Foundations
What Works Centre for Children & Families

SYSTEMATIC REVIEW OF EFFECTIVE INTERVENTIONS AND PRACTICES FOR PARENTS EXPERIENCING COMPLEX AND MULTIPLE NEEDS

Systematic review protocol

Delivery organisations	Centre for Evidence and Implementation (CEI) University of Oxford Monash University University of Amsterdam
Principal investigator	Jane Lewis, CEI
Protocol author(s)	Jane Lewis, Prof Frances Gardner, Prof Jane Barlow, Dr Sophia Backhaus, Anne-Marie Baan, Dr Ellie Ott, Prof Aron Shlonsky, Dr Evelyn Tan, Dr Janell Kwok, Paola Castellanos.
Contact details	Anne-Marie Baan, annemarie.baan@ceiglobal.org Jane Lewis, jane.lewis@ceiglobal.org Centre for Evidence and Implementation, The Evidence Quarter, Albany House, Westminster, London, SW1H 9EA
Funder	Foundations – What Works Centre for Children & Families

Summary

There is strong evidence showing the potential benefits of parenting interventions to improve the wellbeing of children supported by early help and children's social care services. However, there is a need to identify the interventions and practice elements that are effective in working with families experiencing complex and multiple problems, and to identify what works in different contexts and for different groups of families.

This review aims to identify and describe:

- The parenting interventions that are supported by strong causal evidence with regard to their effectiveness in reducing child maltreatment and/or improving child outcomes within a context relevant to UK's early help and CSC practice
- The practice elements that are shared by effective parenting interventions and observed to contribute to intervention effectiveness, covering both content and delivery characteristics
- The magnitude of effects and evidence about for whom, and in which contexts, circumstances and combinations the identified interventions and practices have the highest likelihood of being effective
- Information relevant for their successful implementation within the UK context.

The review will build on and extend the coverage of two recent systematic reviews and meta-analyses of parenting interventions (Backhaus et al. 2023a, Backhaus et al. 2023b). Following established systematic review methods, we will identify randomised controlled trials of parenting interventions with families with children aged 0-10 years old. Risk of bias will be assessed using the Cochrane Risk of Bias Tool for randomised controlled trials version 1.0. The meta-analysis will involve examining the pooled effect of parenting interventions for a multitude of key outcomes, and testing whether and which practice elements, delivery/implementation factors, and contextual factors moderate the effectiveness of these parenting interventions. The review will also assess the feasibility of delivering effective interventions and practice elements in the UK context.

Table of contents

Part 1: Background, rationale and question formulation

Background and overview

Parenting programmes as a key service offer

Parenting support is considered by many as a critical component for keeping children safe within a child welfare context. Parenting interventions improve parenting quality through advice and coaching targeting specific parenting skills, often in combination with a range of other types of child and family support.

Numerous reviews have found that parenting programmes are an effective set of interventions for improving health and behavioural outcomes for parents and children generally and can significantly reduce maltreating behaviours including physical and psychological abuse (Backhaus et al., 2023b; Chen & Chan, 2016; Gubbels, van der Put & Assing, 2019). Less is known about their effectiveness in reducing other specific subtypes of maltreatment, such as neglect, and in preventing the recurrence of child physical abuse (Vlahovicova et al., 2017).

Variation in parenting programme effectiveness

Several reviews have shown how intervention effectiveness may vary for different groups of parents and caregivers. It is well-documented that parenting programmes yield meaningfully different effects in prevention versus treatment settings (Leijten et al., 2019). The age of the child at the start of the intervention, has also been discussed as an important moderator of effectiveness for programmes aimed at preventing child maltreatment (Euser et al., 2015). Previous meta-analyses reach different conclusions in relation to whether ethnic minority parents benefitted more or less from parenting interventions (Backhaus et al., 2023b; Gardner et al., 2019), but found that the socio-economic status of parents did not moderate intervention effectiveness (Backhaus et al., 2023b; Gardner et al., 2019).

Previous meta-analyses also provide insight into the effects of structural elements of parenting programmes, such as duration of the intervention and presence of ancillary services. While Euser et al. (2015) found larger effect sizes for programmes that aim to prevent maltreatment with a moderate length (6-12 months) or a moderate number of sessions (16-30 sessions), several reviews found no evidence of any moderation effect by delivery format (e.g., individual or group), delivery location or delivery setting (Backhaus et al., 2023b; Chen & Chan, 2016; Gubbels et al., 2019).

The provision of other services as part of the parent training programme has been associated with smaller programme effects, especially in prevention settings (Kaminski et al., 2008; Leijten et al., 2019), and the provision of practical and instrumental assistance in home visiting programmes aimed at reducing child maltreatment was also found to be negatively associated with programme effectiveness (Gubbels et al., 2021).

Emergent learning about components and practice elements

An important theme emerging in recent years is the importance of shedding light on how specific intervention components or practice elements (discrete practices, strategies, techniques and components) influence intervention effectiveness. This work includes meta-regressions of individual programme components (i.e. clusters of parenting techniques taught) associated with programme effects (Kaminski, 2008; Leijten et al., 2018, 2019).

For example, Leijten et al. (2019) found that programmes demonstrated larger effects for reducing disruptive child behaviour when they promoted positive reinforcement, praise, and used natural or logical consequences. A recent network meta-analysis by Leijten et al. (2022) aimed at identifying the optimal combination of parenting programme components to reduce disruptive child behaviour problems, found that four active parenting programme types were effective in treatment settings: behaviour management, behaviour management with parental self-management, behaviour management with psychoeducation and relationship enhancement, maximal component loading (i.e. maximum number of components included). In prevention settings, however, only behaviour management and behaviour management with parental self-management were effective. The qualitative comparative analysis by Melendez-Torres et al. (2019) highlighted alternative punishment strategies and parental self-management strategies as effective parenting intervention components to reduce child abuse recurrence. Components of parenting interventions that have been shown to be effective in reducing violent parenting include, for example (WHO, 2023): ignoring negative child behaviours that are aimed at eliciting attention; using logical consequences (e.g., losing privileges); praising and rewarding appropriate child behaviours; and improving parental self-management skills such as emotion-regulation.

Recent analyses also provide insight into the contexts within which different intervention content may be effective. Parenting programmes might, for example, need to emphasise strategies with parents whose child has a significant conduct problem, in comparison to demographically at risk parents, including young parenthood or those facing high levels of socioeconomic deprivation (Leijten et al., 2019). Moreover, parental self-management techniques such as emotion regulation may be more important in treatment than in prevention settings, given that families whose children have fully developed conduct problems may experience additional difficulties, such as parental exhaustion. Furthermore, intervention effectiveness could be improved by integrating specific components associated with greater effectiveness, such as the provision of social and/or emotional support in interventions aimed at maltreating families (Van der Put, 2018). Similarly, screening for mental health problems in parents and addressing these problems as part of interventions, could help improve the effectiveness of curative interventions.

In short, what is optimal for each family may depend on complex interactions between family characteristics and programme and delivery components (Leijten et al., 2022). As evidence is rapidly accumulating about the optimal techniques at different levels of service intervention, and for families facing different challenges, it is timely to look further at what is likely to be effective for families facing complex and multiple needs.

Rationale and question formulation

The emerging focus on the effectiveness of practice elements is of key importance. Understanding the practice elements that are common across parenting interventions with demonstrated efficacy provides options that may help to overcome some of the challenges of mainstreaming and sustaining manualised parenting interventions at scale. Use of practice elements allows for greater flexibility and responsiveness to client presentation, needs and priorities, supporting efficient tailoring of services and contributing to increased sustainability of evidence-informed practice (Barth et al., 2014; Bruns et al., 2014; Chorpita et al., 2005, 2007; Hogue et al., 2017; Institute of Medicine, 2015; Marchette & Weisz, 2017; Rotheram-Borus et al., 2012). Moreover, these approaches can potentially facilitate more systematic and standardised practice than non-manualised services as usual (Borntrager et al., 2013; Garland et al., 2010; Stephan et al., 2012). They offer a very important approach, alongside the use of evidence-based programmes, to integrating evidence about what works into practice.

