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Interventions from pregnancy to two years after birth for parents experiencing complex post-traumatic stress disorder and/or with childhood experience of maltreatment (Review)

Jones KA, Freijah I, Brennan SE, McKenzie JE, Bright TM, Fiolet R, Kamitsis I, Reid C, Davis E, Andrews S, Muzik M, Segal L, Herrman H, Chamberlain C

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[Intervention Review]

Interventions from pregnancy to two years after birth for parents experiencing complex post-traumatic stress disorder and/or with childhood experience of maltreatment

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ABSTRACT

Background

Acceptable, effective and feasible support strategies (interventions) for parents experiencing complex post-traumatic stress disorder (CPTSD) symptoms or with a history of childhood maltreatment may offer an opportunity to support parental recovery, reduce the risk of intergenerational transmission of trauma and improve life-course trajectories for children and future generations. However, evidence relating to the effect of interventions has not been synthesised to provide a comprehensive review of available support strategies. This evidence synthesis is critical to inform further research, practice and policy approaches in this emerging area.

Objectives

To assess the effects of interventions provided to support parents who were experiencing CPTSD symptoms or who had experienced childhood maltreatment (or both), on parenting capacity and parental psychological or socio-emotional wellbeing.

Search methods

In October 2021 we searched CENTRAL, MEDLINE, Embase, six other databases and two trials registers, together with checking references and contacting experts to identify additional studies.

Selection criteria

All variants of randomised controlled trials (RCTs) comparing any intervention delivered in the perinatal period designed to support parents experiencing CPTSD symptoms or with a history of childhood maltreatment (or both), to any active or inactive control. Primary outcomes were parental psychological or socio-emotional wellbeing and parenting capacity between pregnancy and up to two years postpartum.

Data collection and analysis

Two review authors independently assessed the eligibility of trials for inclusion, extracted data using a pre-designed data extraction form, and assessed risk of bias and certainty of evidence. We contacted study authors for additional information as required. We analysed continuous data using mean difference (MD) for outcomes using a single measure, and standardised mean difference (SMD) for outcomes using multiple measures, and risk ratios (RR) for dichotomous data. All data are presented with 95% confidence intervals (CIs). We undertook meta-analyses using random-effects models.

Main results

We included evidence from 1925 participants in 15 RCTs that investigated the effect of 17 interventions. All included studies were published after 2005. Interventions included seven parenting interventions, eight psychological interventions and two service system approaches. The studies were funded by major research councils, government departments and philanthropic/charitable organisations. All evidence was of low or very low certainty.

Parenting interventions

Evidence was very uncertain from a study (33 participants) assessing the effects of a parenting intervention compared to attention control on trauma-related symptoms, and psychological wellbeing symptoms (postpartum depression), in mothers who had experienced childhood maltreatment and were experiencing current parenting risk factors. Evidence suggested that parenting interventions may improve parent-child relationships slightly compared to usual service provision (SMD 0.45, 95% CI -0.06 to 0.96; I^2 = 60%; 2 studies, 153 participants; low-certainty evidence). There may be little or no difference between parenting interventions and usual perinatal service in parenting skills including nurturance, supportive presence and reciprocity (SMD 0.25, 95% CI -0.07 to 0.58; I^2 = 0%; 4 studies, 149 participants; low-certainty evidence). No studies assessed the effects of parenting interventions on parents' substance use, relationship quality or self-harm.

Psychological interventions

Psychological interventions may result in little or no difference in trauma-related symptoms compared to usual care (SMD -0.05, 95% CI -0.40 to 0.31; I^2 = 39%; 4 studies, 247 participants; low-certainty evidence). Psychological interventions may make little or no difference compared to usual care to depression symptom severity (8 studies, 507 participants, low-certainty evidence, SMD -0.34, 95% CI -0.66 to -0.03; I^2 = 63%). An interpersonally focused cognitive behavioural analysis system of psychotherapy may slightly increase the number of pregnant women who quit smoking compared to usual smoking cessation therapy and prenatal care (189 participants, low-certainty evidence). A psychological intervention may slightly improve parents' relationship quality compared to usual care (1 study, 67 participants, low-certainty evidence). Benefits for parent-child relationships were very uncertain (26 participants, very low-certainty evidence), while there may be a slight improvement in parenting skills compared to usual care (66 participants, low-certainty evidence). No studies assessed the effects of psychological interventions on parents' self-harm.

Service system approaches

One service system approach assessed the effect of a financial empowerment education programme, with and without trauma-informed peer support, compared to usual care for parents with low incomes. The interventions increased depression slightly (52 participants, low-certainty evidence). No studies assessed the effects of service system interventions on parents' trauma-related symptoms, substance use, relationship quality, self-harm, parent-child relationships or parenting skills.

Authors' conclusions

There is currently a lack of high-quality evidence regarding the effectiveness of interventions to improve parenting capacity or parental psychological or socio-emotional wellbeing in parents experiencing CPTSD symptoms or who have experienced childhood maltreatment (or both). This lack of methodological rigour and high risk of bias made it difficult to interpret the findings of this review. Overall, results suggest that parenting interventions may slightly improve parent-child relationships but have a small, unimportant effect on parenting skills. Psychological interventions may help some women stop smoking in pregnancy, and may have small benefits on parents' relationships and parenting skills. A financial empowerment programme may slightly worsen depression symptoms. While potential beneficial effects were small, the importance of a positive effect in a small number of parents must be considered when making treatment and care decisions. There is a need for further high-quality research into effective strategies for this population.

PLAIN LANGUAGE SUMMARY

Do supports during pregnancy or in the two years after birth improve parenting capacity or wellbeing for parents experiencing trauma-related symptoms, or who experienced maltreatment in their childhood?

Key messages

Most evidence either suggested that parenting and psychological interventions made little or no difference in parental psychological wellbeing and parenting capacity, or it was of low quality so that confidence in the results was very uncertain.

Parenting interventions may slightly improve relationships between mothers and their child compared to usual care.

One psychological intervention could possibly help a slightly greater number of mothers quit smoking when pregnant compared to enhanced usual treatment. Another psychological intervention potentially benefits parents' relationships slightly and another may slightly improve parenting skills.

Interventions for parents with complex PTSD (post-traumatic stress disorder) or who experienced childhood maltreatment

Childhood maltreatment can lead to complex post-traumatic stress disorder (CPTSD) in adulthood and problems with relationships. People who experienced childhood maltreatment are also more likely to experience other life adversities and health inequity. These problems can affect parenting and lead to 'intergenerational cycles' of trauma.

Types of support for parents who experience childhood maltreatment include psychological therapies, parenting interventions, mind-body and biomedical approaches, pharmacological therapies and service system approaches.

What did we want to find out?

We wanted to find out which of these supports helped improve parenting capacity and wellbeing in parents who had experienced childhood maltreatment or CPTSD.

What did we do?

We searched for studies that looked at how well these interventions worked compared to usual perinatal supports, for improving parents' parenting skills and their wellbeing. We compared and summarised the results of the studies and rated our confidence in the evidence, based on factors such as study methods and sample sizes.

What did we find?

We found 15 studies that involved 1925 parents who had experienced childhood maltreatment and/or who had CPTSD or PTSD symptoms. About half of the studies included people who had experienced moderate-severe childhood maltreatment, while the others experienced lower levels of childhood maltreatment.

Most studies looked at how well parenting or psychological interventions worked, and these were mostly compared to usual prenatal or postnatal care. We found no studies that looked at mind-body, biomedical or pharmacological approaches to improving parenting capacity or parent wellbeing. Most studies reported changes in wellbeing or parenting outcomes immediately after finishing the intervention. The interventions ranged from a single session to 12 months of weekly sessions. All but one study took place in the USA, and almost all people who took part were mothers. Most studies were funded by major research councils, government departments and philanthropic/charitable organisations.

Main results

We found that most of the studies did not use rigorous methods (to account for dropout) and therefore the results were uncertain.

Parenting interventions

Evidence was very uncertain from a study of a parenting intervention compared to a control on trauma-related symptoms, and psychological wellbeing symptoms (postnatal depression), in mothers who had experienced childhood maltreatment and were experiencing current parenting risk factors. Two studies found that parenting interventions may slightly improve the relationship between mothers and their child compared to usual care. Four studies found little to no difference between a parenting intervention and usual care in parenting skills. No studies assessed the effects of parenting interventions on parent's substance use, relationship quality or self-harm.

Psychological interventions

Four studies found little or no difference in trauma-related symptoms from a psychological intervention compared to usual care. Eight studies found little or no difference between a psychological intervention and usual care in parents psychological wellbeing (depression). Another study showed that the addition of a psychological intervention may help slightly more women quit smoking in pregnancy than usual prenatal care and smoking cessation counselling. Another found that a psychological intervention may help parents' relationship quality slightly. The evidence from one study was very uncertain about whether a psychological intervention made any difference to parent-child relationships compared to usual care. Another study found that there may be small improvements in parenting skills when parents received a psychological intervention compared to usual care. No studies assessed the effects of psychological interventions on parents' self-harm.

Service system approaches

One financial education programme for parents with low incomes and childhood maltreatment histories increased depression symptoms slightly compared to usual care. No studies assessed the effects of service system interventions on parents' trauma-related symptoms, substance use, relationship quality, self-harm, parent-child relationships or parenting skills.

What are the limitations of the evidence?

We are not confident in the results from a lot of the studies because many people dropped out during the study, so there was a lot of missing data and there were not enough large, well-designed studies to be certain about the results. There is limited evidence of important benefits available so far in this emerging field.

How up-to-date is this evidence?

The evidence is up-to-date to October 2021.

SUMMARY OF FINDINGS

Summary of findings 1. Summary of findings table - Parenting interventions compared to inactive control (usual care care, attention control, waitlist) for parents who are experiencing CPTSD symptoms or have experienced maltreatment in childhood

Parenting interventions compared to inactive control (usual care care, attention control, waitlist) for parents who are experiencing CPTSD symptoms or have experienced maltreatment in childhood

Patient or population: parents who are experiencing CPTSD symptoms or have experienced maltreatment in childhood
Setting: community-based programmes, hospitals, out-patient clinics, public community health centres
Intervention: parenting interventions
Comparison: inactive control (usual care care, attention control, waitlist)

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with inactive control (usual care care, attention control, waitlist)	Risk with parenting interventions				
Trauma-related symptoms - post-intervention[b]	-	SMD **0.16 SD lower** (0.85 lower to 0.53 higher)	-	33 (1 RCT)	⊕⊖⊖⊖ Very low[c,d]	The evidence is very uncertain about the effects of parenting interventions on CPTSD/PTSD symptoms
Psychological wellbeing - post-intervention[e]	-	SMD **0 SD** (0.69 lower to 0.69 higher)	-	33 (1 RCT)	⊕⊖⊖⊖ Very low[c,d]	The evidence is very uncertain about the effects of parenting interventions on psychological wellbeing (postpartum depression)
Substance use - post-intervention - not reported	-	-	-	-	-	No studies reported data
Parent relationship quality - post-intervention - not reported	-	-	-	-	-	No studies reported data
Parental self-harm - post-intervention - not reported	-	-	-	-	-	No studies reported data
Parent–child relationship (continuous data) - post-intervention[f]	-	SMD **0.45 SD higher** (0.06 lower to 0.96 higher)	-	153 (2 RCTs)	⊕⊕⊖⊖ Low[g,h,i]	Parenting interventions may improve parent–child relationship slightly

Parenting skills - post-intervention[j]	-	SMD **0.25 SD higher** (0.07 lower to 0.58 higher)	-	149 (4 RCTs)	⊕⊕⊖⊖ Low[k,l]	Parenting interventions may result in little to no difference in parenting skills

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **MD:** mean difference; **SMD:** standardised mean difference

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

See interactive version of this table: https://gdt.gradepro.org/presentations/#/isof/isof_question_revman_web_432966949919695522.

[a] Interpretation of importance of SMD effect sizes: < 0.40 = small (trivial) effect (little or no difference), 0.40 to 0.7 = small but important effect ('slight' reduction/increase in outcome), > 0.7 = large effect (large reduction/increase in outcome).
[b] Outcome: PTSD assessed with The National Women's Study PTSD Module (PNWS-PTSD), lower scores = less harm.
[c] Evidence downgraded 1 level for risk of bias; single study with some concerns about risk of bias.
[d] Evidence downgraded 2 levels for imprecision; the 95% CI includes appreciable benefit and appreciable harm (i.e. crosses the threshold for both important benefit (SMD ≥ 0.4) and important harm (SMD ≤ -0.4)).
[e] Outcome: postpartum depression symptoms assessed with Postpartum Depression Screening Scale (PDSS), lower scores = less harm.
[f] Outcomes: parental sensitivity, assessed with Nursing Child Assessment Teaching Scale (NCATS); dyadic reciprocity assessed with Coding Interactive Behaviour System (CIB), higher score = greater benefit.
[g] Evidence downgraded 1 level for risk of bias; high risk of bias for one study (49.8% of weight in the meta -analysis) and some concerns about risk of bias for the other study.
[h] Evidence not downgraded for inconsistency: point estimates differ but confidence intervals overlap and, in both studies, the confidence interval is consistent with both little or no difference and important harm/benefit. (P value Chi2 = 0.11; I2 = 60%).
[i] Evidence downgraded 1 level for imprecision; the 95% CI includes 'little or no' difference and appreciable benefit (i.e. crosses the threshold for important benefit: SMD ≥ 0.4).
[j] Outcomes: Maternal supportive presence (2 studies) assessed with Coding Interactive Behaviour System (CIB) and direct observation; Parental self-efficacy in nurturance, valuing the child and empathetic responsiveness assessed with Self-Efficacy for Parenting Tasks Index - Toddler Scale (SEPTI-TS) (1 study); child caregiving behaviours assessed with Caregiving Helplessness Questionnaire (CHQ) (reverse scored, 1 study), higher score = greater benefit.
[k] Evidence downgraded 1 level for risk of bias; high risk of bias for one study (51.8% of weight in the meta-analysis) and some concerns about risk of bias for all other studies.
[l] Evidence downgraded 1 level for imprecision; the 95% CI includes 'little or no' difference and appreciable benefit (i.e. crosses the threshold for important benefit: SMD ≥ 0.4).

Summary of findings 2. Summary of findings table - Psychological interventions compared to inactive control (usual care care, attention control, waitlist) for parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood

Psychological interventions compared to inactive control (usual care care, attention control, waitlist) for parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood

Patient or population: parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood
Setting: community-based programs, hospitals, out-patient clinics, public community health centres
Intervention: psychological interventions
Comparison: inactive control (usual care care, attention control, waitlist)

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with inactive control (usual care care, attention control, waitlist)	Risk with psychological interventions				
Trauma-related symptoms - post-intervention[b]	-	SMD **0.05 SD lower** (0.4 lower to 0.31 higher)	-	247 (4 RCTs)	⊕⊕⊖⊖ Low[c]	Psychological interventions may not reduce CPTSD/PTSD symptoms
Psychological well-being - post-intervention[d]	-	SMD **0.34 SD lower** (0.66 lower to 0.03 lower)	-	507 (8 RCTs)	⊕⊕⊖⊖ Low[e,f]	Psychological interventions may result in little to no difference in psychological well-being (depression)
Substance use - post-intervention[g]	95 per 1000	**149 per 1000** (68 to 327)	**RR 1.57** (0.72 to 3.45)	189 (1 RCT)	⊕⊕⊖⊖ Low[h,i]	Psychological interventions may increase the proportion of participants who abstain from smoking slightly.
Parent relationship quality - post-intervention[j]	-	SMD **0.49 SD higher** (0 to 0.98 higher)	-	67 (1 RCT)	⊕⊕⊖⊖ Low[k,l]	Psychological interventions may increase parent relationship quality slightly
Parental self-harm - post-intervention - not reported	-	-	-	-	-	No studies reported data
Parent–child relationship - post-intervention[m]	71 per 1000	**334 per 1000** (43 to 1000)	**RR 4.67** (0.60 to 36.29)	26 (1 RCT)	⊕⊖⊖⊖ Very low[n,o]	The evidence is very uncertain about the effects of psychological interventions on the proportion of participants with worse parent-child relationships (disorganised infant attachment)
Parenting skills - post-intervention[p]	-	SMD **0.51 SD higher** (0.01 higher to 1 higher)	-	66 (1 RCT)	⊕⊕⊖⊖ Low[k,l]	Psychological interventions may improve parenting skills slightly

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the __relative effect__ of the intervention (and its 95% CI).

CI: confidence interval; **RR:** risk ratio; **SMD:** standardised mean difference

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

See interactive version of this table: https://gdt.gradepro.org/presentations/#/isof/isof_question_revman_web_432973066814822713.

[a] Interpretation of importance of SMD effect sizes: < 0.40 = small (trivial) effect - (little or no difference), 0.40 to 0.7 = small but important effect ('slight' reduction/increase in outcome), > 0.7 = large effect (large reduction/increase in outcome).
[b] Outcomes: PTSD symptom severity assessed with PTSD CheckList - Civilian Version (PCL-C) and Post-traumatic Stress Scale (PSS) (2 studies); Interpersonal problems assessed with Inventory of Interpersonal Problems (IIP); Dissociation symptoms assessed with Adolescent Dissociative Experiences Scale (A-DES), lower scores = less harm.
[c] Evidence downgraded 2 levels for risk of bias; high risk of bias for three studies (88.2% of weight in the meta-analysis) and some concerns about risk of bias for one other study.
[d] Outcome: Depression symptom severity assessed with Hamilton Rating Scale for Depression (HRSD); Center for Epidemiologic Studies Depression Scale (CES-D); Beck Depression Inventory (BDI); Beck Depression Inventory II (BDI-II); Hopkins Symptom Checklist (SCL-20); Quick Inventory of Depressive Symptoms (QIDS); Edinburgh Postnatal Depression Scale (EPDS), lower scores = less harm.
[e] Evidence downgraded 1 level for risk of bias; high risk of bias for two studies (26.2% of weight in the meta-analysis) and some concerns about risk of bias for all other studies.
[f] Evidence downgraded 1 level for imprecision; the 95% CI includes 'little or no' difference and appreciable benefit (i.e. crosses the threshold for important benefit: SMD ≥ 0.4).
[g] Outcome: smoking cessation assessed with timeline follow-back (TLFB) interview, higher scores = greater benefit.
[h] Evidence downgraded 1 level for risk of bias; single study with some concerns about risk of bias.
[i] Evidence downgraded 1 level for imprecision; the 95% CI includes 'little or no' difference and appreciable benefit (in absolute terms from 2 fewer per 100 to 24 more).
[j] Outcome: Social support assessed with the Interpersonal Support Evaluation List (ISEL). Higher scores = less harm.
[k] Evidence downgraded 1 level for risk of bias; one study with some concerns.
[l] Evidence downgraded 1 level for imprecision; the 95% CI includes 'little or no' difference and large appreciable benefit (i.e. crosses the threshold for important benefit: SMD ≥ 0.4).
[m] Outcome: disorganised infant attachment assessed with Ainsworth Strange Situation Paradigm (SSP), lower scores = less harm.
[n] Evidence downgraded 2 levels for risk of bias; single study at high risk of bias.
[o] Evidence downgraded 2 levels for imprecision; the 95% CI includes 'little or no' difference and appreciable harm (in absolute terms from 3 fewer per 100 to 100 more); the event rate is very low (4 in intervention group; 1 in control).
[p] Outcome: providing a stimulating, nurturing and safe environment assessed with Home Observation for Measurement of the Environment Inventory (HOME), higher score = greater benefit.

Summary of findings 3. Summary of findings table - Service system approaches compared to inactive control (usual care care, attention control, waitlist) for for parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood

Service system approaches compared to inactive control (usual care care, attention control, waitlist) for for parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood

Patient or population: for parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood
Setting: Community-based programs, hospitals, out-patient clinics, public community health centres
Intervention: Service system approaches
Comparison: inactive control (usual care care, attention control, waitlist)

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with inactive control (usual care care, attention control, waitlist)	Risk with Service system approaches				
Trauma-related symptoms - post-intervention - not reported	-	-	-	-	-	No studies reported data
Psychological well-being - post-intervention[a]	-	SMD **0.42 SD higher** (0.15 lower to 0.99 higher)	-	52 (1 RCT)	⨁⨁◯◯ Low[b,c]	Service system approaches may worsen psychological wellbeing (depression) slightly.[d]
Substance use - post-intervention - not reported	-	-	-	-	-	No studies reported data
Parent relationship quality - not reported	-	-	-	-	-	No studies reported data
Parental self-harm - post-intervention - not reported	-	-	-	-	-	No studies reported data
Parent–child relationship - not reported	-	-	-	-	-	No studies reported data
Parenting skills - post-intervention - not reported	-	-	-	-	-	No studies reported data

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **MD:** mean difference; **SMD:** standardised mean difference

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

See interactive version of this table: https://gdt.gradepro.org/presentations/#/isof/isof_question_revman_web_433493680305253470.

[a] Outcome: Depression symptom severity assessed with Center for Epidemiological Studies Depression scale (CESD), lower scores = less harm.
[b] Evidence downgraded 1 level for risk of bias; one study with high risk of bias.
[c] Evidence downgraded 1 level for imprecision; the 95% CI includes 'little or no difference' and large appreciable benefit (i.e. crosses the threshold for important harm: SMD ≥ 0.4).
[d] Interpretation of importance of SMD effect sizes: < 0.40 = small (trivial) effect - (little or no difference), 0.40 to 0.7 = small but important effect ('slight' reduction/increase in outcome), > 0.7 = large effect (large reduction/increase in outcome)

BACKGROUND

Description of the condition

Complex post-traumatic stress disorder (CPTSD) has been formally recognised in the *International Classification of Diseases*, 11th Edition (ICD-11; WHO 2019). Core symptom clusters include those associated with post-traumatic stress disorder (PTSD) (avoidance of traumatic reminders, persistent sense of current threat, such as hypervigilance, and re-experiencing of the traumatic event in the present, such as flashbacks). CPTSD includes three further symptom clusters that collectively represent disturbances in self-organisation (DSO; affect dysregulation, negative self-concept and disturbances in relationships) (Cloitre 2018; Cloitre 2019; Erickson 2019; Frost 2020).

CPTSD symptoms are most strongly associated with repeated exposure to severe traumatic events, often involving interpersonal violation and a sense of inescapability (Cloitre 2019). Childhood maltreatment, affecting up to 50% of all children worldwide (Black 2017; Stoltenborgh 2015; WMA 2017), is the most common antecedent to complex trauma-related symptoms (Agazzi 2019; Frost 2020; Karatzias 2017; Seng 2013). Research has highlighted long-lasting adverse social, emotional and physical health consequences of childhood maltreatment across the life-course (Bellis 2014; Dong 2003; Felitti 1998; Hardcastle 2018). However, not all people who experience childhood maltreatment experience CPTSD. One of the few published prevalence studies of CPTSD found that 3.8% of adults in the USA met the criteria for CPTSD, and an additional 3.4% for PTSD, with higher rates reported among women than men (Cloitre 2019). Not all people who experience CPTSD were exposed to childhood trauma; CPTSD can also be associated with and compounded by repeated exposure to cumulative traumatic events in adulthood (Cloitre 2013; Cloitre 2019; Frost 2020; Herman 1992).

The Power Threat Meaning Framework (PTMF), developed by the British Psychological Society, outlines the role of power and threat in people's lives, and the ways humans have learned to respond to threat (Johnstone 2018), often called 'symptoms' in mental health practice. The PTMF conceptualises complex trauma responses as a way people make sense of difficult experiences, as an alternative to traditional conceptualisations of mental health pathologies and 'diagnoses', which may increase feelings of shame, self-blame and fear (Johnstone 2018).

As CPTSD has only been recently formally recognised as a condition and is therefore unlikely to be included in many previous publications, we included interventions to support parents with a history of childhood maltreatment in this review. This inclusion is because childhood maltreatment is the most common antecedent of CPTSD, and those particular childhood experiences are likely to be most relevant during the critical transition to becoming a parent. We also included studies of parents with a history of childhood removal from their family of origin, as this most commonly occurs following 'substantiated child abuse' by child protection authorities (e.g. interventions to support young people who are becoming parents in out-of-home care settings).

This review adopts the broad World Health Organization (WHO) definition of childhood maltreatment: "Child abuse or maltreatment constitutes 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's health, survival, development or dignity in the context of a relationship of responsibility, trust or power" (Krug 2002, page 59). Children aged three years and under are most likely to be maltreated (Sethi 2013), with one in four adults reporting being physically abused as a child and one in eight sexually abused (Stoltenborgh 2015; WHO 2020). However, few women disclose previous abuse experiences to their care providers in pregnancy (Coles 2009).

Experiences of childhood maltreatment are not equally distributed, and the WHO uses a socio-ecological framework to illustrate how higher levels of social adversity are associated with increased rates of violence and child maltreatment worldwide (Dahlberg 2002). Factors related to adversity and childhood maltreatment also interact leading to increased prevalence of adult risk behaviours such as smoking, obesity and violence perpetuation (Bellis 2014), which can create a 'compounding intergenerational effect' on health inequities (Chamberlain 2019a).

Complex PTSD or a history of maltreatment in childhood (or both) can impact on parenting, potentially leading to 'intergenerational cycles' of trauma (Chamberlain 2019b). Evidence from populations exposed to traumatic experiences such as genocide, colonisation, social marginalisation and subjugation, and war show that parental adversity is associated with socio-emotional and psychological problems, and poor physical health than that of non-trauma-exposed individuals across several generations (Brave Heart 1998; Giladi 2013; McKenna 2022; Plant 2017; Yehuda 2008). Children of parents experiencing PTSD symptoms have been found to be adversely impacted by their parent's distress and trauma responses both directly through parents' projected emotions and, potentially, epigenetic factors, and indirectly via disturbed parent-child attachment (Conching 2019; Howe 2006; O'Neill 2018; Yehuda 2018). Proposed mechanisms include impacts on systems of self-organisation (e.g. affective, self-concept and relationship domains), which in turn are associated with an increased risk of anxiety and depression in parents (Cloitre 2013; Lange 2020; Zajac 2019). Critically, the parent–child relationship may be influenced by the parent's own experiences of being parented (Fava 2016; Savage 2019; Seng 2013). This can affect parent–infant attachment and, in turn, children's developmental outcomes (Bowlby 1988; Bretherton 1992; Erickson 2019; Seng 2013). Thus, parental psychological wellbeing, and parenting capacity, are important outcomes when assessing the impact of interventions delivered in the perinatal period to address effects of CPTSD or childhood maltreatment.

Description of the intervention

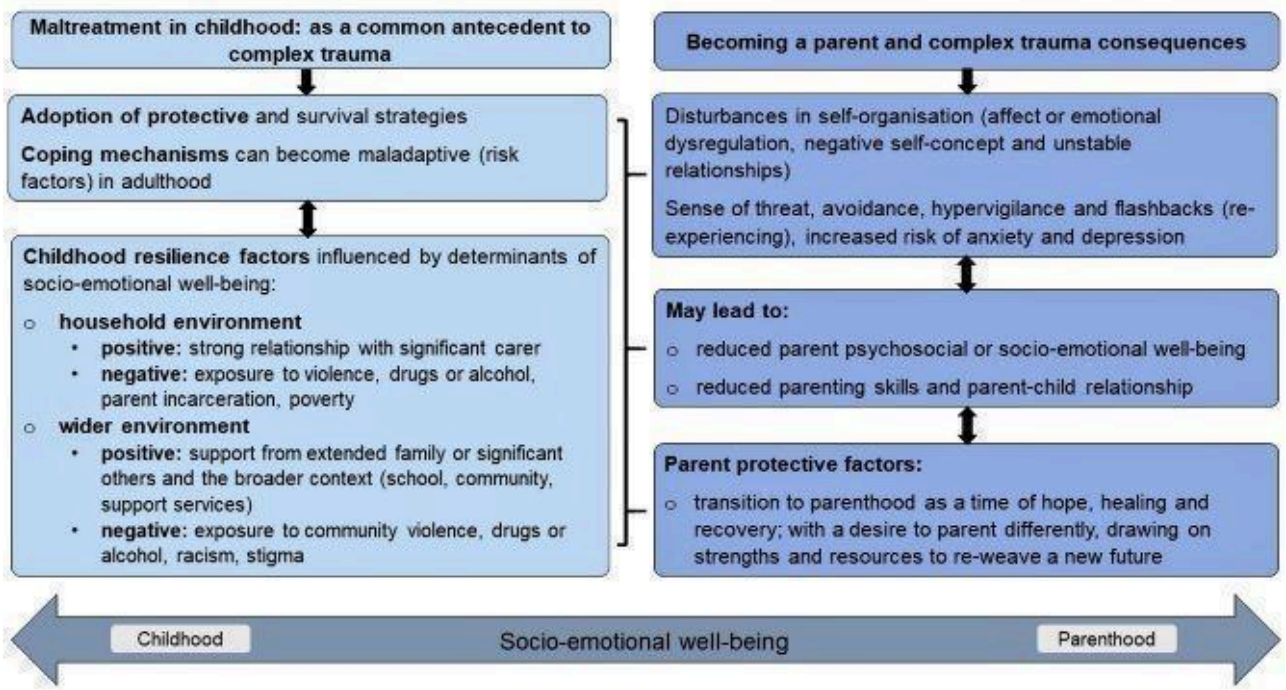
This review considers any intervention provided during pregnancy or up to two years after birth that is designed to support parents who are experiencing CPTSD symptoms or have experienced childhood maltreatment (or both).

