. Findings from those trials suggest that parenting interventions can improve various parent and child outcomes in this population.

Our moderator analyses suggest there may be some reduced effects for some outcomes for ethnic minority families in high-income countries. This finding is at odds with a recent large individual participant data meta-analysis and warrants further investigation.

Intervention – what is missing?

Parenting Interventions may operate at universal, selective or indicated levels of prevention. We found that most trials are offered to parents based on their elevated risk for maltreating their children, or raised level of child behaviour problems at baseline. Fewer trials focus on families that are formally identified as using harsh or abusive parenting strategies. We found that interventions that take a treatment approach and include families based on the children's level of behavioural problems have stronger effects. However, due to a lack of treatment trials that target maltreating parents, evidence is inconclusive whether the level of prevention from a maltreatment perspective influences the effectiveness of interventions to reduce maltreatment.

Outcome measures – what is missing?

Measuring child maltreatment

The main focus of this report is on the evidence of the effectiveness of parenting interventions for reducing child maltreatment. Historically, parenting interventions were implemented to increase effective behaviour management, reduce parent–child conflict and child problem

behaviours. This is reflected in the reported outcomes that often lack measurements of maltreatment. Nineteen per cent of the studies included in the LMIC review and 18% of the studies in the global review included measures of maltreatment. Consequently, our analyses estimating the effectiveness of parenting interventions on reducing maltreatment are based on a small subset of studies. However, setting a clear point at which potentially harmful parenting behaviours can be categorized under maltreatment is challenging. Thus, our LMIC reviews examined the effects of parenting interventions on any harsh parenting behaviour, including maltreatment. We found that more trials reported on outcomes that could be categorized under harsh parenting compared to trials that included maltreatment.

Trials with very young children tend to focus more on ECD outcomes, and although they are incredibly important, we would encourage the field to include harsh and negative parenting behaviours, including maltreatment.

Measuring subtypes of maltreatment

Most of our main effect analyses did not produce a reliable estimate due to too few studies reporting on the subtypes of maltreatment. In the LMIC review, 12% of studies measured physical abuse, 10% measured psychological abuse, and only three studies (3%) investigated the effects of a parenting intervention on neglect. In the global review, 10% of studies included a measure on physical abuse, 5% on psychological abuse, and only 2% of studies measured the effectiveness of parenting interventions on neglect.

Measuring intimate partner violence

There was a paucity of studies measuring intimate partner violence. Given the major intersections between violence against children, violence against women and girls, and intimate partner violence, this is an area that merits further research. In the LMIC review, 8% of studies included measures of intimate partner violence, and in the global review, only one out of 278 studies measured violent behaviours between parents.

Measuring attitudes to corporal punishment

Understanding societal norms as reflected in attitudes to corporal punishment is a crucial step towards reducing maltreatment, as outlined in the INSPIRE package for ending violence against children (WHO, 2016). In the LMIC review, 6% of trials measured change in attitudes to corporal punishment after participation in a parenting intervention, as did 1% of trials in the global review.

Measuring violence between partners of adolescents

There is a high correlation in families between violence against children and violence against partners. It is vital that more trials measure the effects of parenting interventions on reducing intimate partner violence, including partner violence experienced by adolescents. To our

knowledge, no trial examined the effects of a parenting intervention with parents of adolescents on experiences of intimate partner violence within the group of adolescent children.

Using observational measures

Most researchers use self-report measures to examine the effects of parenting interventions on parent or child outcomes. In fact, 80% of effect sizes in the global review are based on self-report, with only 12% of studies using systematic direct observational measures – for example, observations of parenting behaviour or parent–child interaction in the home. In the LMIC review, only 5% of measures were observational, with 95% of parenting behaviours measured through self-report. Observation of parent and child behaviours, rated by independent observers who are blinded to whether families are allocated to intervention or control groups, potentially provides a more objective assessment of behaviour change than parent self-report, and helps overcome challenges such as response bias and social desirability.

Assessing long-term effects

Assessing long-term effects comes with challenges. A key challenge is that where trialists decide to use wait-list control designs, due to community wishes or logistical or ethical considerations, then this precludes assessment of longer-term effects of the intervention, as the control group will have been offered the intervention. Long-term follow-ups, moreover, come with logistical and financial challenges. Yet it is essential to retain the original randomized control groups to establish whether parenting interventions can produce sustained reductions in child maltreatment over time.