Insight into effective parenting interventions and their common elements are essential resources for social workers in their work with parents experiencing complex and multiple problems. This review aims to help identify the interventions and practice elements that are effective in working with families experiencing complex and multiple problems, and to identify what works in different contexts and for different groups of families.

Consideration of the deliverability of interventions and practice elements in the UK context is central to this. Whether a parenting programme or practice element identified as effective can be implemented successfully in a given context is influenced by various factors. This includes - among others - the level of complexity and adaptability of the intervention, affordability, implementation support available, and alignment with existing systems, infrastructure, human resources and crucially family needs and preferences (Damschroder et al., 2022; Engell et al., 2021; Moullin et al., 2019; WHO, 2023). This review will in addition therefore compile the necessary information to make an informed decision on the deliverability of interventions and practice elements within the UK context.

The review will inform the development of Practice Guides that will cover effective parenting practice with families experiencing complex and multiple problems.

Equity will be a focus throughout the review and is considered in several ways. We have used the CEI Equity Framework (CEI, n.d.) to help identify the key equity issues in focus, and will continue to use the framework to help embed an equity, diversity and inclusion (EDI) perspective in the review.[1] First, key aspects of inequity are directly considered in the risks and populations that are the focus of the review. This particularly applies to socio-economic status, ethnicity, parental

[1] The Framework was informed by Child Trends (Andrew, Parekh & Peckoo, 2019) and writing on equity in implementation. It consists of 23 questions to prompt discussion and consideration of EDI issues, to support reflection and planning of appropriate action.

disability, parental experience of ACEs, mental health, and traveller status, refugee, asylum seeking or undocumented migrant status. Second, our selection will include trials that are equity relevant, i.e. that focus on an equity group or use data to assess differential effects for equity groups (e.g. based on ethnicity or socio-economic status). This will be captured in our data extraction and coding of studies. Third, equity will be considered in our analysis approach. We will run moderator analyses (using meta-regression) on these equity factors, and summarise existing trial-level moderators, where data is available, using equity characteristics as moderators in meta-analysis. In reporting on effective interventions and practice elements, we will draw out any available information regarding experience of delivery with different equity groups, potential risks to specific groups, or adaptations recommended.

Research questions

The research questions for this review are:

- **RQ1:** What are the active practice elements shared by interventions with evidence of effectiveness in reducing child maltreatment and/or improving child outcomes when delivered to families experiencing complex and multiple needs?
    - **1a)** Which parenting interventions have strong evidence of their effectiveness in reducing child maltreatment and/or improving child outcomes when delivered to families experiencing multiple and complex needs, within a context relevant to UK early help and children's social care practice? What are their pooled effects?
    - **1b)** To what extent do practice elements and delivery/implementation factors contribute to or detract from the effectiveness of interventions? Have any been observed to be superfluous or contra-indicated (including – where possible - for specific subgroups)?
- **RQ2:** What are the family and contextual moderators of effectiveness in parenting interventions (and where possible in practice elements) for this group?
- **RQ3:** What is known about the implementation requirements and feasibility of effective interventions and practice elements, relevant to early help and children's social care contexts in the UK?

PICOS for quantitative research questions

Population: Families experiencing complex and multiple needs

The review will focus on families with complex and multiple needs who are eligible for early help, targeted early help, or children's social care services. In defining this group, the focus will be on known risk factors for child maltreatment.

Eligible for inclusion in this review are studies with parents and other caregivers[2]:

- Who were referred by agencies (e.g., social services) to receive an intervention based on their levels of maltreatment (treated)
- Who were offered an intervention based on scoring highly on child maltreatment instruments (indicated)
- With higher level needs who were offered an intervention based on selected risk factors for maltreatment (selective).

Families with higher level needs are defined as those with individual, interpersonal or family factors that create a known risk of maltreatment. Based on available evidence regarding their association with an increased risk of child maltreatment (Austin et al, 2020; Mulder et al, 2018; NICE, 2023; Younas et al, 2022) the factors we consider in this review are:

- Parental substance abuse
- Parental incarceration
- Parental mental health
- Parental intellectual disability
- Past or current experience of intimate partner violence
- Parental childhood experience of maltreatment or other adverse childhood experiences
- Children with severe child socio-emotional and conduct problems
- Highly deprived socio-economic status
- Teenage / adolescent parenthood
- Traveller, refugee, asylum seeking or undocumented migrant status.

Based on evidence regarding their association with the risk of child maltreatment, we have established different thresholds and criteria for inclusion. Our strategy aims to include families facing the most significant risks to maltreatment and those families with multiple needs.

We are not including trials focusing on parents of children with disabilities on the basis that targeted content for this group will typically strongly differ from the parenting interventions described above which focus more on general parenting.

The review will include trials involving parents and other caregivers of children aged up to 10 (based on mean age).[2] This reflects the fact that parenting support for families with adolescents tend to have quite different content and approaches (Backhaus et al., 2023b), and focussing on a narrower age group will as such reduce heterogeneity.

The review will focus on studies conducted in high-income countries (as classified by the World Bank).

---

2 Studies targeting other caregivers (e.g., foster carers and adults providing care to children in institutional settings) are out of scope, but we anticipate that some included studies will have involved populations which include small numbers of other caregivers.

Intervention: Parenting interventions and support

A parenting intervention is defined for the purposes of this review as being a structured set of activities or services, with set eligibility requirements, aimed at improving how parents and caregivers approach and execute their role as parents or caregivers, specifically their parenting knowledge, attitudes, skills, behaviours, and practices (based on WHO, 2022). The review will include studies of preventive and treatment/curative interventions with at least 50% of sessions or content directed at parents and other caregivers with the aim of changing parenting knowledge, skills, attitudes or behaviour.

Parenting content may be delivered using a range of learning activities, may be group-based or individual parent/family-based including the children or not, and may be delivered by professional or paraprofessional staff in the home, at a centre or online (Backhaus et al., 2023b). The parenting component may be combined with other content (e.g., parent relationship or life skills), types of support (e.g., targeting parental substance abuse), types of therapy (e.g., cognitive behavioural therapy), forms of family-based therapy (e.g., multisystemic therapies), or child-focused interventions. Family support programmes with parenting as an aspect will be included, such as home visiting programmes in which parents are visited at home and provided with information, support and/or training regarding child health, development, and care.

The review will include parenting interventions based on a range of theories, including but not limited to social learning theory, attachment/psychotherapeutic/mentalisation-based and mindfulness-based programmes. Social learning is the predominant theoretical foundation for parenting interventions for children in early and middle childhood, which focuses on increasing positive parent–child interactions, and teaching parents to reward positive child behaviour and to use adequate disciplining techniques. Interventions for parents of children less than two years of age are more diverse and also include sensitivity and attachment-based interventions that are primarily aimed at promoting sensitive interaction and infant attachment security, in addition to more standard behaviourally based parenting programmes (Bakermans-Kranenburg, Van Ijzendoorn, & Juffer, 2003).