The transition to parenthood is a critical life period, particularly for parents who have experienced maltreatment in their own childhoods or are impacted by CPTSD (or both) (Belsky 1980; Chamberlain 2019c; Fava 2016; Narayan 2019). Parent stress may be increased, and consequently post-traumatic adaptations can become exacerbated or memories of childhood maltreatment relived (Berthelot 2018; Zajac 2019). For women with a history of childhood sexual abuse, for example, the intimate nature of many experiences associated with pregnancy and childbirth may trigger

CPTSD symptoms such as flashbacks, hyperarousal or avoidance (Sperlich 2017). Importantly, the transition to parenthood can be an important time of hope, healing and recovery, as new or different parenting patterns are imagined and sought (Chamberlain 2019c; Counts 2017). This period from pregnancy to two years after birth is also usually the first time since childhood that regular, frequent contact with healthcare professionals occurs. This creates a unique opportunity for those impacted by CPTSD to access acceptable and effective support (Seng 2013; Sperlich 2017).

Support for parents (with or without symptoms of CPTSD and/or an explicit history of maltreatment in childhood) often includes cognitive behavioural and psycho-educational intervention strategies (Agazzi 2019). The rationale for such interventions stems from child development and attachment theories that highlight the important role of primary carers (Erickson 2019). The multiplicity of risk and resilience factors associated with parenting while experiencing complex trauma-related distress, and the types of support strategies which might be needed, pose challenges for developing an overarching theory of change model for interventions (Frechtling 2007; Funnell 2011). Figure 1 broadly summarises potential associations between maltreatment in childhood, possible complex trauma consequences that can be mediated by risk and resilience factors, and impacts that might need to be considered in interventions for parents.

Figure 1. Potential associations between maltreatment in childhood, complex trauma (CPTSD) and becoming a parent.



Interventions within the scope of this review

Given the anticipated diversity of interventions and range of included support strategies for parents, and the variety of implementation contexts (e.g. antenatal and maternity clinics, general practice, community-based public health settings or child protection departments), we proposed categories to guide the conceptual thinking for study inclusion, synthesis and identification of relevant outcomes. The rationale for the categories was grounded in the findings of our previous scoping review (Chamberlain 2019b), and qualitative systematic review of parent's experiences (Chamberlain 2019c), which point to a diverse range of preferences and needs, and the importance of choice. We also examined recommendations for support for parents in several national guidelines, including: Mental Health Care in the Perinatal Period: Australian Clinical Practice Guidelines (Austin 2017); and the Australian Department of Health (DoH) Pregnancy Care Guidelines (DOH 2020).

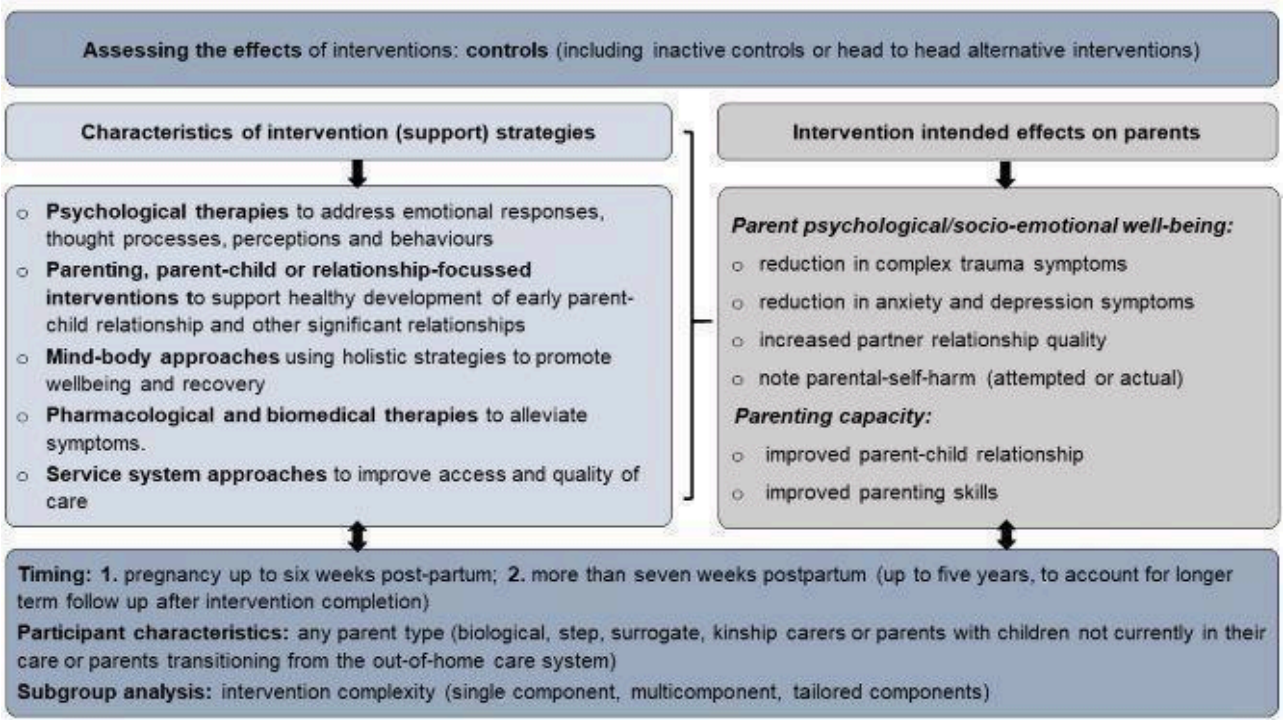
In addition, we consulted the evidence-based PTMF, a multifactorial and contextual approach that incorporates social, psychological and biological factors in emotional distress (Johnstone 2018); Practice Guidelines for Treatment of Complex Trauma and Trauma Informed Care and Service Delivery (Kezelman 2012; Kezelman 2019); the Australian Guidelines for the Prevention and Treatment of Acute Stress Disorder, PTSD and Complex PTSD (Phoenix Australia 2020); and several key reviews to foster consistency of intervention categories across research reporting (Bisson 2020; Bisson 2021; Caro 2019; Erickson 2019; Law 2019; Lewis 2020; Sánchez-Meca 2011).

Recognising that there is considerable overlap between categories and that many comprehensive interventions include elements of several categories, for the purpose of this review we grouped interventions into the categories outlined in Table 1.

How the intervention might work

We developed an initial logic model (see Figure 2) to outline the intervention categories from Table 1 and their characteristics, to support the reasoning underpinning our review questions (Anderson 2011). We used a staged logic modelling approach built through consensus with review authors (Rehfuess 2018). We implemented the staged approach to reduce bias and allow modification and revision of the logic model as information was revealed through the systematic review process (Rehfuess 2018). No modifications of the model were required.

Figure 2. Assessing interventions: characteristics of interventions and intervention effects.



Psychological therapies

Psychological therapies broadly seek to recognise, name and process responses in relation to experiences, and many have been recommended as suitable options for parents (Arons 2005; Perlman 2011). Therapy focuses on the maladaptive mental representations of self (typically formed from experiences in childhood) (Perlman 2011) and address emotions, cognitions, meanings, perceptions and behaviours associated with or arising from complex trauma or experiences of childhood maltreatment (or both) (Lewis 2020). For example, mindfulness activities aim to reduce stress and feelings of becoming overwhelmed, or being aware of trauma response 'triggers' (in carers with childhood maltreatment histories) (Gannon 2017; Miklósi 2017; Van der Kolk 2014).

Parenting-, parent–child- or relationship-focused interventions

Parenting with CPTSD symptoms or a history of childhood maltreatment may affect the development of early parent–child and other relationships and 'parenting' beliefs, attitudes and behaviours (Morelen 2018).

The importance of parent–child attachment was highlighted several decades ago by John Bowlby and Mary Ainsworth in their seminal work on attachment theory (Ainsworth 1997; Bowlby 1988; Rajecki 1978). Attachment theory emphasises the critical need for safe, secure parent–child relationships (Bowlby 1988; Bretherton 1992; Lange 2020). Attachment theory has significantly influenced current strategies to enhance parent–child relationships. Support strategies aim to support healthy development of early parent–child relationships, and the establishment of a confident parenting identity (Fisher 2018). An example of this is the 'Mom Power' intervention (Muzik 2015).

Many parenting interventions typically incorporate attachment theory and aim to help parents respond effectively to soothe their baby, improve interpersonal relationships and foster positive parent–child interactions (Chaffin 2011; Hagan 2017; Zaccagnino 2013; Zlotnick 2011). For example, the Building Early Attachment and Resilience (BEAR) intervention study (Bant 2018).

Parenting group programmes may or may not be underpinned by theories that aim to help identify, examine and modify relevant thoughts and emotions; teach self-care and coping skills; and employ educational approaches to increase parenting knowledge and confidence (Erickson 2019; Rouhe 2015; SmithBattle 2017; Upshur 2016). These programmes sometimes take a manualised psychosocial approach with structured, time-limited sessions delivered by trained professionals (Upshur 2016). Group models are designed to foster social connection, improve interpersonal skills, and provide peer support and peer-to-peer learning. Parents often have an opportunity to share and learn from others at a similar life stage (parenthood), with similar life experiences (Hiebert-

Murphy 2000; SmithBattle 2017). Previous research has suggested that parents experiencing CPTSD symptoms or with childhood maltreatment histories (or both) may be more vulnerable to mental health difficulties due to limited personal and social resources (Berthelot 2018; Grote 2017). Hence, building and enabling a support network through group work attendance can be an important strategy in the transition to parenting.

Parenting programmes delivered from the health or community service contexts aim to help parents develop skills in parenting and influence change through a range of strategies including education, modelling and reinforcement (Paris 2013; Pickering 2015; Rosenblum 2017; Steele 2019). Home visitation models are included in this category and are aimed at prevention and early intervention. These may target a variety of outcomes including improving parent–child attachment, parenting behaviours, parenting self-efficacy, child development, school readiness, and prevention of child abuse and neglect (Ammerman 2009; Barlow 2007; LeCroy 2011; Pickering 2015). Nurses, social workers, paraprofessionals, allied health assistants or trained peer advocates may provide this in-home service.

Mind–body approaches

In this review, mind–body approaches refer to a broad grouping of non-clinical, non-pharmacological holistic modalities that aim to promote wellbeing and recovery (Bisson 2020); improve self-esteem and confidence; assist to externalise feelings, thoughts and emotions; promote a sense of self and allow a person to tell their story (Day 2009; Van der Kolk 2014). Examples of these approaches include the healing capacity of creative expression therapies such as writing, art, music and dance, which have been used to address postpartum depression, and in children, adolescents and adults who have experienced abuse and trauma (Ayers 2018; Day 2009). Meditation has also been shown to have a positive effect on areas of the brain critical for physiological self-regulation (Van der Kolk 2014).

Pharmacological and biomedical interventions

Pharmacological and biomedical interventions are used to reduce symptoms of distress and enhance functioning, in combination with other intervention modalities such as psychological therapies, parenting or mind–body approaches (Grote 2017; Slee 2019). Pharmacotherapies are used to treat complex trauma symptoms such as sleep difficulties, persistent hyperarousal, exaggerated startle response and irritability (angry outbursts), anxiety and depression (Berthelot 2018; Grote 2017; Hendriksen 2014; Slee 2019). Biomedical interventions such as neuromodulation strategies are sometimes proposed to modulate 'fear' or trauma responses, where pharmacological and other therapies have failed to alleviate severe symptoms of trauma-related distress (Gouveia 2019).

Service system approaches

Parents experiencing CPTSD symptoms or with histories of maltreatment in their own childhoods, or both, may be less likely to engage in care during pregnancy and early years after birth, possibly influenced by avoidance and fear of child protection services (Chamberlain 2019c). Hence, service system approaches that aim to engage parents and foster safety and improve access to effective support strategies are important (Bunting 2019; Ko 2008; Oral 2016; Upshur 2016). These can include education to improve trauma-informed care, described as a whole system strategy that: *realises* the impact of trauma; *recognises* the signs and symptoms; *responds* through integrating trauma knowledge into policies, procedures and practices; and *resists* re-traumatisation through skills training and best-practice approaches (SAMHSA 2014). Trauma-informed care has emerged as a best-practice approach for practitioners, based on the seminal work of Felitti and colleagues (Felitti 1998) with the Adverse Child Experiences (ACEs) studies (Bunting 2019; Oral 2016).

Trauma-informed care also seeks to increase awareness of trauma responses and where possible reduce practices that may exacerbate or trigger trauma responses. Parents have reported a range of experiences during pregnancy and the transition to parenting that are reminiscent of the original trauma and consequently 'trigger' trauma responses, including sounds (e.g. door closing, women calling out in labour), particular smells (e.g. coffee, urine), visual cues (e.g. KY jelly) or sensory experiences (e.g. abdominal and vaginal examinations, breastfeeding) or restraint (Bunting 2019; Chamberlain 2019c). Restraint may be physical (e.g. attached to monitoring equipment and intravenous therapy lines) or pharmacological (e.g. epidural). These experiences can be intensified if the parent has limited control or choice, the carer is perceived as 'insensitive' or 'uncaring,' or a combination of these (Chamberlain 2019c). Interventions to increase trauma-informed care aim to improve outcomes for parents through fostering safety, choice and control within pregnancy, birth and early postpartum care. Additionally, interventions to increase trauma-informed early years services (up to child age five years) aim for continued empowerment and collaboration with parents to enhance parent experiences and increase ongoing engagement with support services (Bunting 2019; Oral 2016). Interventions to improve trauma-informed care can include training for staff, mentoring programmes and models of care that are explicitly designed to improve care for parents experiencing trauma-related symptoms. There are moves towards 'trauma-integrated care' where healing trauma is a core philosophy rather than an additional overlay on existing service models or practitioner approaches (Chamberlain 2019c).

Strategies to improve access can also include 'stepped care', 'collaborative care' models and 'continuity of care' models, which enable providers to build relationships and trust with parents. Case management support strategies to assist with co-ordination of care and service linkage (referral pathways) and access to resources (e.g. housing, clothing, nursery items) are also included within this category. For example, the Mom Power Program, within the connection to resources pillar (Rosenblum 2017).

Why it is important to do this review

There is a need to understand the effectiveness and safety of interventions employed to address CPTSD symptoms in pregnancy and the first two years after birth. Most studies assessing the effect of trauma-focused therapies for trauma symptoms exclude pregnant women, so there is an evidence gap for this population (Arch 2012; Stevens 2021).

Acceptable, effective and feasible support strategies (interventions) for those experiencing CPTSD symptoms or with a history of childhood maltreatment may offer an opportunity to support parental recovery, reduce the risk of intergenerational transmission of trauma and improve life-course trajectories for children and

future generations (Alink 2019; Arabena 2016; Black 2017; Cusick 2019). However, the limited amount of information in this area has yet to be synthesised to allow the most comprehensive review of effectiveness possible at this time (COPE 2017). This evidence synthesised in this review will be used to help inform further research, practice and policy approaches in this emerging area.

OBJECTIVES

To assess the effects of interventions provided to support parents experiencing CPTSD symptoms or who have experienced childhood maltreatment (or both) on parenting capacity and parental psychological or socio-emotional wellbeing.

METHODS

Criteria for considering studies for this review

Types of studies

RCTs (randomised controlled trials) including parallel, cross-over, cluster, factorial and quasi RCTs.

Types of participants

Any parent (mother or father) during pregnancy or up to two years after birth reported as experiencing trauma-related symptoms, however defined, or with a history of childhood maltreatment (or both) (see Background for definition), including a history of being removed from their parents (e.g. history of out-of-home care). Where it was unclear whether all participants were experiencing CPTSD symptoms or had experienced childhood maltreatment (or both), we included studies where:

- the intervention was targeted for parents experiencing CPTSD symptoms or those who had experienced childhood maltreatment (or both); and
- the group allocation and outcomes were reported by CPTSD symptoms or childhood maltreatment history status, which allowed us to only include data from those participants.

Parents could be biological, step, surrogate, kinship carers or parents with children not currently in their care. We excluded studies designed for foster parents, as these studies generally have a specific and different focus from the intended interventions in this review.

Where studies included parents of children with mixed ages, we included studies where most children (greater than 50%) were aged two years or under. Where only the mean ages of children were provided, we included studies where the mean age was three years or less, to err towards inclusivity. Parents could have any number of previous children.

Where the intervention involved a service system approach aimed at supporting parents who are experiencing CPTSD symptoms or have experienced maltreatment in childhood, we included studies involving any service system and provider types.

As CPTSD has only recently been formally recognised, we recognised that it would be unlikely to be explicitly included in the published literature. Accordingly, we sought studies focused on interventions designed to support parents who are experiencing CPTSD symptoms (including PTSD and DSO symptom clusters) or who report a history of childhood maltreatment (as this exposure is the most common antecedent of CPTSD). These criteria are consistent with those used in a related scoping review (Chamberlain 2019b), and a systematic review of qualitative studies of parents' views (Chamberlain 2019c), which informed development of the review protocol.

Types of interventions

Any intervention designed to support parents experiencing CPTSD symptoms or with a history of childhood maltreatment (or both), grouped as follows:

- psychological interventions;
- parenting-, parent–child- or relationship-focused interventions;
- mind-body approaches;
- pharmacological and biomedical therapies;
- service system approaches.

See Table 1 for a description of intervention categories and examples of interventions within each category and How the intervention might work for more details.

We included multicomponent interventions from two or more of the main intervention categories and stratified interventions within these groups by 'single', 'multiple' or 'tailored' interventions (see Data collection and analysis section). We included interventions of any duration or frequency. No restrictions were placed on modes of intervention delivery, such as in groups, individual, in the home or community setting, or by postal or electronic mail or online. Interventions could be delivered by healthcare professionals (e.g. nurses, social workers, psychologists, obstetricians or general practitioners) or by lay people (such as peers or advocates) who have received specific training to support parents. Where two eligible interventions were being compared (i.e. head-to-head comparison), two review authors made a judgement regarding the primary intervention category grouping, erring towards grouping the more novel and 'experimental' intervention category.

Comparisons

Intervention and comparator groups were compared as follows:

- each active intervention group versus any inactive comparator (controls) including usual care, no care, placebos for pharmacotherapy or wait-list conditions; attention placebo controls of similar duration and frequency (Popp 2015); and
- each intervention group versus another eligible intervention (i.e. head-to-head comparisons).

Types of outcome measures

Outcomes were focused on change for parents, rather than the wider family. We evaluated the effectiveness of the interventions for each outcome domain (e.g. trauma symptoms, relationship quality) listed within the following outcome categories.

Primary outcomes

Outcomes considered critical to decision makers and eligible for inclusion were as follows.

- Parental psychological or socio-emotional wellbeing:
  - trauma-related symptoms (including PTSD and CPTSD symptom clusters);

- psychological wellbeing symptoms (including anxiety symptoms, depression symptoms, other validated measures of psychological wellbeing, or a combination of these);
- substance use (commenced, recommended, increased, decreased);
- parents' relationship quality (with partner or significant others); and
- parental self-harm (attempted or actual).

- Parenting capacity:
  - parent–child relationship (e.g. interaction, warmth, attachment, mutual responsivity); and
  - parenting skills (e.g. problem-solving, coping, self-efficacy, parent sensitivity and responsiveness).

Secondary outcomes

Other outcomes of importance to decision makers and eligible for inclusion were as follows.

- Parental intervention acceptability:
  - parent satisfaction with intervention (e.g. emotional safety, cultural safety, appreciation);
  - medication compliance (if applicable); and
  - parent engagement (including dropouts; programme completion).
- Socio-ecological outcomes:
  - social functioning (increased social functioning or social networks, or both); and
  - changes in social capital (e.g. increased access to employment, education, support/health services) or resources (food, housing, clothing).
- Child adverse events recorded during the intervention:
  - child maltreatment occurrence (including exposure to family violence);
  - family disruptions and child removals; and
  - other adverse childhood experiences.
- Child's physical, socio-emotional wellbeing:
  - child physical outcomes (e.g. preterm birth, low birth weight, small-for-gestational age, neonatal intensive care admission, immunisations, hospitalisations);
  - child developmental outcomes (e.g. cognition, speech, language, motor skills); and
  - child emotional and behavioural outcomes (e.g. internalising and externalising behaviour).
- Other outcomes:
  - service provider knowledge, attitudes and practices; and
  - cost or cost-effectiveness.

Methods of outcome assessment

Any validated measure of the outcomes was eligible. For composite outcome measures, prior to examining the results, we made a consensus judgement about whether the measure was similar enough to an outcome domain in the a priori list (Table 2) to warrant outcome inclusion.

Timing of outcome assessment

We extracted and reported data for all available time points. The first time point post-intervention was used for inclusion in the main meta-analyses presented in the summary of findings tables.

Selection of outcomes

Where multiple results were reported that were eligible for inclusion *in the same comparison*, to avoid issues with correlation between effect estimates we used methods outlined in the *Cochrane Handbook of Systematic Reviews of Interventions* to select the most appropriate outcome for inclusion (McKenzie 2019a).

Search methods for identification of studies

We identified relevant intervention studies by searching the electronic databases listed below up to October 2021. The relevant research literature uses diverse terminology and is not consistently indexed within bibliographic databases. Therefore, the search strategy was informed by research identified from an earlier scoping study (Chamberlain 2019b), qualitative review (Chamberlain 2019c), and further work using the 'related items' searches in PubMed. The search strategy was constructed around two key concepts: parents or the transition to parenthood and a history of childhood maltreatment or intergenerational trauma. These concepts were captured using Boolean searches comprising both index terms and free-text searches of titles and abstracts.

Electronic searches

We searched the following databases and trials registers.

- Cochrane Central Register of Controlled Trials (CENTRAL 2021, Issue 10) in the Cochrane Library and which contains the specialised register for Cochrane Developmental, Psychosocial and Learning Problems. Searched 21 October 2021.
- MEDLINE Ovid (1946 to October Week 2 2021).
- MEDLINE In-process and Other Non-Indexed Citations Ovid (October 15, 2021). Searched 19 October 2021.
- MEDLINE Epub Ahead of Print via Ovid (15 October 2021). Searched 19 October 2021.
- Embase Ovid (1974 to 18 October 2021).
- Cumulative Index to Nursing and Allied Health Literature (CINAHL) EBSCOhost (1937 to 22 October 2021).
- APA PsycINFO Ovid (1806 to October Week 3 2021).
- PTSDpubs (formerly PILOTS) ProQuest (1871 to 22 October 2021).
- Web of Science Core Collection (Science Citation Index, Social Sciences Citation Index, Conference Proceedings Citation Index-Social Sciences & Humanities, Conference Proceedings Citation Index-Science; 1970 to 20 October 2021).
- *Cochrane Database of Systematic Reviews (*CDSR 2021, Issue 10*)* in the Cochrane Library. Searched 21 October 2021.
- Epistemonikos (www.epistemonikos.org/en). Searched 22 October 2021.
- ClinicalTrials.gov (clinicaltrials.gov). Searched 22 October 2021.
- WHO International Clinical Trials Registry Platform (WHO ICTRP) (trialsearch.who.int/). Searched 22 October 2021.

The search strategy used the sensitivity-maximising version of the Cochrane search strategy for identifying randomised trials (Lefebvre 2021). We modified the search terms and syntax for each database as appropriate (see Appendix 1).

Searching other resources

We checked the reference lists of all included studies and relevant systematic reviews to identify additional studies missed from the original electronic searches. No additional studies were identified.

We contacted relevant individuals and organisations for information about unpublished or current studies.

Prior to publication, we ran searches (2 June 2022) of included studies to identify any retractions due to error or fraud. No retractions were identified.

Data collection and analysis

Methods for this review were prespecified in the protocol (Other published versions of this review). Any unused methods specified in the protocol are outlined in Table 3, with deviations from the protocol reported in the Differences between protocol and review section.

Selection of studies

We downloaded all titles and abstracts retrieved by electronic searching and from other sources to the reference management database EndNote and removed duplicates. We used Cochrane's Screen4Me workflow to help assess the search results. Screen4Me comprises three components: known assessments – a service that matches records in the search results to records that have already been screened in Cochrane Crowd and been labelled as a randomised controlled trial (RCT) or as not a RCT; the RCT classifier – a machine learning model that distinguishes RCTs from non-RCTs; and if appropriate, Cochrane Crowd – Cochrane's citizen science platform where the Crowd help to identify and describe health evidence. For more information about Screen4Me and the evaluations that have been done, see the Screen4Me webpage on the Cochrane Information Specialist's portal. In addition, more detailed information regarding evaluations of the Screen4Me components, can be found in the following publications: Marshall 2018; Noel-Storr 2021; Thomas 2020.

At least two review authors (KJ, CC, TB, RF, ED, CR or IL) independently assessed the titles and abstracts identified through the literature search against the eligibility criteria using Covidence software (Covidence). All potentially eligible studies were coded as 'retrieve' (eligible, potentially eligible or unclear) or 'do not retrieve'. Where review authors disagreed on abstract inclusion, both authors assessed and discussed the full-text article.

At least two review authors (KJ, RF, TB, IL or IF) assessed the full-text studies against the eligibility criteria. Studies were identified for inclusion or identified for exclusion. The same two review authors discussed disagreements at either stage of screening. Where agreement could not be reached, or review authors were unsure, a third review author (CC) was consulted. Final decisions were made by consensus. We contacted study authors where eligibility was unclear.

Studies found to be ineligible at the full-text screening were excluded with a reason. Excluded studies that initially appeared to meet eligibility criteria, but upon further inspection were found ineligible, are outlined in Characteristics of excluded studies, with reasons for exclusion reported.

Records of the search were stored in an EndNote file including folders of original search, title and abstract screening and full-text reviews, and in a separate flowchart. The selection process was recorded in a PRISMA flow diagram (Page 2021). The flowchart includes: potential studies identified (database searching and additional records), records after duplicates removed, records screened (and excluded), full-text articles assessed (and excluded, with reasons) and number of studies included.

We collated multiple reports of the same included study (e.g. by checking author names, trial names and trial registry numbers) so that each study, rather than the report, is the unit of interest in the review.

Data extraction and management

Four review authors (KJ, TB, CC, SB) piloted the data extraction and coding form on two purposively selected studies that represented a diversity of data types anticipated in the review. One review author extracted data relating to study characteristics and a second review author independently verified the data. We sought advice from the review topic expert and statisticians to ensure data were extracted as planned. At least two review authors independently extracted quantitative data from each study (KJ, IF, TB, LK, ED, SA). Discrepancies were resolved through discussion and consultation. When agreement could not be reached, a third review author was consulted. Final decisions were made by consensus. The data extraction form (refer to Appendix 2) was refined from the version presented in the protocol to maximise the quality and consistency of data collection. We extracted information relating to the characteristics of participants, interventions, comparators and outcomes as outlined in Appendix 2.

Two review authors (KJ, CC) categorised each intervention and made independent judgements about the 'main' strategy for each intervention type, and subcategory of single, multiple or tailored interventions. Disagreements were resolved by consensus, involving a third review author where agreement could not be reached. All interventions (including those irrelevant to this review) and coding judgements are detailed in the Characteristics of included studies tables to ensure transparency of coding and analysis.

Assessment of risk of bias in included studies

Two review authors independently assessed the risk of bias in each included study using the revised Cochrane risk of bias tool (RoB 2) for randomised trials for each of the primary (critical) outcome domains (Higgins 2022b; Sterne 2019).

RoB 2 addresses five domains:

1. bias arising from the randomisation process;
2. bias due to deviations from intended interventions;
3. bias due to missing outcome data;
4. bias in measurement of the outcome; and
5. bias in selection of the reported result.

Two review authors independently applied the tool to the selected results from each study following the RoB 2 guidance (RoB 2 tool 2020), and recorded supporting information and justifications for judgements for each domain (low, some concerns, high risk of bias) using the RoB 2 Excel tool as described in the *Cochrane Handbook*

of Systematic Reviews of Interventions. Our assessment was based on the *effect of assignment to the intervention*. We derived an overall summary of the risk of bias from each assessment, following the algorithm in the RoB 2 guidance. For cluster trials and cross-over trials, we used the variant of the RoB 2 tool specific for the design (Higgins 2022a).

When multiple effects of the intervention using different approaches are presented, we selected the effect based on the following hierarchy:

1. the effect that corresponds to a full intention-to-treat analysis, where missing data have been multiply imputed, or a model-based approach has been used (e.g. likelihood-based analysis, inverse-probability weighting);
2. the effect corresponding to an analysis that adheres to intention-to-treat principles except that the missing outcome data are excluded;
3. the effect that corresponds to a full intention-to-treat analysis, where missing data have been imputed using methods that treat the imputed data as if they were observed (e.g. last observation carried forward, mean imputation, regression imputation, stochastic imputation); or
4. the effect that corresponds to an 'as-treated' or 'per-protocol' analysis, where missing participants are excluded (Higgins 2022b; Higgins 2022a).

We resolved discrepancies between review authors through discussion, and a third review author adjudicated where agreement could not be reached. To promote concordance, two review authors piloted the assessment on two studies.

Measures of treatment effect

We have estimated the pairwise relative treatment effects of the interventions by calculating effect sizes appropriate for the type of outcome data provided.

Dichotomous outcome data

We used risk ratios (RR) as our measure of treatment effect for dichotomous outcomes and presented these with 95% confidence intervals (CIs). Empirical evidence suggests RRs are a more consistent measure than risk differences (Deeks 2002), and are more interpretable than odds ratios (Deeks 2019). Dichotomous outcomes presented in this review index either a proportion of participants showing an improvement or the relative risk of a positive or negative state (e.g. attachment classifications). For dichotomous outcomes, when interpreting effects, we used the following thresholds for interpreting the RR: < 0.8 or > 1.25 = clinically important benefit or harm.