Only a small proportion of trials in the global review provided long-term data with retained control groups; thus, long-term effects were only based on a small selective subset of all parenting trials.

Including data from caregivers other than mothers

Outcome measures of positive and negative parenting are often based on behaviours of mothers. However, children in LMICs in particular are often parented by a range of caregivers, including fathers, grandparents, older siblings and other family members. Trials should measure the effects of parenting interventions on those caregivers by including them in the interventions and outcome measures.

Improving the reporting of baseline characteristics

Moderation and subgroup analyses take into account other factors present at baseline that are associated with the participants, contexts or interventions that may influence the effectiveness of a given intervention. Parenting interventions are planned and implemented within a social context and across a variety of individuals. Identifying those factors is not only helpful to understand how we can improve intervention effectiveness but is also crucial to understand whether any families benefit less or more from interventions.

We observed that across all reviews the included trials varied greatly in the amount of information provided about the families, interventions, implementation and context at baseline. Information such as the SES of families could only be assumed based on proxy measures of SES such as parental education, income etc. This would improve if reporting guidelines (e.g. CONSORT-SPI), and incentives for their use, were better promoted to trialists, journal editors and reviewers in this field.

Concluding statement

This evidence synthesis aimed to provide a comprehensive assessment of the effects of parenting interventions on reducing child maltreatment to inform the development of WHO Guideline on parenting to prevent child maltreatment and promote positive development in children aged 0-17 years.

We conducted four systematic and one narrative review including a total of 435 randomized controlled trials across 65 countries. The findings suggest that parenting interventions reduce negative parenting behaviours, including maltreatment, and improve positive and nurturing parenting behaviours across all contexts and types of interventions examined. We found little evidence of differential effects on different subgroups of families. For some outcomes, effectiveness may be influenced by the level of prevention, the income status of a country, the percent of girls included in an intervention or whether (in HICs) included families are from an ethnic minority. We found that interventions are likely equally effective for families regardless of their SES, parent education level, or the age of parent or child.

While most trials were conducted in high-income countries, the evidence base from LMICs was substantial with 131 trials from all regions of the world in the LMIC review for children aged 2-17. Trials remain limited for parents of adolescents, in humanitarian settings, and extremely poor families. Moreover, we identified the following key research gaps: i. addressing parents formally identified as using harsh or abusive parenting strategies, ii. measuring child maltreatment and its subtypes, and iii. long-term effects of parenting interventions, iv. improved trial registration and reporting practices are needed to enhance confidence in the overall evidence base.

As per the subsequent steps in WHO guideline development the Guideline Development Group will convene to receive, review, and comment on the evidence presented.

Appendices

Appendix – LMIC review

Sources searched and search strategy

Sources searched

English-language databases

1. 3iE Database of Impact Evaluations
2. Applied Social Sciences Index and Abstracts
3. Cochrane Library (systematic reviews and CENTRAL)
4. CINAHL
5. EconLIT
6. EMBASE
7. EPPI-Centre Reviews in Health Systems and International Development
8. ERIC
9. Global Health
10. PsycINFO
11. SocINDEX
12. Social Science Premium Collection

Non-English-language databases

1. African Journals Online (AJOL)
2. Bioline International
3. Biomedical Journals from India
4. China Academic Journals Full-text Database
5. India Citation Index
6. KCI-Korean Journal Database
7. Panteleimon
8. Russian Science Citation Index
9. SciELO Citation Index
10. (10-14), Thai Library Integrated System (TLIS), including:
 - a. Mahidol University
 - b. Prince of Songkla University
 - c. Chulalongkorn University Intellectual Repository
 - d. Srinakarinwirot University
 - e. Thammasat University

Grey Literature

1. Inter-American Development Bank (IADB)
2. International Development Research Centre (IDRC)
3. International Society for the Prevention of Child Abuse and Neglect (ISPCAN)

4. Open-Grey
5. ProQuest Dissertation and Theses Database
6. Save the Children Resource Centre
7. UNICEF Office of Research — Innocenti
8. Violence Prevention Database of Evidence
9. WHO Global Health Library
10. The World Bank Group:
 - a. Operations and Evaluation Department
 - b. The Impact Evaluation Thematic Group (PovertyNet)
 - c. World Bank Institute (WBI) Evaluation Group