Comparison: No treatment, waiting list, minimal intervention, service as usual

Outcomes

The ultimate aim of the review is to identify active practice elements shared by effective interventions with evidence of effectiveness in reducing child maltreatment and improving child outcomes within a child welfare context. The outcomes of interest include those focused on both child wellbeing as well as parenting practices. We include outcomes relating to improvements in parenting practices as these are a key mechanism for improving children's well-being and outcomes, and many of the studies which are of relevance to this review, report parenting but not child outcomes. We also include outcomes relating to aspects of parental well-being that we theorise are most proximal to parenting practices, namely parental mental health and stress. Because our priority is child outcomes, we are not including all possible parent outcomes. We will

include studies that have reported on any of the following outcomes, with definitions given on page 19-20:

Child outcomes:

- Child behaviour problems overall
- Externalising child behaviours
- Internalising child behaviours
- Child wellbeing
- Number of out of home placements
- Reunification rates
- Educational attendance
- Educational attainment

Parenting outcomes:

- Child maltreatment and subtypes (inc. harsh parenting and measures of recurrence / recidivism, official and parent reported rates and recidivism)
- Negative parenting
- Positive parenting
- Parent mental health problems
- Parenting stress

Study design

Randomised controlled trials and cluster-randomised controlled trials.

Part 2: Identifying relevant work

Search strategy

The review will build on two recent systematic reviews and meta-analyses of parenting interventions focused on parents and other caregivers with children aged 2–10 years that are based on social learning theory (Backhaus et al. 2023a, Backhaus et al. 2023b). This work was undertaken to support the development of WHO Guidelines on parenting interventions to prevent maltreatment and enhance parent-child relationships.

The global meta-analyses by Backhaus et al. (2023a and b) included 346 studies of parenting interventions based on social learning theory in families of children aged 2–10 years. These 346 studies were selected from a larger dataset (we refer to this as 'the global dataset') which contains abstracts and titles of 21,000 studies published until August 2022 retrieved through a search with terms that surrounded three conceptual categories: a) intervention; b) parenting; and c) child behavioural and emotional problems and maltreatment/violence (see annex I for further detail).

The search strategy for the current review consists of three components:

- **Component 1:** Selecting trials with families experiencing complex problems in high-income countries from the 346 studies included in the meta-analyses by Backhaus et al. (2023a and b). In line with the stated inclusion and exclusion criteria (see under study section criteria), we will select trials with indicated populations (8 studies), treated populations (9 studies), and trials with higher level need families who were offered an intervention based on risk factors for maltreatment (number of studies not yet known). Out of the 346 trials, 184 trials were with parents based on their risk factors for maltreatment (selective), and a subset is expected to be with families with higher level needs.
- **Component 2:** Running key word searches in the global dataset (consisting of 21,000 studies) to identify i) eligible trials with higher need parents of children under 2 years old in high income countries, and ii) parenting interventions that are based on theories other than primarily social learning theory. This component of the search will extend coverage of Component 1 to trials where children had a mean age below 2 years old, and trials of parenting interventions that are not primarily based on social learning theory.
- Included studies will be cross-checked with those in selected high-quality systematic reviews and meta-analyses focusing on parenting interventions i) targeting parents of children aged 0–2 years old, ii) with theoretical underpinnings and approaches other than social learning, iii) targeting specific high risk groups (e.g., substance abusing parents) to ensure that no key studies were missed in the search.
- **Component 3:** Updating the search used in the reviews by Backhaus et al. (2023a and b), to cover the period since August 2022, we will search the same 11 databases to identify trials of all eligible forms of parenting interventions with families with children aged 0-10 (based on mean age).

The databases are:

- 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
- PTSDpubs (formerly PILOTS).

No language restrictions will be imposed.

Search terms

No additional search terms are required for *Component 1* of the review, as the full list of studies included in the meta-analyses by Backhaus et al. (2023a and b) will be screened.

Search terms are discussed separately for *Component 2* and *Component 3* of the review.

1. **Search terms related to topic**:

Component 2: Key word searches in the global dataset will relate to theoretical underpinnings and approaches other than social learning. Examples include: “attachment”, “mentalisation”, “psychotherapeutic”, “therapeutic”, “sensitivity”, “responsiveness”, “family systems”, “mindfulness”

Component 3: The search string will include terms in relation to three conceptual categories i) intervention, ii) parenting (including abuse), and iii) child behavioural and emotional problems.

Intervention:

((parent$ or famil$) adj (program$ or intervention$ or training or education or group))

behavior therapy/ or cognitive therapy/

(behavio#r adj3 (train$ or intervention$ or therap$ or program$))

(cbt or cognitive behavio#ral therapy)

(cognitive adj3 (therap$ or intervention$ or train$ or program$))

Additional strings will be included with terms to mirror the approach followed for component 2. Indicative search terms are:

(parent$ or famil$ or mother* or father*) adj3 (sensitiv* or responsive* or therap* or psychotherap* or mindful or mindfulness))

(parent$ or famil$ or mother* or father*) and (mentaliz* or mentalis* or MBT* or “reflective function*” or mind-minded* or “theory of mind” or reflective)

(attachment adj3 (secur* or intervention or prevent* or therapeut*)

Parenting and child behavioural and emotional problems:

conduct disorder$

(oppositional adj3 (defiant$ or disorder$))

(conduct adj3 (difficult$ or disorder$ or problem$))

(behavio#ral adj3 (problem$ or difficult$ or disorder$))

aggressive behavio#r$

(emotional adj1 behavio#ral problem$)

(child$ adj3 behavio#r$ disorder$)

social behavio#r disorder$

((antisocial or externali$ or internali$ or disruptive) adj (behavio#r or problem$ or difficult$))

((child adj abus$) or maltreat$ or (psychological adj aggression) or neglect or (corporal adj punish$))

((exp parenting skills/ or exp disciplin$/ or exp emotio$/) adj 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/

2. Search terms relating to population:

Component 2: Key words will focus on: complex problems - including terms as “substance abuse”, “alcohol addiction”, “drug addiction”, “mental health”, “incarceration”, “intimate partner violence”, “IPV”, “adolescent mothers”

Component 3: Not applicable as the search by Backhaus et al. (2023a and b) did not include terms with regards to population.

3. Search terms relating to quantitative study design

Component 2: Key word searches will not include terms related to the study design – but filters to only include RCT studies will be applied.

Component 3: Not applicable as the search by Backhaus et al. (2023a and b) did not include terms with regards to study design.

4. Search terms relating to qualitative study design

Not applicable

5. Search terms relating to study location

No search terms relating to study location will be included

Study selection criteria

Inclusion criteria

Population

Parents of children with mean age up to 10 years, defined as having more complex and multiple needs.[3]

The review will include studies involving parents and other caregivers[4]:

- Who were referred by agencies (e.g., social services) to receive an intervention based on their levels of maltreatment (treated)
- Who were offered an intervention based on scoring highly on child maltreatment instruments (indicated)
- With higher level needs who were offered an intervention based on selected risk factors for maltreatment (selective).

For the third group of selective interventions we have developed detailed inclusion criteria, which are listed in Annex II. Specific thresholds will be tested and may be revised.

Based on available evidence (cited above) regarding the association of selected factors with an increased risk of child maltreatment, we distinguish three sets of criteria on the basis of which a study is eligible for inclusion:

- Evidence of the study population meeting threshold for a risk factor that is considered to constitute complex need (without the requirement for evidence of other risk factors). Risk factors that fall into this category are parental substance abuse, parental incarceration, parental mental health, parental intellectual disability, past or current experience of IPV, parental childhood experience of maltreatment or other adverse childhood experiences
- Evidence of the study population meeting threshold for a risk factor that is considered to constitute complex need in the presence of another risk factor. Risk factors that fall into this category are: children with severe child socio-emotional and conduct problems, highly deprived socio-economic status, teenage / adolescent parenthood and traveller, refugee, asylum seeking or undocumented migrant status. We will include trials that include these populations if there is also evidence of the presence of a secondary risk
- Evidence of the presence of multiple risks among the study population (at a lower severity or prevalence level than the previous two categories).