Continuous data

We used mean differences (MD) as our measure of treatment effect for continuous outcomes where the studies all use the same measurement instrument. For continuous outcomes where multiple instruments were used to measure the same outcome, we used the standardised mean difference (SMD). We present both with 95% CIs. When interpreting effects we used the following variation on Cohen's guiding rules for interpreting the SMD: < 0.40 = small (trivial) effect (little or no difference), 0.40 to 0.7 = small but important effect ('slight' reduction/increase in outcome), > 0.7 = large effect (large reduction/increase in outcome) (Schünemann 2022).

Unit of analysis issues

We recognised that unit of analysis issues may arise from non-standard randomised trials (cluster-randomised trials, individually randomised trials with clustering, cross-over trials) when the analysis in primary trials does not appropriately account for the correlation in observations these designs induce, or from trials with more than two eligible intervention groups. We outlined planned methods for making adjustments when necessary. Details of any adjustments were documented (e.g. assumed intra-cluster correlation (ICC) and mean cluster size), and we noted where necessary adjustments were unable to be made due to missing information (e.g. the mean cluster size could not be calculated). We used methods reported in Chapter 23 of the *Cochrane Handbook of Systematic Reviews of Interventions* (Higgins 2022a; Waleed 2019).

Cluster-randomised trials

We planned to extract the effect estimates from cluster-randomised trials and include them in meta-analyses if they were adjusted appropriately for the cluster design (Higgins 2022b; Higgins 2022a), which one cluster-randomised trial was. We would have attempted to reanalyse cluster-randomised trials that had not adjusted for potential clustering of participants within clusters in their analysis, however this was not required for this review. We would have done this by inflating the variance of intervention estimates by a design effect (DEFF). Calculation of a DEFF involves estimation of an ICC. We would have obtained estimates of ICCs through contact with authors, or imputed using estimates from other included studies that report ICCs, or used external estimates from empirical research (e.g. Bell 2013).

Trials with multiple treatment groups

If more than one comparison from the same trial was eligible for inclusion in the same meta-analysis, we either combined intervention groups (if it made sense to do so), or appropriately reduced the sample size so that the same participants did not contribute more than once. Specifically, we split the sample sizes (and number of events for binary outcomes) of the shared control group by the number of comparisons the shared group contributes to. While this latter approach offers some solution to adjusting the precision of the comparison, it does not account for correlation arising from the same set of participants being in multiple comparisons.

Dealing with missing data

We contacted authors of trials to obtain missing numerical data (e.g. missing standard deviations (SDs)), request data for subgroups of participants with CPTSD symptoms or who had experienced childhood maltreatment (or both), and verify key study characteristics. We calculated summary statistics necessary for the meta-analysis using algebraic manipulation (e.g. calculating SDs from sample sizes and exact P values). In one three-arm trial (Booshehri 2018; for two time points) where we had calculated the SD via algebraic manipulation, we determined that the SD in one arm was unrealistically large (potentially due to a mistake in the reported P value). We therefore imputed the SD for this arm by assuming the largest of the two SDs in the other arms.

We assessed the risk of bias due to missing outcome data (see Assessment of risk of bias in included studies), and conducted sensitivity analyses to examine the impact of removing trials at a high risk of bias (see 'Summary of findings and assessment of the certainty of the evidence').

Assessment of heterogeneity

We assessed clinical (participants, interventions, outcomes) and methodological (study design, outcome measures, risk of bias) diversity, and made an assessment of whether the studies were similar enough to be pooled in a meta-analysis (McKenzie 2019a).

We assessed statistical heterogeneity of the intervention effects by visually examining the degree of overlap of CIs on the forest plot. We undertook a formal test for heterogeneity using the Chi^2 test (using a significance level of P = 0.10), and quantified heterogeneity using Tau^2 and inconsistency using the I^2 statistic (Higgins 2003). We interpreted the I^2 statistic considering the magnitude and direction of the effects, and the number of studies. We used suggested adjectives in the *Cochrane Handbook for Systematic Reviews of Interventions* to describe the magnitude of the I^2 statistic (Deeks 2019):

- 0% to 40%: might not be important;
- 30% to 60%: may represent moderate heterogeneity;
- 50% to 90%: may represent substantial heterogeneity; or
- 75% to 100%: considerable heterogeneity.

Assessment of reporting biases

We used the framework outlined in Chapter 13 of the *Cochrane Handbook for Systematic Reviews of Interventions* for assessing the risk of bias due to missing results (Page 2019). For each synthesis, we made an assessment regarding:

1. the risk and potential impact of missing results from studies (termed 'known-unknowns'); and
2. the risk of missing studies (termed 'unknown-unknowns').

In assessing (1), we considered selective non-reporting of results by examining discrepancies between planned trial analyses (identified from registry entry, trial protocol, methods section of trial report where available) and those actually reported (identified from the trial report). We were unable to assess (2) due to there being insufficient studies in the meta-analysis to yield useful contour-enhanced funnel plots. Finally, we undertook sensitivity analyses to examine if the effect estimates in smaller trials differed from those in larger trials (see Sensitivity analysis).

Data synthesis

Meta-analyses

For each available comparison with at least two trials, we combined the effects of all eligible studies using meta-analysis. Since we expected clinical and methodological diversity across trials, we used a random-effects model, which assumes that the different studies are estimating different, yet related, outcome effects (Deeks 2019). We used the methods implemented in RevMan Web to fit the random-effects model (RevMan Web 2020), which implements the DerSimonian and Laird's method of moments estimator of between trial heterogeneity variance, and a Wald-type CI based on the normal distribution (DerSimonian 1986). We generated forest plots to display each trial's effect estimate, CI and the combined effect.

Due to the diversity of outcomes within our outcome domains (e.g. psychological wellbeing includes depression, anxiety, etc.) the meta-analysis results for specific outcomes that are not captured in the summary of findings table are presented in text in the Effects of interventions section.

Summary and synthesis when meta-analysis is not possible

Additional outcomes for which only one study reported data are presented in tables.

We tabulated available effect estimates (SMD, CIs), details of scales (direction and range), risk of bias assessments and other intervention characteristics (complexity of the intervention – single component, multiple components). We ordered the tables by comparison, outcome and risk of bias assessment.

When we were unable to meta-analyse the trial effects (e.g. due to incomplete reporting, variability in the effect measures across studies), we considered alternative synthesis methods, such as calculating summary statistics of effect estimates, combining P values or vote counting based on the direction of effect (McKenzie 2019b). We described in the text results from any cost or cost-effectiveness analyses. Our choice of methods were determined by the available data. In describing the results from these methods, we were clear about the nature of the question addressed by the method and the studies that contribute to the synthesis (Campbell 2020).

Subgroup analysis and investigation of heterogeneity

Within each comparison we undertook subgroup analyses to explore if the magnitude of intervention effect was modified by the complexity of the intervention (single, or multiple components) for the two primary outcome domains: parental psychological or socio-emotional wellbeing and parenting capacity.

Sensitivity analysis

We undertook and reported sensitivity analyses to examine if the meta-analytic effect was robust to the following:

- Exclusion of trials assessed with an overall high risk of bias.
- Exclusion of trials with fewer than 50 participants. A value of 50 has been informed by the findings of one meta-epidemiological study examining the impact of trial sample size on treatment effect estimates (Dechartres 2013); however, we recognise the choice of sample size to dichotomise 'small' trials is somewhat arbitrary.
- Type of meta-analytic model (i.e. comparing the combined effect from a fixed-effect model with a random-effects model).
- Meta-analysis method (i.e. comparing the combined effect and its CI when using the DerSimonian and Laird estimator of between trial heterogeneity (DerSimonian 1986), and the Wald-type CI method versus the REML estimator of between trial heterogeneity variance and the Hartung-Knapp-Sidik-Jonkman CI method (Hartung 2001; Sidik 2002)).

Summary of findings and assessment of the certainty of the evidence

We prepared GRADE summary of findings tables (see Summary of findings 1; Summary of findings 2; Summary of findings 3), which present a tabular overview of the primary outcomes of importance to decision makers. For the comparisons of parenting interventions compared to inactive controls, psychological interventions to inactive controls, and service system approaches to inactive controls, we have presented the findings (where data are available) for CPTSD symptoms, psychological wellbeing, substance use, parents' relationship quality, parental self-harm, parent-child relationship and parenting skills, at post-intervention at the first available time point. Where outcomes were assessed using both dichotomous and continuous measures, we selected the measure with the greater number of studies contributing data. GRADEpro was used to construct the tables (GRADEpro GDT), including the number of studies, the statistical results, an interpretation of each result using informative statements to communicate the size of effect and certainty of evidence (Schünemann 2019b), and explanations for downgrading or borderline decisions.

For each result, two review authors independently assessed certainty of the evidence using GRADE methods as described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Schünemann 2019a). An overall GRADE of high, moderate, low or very low certainty is reported for each result, based on whether we had serious, very serious or no concerns in relation to each of the following domains.

- Risk of bias. We assessed the overall risk of bias across all studies contributing to each synthesised result. For GRADE, we considered the impact of studies at high risk of bias on the overall meta-analytic result by (1) considering results of sensitivities analyses and, when these analyses were not possible/informative, we considered (2) the weight studies at high risk of bias contributed to the analysis, since studies at high risk of bias with more weight are more likely to bias the pooled estimate.
- Inconsistency. We assessed whether there is important, unexplained inconsistency in results across studies, considering the overlap of CIs (non-overlap indicating differences in direction or size of effect), statistical measures and tests for heterogeneity (I^2 statistic, Chi^2 test) and results of subgroup analyses (Subgroup analysis and investigation of heterogeneity).
- Indirectness. We assessed whether the Participant, Intervention, Comparison or Outcome (PICO) characteristics of studies contributing to each result adequately represent the PICO target group for this review, such that the results may not be directly relevant for all population groups (e.g. parents pregnant or with a child less than two years of age, or first-time parents) in this review.
- Imprecision. We assessed whether the CI for each pooled effect estimate crossed our threshold for a small but important effect, rating imprecision as 'serious' when one threshold was crossed (i.e. the CI was compatible with both appreciable benefit and little or no difference, or vice versa) and 'very serious' when two thresholds were crossed (i.e. the CI was compatible with appreciable benefit and appreciable harm) and, for large effects, whether the sample size meets the optimal information size (based on number of events for binary outcomes; sample size for continuous outcomes) (thresholds are detailed in Measures of treatment effect).
- Publication bias. We assessed reporting bias based on results of assessments in Assessment of risk of bias in included studies.

When interpreting results, we followed GRADE guidance for writing informative statements (Santesso 2020; Schünemann 2022). These statements provide a standardised phrasing for communicating the size and certainty of observed effects (i.e. for *high* certainty of evidence: [intervention] results in improved [outcome]; for *moderate* certainty of evidence: [intervention] probably improves [outcome]; for *low* certainty of evidence: [intervention] may improve [outcome]; and for *very low* certainty of evidence: the evidence is very uncertain about the effect of [intervention] on [outcome]) (Santesso 2020).

While GRADE assessments were not conducted on additional primary outcomes or secondary outcomes, we have applied GRADE principles for writing informative statements when describing the size and certainty of observed effects (i.e. we considered our thresholds for describing the size of effect, the confidence interval in relation to this threshold and risk of bias).

We conducted the review according to the published protocol and have reported any deviations from it in the Differences between protocol and review section.

RESULTS

Description of studies

Results of the search

Electronic searches conducted on 19 October 2021 yielded 15,683 records. We identified 4145 duplicates, leaving 11,538 records. From these, we extracted 216 records of systematic reviews to be followed up for reference checking and identified 34 additional duplicates. To assess the remaining 11,288 records, we used Cochrane's Screen4Me workflow, which helps to identify potential reports of randomised trials. The results of the Screen4Me assessment process can be seen in Figure 3. We assessed the 6572 records left in after Screen4Me, plus 17 additional records identified through other sources, using Covidence (Covidence). We identified 11 further duplicates and deemed 6417 records to be irrelevant through title and abstract screening. We retrieved the full-text reports of the remaining 161 records for further assessment. Of these, 112 reports did not meet inclusion criteria and we excluded them (see Characteristics of excluded studies), and we identified five studies (from seven reports) as ongoing studies (see Characteristics of ongoing studies). We included 15 studies (consisting of 42 associated reports) (see Characteristics of included studies). The overall flow of studies for this review is presented in Figure 4. We contacted the authors of 10 studies to request unpublished data for the subgroup of parents who were experiencing CPTSD symptoms or who had experienced childhood maltreatment. Data for these subgroups were provided by eight author groups and used in the review (Ammerman 2016; Berry 2021; Blalock 2013; Grote 2015; Liu 2021; Pasalich 2019; Rosenblum 2017; Upshur 2016). Two author groups did not respond and we excluded these studies. We also contacted one author group to request unadjusted effect estimates (Booshehri 2018). Although the author group did not respond, we were able to calculate the

required data based on the available data reported in the study (see Dealing with missing data).

Figure 3. Screen4Me summary diagram RCT = randomised controlled trial

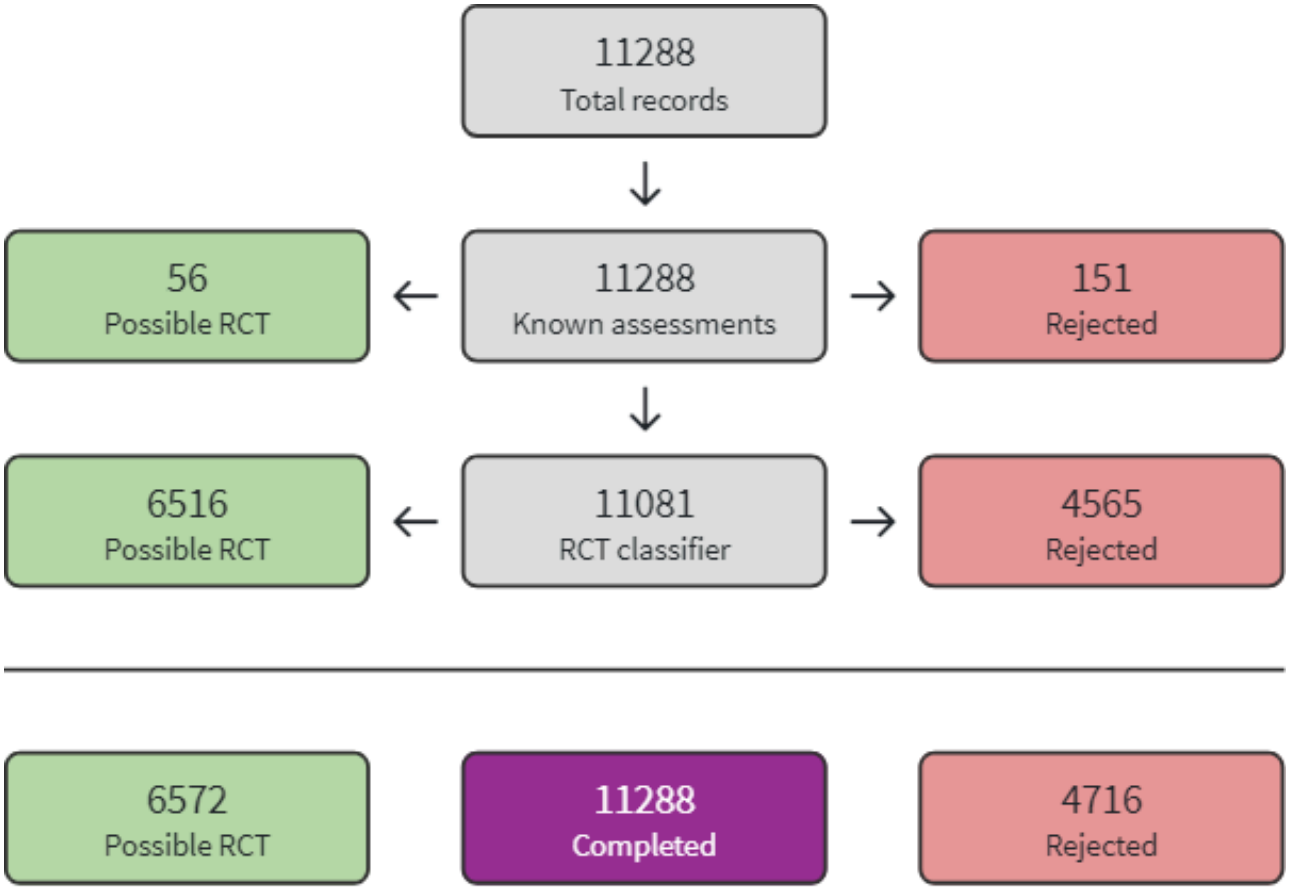


Figure 4.

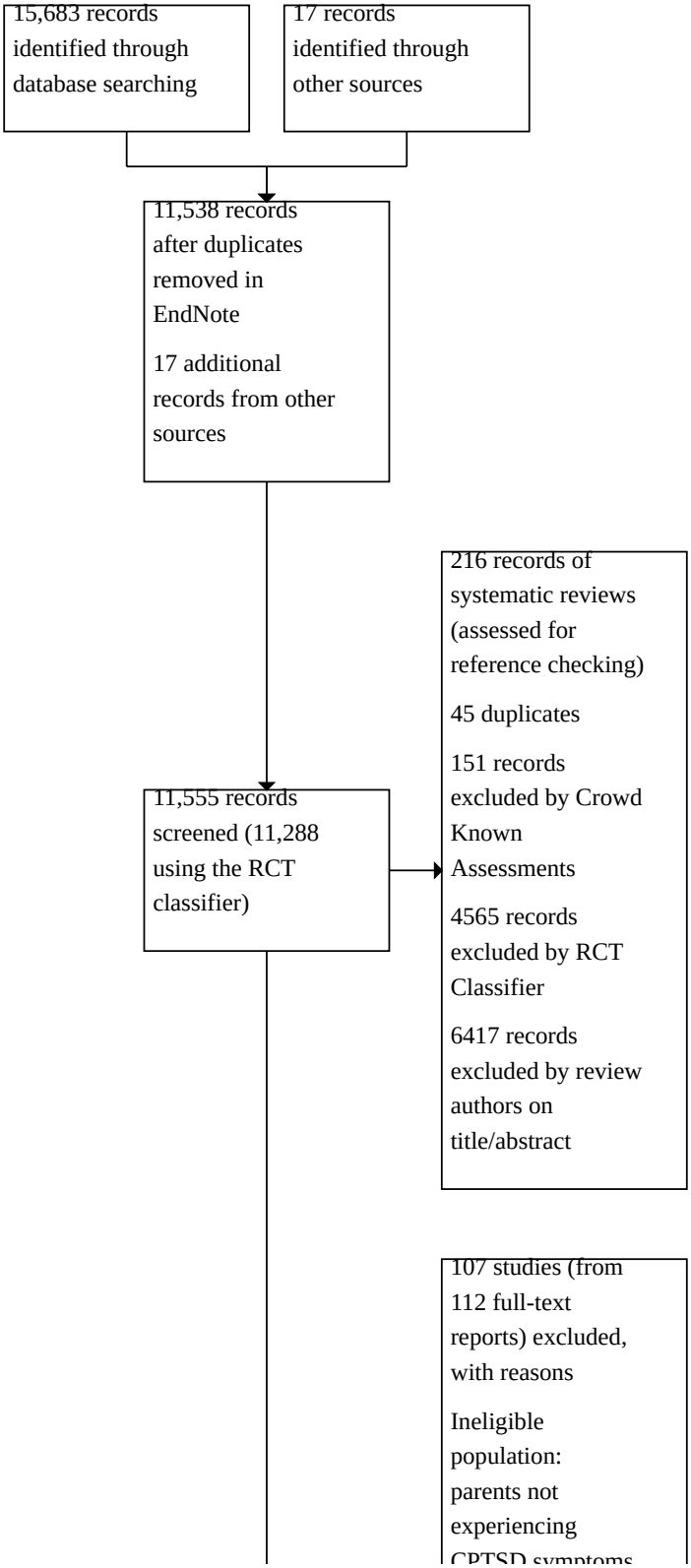
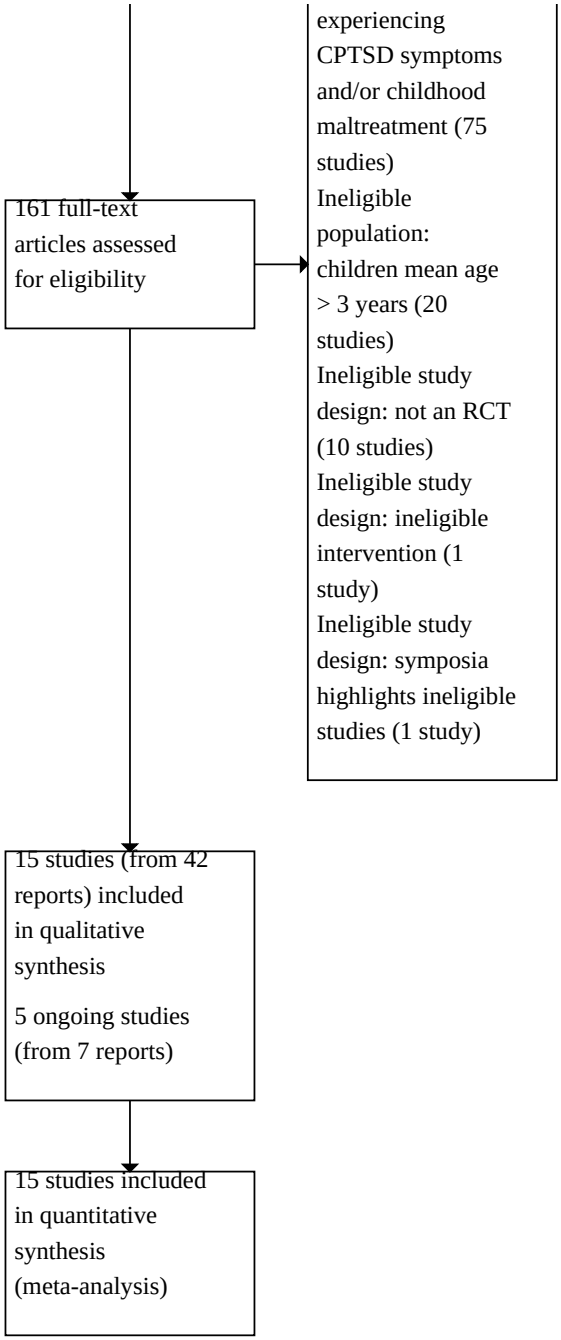


Figure 4. (Continued)



Methods

Design

Fourteen included studies were individual RCTs (parallel groups) and one was a cluster-RCT (Upshur 2016).

Participants

A total of 1925 parents were randomised across the 15 studies, with the number of parents randomised in each study ranging from 20 (Haight 2005) to 266 (Blalock 2013). Only mothers were included in 12 studies, with three studies also including fathers (29 participants). Mothers consisted of 99% of the sample in Liu 2021, 94% in Booshehri 2018, and 91% in Pasalich 2019. Most studies included parents who self-reported childhood maltreatment (12 studies; Ammerman 2016; Berry 2021; Blalock 2013; Booshehri 2018; Cicchetti 2006; Grote 2012; Grote 2015; Haight 2005; Liu 2021; Pasalich 2019; Rosenblum 2017; Steele 2019), one study included parents reporting PTSD symptoms (Silverstein 2011), and two studies included parents reporting both childhood maltreatment and PTSD symptoms (Madigan 2015; Upshur 2016). The mean age

of parents was less than 18 years in one study (Madigan 2015), 11 studies included parents with a mean age between 18 and 29 years, two studies reported parent mean age greater than 30 years (Liu 2021; Silverstein 2011), and one study did not report mean parent age (Steele 2019). In studies conducted during the postpartum period (Ammerman 2016; Booshehri 2018; Cicchetti 2006; Haight 2005; Liu 2021; Pasalich 2019; Rosenblum 2017; Steele 2019), the mean age of children ranged from five months (Ammerman 2016) to three years (Haight 2005). Seven studies reported that more than 50% of participants had mental health comorbidity at baseline including depression/mood disorders, anxiety disorders, PTSD, substance/alcohol use disorders, eating disorders, dissociative disorders and/or psychiatric disorders (Ammerman 2016; Booshehri 2018; Grote 2012; Grote 2015; Haight 2005; Madigan 2015; Upshur 2016), and two studies reported less than 50% with mental health comorbidity (Rosenblum 2017; Silverstein 2011). The remaining six studies did not report on existing mental health comorbidity.

In all studies at least 50% of parents were experiencing at least one 'indicator of disadvantage': 13 studies with more than 50% of participants with low socio-economic status (SES) backgrounds, 11 studies with more than 50% from ethnic minority populations, four with more than 50% of participants with less than high school education and one study with more than 50% of parents less than 18 years of age. Twelve studies included more than 50% of parents with more than one 'indicator of disadvantage' category: low SES and ethnic minority population (Berry 2021; Blalock 2013; Booshehri 2018; Grote 2012; Liu 2021; Rosenblum 2017; Silverstein 2011; Steele 2019; Upshur 2016); less than 18 years of age, from low SES background and with less than high school education (Madigan 2015); low SES, from an ethnic minority population and less than high school education (Cicchetti 2006); low SES and less than high school education (Ammerman 2016). Three studies reported just one indicator of disadvantage: less than high school education (Haight 2005), ethnic minority population (Grote 2015) and low SES (Pasalich 2019).

Recruitment setting

Included studies were published between 2005 and 2021. All studies were conducted within high-income countries. Fourteen were set in the USA and one in Canada (Madigan 2015). Most studies were conducted in metropolitan areas (10 studies); five studies did not report the area. Four studies recruited parents from hospital or community-based clinics (Berry 2021; Grote 2012; Grote 2015; Upshur 2016); four from government databases and records, including the Department of Human Services (Cicchetti 2006), the Public Child Welfare Office (Haight 2005), Child Protective Services (Pasalich 2019), and the Pediatrics, Child Welfare and Court Systems (Steele 2019); three from community-based parenting programmes (Ammerman 2016; Liu 2021; Madigan 2015); one from both hospital-based clinics and community-based parenting programmes (Silverstein 2011); one from a government assistance office (Booshehri 2018); one reported varied recruitment settings (e.g. fliers posted in low-income community locations/primary care clinics/community mental health clinics and referrals from primary health care providers; Rosenblum 2017); and one with a non-specific recruitment setting (e.g. newspaper, television ads and physician referral; Blalock 2013).

Interventions

Seven studies assessed interventions coded as primarily 'parenting' interventions, eight studies assessed interventions coded as primarily 'psychological' interventions, and one study assessed interventions coded as primarily 'service system approaches'. An additional four studies included some service system approach components and were therefore coded as 'multiple-component' interventions. We identified no studies that assessed mind-body approaches, or pharmacological and biomedical therapies. Two studies included two eligible intervention arms (Booshehri 2018; Cicchetti 2006).

Parenting interventions included seven parent-child interventions (Infant-parent psychotherapy and Psychoeducational parenting intervention, Cicchetti 2006; Emotional support coaching, Haight 2005; Filming Interactions to Nurture Development (FIND), Liu 2021; Promoting First Relationships, Pasalich 2019; Group Attachment-Based Intervention, Steele 2019) and one social support intervention (Mom Power, Rosenblum 2017). All parenting interventions utilised an attachment-based approach except for Liu 2021, which used a strengths-based approach (FIND). Psychological interventions consisted of six non-trauma-focused cognitive behavioural therapy (CBT)-based interventions (In-Home Cognitive Behavioural Therapy, Ammerman 2016; Cognitive Behavioral Analysis System of Psychotherapy (CBASP), Blalock 2013; Brief Interpersonal Psychotherapy, Grote 2012; MOMCare, Grote 2015; Problem-Solving Education, Silverstein 2011; and Seeking Safety, Upshur 2016), one trauma-focused CBT (Madigan 2015), and one psychological intervention that included both psychological and parenting components (Practical Resources for Effective Postpartum Parenting, Berry 2021). In-home CBT, CBASP, MOMCare, Seeking Safety, Trauma-focused CBT and FIND were augmented with treatment as usual. The service system approach included two versions of Building Wealth and Health Network, the partial version delivered financial empowerment education and the full version delivered the financial empowerment education and group, trauma-informed peer support (Booshehri 2018).

The duration of interventions ranged from a single session (Haight 2005) to a 12-month protocol (mean 46 weeks; Cicchetti 2006). All interventions were delivered face-to-face, with three studies supplementing face-to-face delivery with phone calls mainly when participants could not attend (Berry 2021; Grote 2012; Grote 2015). Five studies delivered interventions exclusively in participants homes (Ammerman 2016; Cicchetti 2006; Liu 2021; Pasalich 2019; Silverstein 2011), eight exclusively in clinical or community settings (Berry 2021; Blalock 2013; Grote 2012; Grote 2015; Haight 2005; Madigan 2015; Steele 2019; Upshur 2016), and one study delivered three sessions in home and 10 sessions in a clinical/community session (Rosenblum 2017). Two studies delivered the intervention in a group setting (Booshehri 2018; Steele 2019), one with a blend of three individual and 10 group sessions (Rosenblum 2017), and all other studies delivered interventions individually.