Trial Registries

- clinicaltrials.gov
- Australian New Zealand Clinical Trials Registry (ANZCTR)
- WHO International Clinical Trials Registry Platform (ICTRP)
- Iranian Registry of Controlled Trials (IRCT)

Search terms

Cochrane CENTRAL (reviews and trials)

MeSH descriptor: [Family Relations] explode all trees

MeSH descriptor: [Child Rearing] explode all trees

MeSH descriptor: [Child Abuse] explode all trees

Free text search:

'parenting in Title, Abstract, Keywords and (Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brasil or Brazil or Bulgaria or Burkina Faso or Burkina Fasso or Upper Volta or Burundi or Urundi or Cambodia or Khmer Republic or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or Cape Verde or Central African Republic or Chad or Chile or China or Colombia or Comoros or Comoro Islands or Comores or Mayotte or Congo or Zaire or Costa Rica or Cote d'Ivoire or Ivory Coast or Croatia or Cuba or Cyprus or Czechoslovakia or Czech Republic or Slovakia or Slovak Republic or Djibouti or French Somaliland or Dominica or Dominican Republic or East Timor or East Timur or Timor Leste or Ecuador or Egypt or United Arab Republic or El Salvador or Eritrea or Estonia or Ethiopia or Fiji or Gabon or Gabonese Republic or Gambia or Gaza or Georgia Republic or Georgian Republic or Ghana or Gold Coast or Greece or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or Isle of Man or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or Kyrgyz Republic or Kirghiz or Kirgizstan or Lao PDR or Laos or Latvia or Lebanon or Lesotho or Basutoland or Liberia

or Libya or Lithuania or Macedonia or Madagascar or Malagasy Republic or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or Malta or Marshall Islands or Mauritania or Mauritius or Agalega Islands or Mexico or Micronesia or Middle East or Moldova or Moldavia or Moldovan or Mongolia or Montenegro or Morocco or Ifni or Mozambique or Myanmar or Myanmar or Burma or Namibia or Nepal or Netherlands Antilles or New Caledonia or Nicaragua or Niger or Nigeria or Northern Mariana Islands or Oman or Muscat or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillippines or Phillippines or Poland or Portugal or Puerto Rico or Romania or Rumania or Roumania or Russia or Russian or Rwanda or Ruanda or Saint Kitts or St Kitts or Nevis or Saint Lucia or St Lucia or Saint Vincent or St Vincent or Grenadines or Samoa or Samoan Islands or Navigator Island or Navigator Islands or Sao Tome or Saudi Arabia or Senegal or Serbia or Montenegro or Seychelles or Sierra Leone or Slovenia or Sri Lanka or Ceylon or Solomon Islands or Somalia or South Africa or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadjikistan or Tadjikistan or Tadjhik or Tanzania or Thailand or Togo or Togolese Republic or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or USSR or Soviet Union or Union of Soviet Socialist Republics or Uzbekistan or Uzbek or Vanuatu or New Hebrides or Venezuela or Vietnam or Viet Nam or West Bank or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia) or (developing or less* developed or under developed or underdeveloped or middle income or low* income) or (Africa or Asia or Caribbean or West Indies or South America or Latin America or Central America) , Publication Year from 1995 to 2018 in Trials'

EBSCO search of: EconLIT, CINAHL, PsycINFO, ERIC and SocINDEX

AB (child parent relation or child rearing or family functioning or family relation or family conflict or family life or parent-child or parenting or maternal behaviour or paternal behaviour or parent-child communication or parent education or parent training or child abuse or child neglect or child maltreatment)