---

[3] If studies do not report the mean value, then we will: a. contact the author(s) to ask for the mean age; b. if the observed mean value remains unclear, a theoretical mean will be calculated by using the minimum and maximum age value and dividing it by two.

[4] As described in the section on exclusion criteria, studies targeting other caregivers (e.g., foster carers and adults providing care to children in institutional settings) are out of scope, but we anticipate that some included studies will have involved populations which include small numbers of other caregivers.

Interventions/outcomes of interest

Parenting interventions where, based on the description of the programme / intervention in the included text (supplemented if necessary with further information e.g. from programme manuals) at least 50% of sessions or content is directed at parents with the aim of changing parenting knowledge, skills, attitudes or behaviour.

Outcome measures of interest include those that are based on systematic direct observational techniques, self-report measures and, if available, official reports of maltreatment.

- Child maltreatment (incl. harsh parenting)
- Negative parenting
- Positive parenting skills
- Parental mental health
- Parenting stress
- Child externalising/behavioural problems
- Child internalising problems
- Child wellbeing
- Number of out of home placements
- Reunification rates
- Educational attendance
- Educational attainment.

Study design

Randomised controlled trials and cluster-randomised controlled trials.

Comparison

Inactive control groups (no treatment, waiting list, minimal intervention, treatment as usual).

Context

High income countries (as per World Bank classification)

Publication status

Peer-reviewed publications (Protocols and unpublished studies are excluded)

Language

The review will only include studies published in English, studies with available translation into English.

Exclusion criteria

Population

Interventions targeted at parents / caregivers of children over 10. Trials specifically aimed at special groups such as: children with physical, learning or developmental disabilities, children with severe mental illness, children with medical conditions, pre-mature infants, children in foster care, adopted children. Adults providing care to children in institutional and non-residential settings are excluded.

Interventions/outcomes of interest

Interventions where more than 50% of sessions or content is not directed at parental knowledge, skills, attitudes or behaviour, or is directed at specific aspects of parenting, such as toileting, sexual health, feeding or HIV prevention, rather than general parenting skills.

Interventions which:

> a) focus narrowly on very specific child risks such as 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 aim to deliver financial, social or other support to parents but not to change parents' knowledge, skills, attitudes or behaviour (e.g., welfare benefits, unless they include a parent training component, the effects of which can be analysed separately from other components).
>
> c) Parenting interventions primarily aimed at enhancing educational outcomes (e.g., family literacy, school readiness support).

Our justification is that the content and key elements of these types of interventions will typically be different and would hence significantly increase heterogeneity. Including these types of interventions is also likely to significantly increase the number of eligible studies, and exceed the resources and time available for the review.

Outcomes out of scope are:

- Rate of care seeking (by child or for child by parent/caregiver)
- Child physical health
- Placement stability.

Study design

- Any study design other than randomised controlled trials an.d cluster-randomised controlled trials

- Studies/study arms with an active condition such as a variant of the same parenting intervention, a different parenting intervention or an alternative intervention.

Context

Low- and middle-income countries (as per World Bank classification).

Study records

Title and abstracts will be reviewed by one reviewer, with a second reviewer resolving queries that are 'maybe' eligible, and papers going to 'full text' where there is uncertainty. An initial set of twenty papers will be double-screened with clarification of inclusion and exclusion criteria until 85% internal reliability has been reached on a set of twenty papers.

All included texts will then go through a full text review for inclusion. One reviewer will read the full-text version of each eligible study, bringing in a second, and as necessary, a third reviewer to resolve any uncertainties. We will check for duplicate reporting of the same trial.

Either Covidence or Rayyan will be used for review management. Both applications integrate active learning. This feature offers the possibility to screen a subset of studies if the number of returns significantly exceeds resources available for this review.

We will use data already extracted in relation to Component 1 studies, including variables covering:

- Information on the publication (authors, title, year of publication, publication type)
- Study setting/context (e.g., geographical location and community characteristics)
- Intervention characteristics (origin country, "brand" or type, delivery format, duration and intensity)
- Study population and participant and family demographics (inc. ethnicity, socio-economic status, parental age, single parenthood)
- Outcomes reported in the trials (outcome measure, sample size, reported result, effect size).

We will extract additional information from the Component 1 studies covering:

- Description of the components in the comparator (e.g., services as usual).
- Referral pathways
- Further services provided to families connected to child protection services
- Additional vulnerabilities and markers of equity not already covered
- Additional child well-being outcomes not already covered (child wellbeing, number of out of home placements, reunification rates, educational attendance, educational attainment)
- Intervention components (content and delivery techniques).

We will extract the same full set of information from the Components 2 and 3 studies. The extension of the extraction tool will be piloted with 2 studies. The extraction will be checked for a sample of 5% of trials by an experienced member of the research team.

We will contact trial authors to obtain missing data for quantitative analyses and risk of bias assessment.

We will develop a coding scheme to code information on intervention characteristics. We will take as our starting point the 26-item coding scheme developed by Leijten et al. 2019, and develop this further to distil individual practice elements on the basis of a review of previous key reviews in this area (e.g., Van der Put et al., 2018; Gubbels et al., 2019, 2021; Kaminski et al., 2008; Euser et al., 2015). We will also draw on the knowledge of the review team and on repositories of relevant practice elements and modular interventions (e.g., MATCH, and PracticeWise). We will review the coding scheme with Foundations and with the Advisory Group, and develop a code book. Interventions will be coded for the presence or absence of the practice elements. New practice elements that were not in the a priori set will be added to the code book in an iterative manner as necessary.

The code book will cover:

- Contextual factors (general aim of the intervention, type of families served, delivery setting, name or type of intervention, age of child(ren), family characteristics and markers of equity)
- Practice elements covering specific content delivered and practices (e.g., parenting techniques taught, time-out) inc. methods/techniques (e.g., video-feedback, modelling, role-playing)
- Delivery/implementation factors (workforce, duration of the intervention, minimum and maximum duration, average number of sessions, frequency of sessions, ancillary services).

For efficiency, we will code each included programme once. For all programmes, practice elements will be first coded from the programme manual. Where the programme manual is not available, we will code elements from the following materials, prioritised in order: 1) study protocol or paper describing programme development, 2) paper that provides the most recent programme description, and 3) study included in the review.

Coding will be carried out by one researcher with double coding of the initial five programmes by a second reviewer. The extraction and coding will be checked by an experienced member of the research team, with an in-depth check on a select number of programmes (approx.10%).

In coding, we will draw on information provided in the paper, and where necessary use secondary sources to obtain further details such as online information, other publications, programme manuals or study protocols. We will search the internet and where necessary contact study authors or programme developers to fill gaps.

Outcomes of interest

Table 1: Outcomes of interest

Outcome	Definition (based on Backhaus et al., 2023b)
1. Child maltreatment and subtypes –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, Meinck, & Gardner, 2022). 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"). This outcome includes measures of recurrence / recidivism.
2. Negative parenting	Negative parenting includes all parenting behaviours that are either harmful, ineffective for behaviour management or reflect a poor parent–child relationship. Examples of such behaviours are overprotective parenting, laxness, hostile parenting or emotional violence.
3. 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.
4. Parent mental health problems	Mental health problems of parents includes measures of depression, anxiety, worry, poor perceived life quality, PTSD or stress symptoms.
5. 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.