Twelve interventions were delivered across more than five sessions (Ammerman 2016; Blalock 2013; Booshehri 2018; Cicchetti 2006; Grote 2012; Grote 2015; Liu 2021; Madigan 2015; Pasalich 2019; Rosenblum 2017; Steele 2019; Upshur 2016), two interventions included two to five sessions (Berry 2021; Silverstein 2011), and one study involved a single session (Haight 2005). Eight interventions involved more than 10 hours of contact (Ammerman 2016; Booshehri 2018; Cicchetti 2006; Grote 2015; Madigan 2015;

Pasalich 2019; Rosenblum 2017; Steele 2019), five involved one to 10 hours of contact (Berry 2021; Blalock 2013; Grote 2012; Liu 2021; Silverstein 2011), one involved less than one hour contact (Haight 2005), and one study did not specify the length of each session (Upshur 2016). Ten interventions were delivered weekly (Ammerman 2016; Blalock 2013; Booshehri 2018; Cicchetti 2006; Grote 2012; Grote 2015; Liu 2021; Madigan 2015; Pasalich 2019; Rosenblum 2017), one intervention was delivered three times weekly (Steele 2019), one study gave participants the option to choose weekly or bi-weekly sessions (Silverstein 2011), one study delivered three sessions at specific times across the perinatal period (Berry 2021), one delivered the intervention at regular prenatal appointments without details of frequency (Upshur 2016), and one was a single session intervention (Haight 2005).

Most practitioners delivering the interventions received training and supervision, and delivery of the intervention was monitored. However, the training requirements of In-Home Cognitive Behavioural Therapy practitioners was not reported (Ammerman 2016), and the training, supervision and fidelity requirements for Practical Resources for Effective Postpartum Parenting (Berry 2021), Building Wealth and Health Network (Booshehri 2018) and the emotional coaching intervention (Haight 2005) were not reported.

Details on the psychological interventions, parenting interventions and service system approaches can be found in the Characteristics of included studies and Table 4.

Comparisons

Parents in 11 of the 15 comparison arms received treatment as usual or enhanced treatment as usual. Usual care in nine studies consisted of standard prenatal care services in hospital or community settings, or in the home (Berry 2021; Blalock 2013; Grote 2012; Grote 2015; Liu 2021; Madigan 2015; Silverstein 2011; Steele 2019; Upshur 2016). Other forms of usual care included standard Temporary Assistance for Needy Families (TANF) (Booshehri 2018) and standard services provided to families identified as maltreating in the community (Cicchetti 2006). These services consisted primarily of psycho-education (e.g. psychological wellbeing, postpartum depression, parenting skills, nutrition education, childbirth education); case management; and referrals to mental health treatment, practical assistance and social services. Two studies utilised attention control comparison arms, which involved mail outs of educational material and personalised referral information (Pasalich 2019; Rosenblum 2017), and one study used an inactive control that involved standard home visiting services (Ammerman 2016). One study used a wait-list comparison comprised of no treatment (Haight 2005).

Details on the comparators can be found in the Characteristics of included studies and Table 5.

Outcomes

Timing of outcome assessment

(see also Included studies)

- Ammerman 2016: baseline (children aged mean = five months), post-intervention and at three-month follow-up.
- Berry 2021: baseline (during pregnancy) and post-intervention (six weeks postpartum). Daytime sleeping was only reported at post-intervention.
- Blalock 2013: baseline (during pregnancy), depression symptom severity assessed at six months postpartum and smoking abstinence at six months post-intervention.
- Booshehri 2018: baseline (children aged mean = 30 months), three-month, six-month and nine-month follow-up.
- Cicchetti 2006: baseline (children aged mean = 12 months), post-intervention (aged mean = 26 months old) and at 14-month follow-up (aged mean = 38 months). Behavioural outcomes were only reported at 14-month follow-up.
- Grote 2012: baseline (during pregnancy), post-intervention and six months postpartum.
- Grote 2015: baseline (during pregnancy), post-intervention (88% of mothers still pregnant), six-month follow-up (most mothers three months postpartum), 12 months post-intervention (most mothers nine months postpartum) and 18 months post-intervention (most mothers 15 months postpartum). Presence of PTSD and probable generalised anxiety disorder not reported at post-intervention.
- Haight 2005: post-intervention (when children were aged mean = three years).
- Liu 2021: baseline (children aged mean = 23 months old) and post-intervention.
- Madigan 2015: baseline (during pregnancy), six-month follow-up (children aged mean = six months) and 12-month follow-up (aged mean = 12 months). Behavioural problems were only assessed at baseline and 12-month follow-up; disorganised infant attachment was only assessed at 12-month follow-up.
- Pasalich 2019: baseline (children aged mean = 16 months), post-intervention, three-month and six-month follow-up. Secure base behaviour was only assessed at baseline and six-month follow-up.
- Rosenblum 2017: baseline (children aged mean = 17 months) and post-intervention.
- Silverstein 2011: three months follow-up (child age not reported). Although additional assessments were conducted at baseline, one month post-intervention and two-month post-intervention, outcomes for these time points were not reported.
- Steele 2019: post-intervention.
- Upshur 2016: baseline (during pregnancy), post-intervention (36 weeks gestation) and one month postpartum.

Primary outcomes

All included studies reported one or more primary outcomes. Details on primary outcomes can be found in the Characteristics of included studies and Table 6.

Trauma-related symptoms were assessed in five studies. Outcomes included *PTSD symptom severity* assessed with the PTSD Checklist for DSM-5 (PCL-5; Grote 2015), National Women's Study PTSD Module (Rosenblum 2017) and Post-traumatic Stress Scale (Upshur 2016). Other outcomes included *interpersonal problems*, assessed with the Inventory of Interpersonal Problems (Grote 2012), *presence of PTSD,* assessed with the clinician-rated Children's PTSD Inventory (Madigan 2015) and *severity of dissociation,* assessed with the Adolescent Dissociative Experiences Scale (Madigan 2015).

Psychological wellbeing was assessed in 10 studies. Outcomes included *depression symptom severity* assessed with the Beck Depression Inventory (Ammerman 2016; Grote 2012; Madigan 2015), Hamilton Depression Rating Scale (Berry 2021), Center for Epidemiologic Studies Depression Scale (Blalock 2013; Booshehri 2018), Hopkins Symptom Checklist (Grote 2015), and Quick Inventory of Depressive Symptoms (Silverstein 2011); *postpartum depression symptom severity* assessed with Edinburgh Postnatal Depression Scale (Grote 2012; Upshur 2016) and Postpartum Depression Screening Scale (Rosenblum 2017); and *anxiety symptom severity* assessed with the Hamilton Anxiety Rating Scale (Berry 2021), Beck Anxiety Inventory (Grote 2012) and Screen for Child Anxiety Related Emotional Disorder (Madigan 2015). *Depression remission* was assessed as the number of individuals with Hopkins Symptom Checklist scores less than 0.5 (Grote 2015), the *number of parents with a depressive episode* and *mean number of depressive episodes* assessed on the Quick Inventory of Depressive Symptoms (Silverstein 2011) and *presence of generalised anxiety disorder* assessed as the number of individuals with generalised anxiety disorder on the PRIME-MD Patient Health Questionnaire (Grote 2015). Other outcomes included *self-efficacy*, assessed with the General Self-Efficacy Scale (Booshehri 2018), *behavioural problems* assessed with the externalising subscale of the Youth Self-Report (Madigan 2015), *functional impairment* assessed with the Work and Social Adjustment Scale (Grote 2015), *severity of stress* assessed on the Perceived Stress Scale (Silverstein 2011) and *positive and negative coping* assessed with the Brief Copes Questionnaire (Upshur 2016).

Substance use was assessed in one study. *Smoking abstinence* (i.e. the number of parents abstaining from smoking) was assessed with the Timeline Follow-back Interview (Blalock 2013).

Parents' relationship quality (with partner or significant others) was assessed in one study. *Social support* was assessed with the Interpersonal Support Evaluation List (Ammerman 2016).

Parental self-harm was not assessed in any studies.

Parent-child relationship was assessed in three studies. Outcomes included the four attachment styles (*secure attachment, disorganised attachment, avoidant attachment, ambivalent attachment*) assessed with the Strange Situation Paradigm (Cicchetti 2006); *parent sensitivity* assessed with the Nursing Child Assessment Teaching Scale (Pasalich 2019); *secure base behaviour* assessed with the Toddler Attachment Sort-45 (Pasalich 2019); and *dyadic constriction* and *dyadic reciprocity* assessed with the Coding Interactive Behaviour System (Steele 2019).

Parenting skills was assessed in five studies. Outcomes included *maternal supportive presence* and *maternal hostility* assessed with the Coding Interactive Behaviour System (Steele 2019) and direct observation (Haight 2005). Additional domains of maternal affect and interaction assessed via direct observation included *generational boundary dissolution, detachment/ disengagement, positive regard, intrusiveness, engagement/ interpersonal involvement* and *inventiveness* (Haight 2005). Other outcomes included *child and parent functioning/coping* assessed with the Parenting Stress Index–Short Form (Ammerman 2016), *home environment* (nurturing and stimulating parenting) assessed with the Home Observation for Measurement of the Environment Inventory (Ammerman 2016), *leave taking behaviours* assessed via direct observation (Haight 2005), *parental confidence* assessed with the Parental Sense of Competence Scale (Liu 2021), four domains of *parental self-efficacy* (*teaching, nurturance, discipline* and *instrumental care*) assessed with the Self-Efficacy for Parenting Tasks Index-Toddler Scale (Liu 2021), severity of *parental stress* assessed with the Parenting Stress Index–Short Form (Rosenblum 2017), and *care-giving helplessness* and *child caregiver behaviour* assessed with the Care-giving Helplessness Questionnaire (Rosenblum 2017).

Secondary outcomes

Fourteen studies reported one or more secondary outcomes. Haight 2005 did not report any secondary outcomes. Details on secondary outcomes can be found in the Characteristics of included studies and Table 6.

Parent satisfaction with intervention was not assessed in any studies.

Medical compliance was not assessed in any studies.

Parent engagement was assessed in 15 studies. *Dropout* was assessed as dropout for any reason between randomisation and post-intervention (Ammerman 2016; Berry 2021; Blalock 2013; Booshehri 2018; Cicchetti 2006; Grote 2012; Grote 2015; Haight 2005; Liu 2021; Madigan 2015; Pasalich 2019; Rosenblum 2017; Silverstein 2011; Steele 2019; Upshur 2016). This includes failure to complete the pre-specified intervention protocol or failure to complete the post-intervention assessment.

Social functioning was assessed in three studies. Outcomes included *social networks* assessed with the Social Network Index (Ammerman 2016), *social functioning* assessed with the Social Adjustment Scale (Silverstein 2011), and *perceived social support* assessed with the Medical Outcomes Study Social Support Scale (Upshur 2016).

Changes in social capital was assessed in two studies. Outcomes included *economic hardship,* assessed on the US Household Food Security Survey Module, an energy security survey and housing security survey (Booshehri 2018), *employment status* assessed on a non-validated survey item (Booshehri 2018) and *perceived connection to community professionals* assessed on a non-validated, six-item retrospective questionnaire (Rosenblum 2017).

Child maltreatment occurrence was not assessed in any studies.

Family disruptions and child removals were not assessed in any studies.

Other adverse childhood experiences were not assessed in any studies.

Child physical health was not assessed in any studies.

Child development was assessed in one study. *Child's developmental risks* was assessed with the Parent's Evaluation of Developmental Status Scale (Booshehri 2018).

Child emotional and behavioural outcomes were assessed in three studies. Outcomes included *internalising* and *externalising behaviour* assessed with the Child Behavior Checklist (Cicchetti 2006; Liu 2021), *overall child behavioural problems* assessed with

the Child Behavior Checklist (Cicchetti 2006), and *daytime sleeping* assessed with the Baby's Day Diary (Berry 2021).

Service provider knowledge, attitudes and practices were not assessed in any studies.

Cost or cost-effectiveness was assessed in two studies. Ammerman 2016 assessed *quality adjusted life years (QALYs)*, *depression-free days* and *interventioncosts* on a probabilistic, patient-level Markov model/Medical Expenditure Panel Survey. Grote 2015 assessed *depression-free days* (number of depression-free days over 18 months) and *intervention costs* (study staff salary and fringe benefit rates plus a 30% overhead rate).

Funding sources

Funding sources included major research councils, government departments, independent research organisations and philanthropic/charitable organisations. Seven studies had a single funding body, one study had two funding bodies and six studies had three funding bodies. Eight studies sourced funding from major research councils in the US, including the National Institute of Mental Health (Ammerman 2016; Berry 2021; Cicchetti 2006; Grote 2012; Grote 2015; Pasalich 2019; Silverstein 2011) and National Institute on Drug Abuse (Blalock 2013).

Details on the funding sources can be found in Characteristics of included studies.

Excluded studies

We formally excluded 107 studies (consisting of 112 reports) from the review. Of these, 75 studies did not include parents experiencing CPTSD symptoms and/or childhood maltreatment, 20 included children older than three years of age, 10 were not RCTs, one was an ineligible intervention and one was an abstract of a symposium summarising ineligible studies. The Characteristics of excluded studies table summarises 19 studies that appeared to meet the eligibility criteria, but upon inspection with full-text review were found to be ineligible. The reasons for exclusion for these 19 studies have been reported.

Awaiting classification

No studies were identified as awaiting classification.

Ongoing studies

Five ongoing studies were identified (Kaltenbach 2021; NCT03938350; NCT04818112; NL9179; NCT03175796), details of which can be found in Characteristics of ongoing studies.

- Kaltenbach 2021 compared an adapted version of Narrative Exposure Therapy delivered via videoconferencing to wait-list, for parents of neurodiverse children with full or partial PTSD. The primary outcome is PTSD symptom severity, with secondary outcomes of interest (e.g. depression symptom severity, parent-child relationship and functioning). The results of the study have not been published.
- NCT03938350 is comparing Dialectical Behavior Therapy Skills Training to treatment as usual for parents from an ethnic/racial minority group reporting moderate to severe childhood maltreatment (Adverse Childhood Experiences ≥ 4) and depression symptoms (PHQ-9 ≥ 9). Primary outcomes include treatment feasibility, with secondary outcomes of interest (e.g. PTSD and depression symptom severity).
- NCT04818112 is comparing a behavioural auditory, tactile, visual and vestibular intervention to an attention control for parents reporting childhood maltreatment (Adverse Childhood Experiences ≥ 2). The primary outcome is mother-infant synchrony, gaze and affect, with secondary outcomes of interest (e.g. mother-infant vocalisation and touch).
- NL9179 is comparing an attachment-based video-feedback intervention to Eye Movement Desensitization and Reprocessing (EMDR) in mothers residing in women's shelters due to severe domestic violence. Primary outcomes include PTSD symptom severity (maternal) and parenting behaviours, with secondary outcomes of interest (e.g. child PTSD symptom severity).
- NCT03175796 compared a home visiting programme to treatment as usual in mothers who endorsed two or more of the following: adverse childhood experiences, possible depression diagnosis, challenges with parenting and eligibility for public services (based on income). Primary outcomes included PTSD symptom severity, depression symptom severity, emotional distress/rigidity/social isolation, perception of child and relationship with child, and social-emotional behaviour problems of child. The results of the study have not been published.

Risk of bias in included studies

The Risk of bias (tables) section outlines the risk of bias assessments for each outcome, including the judgements and supporting comments. Please contact the authors for detailed risk of bias assessment data, including consensus, for signalling questions.

We judged most outcomes overall to have 'some concerns', and we judged outcomes within six studies to be at 'high' risk of bias. Most studies did not adequately report the randomisation process (including generation of the random sequence and allocation concealment). Many studies had potential bias in the measurement of outcome (using self-report assessment tools) and missing data (reporting moderate to large dropout).

Effects of interventions

See: **Summary of findings 1** Summary of findings table - Parenting interventions compared to inactive control (usual care care, attention control, waitlist) for parents who are experiencing CPTSD symptoms or have experienced maltreatment in childhood; **Summary of findings 2** Summary of findings table - Psychological interventions compared to inactive control (usual care care, attention control, waitlist) for parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood; **Summary of findings 3** Summary of findings table - Service system approaches compared to inactive control (usual care care, attention control, waitlist) for for parents who are experiencing CPTSD symptoms or have experienced maltreatment in their childhood

See Summary of findings 1; Summary of findings 2; Summary of findings 3.

Comparison 1: Parenting interventions versus inactive control

Six studies assessed parenting interventions compared to an inactive control post-intervention (Cicchetti 2006; Haight 2005; Liu 2021; Pasalich 2019; Rosenblum 2017; Steele 2019). See Summary of findings 1. Additional outcomes reported in single studies are reported in Table 7.

Primary outcomes

Parental psychological or socio-emotional wellbeing

Trauma-related symptoms

Post-intervention

Very low-certainty evidence from one RCT found no clear evidence of a difference between the Mom Power parenting intervention and attention control on PTSD symptoms (PTSD symptom severity) (SMD -0.16, 95% CI -0.85 to 0.53; 33 participants; Analysis 1.1; MD -0.81, 95% CI -4.23 to 2.61, measured with National Women's Study PTSD Module, score range 0 to 17) (Rosenblum 2017).

Psychological wellbeing

Post-intervention

Very low-certainty evidence from one RCT found no clear evidence of a difference between the Mom Power parenting intervention relative to attention control on psychological wellbeing (postpartum depression) (SMD -0.00, 95% CI -0.69 to 0.69; 33 participants; Analysis 1.2; MD -0.12, 95% CI -24.92 to 24.68, measured with Postpartum Depression Screening Scale, score range 5 to 175) (Rosenblum 2017).

Substance use

No studies assessed the effect of parenting interventions on substance use.

Parent relationship quality

No studies assessed the effect of parenting interventions on parent relationship quality.

Parental self-harm

No studies assessed the effect of parenting interventions on parental self-harm.

Parenting capacity

Parent-child relationship

Post-intervention

Evidence from two RCTs suggested there was a small important improvement in parent-child relationships (parental sensitivity and dyadic reciprocity) from parenting interventions compared to inactive control (PFR: Promoting First Relationships, and GABI: Group Attachment-Based Intervention) (SMD 0.45, 95% CI -0.06 to 0.96; I^2 = 60%; 153 participants; Analysis 1.3) (Pasalich 2019; Steele 2019). There was low certainty in the evidence due to risk of bias and CIs that include little or no difference and important improvement. While heterogeneity was moderate it was not significant (Chi^2 P = 0.11) and the CIs overlapped.

The evidence for the effect of two parenting interventions (infant parent psychotherapy, psycho-educational parenting intervention) on parent-child relationships (secure attachment) compared with an inactive control was very uncertain from one RCT (Cicchetti 2006) (RR 20.11, 95% CI 4.09 to 98.89; I^2 = 0%; 104 participants; very low-certainty evidence; Analysis 1.4).

Compared with an inactive control, this RCT observed reduced disorganised attachment after a parenting intervention (RR 0.50, 95% CI 0.35 to 0.73; I^2 = 0%; 104 participants; Analysis 1.5) (Cicchetti 2006). They also observed reduced avoidant attachment (RR 0.29, 95% CI 0.07 to 1.13; I^2 = 0%; 104 participants; Analysis 1.6), however, this effect is uncertain as the CIs included a large reduction in negative attachment and little or no difference (95% CI 0.07 to 1.13; 95% CI 0.35 to 0.73). Ambivalent attachment was also reduced (RR 0.32, 95% CI 0.01 to 7.57; 104 participants; Analysis 1.7) with a parenting intervention compared with control, however the CIs included a large reduction and a large increase (95% CI 0.01 to 7.57), indicating that differences between the intervention and control are uncertain.

Twelve-month follow-up

One RCT also assessed two interventions at 12 months post-intervention (Cicchetti 2006). Compared with usual care, they observed a large difference in favour of parenting interventions, with an increase in secure attachment (RR 3.11, 95% CI 1.33 to 7.27; I^2 = 0%; 98 participants; Analysis 1.8), but little to no difference for disorganised attachment (RR 0.83, 95% CI 0.35 to 1.96; I^2 = 71%; 98 participants; Analysis 1.9) and ambivalent attachment (RR 0.78, 95% CI 0.22 to 2.76; I^2 = 0%; 98 participants; Analysis 1.10). They also observed a difference for avoidant attachment (RR 0.37 95% CI 0.14 to 0.95; I^2 = 0%; 98 participants; Analysis 1.11) in favour of the parenting intervention compared to an inactive control; however, the CIs included appreciable improvement and little or no difference, indicating the benefits are uncertain.

Parenting skills

Post-intervention

Evidence from four RCTs suggested there was little or no difference between parenting interventions and usual care in parenting skills (maternal supportive presence, parental self-efficacy in nurturance, child care-giving behaviour); however, we have low certainty in these effects due to risk of bias and CIs including little or no difference and small, important improvement (SMD 0.25, 95% CI -0.07 to 0.58; I^2 = 0%; 149 participants; Analysis 1.12) (Haight 2005; Liu 2021; Rosenblum 2017; Steele 2019).

Evidence from two RCTs suggested there was little or no difference between parenting interventions and usual care in parenting skills (maternal hostility) (SMD -0.11, 95% CI -0.95 to 0.73; I^2 = 66%; 98 participants; Analysis 1.13) (Haight 2005; Steele 2019). There was very low certainty in the results due to high risk of bias, substantial heterogeneity between effect estimates and CIs including important benefit and important harm.

Secondary outcomes

Parental intervention acceptability

Parent engagement

Evidence from six RCTs, including seven interventions, with moderate heterogeneity between effect estimates, suggested there was little or no difference in the number of parents who dropped out of parenting interventions compared to control (RR 1.14, 95% CI 0.89 to 1.46; I^2 = 43%; 938 participants; Analysis 1.14) (Cicchetti 2006; Haight 2005; Liu 2021; Pasalich 2019; Rosenblum 2017; Steele 2019).

Socio-ecological outcomes

Changes in parental social capital

Post-intervention

Evidence from one RCT suggested there was little or no difference between a parenting intervention with service system components (Mom Power) and usual care in changes in parental social capital (perceived connection to community professionals) (SMD 0.12, 95% CI -0.62 to 0.86; 29 participants; Analysis 1.15) (Rosenblum 2017).

Child's physical, socio-emotional wellbeing

Child emotional and behavioural outcomes

Post-intervention

Evidence from one RCT suggested there was little or no difference between a parenting intervention and usual care in child emotional and behavioural outcomes: externalising behaviour (SMD -0.19, 95% CI -0.99 to 0.62; 25 participants; Analysis 1.16) and internalising behaviour (SMD 0.32, 95% CI -0.48 to 1.13; 25 participants; Analysis 1.17) (Liu 2021).

Twelve-month follow-up

Evidence from one RCT assessing two interventions suggested there was little or no difference between parenting interventions and usual care in child emotional and behavioural outcomes at 12-month follow-up: externalising behaviour (SMD 0.03, 95% CI -0.37 to 0.43; I^2 = 0%; 98 participants; Analysis 1.18), internalising behaviour (SMD 0.05, 95% CI -0.35 to 0.45; I^2 = 0%; 98 participants; Analysis 1.19) or total child behaviour problems (SMD -0.03, 95% CI -0.43 to 0.37; I^2 = 0%; 98 participants; Analysis 1.20) (Cicchetti 2006).

No studies assessed the effect of parenting interventions on the following secondary outcomes:

- **Parental intervention acceptability:**
  - parent satisfaction with intervention;
  - medical compliance.
- **Socio-ecological outcomes:**
  - social functioning.
- **Child adverse events recorded during the intervention:**
  - child maltreatment occurrence;
  - family disruptions and child removals;
  - other adverse childhood experiences.
- **Child's physical, socio-emotional wellbeing:**
  - child physical health;
  - child development.
- **Other outcomes:**
  - service provider knowledge, attitudes and practices; or
  - cost or cost-effectiveness.

Comparison 2: Psychological interventions versus inactive control

Eight studies assessed psychological intervention compared to inactive control post-intervention (Ammerman 2016; Berry 2021; Blalock 2013; Grote 2012; Grote 2015; Madigan 2015; Silverstein 2011; Upshur 2016). See Summary of findings 2. Additional outcomes reported in single studies are reported in Table 8.

Primary outcomes

Parental psychological or socio-emotional wellbeing

Trauma-related symptoms

Post-intervention

Low-certainty evidence from four RCTs suggested there may be little or no difference between psychological interventions and usual care in CPTSD symptoms (interpersonal problems, PTSD symptom severity, dissociation) (SMD -0.05, 95% CI -0.40 to 0.31; I^2 = 39%; 247 participants; Analysis 2.1) (Grote 2012; Grote 2015; Madigan 2015; Upshur 2016).

Six-month follow-up

Evidence from three RCTs that assessed trauma-related symptoms at six months post-intervention suggested there was little or no difference between psychological interventions and usual care in CPTSD symptoms (interpersonal problems, PTSD symptom severity, dissociation) (SMD -0.05, 95% CI -0.56 to 0.46; I^2 = 44%; 136 participants; Analysis 2.2) (Grote 2012; Grote 2015; Madigan 2015).

Twelve-month follow-up

Evidence from two RCTs that reported CPTSD symptoms (PTSD symptom severity, dissociation) at 12 months post-intervention suggested there was little or no difference between psychological interventions and usual care (SMD -0.14, 95% CI -0.62 to 0.34; I^2 = 25%; 106 participants; Analysis 2.3) (Grote 2015; Madigan 2015).

Psychological wellbeing

Post-intervention

Low-certainty evidence from eight RCTs suggested there was little or no difference between psychological interventions and usual care in psychological wellbeing (depression symptom severity) (SMD -0.34, 95% CI -0.66 to -0.03; I^2 = 63%; 507 participants; Analysis 2.4) (Ammerman 2016; Berry 2021; Blalock 2013; Grote 2012; Grote 2015; Madigan 2015; Silverstein 2011; Upshur 2016). Heterogeneity between effect estimates was substantial in this comparison; however, we did not downgrade the certainty as there was overlap in CIs and the majority of studies showed a small improvement or little or no difference.

Depression remission/episodes: Evidence from two RCTs suggested that psychological interventions made little or no difference to the number of parents achieving remission from depression or experiencing moderate-severe depressive episodes post-intervention compared to usual care (RR 0.99, 95% CI 0.81 to 1.22; I^2 = 0%; 116 participants; Analysis 2.5) (Grote 2015; Silverstein 2011).

Postpartum depression: Evidence from two RCTs suggested there was little or no difference between psychological interventions and

usual care in postpartum depression symptom severity (SMD -0.22, 95% CI -0.57 to 0.13; I^2 = 0%; 135 participants; Analysis 2.6) (Grote 2012; Upshur 2016).

Anxiety: Evidence from two RCTs suggested there was little or no difference between psychological interventions and usual care in anxiety symptom severity post-intervention (SMD -0.00, 95% CI -0.57 to 0.57; I^2 = 0%; 54 participants; Analysis 2.7) (Berry 2021; Grote 2012).

Six-month follow-up

Depression: Evidence from three RCTs that also assessed depression symptom severity at six months post-intervention suggested there was little or no difference between psychological interventions and usual care, but there was considerable heterogeneity between effect estimates (SMD -0.29, 95% CI -1.21 to 0.63; I^2 = 81%; 136 participants; Analysis 2.8) (Grote 2012; Grote 2015; Madigan 2015).

Anxiety: Evidence from two RCTs suggested there was little or no difference between psychological interventions and usual care in anxiety symptom severity at six months post-intervention (SMD -0.33, 95% CI -1.30 to 0.63; I^2 = 62%; 55 participants; Analysis 2.9) (Grote 2012; Madigan 2015).

Twelve-month follow-up

Depression: Evidence from two RCTs suggested there was little or no difference between psychological interventions and usual care in depression symptom severity at 12 months post-intervention, but there was considerable heterogeneity between effect estimates (SMD 0.17, 95% CI -0.80 to 1.14; I^2 = 78%; 106 participants; Analysis 2.10) (Grote 2015; Madigan 2015).

Substance use

Post-intervention

One RCT found a small, important decrease in substance use (abstinence from smoking) six months post-intervention in mothers who received an interpersonally focused therapy - cognitive behavioural analysis system of psychotherapy (CBASP) with usual behavioural and motivational smoking cessation counselling, compared to those who received usual behavioural and motivational smoking cessation counselling alone (RR 1.57, 95% CI 0.72 to 3.45; 189 participants; Analysis 2.11) (Blalock 2013). There was low certainty in this effect due to risk of bias and CIs including little or no difference and appreciable benefit (in absolute terms from 2 fewer per 100 to 24 more).

Parent relationship quality

Post-intervention

Low-certainty evidence from one RCT found a small appreciable benefit of a psychological intervention (in-home CBT) compared to usual care on parent relationship quality (social support) (SMD 0.49, 95% CI 0.00 to 0.98; 67 participants; Analysis 2.12; MD 12.03, 95% CI 0.39 to 23.67, measured with Interpersonal Support Evaluation List, score range 0 to 120) (Ammerman 2016).

Parental self-harm

No studies assessed the effect of psychological interventions on parental self-harm.

Parenting capacity

Parent-child relationship

Post-intervention

Evidence from one study was very uncertain regarding whether a psychological intervention had any effect on the proportion of participants with poor parent-child relationship outcomes (disorganised infant attachment) compared with an inactive control (RR 4.67, 95% CI 0.60 to 36.29; 26 participants; Analysis 2.13) (Madigan 2015).

Parenting skills

Post-intervention

Low-certainty evidence from one RCT found a small appreciable benefit of a psychological intervention (in-home CBT) on parenting skills (providing a stimulating environment) compared with an inactive control (SMD 0.51, 95% CI 0.01 to 1.00; 66 participants; Analysis 2.14; MD 3.04, 95% CI 0.20 to 5.88, measured with Parenting Stress Index, score range 36 to 180) (Ammerman 2016).

Secondary outcomes

Parental intervention acceptability

Parent engagement

Evidence from seven RCTs suggested there was little to no difference in dropout numbers from the psychological intervention compared to inactive control. There was moderate heterogeneity in the effect estimates (RR 1.04, 95% CI 0.64, 1.68; I^2 = 54%; 926 participants; Analysis 2.15) (Ammerman 2016; Berry 2021; Blalock 2013; Grote 2015; Madigan 2015; Silverstein 2011; Upshur 2016).