AND

TX (Afghanistan OR Benin OR "Burkina Faso" OR Burundi OR "Central African Republic" OR Chad OR Comoros OR "Congo" OR Eritrea OR Ethiopia OR Gambia OR Guinea* OR Haiti OR Korea OR Liberia OR Madagascar OR Malawi OR Mali OR Mozambique OR Nepal OR Niger OR Rwanda OR Senegal OR Sierra Leone OR Somalia OR South Sudan OR Tanzania OR Togo OR Uganda OR Zimbabwe OR Angola OR Armenia OR Bangladesh OR Bhutan OR Bolivia OR "Cabo Verde" OR Cambodia OR "Cote d'Ivoire" OR Djibouti OR Egypt OR Salvador OR Georgia OR Ghana OR Guatemala OR Honduras OR India OR Indonesia OR Jordan OR Kenya OR Kiribati OR Kosovo OR Kyrgyz OR Lao OR Lesotho OR Mauritania OR Micronesia OR Moldova OR Mongolia OR Morocco OR Myanmar OR Nicaragua OR Nigeria OR Pakistan OR Papua OR Philippines OR "sago Tome" OR "Solomon Islands" OR "Sri Lanka" OR Sudan OR Swaziland OR Syria OR Tajikistan OR Timor-Leste OR Tunisia OR Ukraine OR uzbekistan OR Vanuatu OR Vietnam OR Zambia OR Albania OR Algeria OR Samoa OR Antigua OR Barbuda OR Argentina OR Azerbaijan OR Barbados OR Bahrain OR Belarus OR Belize OR Bosnia OR Botswana OR Brazil OR Bulgaria OR Chile OR China OR Colombia

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Limiters - Publication Year: 1995-2018; Population Group: Human

EMBASE (Ovid)

1. exp child parent relation/ or exp child rearing/ or exp family functioning/ or family relation/ or family conflict/ or family life/ or parent-child.mp. or parenting.mp. or maternal behaviour.mp. or paternal behaviour.mp. or parent-child communication.mp. or parent education/ or parent training/ or exp child abuse/ or child neglect/ or child maltreatment.mp. or "parental knowledge".mp.
2. Developing Country.sh.
3. (Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brasil or Brazil or Bulgaria or Burkina Faso or Burkina Fasso or Upper Volta or Burundi or Urundi or Cambodia or Khmer Republic or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or Cape Verde or Central African Republic or Chad or Chile or China or Colombia or Comoros or Comoro Islands or Comores or Mayotte or Congo or Zaire or Costa Rica or Cote d'Ivoire or Ivory Coast or Croatia or Cuba or Cyprus or Czechoslovakia or Czech Republic or Slovakia or Slovak Republic or Djibouti or French Somaliland or Dominica or Dominican Republic or East Timor or East Timur or Timor Leste or Ecuador or Egypt or United Arab Republic or El Salvador or Eritrea or Estonia or Ethiopia or Fiji or Gabon or Gabonese Republic or Gambia or Gaza or Georgia Republic or Georgian Republic or Ghana or Gold Coast or Greece or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or Isle of Man or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or Kyrgyz Republic or Kirghiz or Kirgizstan or Lao PDR or Laos or Latvia or Lebanon or Lesotho or Basutoland or Liberia or Libya or Lithuania or Macedonia or Madagascar or Malagasy Republic or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or Malta or Marshall Islands or Mauritania or Mauritius or Agalega Islands or Mexico or Micronesia or Middle East or Moldova or Moldovia or Moldovian or

Mongolia or Montenegro or Morocco or Ifni or Mozambique or Myanmar or Myanmar or Burma or Namibia or Nepal or Netherlands Antilles or New Caledonia or Nicaragua or Niger or Nigeria or Northern Mariana Islands or Oman or Muscat or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or Poland or Portugal or Puerto Rico or Romania or Rumania or Roumania or Russia or Russian or Rwanda or Ruanda or Saint Kitts or St Kitts or Nevis or Saint Lucia or St Lucia or Saint Vincent or St Vincent or Grenadines or Samoa or Samoan Islands or Navigator Island or Navigator Islands or Sao Tome or Saudi Arabia or Senegal or Serbia or Montenegro or Seychelles or Sierra Leone or Slovenia or Sri Lanka or Ceylon or Solomon Islands or Somalia or South Africa or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadjhik or Tanzania or Thailand or Togo or Togolese Republic or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or USSR or Soviet Union or Union of Soviet Socialist Republics or Uzbekistan or Uzbek or Vanuatu or New Hebrides or Venezuela or Vietnam or Viet Nam or West Bank or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia).hw,ti,ab,cp.

4. ((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world)).ti,ab.

5. ((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies)).ti,ab.

6. (low* adj (gdp or gnp or gross domestic or gross national)).ti,ab.

7. (low adj3 middle adj3 countr*).ti,ab.

8. (Imic or Imics or third world or lami countr*).ti,ab.