6. Child behaviour problems overall	This outcome category is an overarching category for all internalising and externalising child behaviour problems.
7. Externalising child behaviours	Externalising behaviours include symptoms of conduct problems, oppositional, defiant, ADHD or aggressive behaviours in children.
8. Internalising child behaviours	Internalizing behaviours include behaviours such as anxious, withdrawing, psychosomatic or depressed behaviours in children.
9. Child wellbeing	Child wellbeing includes a variety of validated scales including quality of life and wellbeing scales SDQ, WEMWBS, and CORS.
10. Number of out of home placements	Out-of home placement captures the impact on out of home care.
11. Reunification rates	Reunification means returning a child to live with one or both parents, or wider family, following a period of being looked after by the local authority (either short-term, intermediate or longer-term placements).
12. Educational attendance	Includes school absenteeism, out-of-school suspensions.
13. Educational attainment	Includes school grades, school completion, literacy and numeracy tests.

Qualitative outcomes: not applicable

Part 3: Risk of bias assessment

The quality of the Component 1 studies has already been assessed as part of the reviews by Backhaus et al. (2023a, b) using the Cochrane Risk of Bias Tool for randomized controlled trials (Higgins et al., 2011). This appraisal used version 1.0, coding trials rather than outcomes. For efficiency, we will use this data and follow the same approach for the trials identified through Components 2 and 3. We will, however, comment on the risk of bias of the included studies for each meta-analysis.

Risk of bias was assessed in the following domains (Backhaus et al., 2023):

- 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.

No studies will be excluded based on the risk of bias assessment.

Part 4: Summarising the evidence

This review aims to examine the effects of parenting interventions for families with complex and multiple needs. Furthermore, this systematic review and meta-analysis aims to identify the circumstances (i.e., contextual delivery/implementation factors), as well as the practice elements (i.e., programme components) that modify the effectiveness of parenting interventions for families with complex needs.

For the first research question, we will examine the pooled effect of those interventions for a multitude of key outcomes, and test whether and which practice elements and delivery/implementation factors moderate the effectiveness of parenting interventions.

For the second research question, we will test whether and which family and contextual factors moderate the effectiveness of parenting interventions.

Testing pooled effects

In the first set of analyses, we aim to examine the summary effect (i.e., pooled effect) for our key outcomes of parenting interventions in families with complex and multiple needs. For this, we will run separate sets of main effect meta-analyses by outcome.

Our meta-analysis will follow a two-stage process.

In the first stage, we will calculate a standardised effect size for each reported outcome in each study. This effect size will represent the impact of the evaluated intervention. Effect sizes will be labelled with respect to the outcome domain, and will be grouped with dichotomous coding to pre-

specified outcome groupings. Effect sizes (Cohen's d) are calculated based on sample size, means, and standard deviations reported at postintervention for intervention and control group. As recommended in the analysis of randomised trials, we prefer to use means and standard deviations that were produced using covariance-adjusted for baseline. If these are unavailable, we will use unadjusted post-test means and standard deviations, or effect sizes estimated based on t- test and F-test statistics, preferably on intention-to-treat analyses. We will contact trial authors to obtain missing data for quantitative analyses and risk of bias assessment.

In the second stage, a pooled effect across all eligible effect sizes will be calculated for each key outcome. Most studies included in this review present multiple effect sizes for the same outcomes (e.g., same outcome reported by multiple informants [parent, child, social worker], or the same outcome assessed using multiple instruments). Various approaches to address these dependent effect sizes exist, including selection-based protocols (i.e., set of decision rules to select the "most appropriate" effect size), multivariate meta-analysis, and robust variance estimation meta-analysis (Tanner-Smith et al., 2016). Robust variance estimation meta-analysis is considered the gold standard to address the issue of multiple relevant effect sizes, because selection-based protocols are prone to bias and lose important information by including only a subset of effect sizes, and multi-variate analysis are appropriate only when effect sizes are correlated but not conceptually and statistically exchangeable (in our analysis, we assume that multiple effect sizes are conceptually the same). Robust variance estimation takes into account that effect sizes might be correlated and estimates an approximate correlation matrix of these effect sizes. In more statistical terms, robust variance estimation weights the multiple effect sizes in a trial using an approximate variance-covariance matrix, since the exact variance-covariance matrix are not reported in trials. Robust variance estimation results in valid point estimates and significance tests. All analyses are estimated assuming an intercorrelation within studies of p =.8 and random effects. Analysis will be conducted using STATA v17.

For the following outcomes a negative pooled main effect will be treated as indicative of greater effectiveness; thus, a positive coefficient is interpreted as a decrease in effectiveness:

- Child maltreatment, including harshness
- Negative parenting
- Child externalising behaviours
- Child internalising behaviours
- Poor parent mental health
- Number of out of home placements.

However, for the following outcomes the opposite is true: a positive effect size will be treated as indicative of greater effectiveness:

- Positive parenting
- Child wellbeing
- Reunification rates
- Educational attendance/ attainment.

We will examine publication bias (i.e., only studies published that show a positive significant findings) using funnel plots, since, due to the dependency of effect sizes, statistical examinations (Egger's regression, Trim and Fill) are not recommended (Rodgers & Pustejovsky, 2021).

Isolating and testing impact of key delivery/implementation and contextual moderators

In the second set of analyses, we aim to examine whether key delivery/implementation factors and contextual factors impact the effectiveness of parenting interventions for families with complex and multiple needs. In these moderation analyses, we focus on three key outcomes: child maltreatment (including harsh parenting), positive parenting, and parent mental health. Moderation analyses are prone to the issue of multiplicity (i.e., the more analysis conducted the higher the chance of a false positive result). Therefore, to minimise this risk, we considered these three outcomes as particularly important given the high rates of child maltreatment and parent mental health concerns in the populations relevant for the Practice Guide. Furthermore, we have included positive parenting practices as a key outcome for moderation analyses because the aim of multiple included interventions is to strengthen more positive, effective and non-violent parenting practices.

To examine which contextual and delivery/implementation elements of interventions moderate the effects on child maltreatment (incl. harsh parenting), positive parenting, and parent mental health, we will run a multitude of meta-regression analyses using robust variance estimation techniques. Moderators are either categorical (e.g., indicated prevention trial vs. treatment trial), or follow a continuous structure (e.g., mean child age of a trial). Moderation analysis using categorical moderators will test whether there is a difference in effect between the groups tested (e.g., indicated vs treatment trials). Moderation analysis using continuous moderators will test whether the continuous moderator is predictive of the outcome of interest (e.g., effectiveness decreases/increases with increase in child age). Based on our knowledge of the topic and previous research, we propose subgroup analysis for the following moderators:

- Target population
    - Selective, indicated or treatment intervention
    - Additional contextual elements contributing to vulnerability (e.g., poverty, ethnicity, lone parenthood)
- Child age
- Length of programme
- Delivery format.

Isolating and testing the individual impact of key practice elements

In the third set of analyses, we aim to examine whether key practice elements impact the effectiveness of parenting interventions for families with complex and multiple needs. As described in the previous section, we will focus here on moderation effects on three key outcomes: child maltreatment, positive parenting, and parent mental health. We will apply the same moderation techniques using robust variance estimation meta-regression analyses as described earlier.

We will test for each key practice element whether inclusion is associated with programme effects. The meta-regression coefficients of these models represent the difference in effect size between trials that compare a parenting programme with the key practice element against a control, and trials that compare a parenting programme without the key practice element against a control.

Based on our knowledge of the topic and previous research, we propose subgroup analysis of components based on the following:

1. Our prior work on components of social learning theory parenting interventions (e.g., components such as praise, proactive parenting; parent self-management).
2. Based on prior reviews, we will identify key additional parenting components for vulnerable groups e.g., attachment related parenting interventions including mentalisation; mindfulness; family group approaches. Components that are associated with improving parental reflective functioning and affect regulation are likely to be particularly relevant e.g., video feedback; mentalising stance of the therapist; reframing techniques.