Socio-ecological outcomes

Social functioning outcomes

Post-intervention

Evidence from four RCTs suggested there was little or no difference between psychological interventions and usual care in parental social functioning (social functioning, perceived social support, quality of functioning with friends, social network size) (SMD -0.13, 95% CI -0.39 to 0.13; I^2 = 0%; 240 participants; Analysis 2.16) (Ammerman 2016; Grote 2012; Silverstein 2011; Upshur 2016).

Child's physical, socio-emotional wellbeing

Child emotional and behavioural outcomes

Post-intervention

Evidence from one study found a large appreciable benefit from the Practical Resources for Effective Postpartum Parenting (PREPP) psychological and parenting intervention compared to enhanced usual care, in child emotional and behavioural outcomes (daytime sleeping minutes) (SMD 1.08, 95% CI -0.08 to 2.24, 14 participants; Analysis 2.17) (Berry 2021); however, the CIs crossed our threshold for appreciable increase and little or no difference

indicating that any difference between intervention and control group is uncertain.

Other outcomes

Cost or cost-effectiveness

One RCT reported health outcomes in terms of quality-adjusted life-years, depression-free days and interventions costs, in a cost-utility analysis of a psychological intervention for low-income mothers (Ammerman 2016). The intervention (IH-CBT) was associated with improved quality of life and reduced cost. Within three years there was an incremental health gain of 0.07 (approximately one month) and reduced costs of USD $2. Mothers receiving IH-CBT were expected to experience 345.6 fewer days of depression compared to the control group receiving standard home visiting.

Another RCT reported health outcomes for mothers with depression alone or with comorbid PTSD in terms of depression-free days and intervention costs in a cost-effectiveness analysis (Grote 2015). A psychological intervention (MOMCare) was found to be cost-effective for mothers with comorbid conditions, as a large health gain outweighed the additional costs of augmenting usual care with MOMCare. Mothers with comorbid depression and PTSD had 68 more depression-free days than those in the control condition, with an associated cost of USD $1312 creating an overall net benefit when a depression-free day was valued at greater than USD $20 ($20 x 68 = $1360). Mothers without comorbid PTSD reported 13 more depression-free days compared to the control condition, with an associated cost of USD $1167 and therefore assessed as having no positive net benefit ($20 x 13 = $260).

No studies assessed the effect of psychological interventions on the following secondary outcomes:

- **Parental intervention acceptability:**
  - parent satisfaction with intervention;
  - medical compliance.
- **Socio-ecological outcomes:**
  - changes in social capital.
- **Child adverse events recorded during the intervention:**
  - child maltreatment occurrence;
  - family disruptions and child removals;
  - other adverse childhood experiences.
- **Child's physical, socio-emotional wellbeing:**
  - child physical health;
  - child development.
- **Other outcomes:**
  - service provider knowledge, attitudes and practices.

Comparison 3: Service system approaches versus inactive control

One RCT compared (1) a full service system approach consisting of financial empowerment education and group, trauma-informed peer support, with (2) a partial service system approach consisting only of financial empowerment education, and (3) usual care, post-intervention (Booshehri 2018). See Summary of findings 3.

Primary outcomes

Parental psychological or socio-emotional wellbeing

Trauma-related symptoms

No studies assessed the effect of service system approaches on CPTSD/PTSD symptoms.

Psychological wellbeing

Post-intervention

Evidence from one RCT with two intervention arms suggested that service system approaches involving financial education and group peer support resulted in slightly worse psychological wellbeing (depression symptom severity) compared to usual care (SMD 0.42, 95% CI -0.15 to 0.99; I^2 = 0%; 52 participants; Analysis 3.1; MD 1.62 95% CI -1.00 to 4.25; measured with Center for Epidemiological Studies Depression Scale, score range 0 to 60) (Booshehri 2018). Our certainty in the evidence was low due to high risk of bias, and CIs consistent with little or no difference, and important harm.

This RCT found that service system approaches involving financial empowerment and peer group support resulted in a possible slight increase in parental self-efficacy (SMD 0.79, 95% CI 0.20 to 1.37; I^2 = 0%; 52 participants; Analysis 3.2) (Booshehri 2018).

Six-month follow-up

This RCT with two eligible intervention arms also assessed psychological wellbeing at six months post-intervention, and observed little or no difference in depression symptom severity between intervention and usual care (SMD -0.02, 95% CI -0.60 to 0.55; I^2 = 0%; 53 participants; Analysis 3.3), and a small increase in parental self-efficacy (SMD 0.56, 95% CI -0.03 to 1.15; I^2 = 0%; 53 participants; Analysis 3.4) (Booshehri 2018); however, our certainty in the evidence was low as the CIs crossed our threshold for both appreciable benefit and little or no difference.

Nine-month follow-up

This RCT also assessed psychological wellbeing at nine months post-intervention compared to control, and observed slight improvements in depression symptom severity (SMD -0.46, 95% CI -1.43 to 0.51, I^2 = 56%; 46 participants; Analysis 3.5), and parental self-efficacy (SMD 0.43, 95% CI -0.20 to 1.07; I^2 = 0%; 46 participants; Analysis 3.6) (Booshehri 2018); however, the CIs crossed our threshold for appreciable benefit and appreciable harms (depression), or little or no difference (self-efficacy), indicating that differences between the intervention and control groups are uncertain.

Substance use

No studies assessed the effect of service system approaches on substance use.

Parenting capacity

Parent relationship quality

No studies assessed the effect of service system approaches on parent relationship quality.

Parental self-harm

No studies assessed the effect of service system approaches on parental self-harm.

Parent-child relationship

No studies assessed the effect of service system approaches on parent-child relationship.

Parenting skills

No studies assessed the effect of service system approaches on parenting skills.

Secondary outcomes

Parental intervention acceptability

Parent engagement

Participants in one RCT, including two intervention arms, were slightly more likely to drop out of the intervention group than the control group (RR 1.40, 95% CI 0.86 to 2.29; I^2 = 0%; 103 participants; Analysis 3.7) (Booshehri 2018). The CIs were consistent with little or no difference and a large effect favouring better engagement in the control compared to the intervention group.

Socio-ecological outcomes

Changes in social capital

Post-intervention

One RCT with two intervention arms observed that service system approaches involving financial empowerment and peer group support resulted in little or no difference in changes in social capital (economic hardship) (SMD 0.03, 95% CI -0.53 to 0.59; I^2 = 0%; 52 participants; Analysis 3.8), or employment (RR 1.16, 95% CI 0.62 to 2.18; I^2 = 0%; 52 participants; Analysis 3.9) compared to usual care (Booshehri 2018).

Six-month follow-up

This RCT assessed changes in social capital at six months post-intervention, and found a small reduction in economic hardship in the intervention compared to usual care group (SMD -0.49, 95% CI -1.07 to 0.10; I^2 = 0%; 53 participants; Analysis 3.10) (Booshehri 2018); however, the CIs were consistent with a reduction and little or no effect. Little or no difference was observed between intervention participants compared to control in employment status (RR 0.85, 95% CI 0.51 to 1.41; I^2 = 0%; 53 participants; Analysis 3.11).

Nine-month follow-up

At nine months, there was little or no difference between intervention and control in economic hardship (SMD -0.16, 95% CI -0.79 to 0.47; I^2 = 0%; 46 participants; Analysis 3.12). There was a slight improvement in employment status in intervention compared to control (RR 1.37, 95% CI 0.63 to 2.96; I^2 = 0%; 46 participants; Analysis 3.13) (Booshehri 2018); however, the CIs crossed our threshold for appreciable benefit and appreciable harm, indicating that differences between the intervention and control groups are uncertain.

Child's physical, socio-emotional wellbeing

Post-intervention

One RCT with two intervention arms found that a service system intervention involving financial counselling and group peer support may slightly decrease child developmental risk compared to usual care (RR 0.68, 95% CI 0.27 to 1.73; I^2 = 0%; 52 participants; Analysis 3.14) (Booshehri 2018); however, the CIs were consistent with important benefit and important harm, so these results are uncertain.

Six-month follow-up

This RCT found that the service system intervention increased child developmental risk compared to usual care at six months post-intervention (RR 1.86, 95% CI 0.44 to 7.89; I^2 = 0%; 53 participants; Analysis 3.15) (Booshehri 2018); however, the CIs crossed our threshold for both appreciable benefit and harm, indicating that differences between the intervention and control are uncertain.

Nine-month follow-up

At nine months post-intervention, the service system intervention greatly increased child developmental risk compared to the control group (RR 2.44, 95% CI 0.49 to 12.25; I^2 = 0%; 46 participants; Analysis 3.16) (Booshehri 2018); however, the CIs crossed our threshold for both appreciable benefit and appreciable harm, indicating that differences between the intervention and control are uncertain.

No studies assessed the effect of service system approaches on the following secondary outcomes:

- **Parental intervention acceptability:**
  - parent satisfaction with intervention;
  - medical compliance.
- **Socio-ecological outcomes:**
  - changes in social functioning.
- **Child adverse events recorded during the intervention:**
  - child maltreatment occurrence;
  - family disruptions and child removals;
  - other adverse childhood experiences.
- **Child's physical, socio-emotional wellbeing:**
  - child physical health;
  - child development.
- **Other outcomes:**
  - service provider knowledge, attitudes and practices;
  - cost or cost-effectiveness.

Sensitivity analyses

We conducted sensitivity analyses to examine the robustness of the meta-analytic effects to: exclusion of trials at high risk of bias; exclusion of trials with fewer than 50 participants; and fitting a fixed-effect model in place of our primary model (a random-effects model); see Table 9. These analyses revealed that some of the interpretations of the size of the effect estimates were not robust to the sensitivity analyses, primarily demonstrating the fragility of the meta-analysis results arising from few studies with small sample sizes.

Specifically, parent-child relationships shifted from a small but important difference between a parenting intervention and inactive control (SMD 0.45, 95% CI -0.06 to 0.96; I^2 = 60%; 2 studies, 153 participants; Pasalich 2019; Steele 2019) to little or no difference (SMD 0.19, 95% CI -0.27 to 0.65; 1 study, 75 participants; Pasalich 2019); parenting skills shifted from little or

no difference between intervention and inactive control (SMD 0.25, 95%CI -0.07 to 0.58; I^2 = 0%; 4 studies, 149 participants; Haight 2005; Liu 2021; Rosenblum 2017; Steele 2019) to a small, important effect in favour of the intervention (SMD 0.49, 95% CI 0.04 to 0.94; 1 study, 78 participants; Steele 2019) when three studies with fewer than 50 participants were excluded.

Excluding three studies at high risk of bias from the comparison of a psychological intervention and inactive control for trauma-related symptoms resulted in a shift from little or no difference (SMD -0.05, 95%CI -0.40 to 0.31; I^2 = 39%; 4 studies, 247 participants; Grote 2012; Grote 2015; Madigan 2015; Upshur 2016) to a small, important effect in favour of the intervention group (SMD 0.41, 95% CI -0.52 to 1.35; 1 study, 24 participants; Grote 2012). Similarly, exclusion of two studies at high risk of bias from the comparison of a psychological intervention and inactive control for psychological wellbeing shifted the effect size from little or no difference (SMD -0.34, 95% CI -0.66 to -0.03; I^2 = 63%; 507 participants; Ammerman 2016; Berry 2021; Blalock 2013; Grote 2012; Grote 2015; Madigan 2015; Silverstein 2011; Upshur 2016) to a small, important effect in favour of the intervention group (SMD -0.52, 95%CI -0.81 to -0.22; I^2 = 41%; 6 studies, 365 participants; Ammerman 2016; Berry 2021; Blalock 2013; Grote 2012; Grote 2015; Silverstein 2011). Finally, exclusion of four studies with fewer than 50 participants also shifted this result for psychological wellbeing to a small, important benefit for the intervention group (SMD -0.53, 95% CI -0.91 to -0.16; I^2 = 29%; 4 studies, 384 participants; Ammerman 2016; Blalock 2013; Grote 2015; Upshur 2016).

The fact that in all analyses (with one exception) the interpretation changed from a 'small (trivial) effect' in the original analysis to a 'small but important effect' in the sensitivity analysis provides some cautious reassurance that the original meta-analysis effect estimates were not exaggerated towards the interventions. Furthermore, the comparison of results yielded from fixed- and random-effects models provided some reassurance that small-study effects did not importantly impact the results.

Subgroup analyses

Complexity of intervention

We conducted subgroup analyses to examine if the complexity of the intervention potentially modified the magnitude of intervention effects. The planned complexity subgroups were single-component, multiple-component and tailored components; however, no interventions used tailored components.

For the comparison of parenting interventions versus inactive control on parenting skills, there was no evidence that the magnitude of the effect estimates for single-component interventions (SMD 0.31, 95% CI -0.06 to 0.68; I^2 = 3%; 3 studies, 123 participants; Haight 2005; Steele 2019; Liu 2021) differed compared with multiple-component interventions (SMD -0.06, 95% CI -0.83 to 0.71; 1 study, 26 participants; Rosenblum 2017) (Analysis 1.21; test for subgroup differences Chi^2 = 0.74, df = 1, P = 0.39 I^2 = 0%).

For the comparison of psychological interventions versus inactive control on trauma-related symptoms, there was no evidence that the magnitude of the effect estimates for single-component interventions (SMD 0.07, 95% CI -0.55 to 0.69; I^2 = 59%; 2 studies, 142 participants) differed compared with multi-component interventions (SMD -0.08, 95% CI -0.79 to 0.62; I^2 = 52%; 2 studies, 105 participants) (Analysis 2.18; test for subgroup differences Chi^2 = 0.10, df = 1, P = 0.75, I^2 = 0%; very low-certainty evidence). The multiple-component interventions included both psychological and service system approach components (Grote 2012; Grote 2015), while the single-component interventions included only psychological interventions (Madigan 2015; Upshur 2016).

For the comparison of psychological interventions versus inactive control on depression symptoms, there was no evidence that the magnitude of effect estimates for single-component interventions (SMD -0.31, 95% CI -0.78 to 0.15; I^2 = 77%; 5 studies, 375 participants) differed compared with multi-component interventions (SMD -0.41, 95% CI -0.76 to -0.05; I^2 = 0%; 3 studies, 132 participants) (Analysis 2.19; test for subgroup differences Chi^2 = 0.10; df = 1, P = 0.76, I^2 = 0%; very low-certainty evidence). The multiple-component interventions included both psychological and service system approach components (Berry 2021; Grote 2012; Grote 2015), while the single-component interventions included only psychological interventions (Ammerman 2016; Blalock 2013; Madigan 2015; Silverstein 2011; Upshur 2016).

For the comparison of psychological interventions versus inactive control on number of parents achieving remission from depression, there was no evidence that the magnitude of effect estimates for single-component interventions (RR 1.11, 95% CI 0.59 to 2.10; 1 study, 38 participants) differed compared with multi-component interventions (RR 0.98, 95% CI 0.79 to 1.22; 1 study, 78 participants) (Analysis 2.20; test for subgroup differences Chi^2 = 0.13, df = 1, P = 0.72, I^2 = 0%; moderate-certainty evidence). The types of multiple-component intervention included both psychological and service system approach components (Grote 2015), while the single-component intervention included only psychological intervention (Silverstein 2011).

The certainty of all the subgroup analyses was compromised because different trials contributed to the subgroups, and few trials contributed to each of the subgroups, making these analyses susceptible to confounding bias (Schandelmaier 2020; Thompson 2002).

DISCUSSION

Summary of main results

We synthesised the reported evidence on the effects of interventions to support soon-to-be and new parents experiencing CPTSD symptoms or who have experienced maltreatment in their own childhoods. CPTSD has only relatively recently been formally recognised as a distinct condition in ICD-11 (WHO 2019), and we anticipated that very few studies would have been published to date that assess interventions targeting CPTSD or assessing associated symptom-related outcomes. We therefore also searched for studies aimed at supporting parents who have experienced childhood maltreatment as this is the most common antecedent to the development of CPTSD symptoms (Agazzi 2019; Frost 2020). As anticipated, most eligible studies were not targeting CPTSD but aimed to improve parenting capacity or parental psychological or socio-emotional wellbeing in parents considered at higher risk of poor parenting outcomes due to a range of factors, including the experience of childhood maltreatment, or PTSD. The results should be interpreted within this context of an evolving evidence base.

Results from the 15 studies included in this review of interventions delivered during pregnancy or up to two years after birth to parents who were experiencing CPTSD symptoms or had experienced childhood maltreatment provide little or no evidence of benefit compared to usual care on most of the measured parenting and psychological outcomes. However, two parenting interventions led to small improvements in parent-child relationships (Pasalich 2019; Steele 2019): one study that assessed a psychological intervention that comprised an interpersonally focused therapy, cognitive behavioural analysis system of psychotherapy, found a small increase in the number of mothers who quit smoking (Blalock 2013); another psychological intervention improved parent relationships and parenting skills (Ammerman 2016). Additionally, one service system approach showed that providing financial empowerment education and trauma-informed peer support resulted in a slight increase in depression symptom severity (Booshehri 2018). Dropout rates from the included parenting and psychological intervention studies did not differ between intervention and control groups, indicating good parent acceptability of the interventions. Dropout rates were relatively high, but this is expected in studies with populations experiencing high adversity and with parenting responsibilities. In the service system intervention study parent acceptability (as indicated by dropout) was low, with more parents failing to complete the financial empowerment intervention than the control.

Heterogeneity or variation between studies combined in meta-analyses for primary outcomes post-intervention was mixed, ranging from I^2 = 0% in parenting interventions on parenting skills in (four studies), to moderate (I^2 = 39%) in psychological interventions on CPTSD symptoms (four studies), to high (I^2 = 60% and I^2 = 63%) in effect of parenting interventions on parent-child relationships (two studies), and psychological interventions on depression (eight studies), respectively. Overall, we generally rated the certainty of the evidence from the included studies as low to very low, providing little certainty in most of the results.

Parenting interventions

Primary outcomes

Results of a study assessing the effect of the 'Mom Power' parenting intervention on PTSD symptoms and psychological wellbeing (33 participants) were very uncertain. Parenting interventions (PFR, GABI) were found to improve relationships between parents and their children slightly (two studies, 153 participants); however, certainty in the evidence was low, and both studies targeted mothers who were considered 'at risk' of maltreating their child. Results of another study of parents who were identified as maltreating their child (104 participants), which assessed the effect of two interventions, Infant Parent Psychotherapy, and Psychoeducational Parenting Intervention, on attachment, were very uncertain.

Results suggested that there may be no benefit from parenting interventions (Mom Power, emotional support and coaching intervention, FIND, GABI) on parenting skills, including nurturance, supportive presence and reciprocity, however there was low certainty in this evidence (four studies, 149 participants). Excluding three studies with fewer than 50 participants increased the effect to indicate a small improvement in parenting skills, however the one remaining study was at high risk of bias and there was low certainty in the result.

Subgroup analysis indicated that there was no evidence that the magnitude of effect estimates for multi-component interventions that incorporated service system approaches into parenting interventions differed compared with single component psychological interventions.

Secondary outcomes

There was little or no difference in parent engagement, measured by dropout from treatment, between intervention and usual care groups in the parenting intervention studies (six studies, 918 participants).

Interventions including a video feedback parenting intervention (FIND), Infant Parent Psychotherapy and Psychoeducational Parenting Intervention, resulted in little or no difference in child externalising or internalising behaviours or child behaviour problems, either immediately or 12 months after the intervention compared to usual care.

There was little difference between the Mom Power parenting intervention that incorporated service system approaches, and attention control, on changes in parental social capital outcomes (perceived connection to community professionals).

Psychological interventions

Primary outcomes

There may be little or no difference between psychological interventions and usual care in CPTSD symptoms, including PTSD symptoms, dissociation or interpersonal problems (four studies, 247 participants; low-certainty evidence). Evidence for the effect of a psychological intervention (trauma-focused CBT (TF-CBT)) on PTSD diagnosis was very uncertain. Evidence suggested that psychological interventions may have little benefit over usual care for: depression symptoms (eight studies, 507 participants), the number of parents achieving remission from depression, or experiencing depressive episodes three to four months post-intervention (two studies, 116 participants), however the certainty in this evidence was low. When we excluded one study at high risk of bias, a small, important decrease in depression symptoms was found in intervention compared to control groups. Our subgroup analysis on the psychological wellbeing (depression) outcome found that there was no evidence that the magnitude of effect estimates for multi-component interventions differed compared with single-component psychological interventions

One study assessing an interpersonally focused depression intervention, cognitive behavioural analysis system of psychotherapy (CBASP), in a sample of pregnant women with a history of moderate-severe levels of childhood maltreatment, found a slight increase in the number of women who stopped smoking compared to usual care, however there was low certainty in this evidence.

One study found slightly more benefit from a psychological intervention compared to control for parent's relationship and another found that a psychological intervention was slightly better that usual care for improving parenting skills, providing a stimulating, nurturing and safe environment, however there was low certainty in this evidence.

The effect of a psychological intervention (TF-CBT) on the number of parents with disorganised infant attachment was very uncertain.

Secondary outcomes

There was little to no difference in parent engagement (dropout) between psychological intervention groups and usual care (seven studies, 926 participants). Little or no difference was found between psychological interventions and control groups on social functioning outcomes (social support) (four studies, 240 participants). One small study (14 participants) that assessed the effect of a psychological intervention with parenting skills components (PREPP) on children's physical, socio-emotional wellbeing found a large increase in the total minutes of daytime sleeping in the babies of mothers who received the intervention compared to an enhanced usual treatment group, however due to very wide CIs and the very small sample size, the results are very uncertain and replication of these results would be desirable.

Primary outcomes

Service system approaches were found to possibly *increase* depression symptoms (one study, 52 participants, low-certainty evidence) compared to usual care. This worsening of symptoms was no longer evident at six months (53 participants), and at nine-month follow-up there was a small decrease in depression symptoms (46 participants), however over half of the randomised participants had dropped out at these latter time points, providing little confidence in the findings.

This study also assessed parental self-efficacy and the service system approach was found to have a small to moderately beneficial effect compared to usual care at post-intervention, which reduced across the follow-up time points but remained important (low-certainty evidence).

Secondary outcomes

Parent engagement was slightly poorer in the service system approach compared to usual care (one study, 103 participants). Little or no difference was found between intervention and usual care groups in economic hardship at post-intervention: a small beneficial effect was reported at six-month follow-up, which was unsustained at nine-month follow-up, however with over 50% participant dropout, these results should be interpreted with strong caution. Child developmental risk was slightly reduced compared to usual care in the service system approach post-intervention (one study, 52 participants), however CIs consistent with important benefit and important harm provide low confidence in this result. At six months, child developmental risk was slightly increased in the intervention group, and it was greatly increased at nine months, however wide CIs and high rates of dropout make these results uncertain.

Overall completeness and applicability of evidence

The overall completeness and applicability of the findings are limited by a number of important factors. While there is a larger body of evidence assessing the effect of psychological interventions on mental health outcomes in women with childhood maltreatment histories, the evidence for these interventions in pregnant women or parents in the perinatal period is limited.

Study interventions

In a critical interpretive synthesis review of interventions to prevent the transmission of intergenerational trauma, Isobel et al found that the complexities of identifying intergenerational trauma as distinct from other psychological trauma limited the ability to clearly articulate relevant interventions (Isobel 2018). The rationale for the five intervention categories we sought to include in this review was grounded in the findings of our previous scoping review (Chamberlain 2019b), and qualitative systematic reviews of parent's experiences (Chamberlain 2019c). The findings of these reviews highlighted the diverse range of parent preferences and needs for prenatal care interventions, and the importance of choice. However, the range of interventions that have been studied in RCTs and included in this review are limited. In line with Isobel 2018, which concluded that resolving parental trauma and supporting parent-infant bonding were key prevention constructs, we found that interventions categorised as psychological or parenting interventions were the most common.

Interventions identified as useful by parents in these previous reviews included those promoting connectedness and fostering positive relationships with self, children and others. A number of the reviewed interventions go some way to addressing this need. For example, all six parenting interventions included components aimed at enhancing relationships between child and parent and four of these specifically promoted positive relationships with oneself and others. Infant Parent Psychotherapy aimed to assist parents to develop positive internal representations of themselves, and themselves in relationship to others (Cicchetti 2006); a key focus of the interpersonal relationship-focused CBASP intervention was improving the quality of mother's relationships with significant others (Blalock 2013); PFR aimed to improve parent's awareness of their own needs in addition to their child's (Pasalich 2019); and Mom Power promoted a healthy relationship with self (Rosenblum 2017).

Another strategy identified by parents in our qualitative review was "creating safety, using conscious strategies to build safe places and relationships to protect themselves and their baby" (Chamberlain 2019c, page 40). Four of the interventions reviewed here include safety as a core component: Seeking safety emphasises safety and focusses CBT elements on solving current problems and not exploring past trauma (Upshur 2016); the PFR model (Pasalich 2019) posits that improvements can only be achieved by first establishing a parent's own feelings of safety and security (Crittenden 2017; Graybeal 2007; Larrieu 2004; Oxford 2016); similarly, Mom Power seeks to establish an environment of "felt security and nurturance" in the group component, facilitating mother's provision of a "safe haven and secure base" (Bowlby 1969) for their children (Rosenblum 2017); and finally, CBASP seeks to motivate behaviour change (smoking cessation) through generating felt safety within the therapy dyad, with the aim to generalise this felt safety to the mother's other relationships (Blalock 2013).

We also examined recommendations for supports for parents in relevant national guidelines and key reviews (Austin 2017; DOH 2020; Bisson 2020; Bisson 2021; Caro 2019; Erickson 2019; Johnstone 2018; Kezelman 2012; Kezelman 2019; Law 2019; Lewis 2020; Phoenix Australia 2020; Sánchez-Meca 2011). Through the synthesis of the interventions reviewed within these sources we developed the five intervention categories to cover the diverse range of implementation contexts: mind-body approaches; pharmacological treatment; psychological interventions; parenting interventions and service system approaches.

However, we found no studies assessing the effect of two of our five pre-specified intervention categories, with no eligible studies assessing the effects of mind-body approaches, or pharmacological approaches delivered during pregnancy or up to two years after birth for parents who are experiencing CPTSD symptoms or have experienced childhood maltreatment. This dearth of studies across two core intervention categories highlights a gap in the evidence base.

Mind-body approaches

The evidence base for the effect of mind-body approaches such as mindfulness, art therapy and yoga, and biomedical approaches such as neurofeedback for individuals with prior trauma exposure, is growing. The Australian PTSD guidelines identify a number of mind-body approaches and biomedical approaches with emerging evidence for interventions that warrant further research, however none have been assessed in a population of parents with complex trauma and/or childhood maltreatment history (Phoenix Australia 2020).

Pharmacological treatments

Evidence supports the use of pharmacological treatments for PTSD in the general population. Selective serotonin reuptake inhibitors (SSRIs) and venlafaxine both have conditional recommendations in the Australian PTSD guidelines (Phoenix Australia 2020), for use when an individual is unwilling or not in a position to engage in or access recommended psychological therapy (TF-CBT, Prolonged Exposure (PE), Cognitive Therapy, Cognitive Processing Therapy (CPT) or EMDR), where they have comorbid conditions or associated symptoms where the medications are indicated, or where psychological therapies have not reduced their symptoms. No studies have assessed the effectiveness of these medications specifically in populations of parents with childhood maltreatment histories or with CPTSD symptoms.

Within the prespecified categories of interventions that we did find studies assessing, psychological interventions, parenting interventions and service system approaches, the types of interventions were limited.

Parenting interventions

The six studies we identified that assessed parenting interventions included five parent-child interventions, and a single social-support-based intervention. Social support has been shown to be a critical moderating factor for enhancing parent-child relationships (Green 2007). The positive influence of social support on parental self-efficacy and positive parenting practices has been shown in a range of populations including low SES immigrant families (Izzo 2000) and African American single mothers with high environmental stressors and psychological distress (Kotchick 2005). No studies were found that assessed family- or couple-focused interventions. These were identified our scoping review as an effective strategy for improvements in parenting and evidence suggests that couples and family based interventions may improve parental wellbeing and increase positive parenting outcomes (Bellhouse 2021; Morrill 2016). More studies of these types of parenting interventions are needed to build the evidence base for this category of interventions.

Five of the six studies assessing parenting interventions were aimed at parents who were considered at risk of or had been identified as maltreating their own children. There is an evidence gap in studies assessing the effectiveness of parenting interventions in parents with symptoms of CPTSD or childhood maltreatment histories that are targeting parental healing or recovery from trauma rather than solely prevention of child maltreatment. Growing evidence demonstrates that the perinatal period offers a unique life course opportunity for preventing intergenerational cycles of trauma, through supporting positively reinforcing cycles of nurturing and recovery, and 'earned security' (Alexander 2014; Sperlich 2017).

Additionally, all the included parenting studies were implemented in the postpartum period; studies of interventions initiated in pregnancy are missing from the literature. Conversely, seven of the eight studies assessing psychological interventions targeted parents who were pregnant, limiting generalisability of these findings to parents in postnatal parenting stages. This paradox reflects a disconnect between 'parenting' and 'psychological' interventions to support parents experiencing CPTSD symptoms, and points to the need for better integration of more holistic parenting and mental health support during the perinatal period.