9. transitional countr*.ti,ab.

10. 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9

11. 1 and 10

12. limit 11 to (human and yr="1995 -Current")

Social Science Premium Collection

all((Afghanistan OR Benin OR "Burkina Faso" OR Burundi OR "Central African Republic" OR Chad OR Comoros OR "Congo" OR Eritrea OR Ethiopia OR Gambia OR Guinea* OR Haiti OR Korea OR Liberia OR Madagascar OR Malawi OR Mali OR Mozambique OR Nepal OR Niger OR Rwanda OR Senegal OR Sierra Leone OR Somalia OR South Sudan OR Tanzania OR Togo OR Uganda OR Zimbabwe OR Angola OR Armenia OR Bangladesh OR Bhutan OR Bolivia OR "Cabo Verde" OR Cambodia OR "Cote d'Ivoire" OR Djibouti OR Egypt OR Salvador OR Georgia OR Ghana OR Guatemala OR Honduras OR India OR Indonesia OR Jordan OR Kenya OR Kiribati OR Kosovo OR Kyrgyz OR Lao OR Lesotho OR Mauritania OR Micronesia OR Moldova OR Mongolia OR Morocco OR Myanmar OR Nicaragua OR Nigeria OR Pakistan OR Papua OR Philippines OR "sago Tome" OR "Solomon Islands" OR "Sri Lanka" OR Sudan OR Swaziland OR Syria OR Tajikistan OR Timor-Leste OR Tunisia OR Ukraine OR uzbekistan OR Vanuatu OR Vietnam OR Zambia OR Albania OR Algeria OR Samoa OR Antigua OR Barbuda OR Argentina OR Azerbaijan OR Barbados OR Bahrain OR

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Applied filters

NOT (Books AND Trade Journals AND Wire Feeds AND Newspapers AND Encyclopedias & Reference Works AND Blogs, Podcasts, & Websites)

NOT (United States--US AND United States AND US AND Sweden AND United Kingdom--UK AND Germany AND Canada AND Japan AND Netherlands AND Europe AND New Mexico AND Australia AND France AND Italy AND Taiwan AND Norway AND North America AND Belgium AND England AND Finland AND Spain AND Atlanta Georgia)

NOT (Applied Social Sciences Index & Abstracts (ASSIA) AND ERIC AND Politics Collection AND Political Science Database AND Worldwide Political Science Abstracts AND Linguistics Collection AND Linguistics and Language Behavior Abstracts (LLBA) AND Policy File Index AND Linguistics Database AND Library & Information Science Collection AND Library Science Database AND Library & Information Science Abstracts (LISA))

Bioline International

Terms: "parent", "parenting", "parent-child"

AJOL

("child parent relation" OR "child rearing" OR "family functioning" OR "family relation" OR "family conflict" OR "family life" OR parent-child OR parenting OR maternal behaviour OR paternal behaviour OR "parent-child communication" OR "parent education")

Web of Science (KCI – Korean Journals Database, Russian Science Citation Index and SciELO Citation Index)