Where sufficient numbers of studies utilise a given component, we will be able to assess in the meta-regression the association between the component and child and parent outcomes. Before analysis, we propose to finalise the list of components in consultation with Foundations and the Advisory Group.

Assessing feasibility in UK context and eligibility for inclusion in the practice guide

As we noted earlier, an assessment of the feasibility of effective interventions and practice elements for UK contexts and for inclusion in the practice guide will be an important element of the study. We propose to consider the issues noted in Table 2 below. We will discuss this preliminary list with Foundations and the Advisory Group, and also propose potential ways for synthesising the information (e.g., by introducing a ranking). In finalising the approach, we will discuss with Foundations existing plans for the Practice Guides, and potentially consult with key stakeholders for the Practice Guides such as the Association of Directors of Children's Services (ADCS).

We will draw on information from trial reports, programme websites and manuals and information shared by the programme developers we have contacted. In addition, we will use guidebooks and repositories of evidence-based programmes (e.g., EIF, WWCSC, NICE, clearing houses), and

consultation with key sector bodies such as NSPCC and ADCS. We anticipate that information will often be available at a programmatic rather than elements level, but will include information about elements where possible.

Table 2: Feasibility assessment

Area	Rationale	Types and sources of information
Experience of delivering the intervention/ practice in the UK	Successful implementation of the intervention / practice in the UK indicates feasibility of delivery	Guidebooks, best practice compilations, implementation evaluations, and feedback from implementing/sector bodies
Workforce and infrastructure requirements	The degree of alignment and compatibility with existing human resources (in terms of staffing and qualifications required), systems and processes and / or practice is a key determinant of implementability	Information on implementation requirements - including human resource and infrastructure and system requirements. Drawn from guidebooks, best practice compilations, trial reports, programme manuals, websites and feedback from implementing/sector bodies
Implementation support available	Sufficient implementation support is important for feasibility. This may include training materials, guides, quality assurance procedures and tools, ongoing technical support	Programme manuals and websites, guidebooks, best practice compilations
Cost	Whether the intervention purchase and / or operating costs are affordable for those involved is an aspect of feasibility	Cost information from programme manuals, websites, guidebooks, best practice compilations

Registration

This review will be registered with the Open Science Framework (OSF).

Personnel

Jane Lewis – Managing Director, Centre for Evidence and Implementation – will be the Principal Investigator and Project Director.

Prof Frances Gardner - Professor of Child and Family Psychology, University of Oxford - will be Co-Investigator providing technical expertise on the review design, quality assurance, synthesis and contributing to reporting

Prof Jane Barlow - Professor of Evidence Based Intervention and Policy Evaluation, University of Oxford - Co-Investigator similarly providing technical expertise on the review design, quality assurance, synthesis and contributing to reporting.

Dr. Sophia Backhaus – Assistant Professor, University of Amsterdam - will be a Co-Investigator and lead the meta-analysis, as well as provide quality assurance.

Anne-Marie Baan – Advisor, Centre for Evidence and Implementation – will be the project manager, working on the study selection, data extraction, practice coding and reporting

Dr. Janell Kwok – Advisor, Centre for Evidence and Implementation –will be involved as a researcher, working on the study selection, data extraction, practice coding and reporting.

Dr. Evelyn Tan - Principal Advisor, Centre for Evidence and Implementation –will be involved as a senior researcher, working in particular on practice coding.

Dr. Ellie Ott – Associate Director, Centre for Evidence and Implementation –will act as advisor to the review and provide methodological guidance and advice

Professor Aron Shlonsky – Professor, Monash University – will provide further expert advice on systematic review and meta-analysis methodology.

Paola Castellanos – Research Assistant, Centre for Evidence and Implementation – will support the review.

Timeline

Dates	Activity	Staff responsible/ Leading
November 2023	Finalisation of Protocol and publication in OSF	CEI – Anne-Marie

November 2023	Advisory Group consultation	CEI – Jane Lewis
November 2023	Selection of trials with higher need families (component 1)	Frances, Jane Lewis, Jane Barlow, Sophia
November - December 2023	Screening of Global data set and systematic reviews (component 2)	CEI – Anne-Marie and Janell
December 2023	Updated search and screening (component 3)	CEI – Anne-Marie and Janell
January 2024	Extract data from included studies	CEI – Anne-Marie, Janell, Evelyn, Paola
November – January 2023	Search for secondary sources on practice elements and feasibility; contact experts	CEI – Anne-Marie, Janell, Paola
December 2023 – January 2024	Coding of information on practice elements and feasibility	CEI – Anne-Marie, Janell, Evelyn, RA (with support wider team)
December – January 2024	Assessing individual studies for risk of bias	CEI – Anne-Marie, Janell, RA
February 2024	Statistical analysis and synthesis	Sophia
February – April 2024	Report writing	All
March 2024	Findings shared with Advisory Group (presentation)	Jane Lewis
April 2024	First draft shared for peer review	Jane Lewis
May 2024	Systematic review draft finalised	Jane Lewis
June 2024*	Publication of the systematic review	

*A **1 month** extension has been agreed which could mean the review will be published in July 2024. The milestones above also have the potential to be adjusted by up to a month.

Part 5: References

Asmussen, K., Waddell, S., Molloy, D., & Moore, I. (2022). What works to improve the lives of England's most vulnerable children: A review of interventions for a local family help offer. *Early Intervention Foundation*.

Austin, A. E., Lesak, A. M., & Shanahan, M. E. (2020). Risk and protective factors for child maltreatment: A review. Current epidemiology reports, 7(4), 334–342. https://doi.org/10.1007/s40471-020-00252-3

Barth, R. P., Lee, B. R., Lindsey, M. A., Collins, K. S., Strieder, F., Chorpita, B. F., Becker, K. D., & Sparks, J. A. (2012). Evidence-based practice at a crossroads: The timely emergence of common elements and common factors. *Research on Social Work Practice*, *22*(1), 108–119. https://doi.org/10.1177/1049731511408440

Backhaus, S., Leijten, P., Meinck, F., & Gardner, F. (2022). Different Instruments, Same Content? A Systematic Comparison of Child Maltreatment and Harsh Parenting Instruments. Trauma, Violence, & Abuse, 0(0). https://doi.org/10.1177/15248380221134290

Backhaus, S., Leijten, P., Jochim, J., Melendez-Torres, G. J., & Gardner, F. (2023a). Effects over time of parenting interventions to reduce physical and emotional violence against children: A systematic review and meta-analysis. *EClinicalMedicine*, *60*, 102003. https://doi.org/10.1016/j.eclinm.2023.102003

Backhaus S., Gardner F., Melendez-Torres, GJ., Schafer, M., Knerr, W., Lachman, J. (2023). *WHO 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*. Geneva: WHO.

Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological bulletin*, *129*(2), 195–215. https://doi.org/10.1037/0033-2909.129.2.195

Borntrager, C., Chorpita, B. F., Higa-McMillan, C. K., Daleiden, E. L., & Starace, N. (2013). Usual care for trauma-exposed youth: Are clinician-reported therapy techniques evidence-based? *Children and Youth Services Review*, *35*(1), 133–141. https://doi.org/10.1016/j.childyouth.2012.09.018

Bruns, E. J., Walker, J. S., Bernstein, A., Daleiden, E., Pullmann, M. D., & Chorpita, B. F. (2014). Family voice with informed choice: Coordinating wraparound with research-based treatment for children and adolescents. *Journal of Clinical Child and Adolescent Psychology*, *43*(2), 256–269. https://doi.org/10.1080/15374416.2013.859081

Casillas, K. L., Fauchier, A., Derkash, B. T., & Garrido, E. F. (2016). Implementation of evidence-based home visiting programs aimed at reducing child maltreatment: A meta-analytic review. Child abuse & neglect, 53, 64–80. https://doi.org/10.1016/j.chiabu.2015.10.009

Centres for Disease Control and Prevention (2023) ACEs Risk and Protective Factors. Accessed from: https://www.cdc.gov/violenceprevention/aces/riskprotectivefactors.html

Centre for Evidence and Implementation (n.d.). Equitable Implementation Framework (internal document)

Chen, M., & Chan, K. L. (2016). Effects of Parenting Programs on Child Maltreatment Prevention: A Meta-Analysis. *Trauma, Violence, & Abuse*, *17*(1), 88–104. https://doi.org/10.1177/1524838014566718

Chorpita, B. F., Daleiden, E. L., & Weisz, J. R. (2005). Identifying and selecting the common elements of evidence based interventions: A distillation and matching model. *Mental Health Services Research*, *7*(1), 5–20. https://doi.org/10.1007/s11020-005-1962-6

Chorpita, B. F., Becker, K. D., & Daleiden, E. L. (2007). Understanding the common elements of evidence based practice: Misconceptions and clinical examples. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*, 647–652.

Damschroder, L., Reardon, C. M., Widerquist, M. A. O., & Lowery, J. C. (2022). The updated consolidated framework for implementation research: CFIR 2.0.

Engell, T., Løvstad, A. M., Kirkøen, B., Ogden, T., & Hagen, K. A. (2021). Exploring how intervention characteristics affect implementability: A mixed methods case study of common elements-based academic support in child welfare services. Children and Youth Services Review, 129, 106180.

Euser, S., Alink, L. R., Stoltenborgh, M., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2015). A gloomy picture: A meta-analysis of randomized controlled trials reveals disappointing effectiveness of programs aiming at preventing child maltreatment. *BMC Public Health*, *15*(1), 1068. https://doi.org/10.1186/s12889-015-2387-9

Gardner, F., Leijten, P., Harris, V., Mann, J., Hutchings, J., Beecham, J., Bonin, E. M., Berry, V., McGilloway, S., Gaspar, M., João Seabra-Santos, M., Orobio de Castro, B., Menting, A., Williams, M., Axberg, U., Morch, W. T., Scott, S., & Landau, S. (2019). Equity effects of parenting interventions for child conduct problems: a pan-European individual participant data meta-analysis. *The lancet. Psychiatry*, *6*(6), 518–527. https://doi.org/10.1016/S2215-0366(19)30162-2

Garland, A. F., Brookman-Frazee, L., Hurlburt, M., Accurso, E., Zoffness, R., Haine-Schlagel, R., & Ganger, W. (2010). Mental health care for children with disruptive behavior problems: A view inside therapists' offices. *Psychiatric Services*, *61*(8). https://doi.org/10.1176/appi.ps.61.8.788

Gubbels, J., van der Put, C. E., & Assink, M. (2019). The Effectiveness of Parent Training Programs for Child Maltreatment and Their Components: A Meta-Analysis. *International Journal of Environmental Research and Public Health*, *16*(13), 2404. https://doi.org/10.3390/ijerph16132404

Gubbels, J., van der Put, C. E., Stams, G. J. M., Prinzie, P. J., & Assink, M. (2021). Components associated with the effect of home visiting programs on child maltreatment: A meta-analytic review. *Child abuse & neglect, 114*, 104981. https://doi.org/10.1016/j.chiabu.2021.104981

Hogue, A., Bobek, M., Dauber, S., Henderson, C. E., McLeod, B. D., & Southam-Gerow, M. A. (2017). Distilling the core elements of family therapy for adolescent substance use: Conceptual and empirical solutions. *Journal of Child & Adolescent Substance Abuse*, *26*(6), 437–453.

Institute of Medicine. (2015). *Psychosocial interventions for mental and substance use disorders: A framework for establishing evidence-based standards* (M. J. England, A. S. Butler, & M. L. Gonzalez (eds.)). The National Academies Press.

Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of abnormal child psychology*, *36*(4), 567–589. https://doi.org/10.1007/s10802-007-9201-9

Leijten, P., Gardner, F., Melendez-Torres, G. J., van Aar, J., Hutchings, J., Schulz, S., Knerr, W., & Overbeek, G. (2019). Meta-Analyses: Key Parenting Program Components for Disruptive Child Behavior. *Journal of the American Academy of Child & Adolescent Psychiatry*, *58*(2), 180–190. https://doi.org/10.1016/j.jaac.2018.07.900

Leijten, P., Melendez-Torres, G. J., & Gardner, F. (2022). Research Review: The most effective parenting program content for disruptive child behavior – a network meta-analysis. *Journal of Child Psychology and Psychiatry*, *63*(2), 132–142. https://doi.org/10.1111/jcpp.13483

Leijten, P., Melendez-Torres, G. J., Knerr, W., & Gardner, F. (2016). Transported Versus Homegrown Parenting Interventions for Reducing Disruptive Child Behavior: A Multilevel Meta-Regression Study. *Journal of the American Academy of Child & Adolescent Psychiatry*, *55*(7), 610–617. https://doi.org/10.1016/j.jaac.2016.05.003

Lundahl, B., Risser, H. J., & Lovejoy, M. C. (2006). A meta-analysis of parent training: moderators and follow-up effects. *Clinical psychology review*, *26*(1), 86–104. https://doi.org/10.1016/j.cpr.2005.07.004

Marchette, L. K., & Weisz, J. R. (2017). Practitioner Review: Empirical evolution of youth psychotherapy toward transdiagnostic approaches. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *58*(9), 970–984. https://doi.org/10.1111/jcpp.12747

Melendez-Torres, G. J., Leijten, P., & Gardner, F. (2019). What are the optimal combinations of parenting intervention components to reduce physical child abuse recurrence? Reanalysis of a systematic review using qualitative comparative analysis. *Child abuse review*, *28*(3), 181-197.

Moullin, J. C., Dickson, K. S., Stadnick, N. A., Rabin, B., & Aarons, G. A. (2019). Systematic review of the exploration, preparation, implementation, sustainment (EPIS) framework. Implementation Science, 14(1), 1-16.

Mulder, T. M., Kuiper, K. C., van der Put, C. E., Stams, G. J. J., & Assink, M. (2018). Risk factors for child neglect: A meta-analytic review. *Child abuse & neglect, 77*, 198-210. DOI: 10.1016/j.chiabu.2018.01.006

National Institute for Health and Care Excellence (2023) Child maltreatment - recognition and management: What are the risk factors?. Accessed from: https://cks.nice.org.uk/topics/child-maltreatment-recognition-management/background-information/risk-factors/

Okamura, K. H., Orimoto, T. E., Nakamura, B. J., Chang, B., Chorpita, B. F., & Beidas, R. S. (2020). A history of child and adolescent treatment through a distillation lens: Looking back to move forward. *Journal of Behavioral Health Services and Research, 47*(1), 70–85. https://doi.org/10.1007/s11414-019-09659-3

Rodgers, M. A., & Pustejovsky, J. E. (2021). Evaluating meta-analytic methods to detect selective reporting in the presence of dependent effect sizes. *Psychological Methods*, 26(2), 141-160. https://doi.org/10.1037/met0000300

Rotheram-Borus, M. J., Swendeman, D., & Chorpita, B. F. (2012). Disruptive innovations for designing and diffusing evidence-based interventions. *American Psychologist*, *67*(6), 463–476. https://doi.org/10.1037/a0028180

Stephan, S., Westin, A., Lever, N., Medoff, D., Youngstrom, E., & Weist, M. (2012). Do school-based clinicians' knowledge and use of common elements correlate with better treatment quality? *School Mental Health*, *4*(3), 170–180. https://doi.org/10.1007/s12310-012-9079-8