Psychological interventions

Within psychological interventions we identified eight studies. Six of these studies assessed the effectiveness of non-trauma focused CBT-based interventions, one assessed trauma-focused CBT (Madigan 2015), and one assessed an intervention that included parenting skills as well as psychological components such as motivational interviewing and mindfulness exercises (Berry 2021). Evidence-based psychological approaches to treating trauma-related symptoms include PTSD treatments such as PE, CPT, EMDR, Narrative Exposure Therapy (NET) and Dialectical Behavior Therapy (DBT). There is a large body of evidence examining the effectiveness of these therapies for other trauma-affected populations (current and ex-serving military members, assault and rape survivors), and so it is surprising that studies specific to assessing the effect of these interventions on parents with CPTSD symptoms or childhood maltreatment have not been conducted.

Service system approaches

Only one type of service system approach was included: a financial empowerment programme with a trauma-informed peer support component. This highlights a gap in the types of interventions assessed in this important area. A range of service system approaches identified in our protocol, informed by our previous scoping and qualitative reviews, were not represented in the literature. These interventions were identified as desired and appropriate by parents and by what evidence from other fields suggest may be beneficial for this population.

Study setting

Another limitation to the applicability of the findings is the generalisability to other geographical contexts. All studies were conducted in one region, North America; 14 of the 15 included studies were conducted in the USA, with one conducted in Canada, and the majority (10 studies) were conducted in metropolitan settings. Two of the three identified ongoing studies are also set in the USA. Studies in different settings including low- and middle-income countries and rural and remote locations are needed.

Study population

The exclusion criteria within studies included in the review present a further limitation on the generalisability of the findings, due to the common exclusion of people with conditions that frequently co-occur with the experience of childhood maltreatment and/or CPTSD symptoms. Four of the eight studies assessing psychological interventions excluded parents experiencing substance use issues, or in receipt of other treatments or medications, while six of eight studies excluded parents with any psychiatric disorder. All but one study assessing psychological interventions excluded parents with suicidal risk (four studies) or ideation (three studies). Studies assessing parenting interventions were more inclusive with only a single study excluding parents based on experience of a psychiatric or organic mental health disorder. Exclusion of parents with mental health or psychiatric symptoms, including substance abuse, greatly limits the generalisability of the findings to those with symptoms of CPTSD and/or childhood maltreatment histories. There is a well-established body of evidence indicating that childhood maltreatment is strongly associated with mental health and psychiatric conditions including psychological distress, mood disorder, psychosis, suicidal ideation or attempt and substance use disorders (Anda 2006; Bellis 2019; Felitti 1998; Petruccelli 2019; Sahle 2021; Varese 2012).

Five studies were specifically targeted at mothers experiencing mental health disorder (depression, three studies: Ammerman 2016; Grote 2012; Grote 2015; or PTSD, two studies: Madigan 2015; Upshur 2016). Parents in these studies would likely have started at higher baseline levels on these outcomes and may be more likely to experience treatment resistance.

Very few studies included male parents (29 participants, three studies; Booshehri 2018; Liu 2021; Pasalich 2019), limiting the generalisability of the review's findings to fathers. Twelve studies included a majority of parents with low SES, limiting generalisability to parents with moderate-high SES.

We only included studies where experience of childhood maltreatment exposure was reported, and this was assessed with self-report measures in most studies. Literature suggests that many individuals never disclose experiences of childhood maltreatment (Bottoms 2007; London 2005; London 2008; Finkelhor 2014; Smith 2000; Somer 2001), and those who do, disclose between 3 and 49 years after the experience/s, with an estimated average latency of 21 years (Jonzon 2004; Kogan 2004). It is probable then, that the participants in the included studies are not fully representative of broader childhood maltreatment-exposed population as the represented individuals have selected to participate in a study addressing trauma impacts and have disclosed previous trauma.

Taken together these limitations to generalisability suggest that the results presented in this review are most applicable to mothers over 18 years, with low SES, from metropolitan settings in high-income countries, who have disclosed experiences of childhood maltreatment.

Study outcomes

There was wide variation in the outcomes measured, limiting our ability to synthesise effects for many of the primary outcomes. Some of our primary outcomes were assessed in only one or no included studies, highlighting an evidence gap. Long-term follow-up was only reported in six studies, all of which reported different outcomes and thus the sustainability of any intervention effects cannot be accurately predicted. Adverse effects were not reported in any of the studies, although a possible negative effect on depression was reported in one study offering financial empowerment and peer group counselling, with concurrent possible positive effect on parenting self-efficacy. Considering the sensitive nature of identifying and addressing issues related to a past history of childhood maltreatment, there is potential for any intervention, particularly those that are trauma-focused, to cause some distress and potentially cause harm. This can include triggering of trauma-related distress, inappropriate attention from child welfare agencies and 'labelling' parents as at risk (Chamberlain 2019a). This is an important outcome that should be considered in future research in addition to our other primary outcomes that were inadequately addressed: parental substance use, parental self-harm and parent relationship quality. Qualitative (Chamberlain 2019c) and neurophysiological (Piccini 2021) studies suggest that 'hope-inspiring' and strengths-based approaches that focus on unique opportunities at this time and reframe the discourse of CPTSD and childhood maltreatment as described in the Power Threat Meaning Framework (Johnstone 2018) are important for parents who have experienced maltreatment in their own childhoods, and may help to reduce these risks.

The sample sizes in the included studies were small, reducing the certainty of treatment effects. Studies with larger sample sizes are needed, however the feasibility of larger sample sizes in these populations is challenging.

Only two studies reported costs or cost-effectiveness as outcomes. This is a significant gap given the well-documented impact of childhood maltreatment or adverse childhood experiences on adult health outcomes, including parenting and intergenerational transmission of trauma (Bellis 2019; Font 2016). There is enormous potential for any effective intervention to have significant benefits for infants at a critical period of development, parents who are predominantly young, and for other children and family members, hence having potential for significant returns on investment and cost-effectiveness. Indeed, those studies that did present cost-effectiveness data found psychological interventions (IH-CBT, MOMCare) to be more cost-effective than standard care for low-income mothers experiencing depression (Ammerman 2016), and mothers with comorbid depression and PTSD (Grote 2015).

Our search strategy required studies to have trauma-related terms in the title or abstract. It is possible, but unlikely, that some eligible studies were missed that assessed relevant interventions and, by nature of the study population, had high proportions of participants with childhood maltreatment or CPTSD symptoms, which subgrouped results by trauma exposure, or that examined the moderation of results by trauma exposure.

There is insufficient evidence at this stage to support the effectiveness of any interventions included in this review, due largely to small sample sizes, wide variability in study design and inconsistent findings.

Quality of the evidence

We used the GRADEpro Guideline Development tool to assess the certainty of the evidence (GRADEpro GDT). GRADE assessments were based on risk of bias, inconsistency, indirectness, imprecision and publication bias. We judged all outcomes to be low (eight

outcomes) or very low (three outcomes) certainty. We downgraded the majority of outcomes due to serious or very serious risk of bias and imprecision. There were several common methodological concerns contributing to the majority of the downgrades for risk of bias. Many studies did not adequately describe allocation concealment. A large proportion of the studies experienced high study attrition, and therefore had amounts of missing outcome data that could bias effect size, which may reflect the complexities of conducting research in this field. Additionally, self-reported outcome measures were the most frequently used tools, preventing the ability for outcome assessors to be blinded. Decisions to downgrade due to imprecision were based on the width of the CIs. We downgraded six outcomes by one level due to the fact that the CIs included both a 'little or no effect' and 'appreciable harm' or 'appreciable benefit'. We downgraded a further three outcomes two levels for imprecision due to the CIs crossing the threshold for both 'appreciable harm' and 'appreciable benefit'. We downgraded one outcome by two levels for imprecision due to very low number of events (five) and wide CIs. No outcomes were downgraded for inconsistency or indirectness.

We ran sensitivity analyses on four outcomes, excluding studies at overall high risk of bias. Two of these analyses yielded results similar to the primary results. However, the sensitivity analyses conducted on the comparison of parenting interventions versus inactive control for the outcome parent-child relationship yielded a result that shifted the effect size from 'appreciable benefit' to 'little or no benefit', suggesting that this finding may be vulnerable to risk of bias. After excluding outcome data from three studies at high risk of bias from the comparison of psychological interventions versus inactive control for the trauma-related symptoms outcome, the one remaining study showed a small benefit, however the certainty of evidence is very low.

We ran sensitivity analyses on three comparisons, excluding outcome data from studies with sample sizes of fewer than 50 participants. While two of these analyses resulted in no important change in effect, the comparison of parenting interventions compared to usual care for the outcome parenting skills post-intervention showed a shift from 'little or no benefit' to 'appreciable benefit' when outcome data from three studies with fewer than 50 participants were excluded. This may be a spurious effect or could suggest that outcome data from smaller studies are at risk of biasing results towards the null.

Publication bias was not assessed with a funnel plot due to an inadequate number of studies (fewer than 10) in any single comparison to assess asymmetry. However, we searched clinical trial databases for any missing data from terminated, ongoing or unpublished eligible studies.

Potential biases in the review process

We conducted this review in accordance with the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2022). We made every effort to limit bias through the use of a rigorous comprehensive search strategy of multiple databases. We completed a handsearch of included studies and searched the references of 216 reviews to identify any additional eligible studies. We contacted study authors for any missing data and to request subgroup data of parents with CPTSD symptoms or who had experienced childhood maltreatment. Although eight of the 11 author groups provided unpublished subgroup data, we were unable to obtain the subgroup data from two studies and the unadjusted data from one study.

Levels of exposure to childhood maltreatment varied across studies; seven studies provided either published or unpublished data for a sample of parents who had experienced moderate-severe/high trauma exposure as measured on validated scales using established cut-off scores. Seven studies included any/at least one trauma exposure. In studies where we used a subsample of participants with moderate-severe/high trauma exposure, we compared the effects reported in the published reports for the full sample and our effect size for the high trauma-exposure sample. We found no important differences for any effects suggesting that studies including *any* trauma exposure did not dilute the effect of interventions for parents with higher levels of trauma-exposure.

There was considerable heterogeneity in the control arms of the included studies. Fourteen studies used a 'usual care' or attention matched control comparison group. Several studies described early intervention and parenting programmes that involved multidisciplinary, in-home supports that were considered routine in the 'high risk' study population but were more intensive than other usual care comparator arms that, for example, provided referrals and a small amount of psycho-education. We combined the usual care control arms for use as a comparison to experimental interventions, despite this heterogeneity, as they represent an inactive control for the intervention and the small number of included studies prevented a more nuanced analysis. Heterogeneity in usual care intensity may potentially lead to biased estimates of intervention efficacy. Intensity of usual care may potentially dilute experimental intervention effects in studies where usual care involves intensive and complex support strategies compared those that used a low-intensity usual care control group.

Agreements and disagreements with other studies or reviews

To the best of our knowledge, there has been one systematic review of psychological interventions and no reviews on parenting interventions delivered during the perinatal period for parents experiencing symptoms of CPTSD or who have experienced childhood maltreatment.

Systematic reviews of psychological interventions for parents with trauma histories

A systematic review of six studies assessed the impact of maternal childhood trauma on the effectiveness of psychological interventions for depression during pregnancy and the postpartum period (Reuveni 2021). Four of the six studies are included in our review (Ammerman 2016; Blalock 2013; Grote 2012; Grote 2015), one was excluded as it included parents without symptoms of CPTSD or childhood maltreatment, and another was ineligible for our review as it was an open trial. IPT-based interventions were found to improve depression treatment outcomes, with the severity of childhood maltreatment corresponding to longer time to remission. There was limited evidence for CBT with only one study of high quality, which found significant improvements in depression symptoms that were not moderated or predicted by severity of childhood maltreatment. Thus, the conclusions from Reuveni 2021 are not in agreement with the findings of our review, which found no evidence for improvement in depression symptoms in a meta-analysis of eight studies. This difference may

be accounted for by the additional studies we included. The studies with positive effects on depression outcomes in Reuveni 2021 are all included in our meta-analysis and show small, important effects on depression, however when assessed in the context of the other RCTs with comparable psychological interventions, the overall body of evidence in our review does not support the effectiveness of the interventions. Notably, we found that exclusion of the one intervention at high risk of bias in our review shifted the effect to a small, important benefit for depression symptoms, so it is possible that the difference in the review finding is due to our results being influenced by one study at high risk of bias. This study was also the only trauma-focused study included in our review, raising questions about the effect of trauma-focused treatments in this population, however there is too much uncertainty in the current evidence to have confidence in the results. We hope, in future updates, to have sufficient evidence from different types of psychological interventions to allow subgrouping by more specific intervention domains and a more nuanced review of the available interventions. The authors agree with our conclusion that there is an overall paucity of evidence and further research into trauma-informed psychological interventions for postpartum depression is needed to meet the needs of this population.

No other reviews have systematically assessed the effect of psychological interventions on the other primary outcomes of this review, including other aspects of parental psychological wellbeing (e.g. CPTSD) or parenting capacity, in parents with symptoms specific to CPTSD or who have experienced childhood maltreatment, in the perinatal period. Two reviews, which assessed psychological interventions for parental psychological wellbeing during pregnancy and the postpartum period in populations that had experienced other or unspecified trauma or with PTSD symptoms (not specific to CPTSD or childhood maltreatment history) (Baas 2020; Stevens 2021), and another that reviewed studies assessing interventions for psychological wellbeing in parents with symptoms of psychological disorders (Nillni 2018), can provide some interesting comparisons, however.

Systematic reviews of psychological interventions for parents without identified trauma histories or symptoms

A systematic review of 78 studies identified a range of interventions assessed in studies of parents with diagnosable or subthreshold levels of depression, anxiety and trauma-related disorders during the perinatal period (Nillni 2018). Evidence from 30 studies, including 21 RCTs, suggested a significant improvement in postpartum depression symptom severity for parents completing CBT or IPT interventions. For example, CBT-based interventions reduced anxiety and depression symptoms in mothers with anxiety disorders, and PTSD and depression symptoms in parents with trauma-related disorders. Two studies were common to our review (Grote 2012; Grote 2015). Findings from 11 studies that assessed interventions specifically targeted at mothers with mental health symptoms, who were also from low-income and/or from ethnic minority populations, were less conclusive; two studies reported a significant improvement in depression outcomes after CBT, and the third reported a trend towards a difference between CBT and usual care. IPT reduced depression symptoms in three studies and had no benefit in two others, and studies of other 'talk' therapies (e.g. reflective listening, problem-solving and a collaborative care model) reported significant reductions in depression symptom severity (Nillni 2018).

Systematic reviews of psychological interventions for pregnant women experiencing symptoms of PTSD

A more recent systematic review assessed the effectiveness of psychological interventions for PTSD symptoms in pregnant women exposed to trauma including previous childbirth (three studies), obstetric procedure (one study) or abuse (childhood maltreatment, physical or sexual) (nine studies) (Baas 2020). Two RCTs in populations with childhood maltreatment were common to our review (Madigan 2015; Upshur 2016). Improvements in PTSD symptom severity were found after EMDR and CBT (case studies), TF-CBT (one cohort study), Seeking Safety (one RCT) and Survivor Moms Champion (two quasi-experimental studies). However, most studies had low methodological quality and lacked a comparator arm.

Another recent review identified six studies of psychological interventions for mothers with prenatal PTSD (Stevens 2020), including one common to our review (Upshur 2016). Similar to Baas 2020, Stevens 2020 found preliminary evidence for the effectiveness of Seeking Safety and Survivor Moms Companion in reducing parental PTSD symptom severity. Stevens 2020 also identified one study assessing an evidenced-based intervention for PTSD, IPT integrated within a primary care model. IPT was found to be a feasible and acceptable model of care, and although it reduced PTSD symptoms compared to usual care, it did not significantly reduce symptom severity during the postpartum period nor significantly reduce the likelihood of a PTSD diagnosis during pregnancy. No studies in perinatal populations were identified that assessed other guideline recommended interventions for PTSD, such as PE and CPT.

Systematic reviews of parenting interventions in parents with childhood maltreatment exposure or trauma symptoms

While a range of systematic reviews have assessed the evidence for the effectiveness of early parenting interventions for the general population (Jeong 2021; Mihelic 2017; Morrison 2014; Pontoppidan 2016), parents with low SES (Harris 2020), adolescent parents (Barlow 2011), parents of children with diabilities (Hohlfeld 2018; Whittingham 2011), parents of children with chronic illness (Mitchell 2020) or behavioural problems (Dretzke 2009), and parents with depression symptoms (Rayce 2020), to our knowledge no reviews have assessed the effect of parenting interventions in parents with childhood maltreatment exposure or CPTSD symptoms.

Alignment with the findings of this review

Taken together, the findings from previous systematic reviews of interventions similar to those assessed in this review for parents in the perinatal period do not fully align with our findings. The reviews detailed above generally found positive effects on psychological wellbeing outcomes such as depression and PTSD symptoms, whereas we found little or no effect. The most likely explanation for this disagreement is due to our focus on parents with trauma symptoms and/or childhood maltreatment histories. Indeed, due to this important difference, in addition to their inclusion of studies designs of low methodological rigour (open trials, case series, cohort studies), it is difficult to draw parallels between Nillni 2018, Baas 2020, Stevens 2021 and the current review. However, the lack of beneficial effects evidenced in our review of interventions in parents with trauma histories, in light of the findings from previous reviews that similar interventions

were beneficial in parents with mental health symptoms, provides further support for the suggestion that parents with childhood maltreatment histories experience higher levels of distress and greater treatment resistance (Ammerman 2016; Chapman 2004; Nanni 2012). It also reinforces the need for caution with trauma-focussed approaches and the need to consider issues raised by the British Psychological Society (Johnstone 2018), neurophysiological studies (Piccini 2021) and qualitative studies of parents' views (Chamberlain 2019c). Nillni 2018 suggests that the reduced strength of intervention effects in studies that targeted low-income and ethnic minority women reflects specific barriers to care and that more research is needed into engaging these women in care. It also raises important concerns about the study attrition reported in the studies included in our review and provides further evidence for the problem of treatment engagement in parents facing adversity and complex issues. Evidence also suggests that complex trauma symptoms are more difficult to treat than non-complex trauma symptoms (Karatzias 2019).

Systematic reviews of psychological interventions for PTSD in people with CPTSD symptoms or childhood maltreatment histories

Evidence for interventions to treat PTSD in people with childhood maltreatment histories or CPTSD symptoms is emerging, but remains very limited amongst populations of pregnant women. One meta-analysis assessed the evidence from 16 RCTs of psychological interventions (TF-CBT, non-TF-CBT, EMDR, group interpersonal therapy, emotion-focused therapy) for PTSD in adults (primarily women, not pregnant) who had experienced childhood maltreatment (Ehring 2014). Results suggested improved psychological wellbeing outcomes. Trauma-focused interventions demonstrated the greatest efficacy, and individual therapy resulted in greater symptom reduction than group therapy, however the methodological quality of the evidence was low. A more recent meta-analysis of 51 RCTs, assessing the effects of interventions targeting PTSD in any population where participants were likely to have CPTSD symptoms, supported these findings, reporting that while trauma-focused interventions were effective, the reduction of symptoms was less pronounced in people who had experienced childhood trauma (Karatzias 2019).

Recent RCTs of psychological interventions for PTSD in people with CPTSD symptoms or childhood maltreatment histories

Several recent RCTs have assessed trauma symptoms at longer time points to assess the effects of trauma-focused interventions in people with childhood maltreatment histories over extended intervention protocols. PE, intensified prolonged exposure (iPE) and Skills Training in Affective and Interpersonal Regulation + PE (STAIR+PE) were all found to be effective in reducing PTSD symptoms at 12-month follow up in an RCT of 149 participants with PTSD related to childhood maltreatment (Oprel 2021). Another recent RCT (Hoeboer 2021; 149 participants) highlighted that participants with complex PTSD experienced greater baseline PTSD symptom severity than those with (non-complex) PTSD, but they showed a similar reduction in PTSD symptoms at 12 month post-intervention, suggesting that people with complex PTSD require *more* intervention sessions rather than *different* interventions. And finally, two recent RCTs showed that DBT or CPT delivered over 12 months (Bohus 2020; 193 participants) and a developmentally adapted DBT (Eilers 2021; 44 participants) were effective in reducing CPTSD symptoms in women with severe childhood maltreatment experiences and CPTSD, and adolescents with probable CPTSD respectively. Thus evidence supports the use of trauma-focused interventions following childhood maltreatment and for CPTSD, and suggests that longer protocols are required to reach adequate reduction in trauma-related symptoms. While our review findings found little or no benefit of psychological interventions for PTSD symptoms, the evidence was of low certainty, three of the four included studies were non-trauma-focused, and intervention protocols were mostly eight sessions across two to three months. Studies of trauma-focused interventions and longer intervention protocols are needed to determine whether the beneficial effects of longer TF-CBT-based interventions that have been found in other populations with CPTSD and childhood maltreatment are generalisable to parents with similar adverse experiences. Further research is needed in this emerging field to determine whether differential effects may be found in a population of parents in the perinatal period.

AUTHORS' CONCLUSIONS

Implications for practice

This review has provided a summary of the existing RCTs assessing interventions for parents with childhood trauma history or CPTSD symptoms. Due to a lack of methodological rigour in the included studies, caution is advised in interpreting the results. There is a high degree of uncertainty in the findings, lending little confidence to the results and the balancing of potential benefits and harms should be considered in this context.

There is very little certainty in the evidence for the effects of parenting interventions on outcomes that are important to parents. Safe, stable, nurturing parent-child relationships have been shown to moderate negative effects of maltreatment and protect against the intergenerational cycles of child maltreatment (Britto 2017; Schofield 2013). Our results suggest that while a small number of parents may experience improvement in aspects of their relationship with their child as a result of parenting interventions, most parents may experience no change in these outcomes. Decision makers should consider this in context with the feasibility, cost of implementation and any potential harm associated with delivery of an ineffective intervention to parents, balanced with the potential for a small number of parents to gain small to large improvements in parent relationship with their child.

The assessed interventions may have little or no benefit for CPTSD symptoms in parents with maltreatment histories. There is a need for further studies into different types of interventions to address complex trauma symptoms in this population.

While psychological interventions were found to result in little or no improvement in psychological wellbeing, a sensitivity analysis indicated that the effect may have been influenced by studies at high risk of bias, which had the effect of biasing the result towards favouring usual care. Psychological interventions may result in a slight improvement in psychological wellbeing or in no change. Decision makers should consider the risk associated with delivering ineffective interventions to parents, and the fact that alternative, potentially effective interventions may be forsaken, and balance these with the benefits for a potential small number of parents who may achieve small but important reductions in depression symptoms and the longer-term impacts for these effects. These

decisions should also take into account parent's baseline risk, comorbidity and symptom burden, and their previous treatment history when making decisions at an individual level.

An interpersonally focused CBT intervention may help some women with childhood trauma experiences to stop smoking in pregnancy. While the increase in cessation may be small, the longer-term benefits associated with this should be considered when making treatment and care decisions.

Parents' relationships and parenting skills were both improved slightly more in participants who received a psychological intervention (In-Home Cognitive Behavioural Therapy) compared to those who received standard home visiting in one study. These results should be considered within the context that a small number of parents may benefit from this psychological intervention, while most parents will experience no change in their relationships or parenting skills.

Overall, the results of this review provide little certainty about the effects of the reviewed interventions, and reflect an evolving evidence base. The available evidence reviewed here indicates that parenting interventions may improve relationships between some parents and children. However, the evidence must be considered in the context of the low certainty. Similarly, psychological interventions may help a small number of pregnant women with a history of maltreatment in their own childhood to stop smoking, improve some parental relationships slightly and slightly enhance a small number of parents' parenting skills, but the reviewed interventions may not improve CPTSD symptoms and may result in little or no improvement in depression outcomes in most parents. The service system approach reviewed here may *increase* depression symptoms. These uncertain results must be considered with other important parent and service level factors such as individual baseline risk or symptom severity, implementation costs and the availability of resources. As such, a personalised approach to supporting parents and families with CPTSD or childhood maltreatment histories is justified. Drawing on the PTMF, when services are delivered within a trauma-informed context emphasising safety, trust, collaboration, choice and empowerment, the risk of retraumatising parents can be reduced (Bowen 2016; Johnstone 2018; Levenson 2017). Education of service providers who support families in the perinatal period, on trauma-informed approaches and the complexity of the effects of childhood maltreatment and CPSTD, the associated systemic adversity, the impact these experiences may have on parenting, and thus the complex effects of interventions to address these outcomes, may help ensure that ineffective or even retraumatising interventions are not delivered to this priority population.

Implications for research

There is a need for further high-quality research into effective strategies for parents, particularly fathers, who were under-represented in the assessed studies. This research should draw on existing qualitative evidence outlining what parents want (Chamberlain 2019c; Reid 2021), which includes strengths approaches consistent with the PTMF (Johnstone 2018) that focus on hope and the unique opportunities for recovery (Piccini 2021), as well as what has been effective in other similar populations (e.g. women with CPTSD). Acceptability of interventions in this population is of critical importance and was lacking in the studies included in this review. A recent systematic review found that acceptability of interventions for individuals with complex trauma experiences and symptoms was greater when participants were able to identify benefits and where intervention delivery accommodated personal and social needs (Melton 2020). Individualised delivery is likely to be of even greater importance in a population of parents in the perinatal period where the demands of parenting place further limitations on individuals' availability and flexibility. Future research should include evaluation of intervention acceptability beyond using participant dropout as a proxy, to develop a greater understanding of parents' needs for effective and sustainable intervention delivery.

While recognising the complexity of conducting real-world intervention studies in this field, there is a need for studies to be methodologically better designed and executed. Most studies did not describe adequate allocation concealment. Most studies suffered from lack of blinding of outcome assessors due to the use of self-report measures. Trials using clinician-rated outcome measures are required. The estimates of effect may be biased because of a lack of concealment of allocation and a lack of blinding of the assessors of the outcome. Further, all trials should be registered to ensure transparency, to assist in avoidance of duplication and to help identify gaps in the research (WHO 2018b).

Studies involving parents who have experienced childhood sexual abuse are needed to understand if the effects of interventions differ from those in parents with other childhood maltreatment exposures and whether alternative treatments or amended intervention regimes are useful. Studies should include parents with CPTSD symptoms as the existing evidence is based on studies involving parents reporting childhood maltreatment who may or may not be experiencing CPTSD symptoms. There is a need for studies conducted in regions other than North America, including low- and middle-income countries, in order to assess if the results from studies to date apply to parents in regions other than North America or high-income countries. There is also a need to consider sub-populations within high-income countries, including Indigenous and migrant populations. Larger sample sizes (300 parents or more) are required. There is uncertainty in the results due to the small sample sizes in many included studies, therefore the true effect may be substantially different. Studies in males will help understand whether current evidence is generalisable to fathers.

Future studies should assess extended intervention protocols in light of the current evidence for treatment of CPTSD, which suggests that people with childhood maltreatment histories and CPTSD have higher baseline symptom levels and may require more treatment to reach an adequate dose of intervention. There is also a need to consider environmental and social systems interventions such as poverty alleviation, neighbourhood support or access to urban green spaces. Consistency in outcome reporting would greatly assist our ability to confidently synthesise the evidence. There was very little overlap in outcomes in parenting intervention studies, limiting our ability to assess overall effects.