TS=((("child parent relation" OR "child rearing" OR "family functioning" OR "family relation" OR "family conflict" OR "family life" OR parent-child OR parenting OR "maternal behaviour" OR "paternal behaviour" OR "parent-child communication" OR "parent education") AND (Afghanistan OR Benin OR "Burkina Faso" OR Burundi OR "Central African Republic" OR Chad OR Comoros OR "Congo" OR Eritrea OR Ethiopia OR Gambia OR Guinea* OR Haiti OR Korea OR Liberia OR Madagascar OR Malawi OR Mali OR Mozambique OR Nepal OR Niger OR Rwanda OR Senegal OR Sierra Leone OR Somalia OR South Sudan OR Tanzania OR Togo OR Uganda OR Zimbabwe OR Angola OR Armenia OR Bangladesh OR Bhutan OR Bolivia OR "Cabo Verde" OR Cambodia OR "Cote d'Ivoire" OR Djibouti OR Egypt OR Salvador OR Georgia OR Ghana OR Guatemala OR Honduras OR India OR Indonesia OR Jordan OR Kenya OR Kiribati OR Kosovo OR Kyrgyz OR Lao OR Lesotho OR Mauritania OR Micronesia OR Moldova OR Mongolia OR Morocco OR Myanmar OR Nicaragua OR Nigeria OR Pakistan OR Papua OR Philippines OR "sago Tome" OR "Solomon Islands" OR "Sri Lanka" OR Sudan OR Swaziland OR Syria OR Tajikistan OR Timor-Leste OR Tunisia OR Ukraine OR uzbekistan OR Vanuatu OR Vietnam OR Zambia OR Albania OR Algeria OR Samoa OR Antigua OR Barbuda OR Argentina OR Azerbaijan OR Barbados OR Bahrain OR Belarus OR Belize OR Bosnia OR Botswana OR Brazil OR Bulgaria OR Chile OR China OR Colombia OR Costa Rica OR Croatia OR Cuba OR Czech OR Dominica OR "Dominican Republic" OR Ecuador OR "Equatorial Guinea" OR Estonia OR Fiji OR Gabon OR Grenada OR Guyana OR Hungary OR Iran OR Iraq OR "Isle of Man" OR Jamaica OR Kazakhstan OR Latvia OR Lebanon OR Libya OR Lithuania OR Macedonia OR Malaysia OR Maldives OR Malta OR "Marshall Islands" OR Mauritius OR Mexico OR Montenegro OR Namibia OR Nauru OR "Mariana Islands" OR Oman OR Palau OR Panama OR Paraguay OR Peru OR Poland OR "Puerto Rico" OR Romania OR Russia OR Samoa OR "Saudi Arabia" OR Seychelles OR Serbia OR "Slovak Republic" OR "South Africa" OR "St Kitts" OR "Saint Kitts" OR Nevis OR "St Lucia" OR "Saint Lucia" OR "St Vincent" OR "Saint Vincent" OR Grenadines OR Suriname OR Thailand OR Tonga OR Turkey OR Turkmenistan OR Tuvalu OR Uruguay OR Venezuela OR "developing countries" OR "developing nations" OR "third world" OR "low income countries" OR "middle income countries" OR "low-income countries" OR "middle-income countries" OR "lower income countries" OR "lower-income countries"))

World Bank Group

Open Knowledge Repository (OKR)

(trial or evaluation or "control group" or intervention)

(family or parenting or parent or abuse or maltreatment or parent-child or parent-adolescent)

World Bank Institute (WBI) Evaluation Group

http://web.worldbank.org/archive/website01006/WEB/0__CO-10.HTM

Individual keywords: parent, "child abuse", "child maltreatment", parent-child, adolescent

The International Development Research Centre (IDRC), Searched Evaluation community

parent or parenting

Appendix – Global review

Search terms for MEDLINE:

- 1.((parent\$ or famil\$) adj (program\$ or intervention\$ or training or education or group)).tw.
- 2.behavior therapy/ or cognitive therapy/
- 3.(behavio#r adj3 (train\$ or intervention\$ or therap\$ or program\$)).tw.
- 4.(cbt or cognitive behavio#ral therapy).tw.
- 5.(cognitive adj3 (therap\$ or intervention\$ or train\$ or program\$)).tw.
- 6.(triple p or positive parenting program).ti,ab,kw.
- 7.incredible years.ti,ab,kw.
- 8.PCIT.mp. or (Parent-child adj interaction adj therap\$).ti,ab,kw. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
- 9.PMT.mp. or (parent adj management adj training).ti,ab,kw. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
- 10.(family adj check-up).ti,ab,kw.
- 11.1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
- 12.conduct disorder\$.mp.
- 13.(oppositional adj3 (defiant\$ or disorder\$)).mp.
- 14.(conduct adj3 (difficult\$ or disorder\$ or problem\$)).mp.
- 15.(behavio#raladj3 (problem\$ or difficult\$ or disorder\$)).mp.
- 16.aggressive behavio#r\$.mp.
- 17.(emotional adj1 behavio#ral problem\$).mp.
- 18.(child\$ adj3 behavio#r\$ disorder\$).mp.
- 19.social behavio#r disorder\$.mp.
- 20.((antisocial or externali\$ or internali\$ or disruptive) adj (behavio#r or problem\$ or difficult\$)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
- 21.((child adj abus\$) or maltreat\$ or (psychological adj aggression) or neglect or (corporal adj punish\$)).mp.
- 22.((exp parenting skills/ or exp disciplin\$/ or exp emotio\$/ or exp regulation/) or exp warmth/ or parenting/ or exp Mother Child Communica\$/ or exp Child Disciplin\$/ or exp Father Child Relation\$/ or exp Mother Child Relation\$/ or exp Parent Child Relation\$/ or exp Parent Child Communicati\$/ or exp Father Child Communicat\$/ or exp child parent relation\$/ or exp child rearing/ or exp family functioning/ or exp family conflict/ or exp maternal behavio#r/ or exp paternal behavio#r/