Tanner-Smith, E. E., Tipton, E., & Polanin, J. R. (2016). Handling complex meta-analytic data structures using robust variance estimates: A tutorial in R. Journal of Developmental and Life-Course Criminology, 2(1), 85-112. https://doi.org/10.1007/s40865-016-0026-5

Van der Put, C. E., Assink, M., Gubbels, J., & Boekhout van Solinge, N. F. (2018). Identifying Effective Components of Child Maltreatment Interventions: A Meta-analysis. *Clinical Child and Family Psychology Review*, *21*(2), 171–202. https://doi.org/10.1007/s10567-017-0250-5

Vlahovicova, K., Melendez-Torres, G. J., Leijten, P., Knerr, W., & Gardner, F. (2017). Parenting Programs for the Prevention of Child Physical Abuse Recurrence: A Systematic Review and Meta-Analysis. *Clinical Child and Family Psychology Review*, *20*(3), 351–365. https://doi.org/10.1007/s10567-017-0232-7

World Health Organization (2022). WHO guidelines on parenting interventions to prevent maltreatment and enhance parent–child relationships with children aged 0–17 years. Accessed from: https://www.who.int/publications/i/item/9789240065505

World Health Organization (2023). WHO guidelines on parenting interventions to prevent maltreatment and enhance parent-child relationships with children aged 0-17 years. Geneva: WHO.

Younas, F., & Gutman, L. M. (2023). Parental Risk and Protective Factors in Child Maltreatment: A Systematic Review of the Evidence. *Trauma, Violence, & Abuse, 24*(5), 3697-3714. https://doi.org/10.1177/15248380221134634

Annex

Annex 1: Global review on parenting interventions

The WHO commissioned a systematic review to inform WHO Guidelines on Parenting Interventions to prevent child maltreatment and promote positive development in children aged 0-17 years. The review examined the effectiveness of parenting programmes based on social learning theory in families of children aged 2–10 years. The dataset includes studies published until August 2022. The resulting dataset consists of around 21,000 trials retrieved through the following ways:

- Eligible trials identified through the updating of a previous systematic review from 2014 which used the same inclusion and exclusion criteria (Leijten et al., 2016).
- Trials identified from searches in 2019 (n = 13,022) and 2022 (n = 7,838) in 11 databases (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 5 trial registries (ClinicalTrials.gov, Australian New Zealand Clinical Trials Registry, WHO International Clinical Trials Registry Platform, the metaRegister of Controlled Trials (mRCT)). No language restrictions were imposed. Search terms surrounded three conceptual categories: a) intervention; b parenting; and c) child behavioural and emotional problems.
- Eligible trials identified through hand-searched reference lists of 29 relevant systematic reviews, and contacting of authors by e-mail to request study results and unpublished manuscripts identified through trial registries.
- Eligible trials selected from a recent systematic review that covered studies from low- and middle-income countries and deployed a comprehensive search strategy with an exhaustive grey literature and multi language search in English, Thai, Spanish, Chinese, Farsi, and Russian (CRD42018088697; search updated in August 2022).

Annex 2: Definition of families with higher level needs

We will select a sub-set of those offered an intervention based on risk factors for maltreatment (selective) to include those with higher level needs. Three categories of trials are eligible for inclusion.

Category 1) A study is eligible if any of the following risk criteria (and cut-offs) is met:

Risk factor	Definition	Proposed cut-off as primary risk
Parental substance abuse	Father or mother with current problematic substance use. Including substitute programmes (eg methadone).	At least 50% of study population
Parental mental health	Evidence of current mental health which meets clinical level or is diagnosed. *(This would exclude studies where mental health is assessed using a scale that does not indicate a clinical level.)*	i) At least 50% of study population meets the clinical level; or ii) At least 50% of study population is diagnosed; or iii) The study population mean is within clinical level
Parents with intellectual disability	Parents with an intellectual disability defined as moderate impairments in intellectual functioning and adaptive behaviour.	We will only include trials that target parents with intellectual disability, ie had parental intellectual disability as inclusion criteria (100% of study sample)
Parental incarceration	Father or mother currently incarcerated (with some child contact) or exited within 2 years prior	We will only include trials that had parental incarceration as inclusion criteria (100% of study sample)
Intimate Partner Violence	Parents experiencing / have experienced IPV	We will only include trials that had parental IPV as inclusion criteria (100% of study sample)

Parental childhood experience of maltreatment or other adverse childhood experiences (ACEs)	ACEs we will include are: - Physical abuse - Sexual Abuse - Emotional Abuse - Living with someone who abused drugs - Living with someone who abused alcohol - Exposure to domestic violence - Living with someone who has gone to prison - Living with someone with serious mental illness We will not include: Losing a parent through divorce, death or abandonment	Include if i) at least 50% of study sample experienced some form of maltreatment or other ACE; or ii) trial targets families with one or more ACE, with 100% of study sample falling into this category.

Category 2) A study is eligible if any of the following risk criteria are met plus presence of a second risk factor (with lower cut off)

Risk factor	Indicator / measure	Cut-off	Secondary risk criteria: must also be met
Children with severe child socio-emotional and conduct problems	The intervention is offered to parents of children diagnosed or referred for clinically significant levels of conduct problems *(treated)* The intervention is offered to parents based on reporting that their child scores highly on a behaviour problem inventory *(indicated)*	We will only include trials that target these groups, with 100% of study sample falling into this category.	Using definitions as stated above with lower cut-offs: a) 25% prevalence parental substance abuse b) 25% prevalence mental health / or mean falls within the moderate category (or higher) c) At least 50% parents with intellectual disability d) At least 50% with incarcerated parents e) At least 50% of parents with ACE f) At least 50% teenage parents g) At least 50% traveller families, refugees, asylum-seekers or undocumented migrants h) At least 35% meeting SES cut off (see below)
8) Highly deprived socio-	i) Based on a specific income-based SES	i) At least 70% of study population or	As per above -a) – g) or

economic status (SES)	measure or index of deprivation e.g., SES decile or federal poverty line the Hollingshead Four Factor Index of Socioeconomic Status or covering similar factors will not be included ii) Income: Mean household income below half of median income for that country/state iii) Eligible for / receiving public assistance or financial support	mean of study population below specific line or cut-off (e.g., federal poverty line) ii) At least 70% of study population or mean below half median household income of the population for the specific country/state at the time of data collection[5] iii) At least 70% of study participants	i) least 50% treated or indicated based on child conduct problems (see above)
9) Teenage / adolescent parenthood	Parents aged under 20 at birth of first child or target child	We will only include trials that had teenage parenthood as inclusion criteria (100% of study sample)	As per above a) – i)
10) Traveller families, refugees, asylum seekers, undocumented migrants		We will only include trials that target these groups, with 100% of study sample falling into this category.	As per above a) – i)

[5] In case time of data collection is not reported, then we will base time of data collection on publication year minus 5.5 years. This is based on the average in trials included in Backhaus et al (2023), that reported this information.

Category 3) A study is eligible when there is evidence of multiple risk factors (but not meeting criteria of categories 1 and 2)

Risk factor	Indicator / measure	Cut-off
Risk factors listed above i.e. - parental substance abuse - parental mental health - teen parenthood - parental intellectual disability - parental incarceration - IPV - parental experience of ACEs - traveller / refugee/asylum seeker undocumented migrant - low SES - child conduct problems	As described under categories 1 and 2	• 3 or more risks evidenced for a significant proportion of the study population (eg 50% +) – or mean number of risks is 3+; or • Entire study population has at least one of our relevant primary risk factors (ie those noted in Category 1 above); or • Eligibility for the trial is based on scoring moderate or high on a multi-risk assessment measure