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* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Ammerman 2016

Study characteristics	
Methods	• **Study design:** individual RCT (parallel groups) • **Study aim/hypothesis:** "examine the moderating effects of child maltreatment history on depression, social functioning, and parenting in depressed mothers participating in home visiting and receiving In-Home CBT (IH-CBT) treatment" (Ammerman 2016, page 774). It was hypothesised that "child maltreatment history would adversely affect depression, social functioning, and parenting over time in the control condition but not in mothers receiving IH-CBT" (Ammerman 2016, page 777). • **Study setting:** Southwestern Ohio and Northern Kentucky, USA. Data collection dates not reported • **Trial registration number:** NCT01221701

Participants	• **Inclusion criteria:** ≥ 16 years of age, current diagnosis of major depression disorder and enrolment in a home visiting programme. To be enrolled in a home visiting programme, mothers reported one of the following risk characteristics: unmarried, low income, ≤ 18 years of age, and inadequate prenatal care. Mothers were enrolled in home visiting prior to 28 weeks gestation in NFP and from 20 weeks gestation through the child reaching three months of age for HFA. Mothers with a history of receiving medication and/or psychotherapy but who had not received treatment in the 6 months prior to enrolment in the study were included
	• **Exclusion criteria:** bipolar disorder, current substance dependence, psychosis, mental retardation, suicidality or homicidally requiring acute intervention, or current use of psychotropic medications or psychotherapy
	• **N referred and randomised:** 151 referred, 93 randomised
	  ◦ **IH-CBT:** 47
	  ◦ **Standard home visiting:** 46
	• **N lost to follow-up (post-intervention):** 3 (3.2%)
	• **N analysed**
	  ◦ **Total sample:** 93
	  ◦ **Subsample used in meta-analysis (unpublished data):**
	  ■ Baseline: IH-CBT = 37, Standard home visiting = 37
	  ■ Post-intervention: IH-CBT = 31 to 32, Standard home visiting = 35
	  ■ 3-month follow-up: IH-CBT = 27 to 29, Standard home visiting = 29 to 31
	• **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
	• **Childhood maltreatment and/or trauma assessment:** The Childhood Trauma Questionnaire. Raw scores are derived and these were used to categorise severity of abuse across the 4 categories as none, mild, moderate or severe. Subsample consisted of mothers with a history of moderate-severe levels of childhood maltreatment
	• **Parenting stage:** > 7 weeks postpartum (up to 5 years)
	• **Recruitment setting:** mothers enrolled in a community-based home visiting programme, Every Child Succeeds. Two models of home visiting were used: the Nurse–Family Partnership (NFP) and Healthy Families America (HFA)
	• **Baseline characteristics (for total sample)**
	  ◦ *Mean parent age*:
	  ■ **IH-CBT:** 22.4 years
	  ■ **Standard home visiting:** 21.5 years
	  ◦ *Mean child age*:
	  ■ **IH-CBT:** 159.8 days
	  ■ **Standard home visiting:** 146.1 days
	  ◦ *Parent gender*: female participants

Ammerman 2016 *(Continued)*

- *Parent co-morbidity*: majority of participants experiencing mental health comorbidity (depression)
- **Progress+ coding:** low SES; majority education less than high school

Interventions	**Intervention - In-Home Cognitive Behavioural Therapy (IH-CBT)** • **Category:** psychological interventions (non-trauma-focused CBT-based intervention) • **Description:** IH-CBT follows the principles and techniques of traditional CBT • **Mode of delivery:** face-to-face, individually • **Dose:** more than 10 hours • **Length:** other (15 sessions plus a booster session 1 month post-treatment) • **Frequency:** weekly • **Protocol:** not reported • **Provider:** multi-disciplinary team (social workers, nurses, related professionals and paraprofessionals) • **Training:** not reported • **Implementation fidelity:** weekly supervision including a review of audiotaped sessions. Therapists also completed a self-reported fidelity checklist indicating adherence to elements of CBT (e.g. use of CBT tools) and IH-CBT (e.g. contacted home visitor) • **Treatment adherence:** rate of completion was 48.9%, with an average of 11.2 (SD = 5.5) sessions completed **Comparator - standard home visiting** • **Category:** inactive control • **Description:** mothers received regular services from home visitors, which emphasise child health and development, nurturing mother-child relationship, maternal health and self-sufficiency, and linkage to other community services (including community-based treatment for depression) • **Mode of delivery:** face-to-face • **Dose:** not reported • **Length:** not reported • **Frequency:** not reported • **Protocol:** not reported • **Provider:** multi-disciplinary team (social workers, nurses, related professionals and paraprofessionals) • **Training:** not reported • **Implementation fidelity:** not reported • **Uptake of standard care:** not reported

Outcomes	**Assessment time point(s)**
	• Baseline (child, on average, 146 to 160 days old)
	• Post-intervention (< 3 months post-intervention)
	• 3-month follow-up (3 to 12 months post-intervention)
	
	Primary outcome(s)
	
	Parental psychological wellbeing
	• **Depression symptom severity**
	  ◦ **Domain**: parental psychological or socio-emotional wellbeing
	  ◦ **Measure:** Beck Depression Inventory
	  ◦ **Score range:** 0 to 63
	  ◦ **Direction of effect:** higher scores = worse/more harm
	
	Parents' relationship quality

Ammerman 2016 *(Continued)*

- **Social support**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Interpersonal Support Evaluation List
  - **Score range:** 0 to 120
  - **Direction of effect:** higher scores = better/less harm

Parenting skills

- **Child and parent functioning/coping**
  - **Domain**: parenting capacity
  - **Measure:** Parenting Stress Index
  - **Score range:** 36 to 180
  - **Direction of effect:** higher scores = worse/more harm
- **Home environment**
  - **Domain**: parenting capacity
  - **Measure:** Home Observation for Measurement of the Environment Inventory
  - **Score range**: 0 to 45
  - **Direction of effect:** higher scores = better/less harm

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Parental social functioning

- **Social network number**
  - **Domain**: socio-ecological outcomes
  - **Measure:** Social Network Index
  - **Score range:** 0 to 6 or more
  - **Direction of effect:** higher scores = better/less harm

Cost or cost-effectiveness

- **Quality adjusted life year (QALYs), depression-free days, costs**
  - **Domain**: other outcomes
  - **Measure**: a probabilistic, patient-level Markov model/Medical Expenditure Panel Survey
  - **Score range:** 0 to 1
  - **Direction of effect**: higher scores = better/less harm

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subsample (74 participants) of mothers with moderate-severe levels of maltreatment as assessed on the Childhood Trauma Questionnaire (for any of the 5 maltreatment types)
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified
- The data for the cost-effectiveness outcome includes the total sample, including mothers with and without childhood maltreatment

Funding source: The National Institute of Mental Health

Ammerman 2016 *(Continued)*

Conflicts of interest: the authors declared that there were no conflicts of interest

Berry 2021

Study characteristics

Methods

- **Study design:** combined analysis of 2 individual RCTs (parallel groups)
- **Study aim/hypothesis:** to examine the impact of childhood maltreatment on a dyadic approach to prevent perinatal depression. It was hypothesised that "mothers with a history of childhood maltreatment, compared to mothers without would: (a) respond to the intervention with a lower reduction in depression and anxiety scores; and (b) report less change in infant outcomes (i.e. less overall decrease in infant fuss/cry behavior and less increase in infant sleep)" (Berry 2021, page 189)
- **Study setting:** New York, USA. Data collection dates not reported
- **Trial registration number:** NCT01379781, NCT02121496

Participants

- **Inclusion criteria:** pregnant women aged 18 to 45 in their second or third trimester of pregnancy. Slight variation in criteria across the 2 RCTs
  - Werner 2016: mothers who were at risk for postpartum depression, as defined as scoring above 24 on the Predictive Index of Postnatal Depression during the third trimester
  - Scorza 2020: mothers at risk for postpartum depression based on socio-economic status, recruited women who were living in poverty as defined by (a) salary indicated to be "Near poor, struggling", ≤ US $47,700 annual for a family of four, based on self-report, or (b) having met income criteria for Medicaid. A score > 17 on the Predictive Index of Postnatal Depression was not a factor for inclusion. Mothers were also required to be having a healthy, singleton pregnancy, be in receipt of standard prenatal care and be English speaking
- **Exclusion criteria:** women who reported smoking tobacco or using recreational drugs, lacking fluency in English, currently receiving psychological/psychiatric treatment, taking psychotropic medications, having a medically complicated pregnancy or carrying a non-singleton pregnancy. All major psychiatric disorders (major depressive disorder, bipolar disorder, suicidal intent, substance use and psychosis) were excluded. Women reporting pregnancy or birth complications (including any infant NICU admission, giving birth before 37 weeks gestation) were also excluded
- **N referred and randomised:** 1373 referred, 114 randomised
  - **PREPP:** 57
  - **E-TAU:** 57
- **N lost to follow-up (post-intervention):** 25 (21.9%)
- **N analysed**
  - **Total sample:** 109 (5 mothers were not accounted for in the final dataset as childhood maltreatment scores were not obtained)
  - **Subsample used in meta-analysis (unpublished data):**
    - Baseline: PREPP = 16, E-TAU = 17
    - Post-intervention: PREPP = 6-14, E-TAU = 8-16
- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
- **Childhood maltreatment and/or trauma assessment:** The Childhood Trauma Questionnaire. A binary variable was computed indicating exposure to at least one type of childhood maltreatment (CM+) vs no or low exposure (CM-), similar to approach adopted by Moog 2018. Subsample consisted of CM+ mothers only
- **Parenting stage:** pregnancy to 6 weeks postpartum
- **Recruitment setting:** Department of Obstetrics and Gynaecology at Columbia University Irving Medical Center
- **Baseline characteristics (for total sample)**
  - *Mean parent age*:
    - **PREPP:** 31.6 years
    - **E-TAU:** 29.7 years
  - *Mean child age*: not reported

Berry 2021 *(Continued)*

- *Parent gender*: female participants
- *Parent co-morbidity*: unclear

- **Progress+ coding:** low SES; ethnic minority population

Interventions	**Intervention - Practical Resources for Effective Postpartum Parenting (PREPP)**
	• **Category:** psychological interventions (other psychological intervention) and parenting, parent-child or relationship focused interventions (parenting interventions)
	• **Description:** PREPP includes infant behavioural interventions and targeted psychotherapy techniques described to participants as 'coaching'
	• **Mode of delivery:** blend of face-to-face and telephone, individually
	• **Dose:** more than 10 hours
	• **Length:** 7 to 12 weeks
	• **Frequency:** other - 3 'coaching' sessions coinciding with the timing of their routine obstetric visits: third trimester ultrasound between 34 and 38 weeks; in the hospital postdelivery; and at the 6-week postpartum visit
	• **Protocol:** yes
	• **Provider:** single practitioner (PhD level psychologist)
	• **Training:** not reported
	• **Implementation fidelity:** not reported
	• **Treatment adherence:** rate of completion was 100% in Werner 2016 and 83% in Scorza 2020
	
	Comparator - enhanced treatment as usual
	• **Category:** inactive comparator
	• **Description:** discussion of postpartum depression symptoms (including psycho-educational materials) and referrals for mental health treatment (including supportive services in the community)
	• **Mode of delivery:** blend of face-to-face and telephone
	• **Dose:** less than 1 hour
	• **Length:** 7 to 12 weeks
	• **Frequency:** other
	  ◦ Werner 2016: 2 sessions coinciding with the timing of their routine obstetric visits: between 34 and 38 weeks gestation; and at the 6-week postpartum visit
	  ◦ Scorza 2020: 3 sessions coinciding with the timing of their routine obstetric visits: third trimester ultrasound between 34 and 38 weeks; in the hospital postdelivery; and at the 6-week postpartum visit
	• **Protocol:** no
	• **Provider:** single practitioner (PhD level psychologist)
	• **Training:** not reported
	• **Implementation fidelity:** not reported
	• **Uptake of standard care:** 3 mothers received referrals for mental health treatment, none of which took up treatment. One mother engaged in 3 treatment sessions with a psychologist she had seen previously

Outcomes	**Assessment time point(s)** • Baseline (average 34 to 38 weeks pregnant) • Post-intervention (6 weeks postpartum; < 3 months post-intervention) *Note:* Assessments were also conducted at 10 weeks postpartum and 16 weeks postpartum; however, results from these time points are not reported **Primary outcome(s)** ***Parental psychological wellbeing*** • **Depression symptom severity** ◦ **Domain**: parental psychological or socio-emotional wellbeing

Berry 2021 *(Continued)*

- **Measure:** Hamilton Rating Scale for Depression
- **Score range:** 8 to 22
- **Direction of effect:** higher scores = worse/more harm

- **Anxiety symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Hamilton Rating Scale for Anxiety
  - **Score range:** 0 to 56
  - **Direction of effect:** higher scores = worse/more harm

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Child emotional and behavioural outcomes

- **Daytime sleeping**
  - **Domain**: child's physical, socio-emotional well-being
  - **Measure:** Baby's Day Diary
  - **Score range:** not applicable (total minutes)
  - **Direction of effect:** higher scores = better/less harm

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subsample (33 participants) of mothers reporting exposure to at least one type of childhood maltreatment as assessed on the Childhood Trauma Questionnaire (for any of the 5 maltreatment types)
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified

Funding source: National Institute of Mental Health; the Eunice Kennedy Shriver National Institute of Child Health and Human Development; the Robinhood Foundation

Conflicts of interest: the authors declared that there were no conflicts of interest

Blalock 2013

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** cognitive behavioural analysis system of psychotherapy (CBASP) was expected to be more beneficial than the Health and wellness control (HW) for individuals with a childhood trauma history versus those without for (a) smoking cessation and; (b) depression symptom reduction. "It was also hypothesised that differences in depression and smoking cessation response to CBASP versus HW would increase with increasing extent of childhood trauma exposure" (Blalock 2013, page 823)
- **Study setting:** Texas, USA. Data collection between 2005 and 2008
- **Trial registration number:** registration details not found

Blalock 2013 *(Continued)*

Participants	• **Inclusion criteria:** 16 years of age, ≤ 32 weeks pregnant, have smoked at least a puff or more during the past 7 days, have a telephone and express a willingness to quit smoking during the study
	• **Exclusion criteria:** women who were currently participating in psychotherapy or other smoking cessation treatment, had unstable medical conditions that would adversely affect attendance, or demonstrated psychological instability during the screening
	• **N referred and randomised:** 730 referred, 266 randomised
	  ◦ **CBASP:** 133
	  ◦ **HW:** 133 N lost to follow-up (6 months postpartum): 96 (36.1%)
	• **N lost to follow-up (6 months postpartum):** 96 (36.1%)
	• **N analysed**
	  ◦ **Total sample:** 248 (18 mothers were not accounted for in the final dataset as childhood maltreatment scores were not obtained)
	  ◦ **Subsample used in meta-analysis (unpublished data)**
	  ■ Baseline: CBASP = 94, HW = 95
	  ■ 6-months postpartum: CBASP = 64, HW = 65
	  ■ 6-months post-intervention: CBASP = 94, HW = 95
	• **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
	• **Childhood maltreatment and/or trauma assessment:** The Childhood Trauma Questionnaire. Trauma severity was classified as minimal, low to moderate, moderate to severe, and severe to extreme levels of maltreatment based on cut-off scores. Scores were collapsed into 2 categories for each type of trauma: 1) none to low levels of trauma, and 2) moderate to severe levels of trauma. Subsample consisted of mothers with a history of moderate-severe levels of childhood maltreatment
	• **Parenting stage:** pregnancy to 6 weeks postpartum
	• **Recruitment setting:** newspaper/television advertisements and physician referral
	• **Baseline characteristics (for total sample)**
	  ◦ Mean parent age: 24.84 years
	  ◦ Mean child age: not reported
	  ◦ Parent gender: female participants
	  ◦ Parent co-morbidity: unclear
	• **Progress+ coding:** low SES; ethnic minority population

Interventions	**Intervention - Cognitive Behavioural Analysis System of Psychotherapy (CBASP)** • **Category:** psychological interventions (non-trauma-focused CBT-based intervention) • **Description:** Each session consisted of 15 minutes of standard behavioural and motivational smoking cessation counselling, plus 45 minutes of CBASP, an interpersonally focused psychotherapy that reduces interpersonal stress and increases the quality of one's relationships with significant others • **Mode of delivery:** face-to-face, individually • **Dose:** 1 to 10 hours • **Length:** 7 to 12 weeks • **Frequency:** weekly • **Protocol:** yes • **Provider:** single practitioner (5 PhD level psychologists) • **Training:** before seeing study patients therapists were expected to achieve an overall competence rating of 3 (sufficient delivery) or 4 (good delivery) on the last 3 sessions of 2 pilot cases, as rated by clinical supervisors • **Implementation fidelity:** therapists followed written treatment manuals and all sessions were video recorded. Supervisors rated 9% to 10% of all sessions for compliance, with 8% to 9% of those sessions rated by a trained secondary outside rater. Adherence rating scales were constructed for therapist behaviours performed as outlined in the treatment manuals. Global competence ratings were measured on a scale of 1 (does not attempt intervention) to 4 (good use of intervention)

Blalock 2013 *(Continued)*

- **Treatment adherence:** approximately 28%, 31% and 41% of the women in CBASP set their quit date between sessions 2 and 4, 5 and 6, and 7 and 8, respectively
  - **Total sample:** participants attended an average of eight (SD 2.8) total therapy sessions of approximately 58 minutes (SD 10.1) in length, with no significant differences in length of session between treatment groups. 78% of the sample completed at least 7 therapy sessions, 74% completed at least 8 therapy sessions and 70% completed at least 9 therapy sessions

Comparator - Health and Wellness control (HW)

- **Category:** inactive comparator (enhanced treatment as usual)
- **Description:** each session consisted of 15 minutes of standard behavioural and motivational smoking cessation counselling (based on the Clinical Practice Guidelines), plus 45 minutes of HW, a time- and attention-matched control for CBASP that was pregnancy-relevant but instructional in nature. "Participants were allowed to choose from a list of discussion topics such as stress, pregnancy symptoms, sleep, exercise, yoga, and relaxation training" (Blalock 2013, page 823). Therapists were allowed to provide reflective, supportive listening, but were prohibited from conducting solution-focused exercises
- **Mode of delivery:** face-to-face
- **Dose:** one to 10 hours
- **Length:** 7 to 12 weeks
- **Frequency:** other - while the majority of participants completed 1 individual counselling visit per week, those who had less than 10 weeks until projected delivery were scheduled for counselling visits for as many as 2 times a week in order to complete the visits prior to delivery
- **Protocol:** yes
- **Provider:** single practitioner (5 PhD level psychologists and 2 masters-level counsellors)
- **Training:** before seeing study patients therapists were expected to achieve an overall competence rating of 3 (sufficient delivery) or 4 (good delivery) on the last 3 sessions of 2 pilot cases, as rated by clinical supervisors
- **Implementation fidelity:** therapists followed written treatment manuals and all sessions were video recorded. Supervisors rated 9% to 10% of all sessions for compliance, with 8% to 9% of those sessions rated by a trained secondary outside rater. Adherence rating scales were constructed for therapist behaviours performed as outlined in the treatment manuals. Global competence ratings were measured on a scale of 1 (does not attempt intervention) to 4 (good use of intervention)
- **Uptake of standard care:** approximately 25%, 35% and 40% of the women in HW set their quit date between sessions 2 and 4, 5 and 6, and 7 and 8, respectively
  - **Total sample:** see intervention description

Outcomes

Assessment time point(s)

- Baseline (average 20 weeks pregnant)
- 6 months postpartum (depression)
- 6 months post-intervention (smoking abstinence; average 18 weeks postpartum)

Note: Assessments were also conducted at 2, 4 and 6 weeks post-intervention, 2 weeks postpartum and 3 months postpartum; however, results from these time points are not reported

Primary outcome(s)

Parental psychological wellbeing

- **Depression symptom severity**
  - **Domain:** parental psychological or socio-emotional wellbeing
  - **Measure:** Center for Epidemiologic Studies Depression Scale
  - **Score range:** 0 to 60
  - **Direction of effect:** higher scores = worse/more harm

Substance use

- **Smoking abstinence**
  - **Domain:** parental psychological or socio-emotional wellbeing

Blalock 2013 *(Continued)*

- **Measure:** Timeline Follow-Back (TLFB) interview
- **Score range:** not applicable
- **Direction of effect:** not applicable

Secondary outcome(s):

Parent engagement

- **Dropout**
  - **Domain:** parental intervention acceptability
  - **Measure:** dropout for any reason between randomisation and post-intervention
  - **Score range:** not applicable
  - **Direction of effect:** higher events = more dropout

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subsample (189 participants) of mothers reporting moderate to severe levels of childhood maltreatment as assessed on the Childhood Trauma Questionnaire (for any of the 5 maltreatment types)
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified

Funding source: National Institute on Drug Abuse

Conflicts of interest: the authors did not report if there were any conflicts of interest

Booshehri 2018

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** to reduce economic hardship and behavioural health challenges associated with self-sufficiency among families requiring temporary assistance
- **Study setting:** Philadelphia, USA. Data collection between June 2015 and December 2015
- **Trial registration number:** NCT02577705

Participants

- **Inclusion criteria**: > 18 years old, receiving TANF cash assistance for 4 years or less, have at least 1 child under 6 years old, were considered "mandatory to work" for 20 hours per week by the federal welfare guidelines (i.e. they had no documented physical or mental health barriers or care-giving responsibilities preventing them from working)
- **Exclusion criteria:** being involved with bank fraud in the past, a household member already enrolled in the programme
- **N referred and randomised:** 180 referred, 145 randomised (42 participants withdrew prior to baseline assessment)
  - **Partial:** 35
  - **Full:** 37
  - **Control:** 31
- **N lost to follow-up (post-intervention):** 49.5%
- **N analysed**
  - Baseline: partial = 35, full = 37, control = 31
  - 3-month follow-up: partial = 15, full = 18, control = 19
  - 6-month follow-up: partial = 18, full = 18, control = 17
  - 9-month follow-up: partial = 15, full = 17, control = 14
- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment

Booshehri 2018 *(Continued)*

- **Childhood maltreatment and/or trauma assessment:** The Adverse Childhood Experiences, assessing five forms of abuse (physical, psychological, sexual abuse, physical neglect and emotional neglect) and 5 forms of household dysfunction (parent mentally ill, incarcerated, drug addicted, domestic violence and separation/divorce). Participants were categorised as reporting low exposure (below 4 adverse childhood experiences) and high exposure (4 or more adverse childhood experiences), with 40% reporting high exposure
- **Parenting stage:** > 7 weeks postpartum (up to 5 years)
- **Recruitment setting:** County Assistant Offices where temporary assistance for needy families (TANF) participants receive benefits
- **Baseline characteristics (for total sample)**
  - *Mean parent age*: 25.4 years
  - *Mean child age:* 30 months
  - *Parent gender*: 94% female participants (n = 97)
  - *Parent co-morbidity*: majority of participants experiencing mental health comorbidity (depression)
- **Progress+ coding:** low SES; ethnic minority population

Interventions

Intervention 1 - Building Wealth and Health Network (partial)

- **Category:** service system approaches (financial empowerment education)
- **Description:** the programme consists of helping parents open bank accounts (with encouragements to make weekly deposits over a 12-month period) and financial empowerment classes
- **Mode of delivery:** face-to-face, group
- **Dose:** more than 10 hours
- **Length:** 6 months (28 weeks)
- **Frequency**: weekly
- **Protocol:** not reported
- **Provider:** single practitioner (financial advisors)
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Treatment adherence:** low adherence, with an average class attendance rate of 26%

Intervention 2 - Building Wealth and Health Network (full)

- **Category:** service system approaches (financial empowerment education + trauma-informed peer support)
- **Description:** the programme consists of helping parents open bank accounts (with encouragements to make weekly deposits over a 12-month period), financial empowerment classes and trauma-informed peer support groups
- **Mode of delivery:** face-to-face, group
- **Dose:** more than 10 hours
- **Length:** 6 months (28 weeks)
- **Frequency**: weekly
- **Protocol:** not reported
- **Provider:** multi-disciplinary team (social workers, financial advisors)
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Treatment adherence:** low adherence, with an average class attendance rate of 23%

Comparator - treatment as usual

- **Category:** treatment as usual
- **Description:** standard TANF programming (20 hours per week of scheduled supervised job training and job search activities)
- **Mode of delivery:** not reported
- **Dose:** not reported

Booshehri 2018 *(Continued)*

- **Length:** not reported
- **Frequency**: not reported
- **Protocol:** not reported
- **Provider:** not reported
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Treatment adherence:** not reported

Outcomes

Assessment time point(s)

- Baseline (child, on average, 30 months old)
- 3-month follow-up (< 3 months post-intervention)
- 6-month follow-up (3 to 12 months post-intervention)
- 9- month follow-up (3 to 12 months post-intervention)

Primary outcome(s)

Parental psychological wellbeing

- **Depression symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Center for Epidemiologic Studies Depression Scale
  - **Score range:** 0 to 60
  - **Direction of effect:** higher scores = worse/more harm
- **Parental self-efficacy**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** General Self-Efficacy Scale
  - **Score range:** 10 to 40
  - **Direction of effect:** higher scores = better/less harm

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Changes in social capital

- **Employment**
  - **Domain**: socio-ecological outcomes
  - **Measure:** self-reported current employment status
  - **Score range:** not applicable
  - **Direction of effect:** higher scores = better/less harm
- **Economic hardship index**
  - **Domain**: socio-ecological outcomes
  - **Measure:** US Household Food Security Survey Module, an energy security survey and housing security survey
  - **Score range:** 0 to 6
  - **Direction of effect:** higher scores = worse/more harm

Child developmental outcomes

- **Child's developmental risks**
  - **Domain**: child's physical, socio-emotional well-being

Booshehri 2018 *(Continued)*

- **Measure:** Parent's Evaluation of Developmental Status Scale
- **Score range:** 0 to 10; data are used to construct a developmental risk indicator (1 if one or more risks are reported, and 0 if no risks are reported)
- **Direction of effect:** higher scores = worse/more harm

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors were contacted for unadjusted means and standard deviations for each group and time period, but did not respond. There are no unpublished data reported in meta-analyses
- Some parents reported no adverse childhood events (14.6%); however, there was a high overall trauma burden in the sample with 38.8% of parents with 4 or more ACEs and 46.6% with 1 to 3 ACEs, in addition to high adversity in the population and an intervention targeting parents with trauma

Funding source: Claneil Foundation, Inc, Annie E Casey Foundation, First Hospital, and TD Bank. Annie E. Casey Foundation provided partial guidance in the study design

Conflicts of interest: The authors declared that there were no conflicts of interest.

Cicchetti 2006

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:**
  - Cicchetti 2006: It was hypothesised that mothers reporting childhood maltreatment would have a higher rate of insecure attachment and disorganised attachment at 12 months post-intervention (compared with mothers without childhood maltreatment). It was also expected that mothers in the intervention groups would report higher rates of change from insecure to secure attachment, but greater change will be reported in the Infant-Parent Psychotherapy (IPP; called child–parent psychotherapy (CPP) in Stronach 2013) group compared to the psycho-educational parenting intervention (PPI) group
  - Stronach 2013: in addition to the above, it was expected that children in the IPP/CPP or PPI groups would have fewer maternal-reported internalising and externalising behaviour problems, with children in the IPP group expected to have fewer maternal-reported behavioural problems than children in the PPI group
- **Study setting:** USA. Data collection between 2005 and 2008
- **Trial registration number:** registration details not found

Participants

- **Inclusion criteria:** infants known to have been maltreated and/or who were living in maltreating families with their biological mothers
- **Exclusion criteria:** infants who had been placed in foster care
- **N referred and randomised:** number referred not reported, 189 randomised. *Note:* treatment decliners were aggregated into the control group
  - **IPP/CPP:** 53 (32 without treatment decliners)
  - **PPI:** 49 (24 without treatment decliners)
  - **CS:** 35 (81 with treatment decliners)
  - **Non-maltreatment group**: 52
- **N lost to follow-up (post-intervention):** 79 (59%)
- **N analysed**
  - Baseline: IPP/CPP = 32, PPI = 24, CS = 81, non-maltreatment group = 52
  - Post-intervention: IPP/CPP = 28, PPI = 22, CS = 54; non-maltreatment group = 44
  - 14-month follow-up: IPP/CPP = 27, PPI = 22, CS = 49; non-maltreatment group = 47

Cicchetti 2006 *(Continued)*

- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
- **Childhood maltreatment and/or trauma assessment:** The Childhood Trauma Questionnaire. *Note:* 79% of the sample reported childhood maltreatment (83.2% in the maltreatment group; 69.2% in the non-maltreatment control group). Total sample included in the analyses
- **Parenting stage:** > 7 weeks postpartum (up to 5 years)
- **Recruitment setting:** Department of Human Services, Child Protective Service records
- **Baseline characteristics**
  - *Mean parent age*:
    - **IPP/CPP:** 27.26 years
    - **PPI:** 27.35 years
    - **CS:** 27.77 years
    - **Non-maltreatment group**: 25.61 years
  - *Mean child age*: not reported
  - *Parent gender*: female participants
  - *Parent co-morbidity*: not reported
- **Progress+ coding:** low SES; ethnic minority population; majority education less than high school

Interventions

Intervention 1 - Infant-parent psychotherapy (IPP), called child-parent psychotherapy (CPP) in Stronach 2013

- **Category:** parenting, parent-child or relationship focused intervention (parent-child interventions)
- **Description:** focus of the intervention on the relationship between the mother and the child following a supportive, nondirective and non-didactic approach, which includes developmental guidance based on the mother's concerns
- **Mode of delivery:** face-to-face, individually
- **Dose:** more than 10 hours
- **Length:** 12 months
- **Frequency:** weekly
- **Protocol:** yes
- **Provider:** single practitioner (master level therapists)
- **Training:** specifics not reported, states that all therapists received extensive training before implementing the interventions
- **Implementation requirements:** not reported
- **Implementation fidelity:** therapists participated in weekly individual and group supervision sessions. Checks on the fidelity of intervention implementation were conducted periodically by reviewing videotapes of sessions and completing fidelity checklists
- **Treatment adherence:** an average of 21.56 (SD 9.60) sessions were conducted

Intervention 2 - psycho-educational parenting intervention (PPI)

- **Category:** parenting, parent-child or relationship focused intervention (parent-child interventions)
- **Description:** focus of the intervention is on the psycho-education of the mothers (rather than on the mother-child dyad), using a variety of cognitive and behavioural techniques to address parenting skill deficits and social-ecological factors
- **Mode of delivery:** face-to-face
- **Dose:** more than 10 hours
- **Length:** 12 months
- **Frequency:** weekly
- **Protocol:** yes
- **Provider:** single practitioner (master level therapists)
- **Training:** specifics not reported, states that all therapists received extensive training before implementing the interventions

Cicchetti 2006 *(Continued)*

- **Implementation fidelity:** therapists participated in weekly individual and group supervision sessions. Checks on the fidelity of intervention implementation were conducted periodically by reviewing videotapes of sessions and completing fidelity checklists.
- **Treatment adherence:** an average of 25.35 (SD = 9.65) sessions were conducted

Comparator 1 - community standard (CS)

- **Category:** inactive comparator (treatment as usual)
- **Description:** families continued to receive services that were typically available to maltreating families in the community, including case management from the DHS and assistance in obtaining referrals to services and resources that may have been more difficult to access outside the research trial
- **Mode of delivery:** face-to-face
- **Dose:** not reported
- **Length:** 12 months
- **Frequency:** not reported
- **Protocol:** not reported
- **Provider:** not reported
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Uptake of standard care:** not reported

Comparator 2 - Non-maltreatment comparison group

- **Category:** other (no treatment)

Outcomes

Assessment time point(s)

- Baseline (child, on average, 12 months old)
- Post-intervention (child 26 months old; < 3 months post-intervention)
- 14-month follow-up (child 38 months old; > 12 months post-intervention)

Primary outcome(s)

Parent-child relationship

- **Secure attachment**
  - **Domain**: parenting capacity
  - **Measure:** Strange Situation Paradigm
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = better/less harm
- **Disorganised attachment**
  - **Domain**: parenting capacity
  - **Measure:** Strange Situation Paradigm
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm
- **Avoidant attachment**
  - **Domain**: parenting capacity
  - **Measure:** Strange Situation Paradigm
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm
- **Ambivalent attachment**
  - **Domain**: parenting capacity
  - **Measure:** Strange Situation Paradigm
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm

Cicchetti 2006 *(Continued)*

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Child emotional and behavioural outcomes

- **Internalising behaviour**
  - **Domain**: child's physical, socio-emotional well-being
  - **Measure:** Child Behavior Checklist
  - **Score range:** 0 to 226
  - **Direction of effect:** higher scores = worse/more harm
- **Externalising behaviour**
  - **Domain**: child's physical, socio-emotional well-being
  - **Measure:** Child Behavior Checklist
  - **Score range:** 0 to 226
  - **Direction of effect:** higher scores = worse/more harm
- **Total child behaviour problems**
  - **Domain**: child's physical, socio-emotional well-being
  - **Measure:** Child Behavior Checklist
  - **Score range:** 0 to 226
  - **Direction of effect:** higher scores = worse/more harm

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided further clarification around childhood maltreatment definition (no unpublished data requested or reported in meta-analyses)
- Only 79% of the sample reported childhood maltreatment; however, the review authors decided to include this study due to the high incidence of childhood maltreatment in addition high incidence of other traumatic events and PTSD in the remaining sample and the fact that the intervention was aimed at improving parenting capacity and secure attachment in a sample of mothers with high adversity and trauma burden
- The non-maltreatment comparison group did not meet the eligibility criteria for this review

Funding source: Administration of Children, Youth, and Families; the National Institute of Mental Health; the Spunk Fund, Inc

Conflicts of interest: The authors did not report if there were any conflicts of interest.