23.12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22

24.11 and 23

25.limit 24 to yr="2014 -Current"

Appendix – Humanitarian review

Protocol for review on parenting interventions in LMIC Humanitarian settings

Broad aims:

What is the effectiveness of parenting interventions in humanitarian settings in reducing violence against children and improving parenting quality?

Review questions

In parents and key caregivers with at least one child aged less than 18 years and suffering the consequences of a humanitarian disaster or war (P), does receipt of a parenting programme (I) compared with no specific parenting programme (C) lead to improved quality of parenting and/or improved parent-child interaction, and/or reductions in any form of child maltreatment (O) in low- and middle-income countries?

Searches

We will update a previous extensive search for parenting interventions in low- and middle-income countries. For the search strings and detailed search strategy please see:

https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=88697

In addition, we will search additional resources, such as trial registries (see below).

Search terms

The search strategy will include terms relating to the population, intervention and setting (i.e., low- and middle-income countries). It will be adapted for each database, with larger and more powerful platforms (e.g., OVID, EBSCOhost) and databases (e.g., EMBASE, PsycINFO) using more complex multi-term strategies, and smaller and regional databases (e.g., WHO) using fewer terms and less complex strategies. For example, in PsycINFO and EMBASE the terms will include a list of all low- and middle-income countries and associated terms, and the following:

child parent relation or child rearing or family functioning or family relation or family conflict or family life or parent-child or parenting or maternal behaviour or paternal behaviour or parent-child communication or parent education or parent training or child abuse or child neglect or child maltreatment or parental knowledge

Searching additional resources:

- Checking reference lists of relevant existing reviews;
- Asking experts: WHO migration person, Puffer, Amanda Sim, Mark Jordans , etc.
- Search trial registries
- Check who cited the published trials we know of
- Some extra searching on Google Scholar
- Search in global review with pre-existing search terms defining humanitarian settings

Types of study to be included

We will include randomized controlled trials (RCTs), including cluster-RCTs, and quasi-experimental designs with a strong counterfactual, such as high-quality regression discontinuity designs, propensity score matching studies or a stepped-wedge design.

Condition or domain being studies

Violence against children, child maltreatment or harsh parenting, and associated risk and protective factors, including parenting skills, child behaviour, and parent and child mental health and well-being

Participants/population

Inclusion: Parents and other caregivers of children aged 0—17 and these children.

Exclusions:

- Adults providing care to children in institutional and non-residential settings.
- Specialized groups with specific needs or circumstances, for example: parents of children with physical disabilities or illness, psychosis, autism or severe learning disabilities; child-led households.

Intervention(s), exposure(s)

The parenting interventions under review are defined as those with parents or caregivers that aim to reduce child maltreatment, harsh or dysfunctional parenting and/or child conduct problems, and/or to teach positive child behaviour management strategies or improve parent-child bonding/attachment and relationships, through changes in parenting knowledge, attitudes, skills or behaviour.

A parenting programme undertaken in humanitarian settings is a structured intervention directed at parents or other key caregivers of the child that are suffering the consequences of a humanitarian disaster

This includes programmes which are delivered to parents and their children. The interventions do not need to solely focus on parenting such that the interventions under review can be part of a multi-layer intervention. However, parenting as a component needs to be addressed in at least 20% of the sessions. This broader definition aims to include interventions that also focus on mental health or other outcomes.

Humanitarian context includes current or recent:

- War
- Displacement, incl long term refugees
- Health emergencies
- Natural disasters
- Industrial disasters

Definition of current or recent? May not make sense to make a time rule. How do other humanitarian reviews define this? Some countries are considered in a post conflict or reconstruction stage for a long time (eg 10+ years, Burundi) Whereas, same might not apply to less devastating conflicts or to a moderate hurricane, for example

We will exclude interventions with parents which: [*unlikely to be necessary in this context*]

- focus narrowly on very specific child risks such as poisoning or accidents, or which teach skills for dealing with specific medical conditions or physical disabilities, such as asthma, epilepsy, psychosis, autism, Downs Syndrome or severe learning disabilities.
- primarily deliver financial support or other support to parents, but which do not aim to change parents' knowledge or behaviour (e.g., conditional cash transfer programmes, unless they include a parent training component, the effects of which can be analysed separately from other components).

Comparator(s)/control

Inactive and active control interventions.

Context

Low and middle-income countries as defined by the World Bank.

Main outcome(s)

Parental

- a. Parental self-efficacy
- b. Parental mental health and stress
- c. Parental attitudes towards corporal punishment
- d. Positive parenting knowledge, attitudes, beliefs
- e. Positive parenting skills and behaviour
- f. Harsh and negative parenting
- g. Parental monitoring and supervision of child
- h. Parent-child relationship and communication
- i. Child maltreatment
- j. Intimate partner violence

Child

- a. Child externalizing / behavioural problems (conduct, oppositional, delinquency, drug use)
- b. Child internalizing problems (anxiety, depression, PTSD, others.)
- c. Child development (e.g. cognition, language outcomes, growth)
- d. Child physical health
- e. Rate of care-seeking

Implementation

- a. Enrolment and attendance
- b. Quality of delivery and programme fidelity
- c. Satisfaction with programme

Additional outcome(s)

Data extraction (screening reliability stage and coding)

Screening and selection will be covered by the LMIC review.

Please note that the data extracted for this review will include: study setting/ context, basic intervention characteristics, control characteristics, basic delivery information, level of prevention, study population, outcome measures at post-intervention for post-test

Risk of bias (quality) assessment

The quality of the new included studies will be assessed by a research assistant with the Cochrane Risk of Bias Tool for RCTs (Higgins et al., 2017), on:

1. Randomization sequence generation - selection bias due to inadequate generation of a random sequence
2. Allocation concealment - selection bias due to inadequate concealment of allocations prior to assignment
3. Blinding of participants and personnel - performance bias due to knowledge of the allocated interventions by participants and personnel during the study (it is impossible to blind parents to the trial arm ones the training has started, and impossible to blind the personnel delivering the intervention)
4. Blinding of outcome assessment - detection bias due to knowledge of the allocated interventions by outcome assessors
5. Incomplete outcome data - risk of attrition bias due to amount, nature or handling of incomplete outcome data
6. Selective reporting - reporting bias due to selective outcome reporting
7. Other sources of bias - this might include documenting who designed the intervention and developer involvement, assessment of reliability and validity of outcome measurement instruments and associated risk of bias related to reporting agent.

Strategy for data synthesis

An advanced meta-analytic technique, robust variance estimation, will be used to synthesize the effect sizes, including all relevant effect sizes from the same outcome domain. Unlike traditional meta-analysis, robust variance estimation (Tanner-Smith et al., 2016) allows for inclusion and synthesis of all estimated effect sizes simultaneously.

Effect sizes from included studies (if not available) will be calculated using the Practical Meta-Analyses Effect Size Calculator by David B. Wilson (<https://campbellcollaboration.org/escalc/html/EffectSizeCalculator-SMD1.php>) and converted to Cohen's d. If effect sizes are reported in the study, we will transform them to Cohen's d values using the same tool (Meta-Analyses Effect Size Calculator).

Where appropriate (if outcome is dichotomous), the logit transformation will be used to convert odds and risk ratios into standardized mean differences. Effect sizes will be labelled with respect to the outcome domain they represent and the duration of follow-up. Then, they will be grouped with dichotomous coding to pre-specified outcome groupings.

Analyses of subgroups of subsets

Subgroup analyses are likely not feasible due to a small number of included trials. However, if possible, we aim to conduct following subgroup analyses.

By delivery and intervention characteristics

- a. Prevention level (Universal, Selective, Indicated)
- b. Delivery method (Individual, group-based, self-directed, campaign)
- c. Delivery agent (professional vs para-professional vs mix)
- d. Delivery setting (Home, community centre, clinic, school, online)
- e. Duration and dose of delivery

By Humanitarian context

- a. Acute or recent natural disaster
- b. Acute or recent war or armed conflict
- c. Long-term refugee status/situation