Grote 2012

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** It was hypothesised that "childhood trauma exposure would moderate changes in symptoms and functioning over time" (Grote 2012, page 563) for participants assigned to enhanced treatment as usual (ETAU), but not to brief interpersonal psychotherapy (IPT-B). It was also predicted that "trauma exposure would be negatively associated with treatment response over time and at the two follow-up time points for women within TAU, but not for those

Grote 2012 *(Continued)*

	within IPT-B who were expected to show remission in depression severity and other outcomes, regardless of trauma exposure" (Grote 2012, page 563) • **Study setting:** Pittsburgh, USA. Data collection between 2004 and 2006 • **Trial registration number:** NCT00292903

Participants	• **Inclusion criteria:** ≥ 18 years, 10 to 32 weeks gestation, > 12 on the Edinburgh Postnatal Depression Scale, English speaking, access to a telephone and living in the Pittsburgh region
	• **Exclusion criteria:** substance abuse or dependence within the preceding 6 months, actively suicidal, bipolar disorder, a psychotic disorder or an organic mental disorder, an unstable medical condition that could produce symptoms confounding accurate assessment of mood symptoms (for example, untreated thyroid disease), severe intimate partner violence and current receipt of another form of depression treatment
	• **N referred and randomised:** 113 referred, 53 randomised
	  ◦ **IPT-B:** 25
	  ◦ **ETAU:** 28
	• **N lost to follow-up (post-intervention):** 7 (13%)
	• **N analysed**
	  ◦ **Total sample:** 112
	  ◦ **Subsample used in meta-analysis (published data, for all time points):**
	  ■ **IPT-B:** 6
	  ■ **ETAU:** 18
	• **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
	• **Childhood maltreatment and/or trauma assessment:** The Childhood Trauma Questionnaire. Mothers were divided into 2 groups by degree of exposure to childhood trauma, using a median split: those with more exposure (total trauma ≥ 1.72) and those with less exposure (total trauma ≤ 1.72). Subsample consisted of mothers with 'more' trauma exposure
	• **Parenting stage:** pregnancy to 6 weeks postpartum
	• **Recruitment setting:** public care outpatient obstetrics and gynaecology clinic of a large women's hospital
	• **Baseline characteristics** (subsample of 'more' trauma exposure)
	  ◦ *Mean parent age*: 23.8 years
	  ◦ *Mean child age*: not reported
	  ◦ *Parent gender*: female participants
	  ◦ *Parent co-morbidity*: majority of mothers experiencing mental health comorbidity (postnatal depression)
	• **Progress+ coding:** low SES; ethnic minority population

Interventions	**Intervention - brief interpersonal psychotherapy (IPT-B)** • **Category:** psychological interventions (non-trauma-focused CBT-based intervention) • **Description:** culturally relevant IPT-B is a multicomponent model of care, consisting of a motivationally enhanced, pretreatment engagement session, 8 acute sessions of IPT-B and maintenance IPT • **Mode of delivery:** blend of face-to-face and telephone, individually • **Dose:** one to 10 hours • **Length:** 7 to 12 weeks • **Frequency:** weekly • **Protocol:** yes • **Provider:** single practitioner (master/PhD level clinicians) • **Training:** specifics not reported, states that all clinicians had supervised training and experience in enhanced IPT-B, trained in cultural competence and had considerable experience working with persons of racial-ethnic minority groups who were living in poverty • **Implementation fidelity:** engagement and IPT-B sessions were audiotaped, and 77% were reviewed for fidelity to the model

Grote 2012 *(Continued)*

- **Treatment adherence:** 68% of mothers completed a full course of treatment, defined as 7 to 8 sessions. 68% participated in an average of 6 maintenance IPT sessions (range 2 to 10). Half of the mothers participated in an average of 2 to 3 phone sessions (range 1 to 6) during IPT-B and maintenance IPT. The therapist facilitated access to social services for 48% of mothers, with an average of 2 referrals per woman. 67% of those receiving referrals reported successfully following through

Comparator - enhanced treatment as usual (ETAU)

- **Category:** inactive comparator (enhanced treatment as usual)
- **Description:** mothers received psycho-educational materials about depression, and were strongly encouraged to seek treatment where they were receiving prenatal services. They were provided easy access to depression treatment in the obstetrics and gynaecology clinic, familiarity with the setting, decreased stigma, childcare and free bus passes, and additional monitoring of their depression severity and diagnostic status than they typically received in the clinic
- **Mode of delivery:** blend of face-to-face and telephone
- **Dose:** not reported
- **Length:** 7 to 12 weeks
- **Frequency:** not reported
- **Protocol:** not reported
- **Provider:** multidisciplinary (research staff and usual clinic team)
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Uptake of standard care:** 7% of mothers completed a full course of treatment, defined as 7 to 8 sessions

Outcomes

Assessment time point(s)

- Baseline (average 20 to 22 weeks pregnant)
- Post-intervention (< 3 month post-intervention)
- 6-month postpartum (3 to 12 months post-intervention)

Primary outcome(s)

Parental complex trauma symptoms

- **Interpersonal problems**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Inventory of Interpersonal Problems
  - **Score range:** 0 to 5
  - **Direction of effect:** higher scores = worse/more harm

Parental psychological wellbeing

- **Postpartum depression symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Edinburgh Postnatal Depression Scale
  - **Score range:** 0 to 30
  - **Direction of effect:** higher scores = worse/more harm
- **Depression symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Beck Depression Inventory
  - **Score range:** 0 to 63
  - **Direction of effect:** higher scores = worse/more harm
- **Anxiety symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Beck Anxiety Inventory
  - **Score range:** 0 to 63

Grote 2012 *(Continued)*

	○ **Direction of effect:** higher scores = worse/more harm **Secondary outcome(s)** ***Parent engagement*** • **Dropout** ○ **Domain**: parental intervention acceptability ○ **Measure**: dropout for any reason between randomisation and post-intervention ○ **Score range**: not applicable ○ **Direction of effect**: higher events = more dropout ***Parental social functioning*** • **Social adjustment (social and leisure)** ○ **Domain**: socio-ecological outcomes ○ **Measure:** Social and Leisure domain from the Social Adjustment Scale ○ **Score range:** 1 to 5 ○ **Direction of effect:** higher scores = worse/more harm **Adverse outcome(s):** none specified
Notes	**Comment(s)** • Authors provided further clarification around childhood maltreatment definition (no unpublished data requested or reported in meta-analyses). Subsample consisted of mothers with 'more' trauma exposure • Baseline characteristics/Progress+ coding are reported for the subsample, while enrolment/dropout details includes all participants in the study **Funding source:** National Institute of Mental Health; the Staunton Farm Foundation; the General Clinical Research Centres (National Centre for Research Resources) **Conflict of interest:** the trial authors made the following declarations in the conflicts of interest statement: "Dr. Grote, Dr. Spieker, Ms. Lohr, and Ms. Geibel report no competing interests. Dr. Swartz has received CME honoraria from Servier, Astra Zeneca, and Sanofi. She receives royalties from UpToDate. Dr. Frank serves on an advisory board and has received honoraria from Servier, International and receives royalties from Guilford Press and the American Psychological Association Press. Dr. Katon serves on an advisory board at Lilly and has received honoraria from Lilly, Forest, and Pfizer." (Grote 2012, page 564)

Grote 2015

Study characteristics	
Methods	• **Study design:** individual RCT (parallel groups) • **Study aim/hypothesis:** "It was hypothesised that compared to MSS-Plus, the MOMCare collaborative care intervention would be associated with greater engagement in depression treatment, improved quality of depression care, and lower levels of perinatal depression severity" (Grote 2015, page 822). • **Study setting:** Seattle-King County, USA. Data collection dates vary between studies, between 2009 and 2014 • **Trial registration number:** NCT01045655
Participants	• **Inclusion criteria:** ≥ 18 years, a likely diagnosis of major depression (PHQ-9), or a likely diagnosis of dysthymia (MINI), 12-32 weeks gestation, access to a telephone and English speaking

Grote 2015 *(Continued)*

- **Exclusion criteria:** acute suicidal behaviour or multiple (≥ 2) prior suicide attempts, lifetime history of schizophrenia or bipolar disorder I and II, substance abuse/dependence within the previous 3 months, current severe intimate partner violence, or currently in psychotherapy or seeing a psychiatrist
- **N referred and randomised:** 1530 referred, 168 randomised
  - **MOMCare:** 83
  - **MSS-Plus:** 85
- **N lost to follow-up (post-intervention):** 17 (10.1%)
- **N analysed**
  - **Total sample:** 164
  - **Subsample used in meta-analysis (unpublished data)**
    - Baseline: MOMCare = 40, MSS-Plus = 47
    - Post-intervention: MOMCare = 40, MSS-Plus = 38
    - 6-month follow-up: MOMCare = 40, MSS-Plus = 41
    - 12-month follow-up: MOMCare = 39, MSS-Plus = 41
    - 18-month follow-up: MOMCare = 39, MSS-Plus = 40
- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
- **Childhood maltreatment and/or trauma assessment:** The Childhood Trauma Questionnaire. Mothers were classified using Bernstein's cut-offs. Subsample consisted of mothers with one type of moderate to severe trauma exposure
- **Parenting stage:** pregnancy to 6 weeks postpartum
- **Recruitment setting:** public health centres, referrals from Maternity Support Services social works and nurses
- **Baseline characteristics**
  - *Mean parent age*: 27.4 years
  - *Mean child age*: not reported
  - *Parent gender*: female participants
  - *Parent co-morbidity*: majority of mothers experiencing mental health comorbidity (depression or dysthymia)
- **Progress+ coding:** ethnic minority population

Interventions

Intervention - MOMCare + Maternity Support Services-PLUS (MSS-PLUS)

- **Category:** psychological interventions (non-trauma-focused CBT-based intervention)
- **Description:** MOMCare consisted of brief interpersonal psychotherapy (IPT-B) and/or pharmacotherapy for acute treatment. The MOMCare intervention was added onto MSS-Plus.
- **Mode of delivery:** blend of face-to-face and telephone, individually. Intervention services were provided in the public health centres, by phone, in community settings and infrequently at home
- **Dose:** more than 10 hours
- **Length:** other - 3 to 6 months (treatment continued if adequate treatment response was not reached)
- **Frequency:** weekly in acute phase and then variable
- **Protocol:** yes
- **Provider:** multidisciplinary team (depression care specialists, MOMCare study team)
- **Training:** trainings included: (1) self-study of the 4 study manuals - engagement manual, brief IPT manual, pharmacotherapy manual and depression care by phone manual; (2) didactic orientation to perinatal medical complications by the team Ob/Gyn research physician; (3) training in the engagement session and motivational interviewing skills, e.g. reflective listening, affirming strengths, identifying and addressing treatment ambivalence, and problem-solving barriers to care; (4) training in brief IPT, included readings, watching videos of skilled IPT therapists, role playing, and working with at least 2 to 3 training cases, which were audiotaped and evaluated to meet treatment fidelity; (5) training in cultural competence and implementing IPT-B culturally relevant enhancements for socio-economically disadvantaged patients; and (6) training in diagnosis and pharmacotherapy for depression and anxiety by the team psychiatrist
- **Implementation fidelity:** the depression care specialists received weekly group supervision from the team psychiatrist and weekly individual supervision from the PI, who reviewed a majority of

Grote 2015 *(Continued)*

the audiotaped engagement and IPT-B sessions, providing an opportunity for feedback and minimising treatment drift

- **Treatment adherence:** 97.5% completed an initial IPT-B or medication management treatment session, with a mean of 4.7 (SD 4.1) acute in-person sessions and a mean of 4.8 (SD 4.3) acute telephone sessions completed, making a total of 9.5 (SD 4.0) acute treatment sessions completed. Almost all (95%) of the acute treatment sessions were completed within the 3-month (75.5%) or 6-month (19.1%) treatment window. Regarding maintenance, MOMCare patients received a mean total of 7.3 (SD 6.1) IPT maintenance and/or medication management sessions. "Seventy-nine percent of MOMCare participants had at least one maintenance session through the 18-month follow-up" (Grote 2015, page 830)

Comparator - Maternity Support Services-PLUS (MSS-PLUS)

- **Category:** inactive comparator (enhanced treatment as usual)
- **Description:** the usual standard of care in the public health system of Seattle-King County for pregnant women on Medicaid. Goals of 'usual' MSS include offering services to promote healthy pregnancies and positive birth and parenting outcomes, providing case management services to meet basic needs, and facilitating regular contact with an OB provider. Pregnant women scoring PHQ-9 & 10 were eligible for intensive MSS-Plus services, entailing more frequent, longer visits from their multidisciplinary team
- **Mode of delivery:** face-to-face
- **Dose:** less than 1 hour
- **Length:** other - from pregnancy up to at least 2 months postpartum
- **Frequency:** not reported
- **Protocol:** not reported
- **Provider:** multidisciplinary (public health social workers, nurses and nutritionists)
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Uptake of standard care:** the mean MSS-PLUS visits in each unit of public health from baseline to 2 months postpartum was 11.35, with 35.2% engaging in an initial speciality mental health session

Outcomes

Assessment time point(s)

- Baseline (average 22 weeks pregnant)
- Post-intervention (< 3 months post-intervention)
- 6-month follow-up (3 to 12 months post-intervention)
- 12-month follow-up (3 to 12 months post-intervention)
- 18-month follow-up (> 12 month post-intervention)

Note: at 3-month follow-up, 88% of mothers still pregnant; 6-month follow-up, 3 months postpartum; 12-month follow-up, mean 9 months postpartum; 18-month follow-up, mean 15 months postpartum

Primary outcome(s)

Parental complex trauma symptoms

- **PTSD symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** PTSD CheckList-Civilian Version
  - **Score range:** 17 to 85
  - **Direction of effect:** higher scores = worse/more harm

Parental psychological wellbeing

- **Depression symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Hopkins Symptom Checklist
  - **Score range:** 20 to 80

Grote 2015 *(Continued)*

- **Direction of effect:** higher scores = worse/more harm

- **Depression remission**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Hopkins Symptom Checklist (Score < 0.5)
  - **Score range:** 20 to 80
  - **Direction of effect:** higher scores = better/less harm
- **Probable Generalise Anxiety Disorder**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** PRIME-MD Patient Health Questionnaire
  - **Score range:** 0 to 29
  - **Direction of effect:** higher scores = worse/more harm
- **Functional impairment severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Work and Social Adjustment Scale
  - **Score range:** 0 to 40
  - **Direction of effect:** higher scores = worse/more harm

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Cost or cost-effectiveness

- **Depression free days**
  - **Domain**: other outcomes
  - **Measure**: number of depression-free days over 18 months, using a method adapted for the Hopkins Symptom Checklist–20 (SCL). SCL scores < 0.7 = depression free; SCL scores of 1.5 = fully symptomatic; SCL scores between 0.7 and 1.5 were assigned a proportional value
  - **Score range:** 20 to 80
  - **Direction of effect**: not applicable
- **Intervention costs**
  - **Domain:** other outcomes
  - **Measure:** study staff salary and fringe benefit rates plus a 30% overhead rate
  - **Score range:** not applicable
  - **Direction of effect**: not applicable

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subsample (87 participants) of mothers with moderate-severe levels of maltreatment as assessed on the Childhood Trauma Questionnaire (for any of the 5 maltreatment types)
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified
- The data for the cost-effectiveness outcome includes the total sample, including mothers with and without childhood maltreatment

Funding source: National Institute of Mental Health

Conflicts of interest: the authors declared that there were no conflicts of interest

Haight 2005

Study characteristics	
Methods	• **Study design:** individual RCT (parallel groups) • **Study aim/hypothesis:** this study examined an intervention designed to enhance mother child interaction during visits focusing on leave-taking • **Study setting:** a medium-sized, mid-western city in the USA. Data collection dates not reported • **Trial registration number:** registration details not found

Participants	• **Inclusion criteria:** mothers of all children between 2 and 6 years old who had been in foster care from 1 to 12 months
	• **Exclusion criteria:** mothers with children who were not receiving visits, or for whom a permanency plan was not to return home
	• **N referred and randomised:** number referred not specified, 20 randomised
	  ◦ **Emotional support/coaching:** 10
	  ◦ **Wait-list:** 10
	• **N lost to follow-up (post-intervention):** not reported
	• **N analysed**
	  ◦ **Emotional support/coaching:** 10
	  ◦ **Wait-list:** 10
	• **Childhood maltreatment and/or complex trauma status:** unclear, likely self-report during initial interview but not explicitly stated
	• **Childhood maltreatment and/or trauma assessment:** not reported
	• **Parenting stage:** > 7 weeks postpartum (up to 5 years)
	• **Recruitment setting:** mothers identified through Department of Children and Family Services records
	• **Baseline characteristics**
	  ◦ *Mean parent age*: 29.1 years
	  ◦ *Mean child age*: 3 years old
	  ◦ *Parent gender*: female participants
	  ◦ *Parent co-morbidity*: majority of mothers experiencing mental health comorbidity (n = 13 substance use, n = 2 clinical depression, n = 2 anxiety disorder, n = 1 bipolar disorder, n = 1 PTSD/anxiety disorder)
	• **Progress+ coding:** majority education less than high school

Interventions	**Intervention - emotional support/coaching** • **Category:** parenting, parent-child or relationship focused interventions (parent-child interventions) • **Description:** the intervention focused on emotion support and coaching and occurred immediately prior to the foster parent visit • **Mode of delivery:** face-to-face, individually • **Dose:** less than 1 hour • **Length:** single session • **Frequency:** only once • **Protocol:** not reported • **Provider:** single practitioner (community mental health psychiatrist, PhD candidate) • **Training:** not reported • **Implementation fidelity:** not reported • **Treatment adherence:** not reported **Comparator - wait-list** • **Category:** inactive comparator (wait-list)

Haight 2005 *(Continued)*

Outcomes

Assessment time point(s)

- Post-intervention (child, on average, 3 years old; < 3 months post-intervention)

Primary outcome(s)

Parenting skills

- **Leaving taking behaviours**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of actual behaviours displayed by mothers and children during the leave-taking sequence. Codes were constructed from the supportive strategies that were described to mothers during the intervention and that the mothers were observed employing
  - **Score range:** 1 to 6
  - **Direction of effect:** higher scores = better/less harm
- **Supportive presence**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of the extent to which the mother expresses positive regard, emotional support, reassurance and confidence in the child
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = better/less harm
- **Hostility**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of the mothers' expression of anger, discounting or rejection of the child
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm
- **Generational boundary dissolution**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of the extent to which the mother treats the child as her contemporary rather than taking charge and setting the necessary limits
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm
- **Detachment/disengagement**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of the extent to which the parent appears emotionally uninvolved or disengaged and unaware of the child's needs for appropriate interaction
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm
- **Positive regard**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of the extent to which the parent expresses positive feelings towards the child, for example, through tone of voice, physical affection, praise and listening attentively
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = better/less harm
- **Intrusiveness**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of the extent to which the parent lacks respect for the child as an individual and fails to understand and recognise the child's efforts to gain autonomy and self-awareness
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm
- **Engagement/interpersonal involvement**
  - **Domain**: parenting capacity

Haight 2005 *(Continued)*

- **Measure:** direct observation of the interpersonal involvement of the mother with her child, and the persistence of her partner-directed behaviours
- **Score range:** 1 to 7
- **Direction of effect:** higher scores = better/less harm

- **Inventiveness**
  - **Domain**: parenting capacity
  - **Measure:** direct observation of the range of stimulation the mother is able to provide for her child in order to maintain the child's involvement in the situation
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = better/less harm

Secondary outcome(s):

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Adverse outcome(s): none specified

Notes

Comment(s): no unpublished data requested or reported in meta-analyses

Funding source: Children and Family Research Centre

Conflicts of interest: the authors did not report if there were any conflicts of interest

Liu 2021

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** It was hypothesised that (1) "compared to the control group, caregivers in the FIND group would exhibit significantly increased self-efficacy; (2) children in the FIND group would show reduced internalizing and externalizing problems, from pre- to post-intervention assessments; (3) caregivers who had high adverse childhood experiences scores would benefit more from FIND; and (4) improvement in caregivers' self-efficacy would underlie FIND related decreases in children's internalizing and externalizing problems" (Liu 2021, page 3)
- **Study setting:** Denver, USA. Data collection dates not reported
- **Trial registration number:** registration details not found

Participants

- **Inclusion criteria:** eligible to receive the Early Head Start services, have children aged between 4 and 36 months old, and fluent in English or Spanish
- **Exclusion criteria:** children presenting developmental delay, regular use of medications that interfere with cortisol assays
- **N referred and randomised:** 202 referred, 138 randomised
  - **FIND:** 88
  - **Active control:** 50
- **N lost to follow-up (post-intervention):** 47 (34.1%)
- **N analysed**
  - **Total sample:** 138
  - **Subsample used in meta-analysis (unpublished data, for all time points)**
    - **FIND:** 15

Liu 2021 *(Continued)*

  - **Active control:** 10
- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
- **Childhood maltreatment and/or trauma assessment:** caregivers' exposure to early adversity was measured using 64 items adopted from multiple questionnaires that loaded onto the 10 domains in the Adverse Childhood Experiences Scale. A composite score was obtained for each domain, with '1' coded for yes and '0' for no. A sum score (possible range 0 to 10). Subsample consisted of mothers with 4 or more adverse childhood experiences
- **Parenting stage:** > 7 weeks postpartum (up to 5 years)
- **Recruitment setting:** families recruited from Early Head Start programme, which targets low-income families of young children. Recruitment strategies included the research co-ordinator speaking with caregivers about the study opportunity, disseminating recruitment materials, attending parent-focused events and participants' word-of-mouth referral
- **Baseline characteristics**
  - *Mean parent age*: 32.59 years
  - *Mean child age*: 23.15 months
  - *Parent gender*: 98.9% female participants (n = 90)
  - *Parent co-morbidity*: not reported
- **Progress+ coding:** low SES; ethnic minority population

Interventions

Intervention - Filming Interactions to Nurture Development (FIND) + standard EHS services

- **Category:** parenting, parent-child or relationship focused interventions (parent-child interventions)
- **Description:** a brief, flexible and strength-based video feedback intervention programme that uses video coaching to strengthen developmentally supportive interactions
- **Mode of delivery:** face-to-face, individually
- **Dose:** 1 to 10 hours
- **Length:** 7 to 12 weeks
- **Frequency:** weekly
- **Protocol:** yes
- **Provider:** single practitioner (therapists and mental health specialists with master's degrees in social work)
- **Training:** all coaches completed a 2- to 3-day initial FIND training that included an overview of the programme, training on the 5 FIND elements, role-playing coaching sessions and training on video coaching technology. Coaches continued to meet regularly with a FIND trainer via phone or web conference in a group format over the course of the study.
- **Implementation fidelity:** all the coaching sessions were videotaped in order to monitor the intervention implementation. Fidelity was coded for each of the 5 core elements using a coding form. Fidelity coders completed a coding training. The mean fidelity for the total sample across 5 different elements was 83.2% (SD 16.8%), with no element below 79%. Among all the coded sessions, 58.7% of sessions reached 100% of fidelity, and 83.0% of sessions reached 75% of fidelity.
- **Treatment adherence:** 54 families in the FIND group completed all research visits. The average intervention dosage for the total sample was high, with 76.9% of families completing intervention sessions of all 5 core elements. The mean dosage was 4.69 (SD 0.61).

Comparator - Early Head Start (EHS) programme

- **Category:** inactive comparator (treatment as usual)
- **Description:** a federal programme for low-income pregnant women and families with infants and toddlers, and includes home visits, child care, case management, parenting education, health care and referrals, and family support
- **Mode of delivery:** face-to-face
- **Dose:** not reported
- **Length:** 7 to 12 weeks
- **Frequency:** not reported
- **Protocol:** not reported

Liu 2021 *(Continued)*

- **Provider:** not reported
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Uptake of standard care:** 37 active control participants remained in the study until completion

Outcomes

Assessment time point(s)

- Baseline (child, on average, 23 months old)
- Post-intervention (< 3 months post-intervention)

Primary outcome(s)

Parenting skills

- **Parental sense of confidence**
  - **Domain**: parenting capacity
  - **Measure:** Parental Sense of Competence Scale
  - **Score range:** 8 to 48
  - **Direction of effect:** higher scores = better/less harm
- **Parental self-efficacy in teaching**
  - **Domain**: parenting capacity
  - **Measure:** Self-Efficacy for Parenting Tasks Index-Toddler Scale
  - **Score range:** 9 to 54
  - **Direction of effect:** higher scores = better/less harm
- **Parental self-efficacy in nurturance, valuing the child, and empathetic responsiveness**
  - **Domain**: parenting capacity
  - **Measure:** Self-Efficacy for Parenting Tasks Index-Toddler Scale
  - **Score range:** 8 to 48
  - **Direction of effect:** higher scores = better/less harm
- **Parental self-efficacy in discipline and limit setting**
  - **Domain**: parenting capacity
  - **Measure:** Self-Efficacy for Parenting Tasks Index-Toddler Scale
  - **Score range:** 7 to 42
  - **Direction of effect:** higher scores = better/less harm
- **Parental self-efficacy in instrumental care and establishment of structure and routines**
  - **Domain**: parenting capacity
  - **Measure:** Self-Efficacy for Parenting Tasks Index-Toddler Scale
  - **Score range:** 8 to 48
  - **Direction of effect:** higher scores = better/less harm

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Child emotional and behavioural outcomes

- **Internalising problems**
  - **Domain**: child's physical, socio-emotional well-being
  - **Measure:** Child Behavior Checklist
  - **Score range:** 0 to 198
  - **Direction of effect:** higher scores = better/less harm

Liu 2021 *(Continued)*

- **Externalising problems**
  - **Domain**: child's physical, socio-emotional well-being
  - **Measure:** Child Behavior Checklist
  - **Score range:** 0 to 198
  - **Direction of effect:** higher scores = worse/more harm

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subgroup (25 participants) of mothers with 4 or more adverse childhood experiences
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified
- Implementation requirements for FIND: coaches and caregivers' watched a recorded edited film of the caregivers' interaction with their children

Funding source: Administration for Children and Families

Conflicts of interest: the authors declared that there were no conflicts of interests

Madigan 2015

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** to assess "whether an empirically supported intervention for trauma and traumatic loss could modify adolescent mothers' unresolved or PTSD status, when compared to a comparison group not receiving such an intervention; to examine the extent to which symptoms commonly associated with traumatic experiences (dissociation, anxiety, depression, and externalizing behavior) are impacted by a trauma-focused intervention and to examine whether there had been any impact of the intervention on infant-caregiver disorganized attachment" (Madigan 2015, page 178)
- **Study setting:** metropolitan city in Canada. Data collection dates not reported
- **Trial registration number:** registration details not found

Participants

- **Inclusion criteria:** pregnant girls aged 12 to 18 years, between 12 and 23 weeks pregnant, planning to keep their baby and fluent in English. Participants were required to report one or more traumatic experiences, and were included if they received a diagnosis of PTSD according to the Children's PTSD Inventory, or met criteria for an unresolved state of mind, as assessed by the Adult Attachment Interview. A third inclusion criterion was having a score that fell above the clinical cutoff for dissociation; however, no adolescents met this criterion without first meeting one of the two criteria noted above.
- **Exclusion criteria:** current suicidal ideation, ongoing substance abuse and/or evidence of psychosis
- **N referred and randomised:** 61 referred, 43 randomised
  - **TF-CBT + TAU (parenting course):** 21
  - **TAU (parenting course):** 22
- **N lost to follow-up (six-months post-intervention):** 12 (27.9%)
- **N analysed**
  - Baseline: TF-CBT + TAU = 21, TAU = 22
  - Six month follow-up: TF-CBT + TAU = 14, TAU = 17
  - 12 month follow-up: TF-CBT + TAU = 12, TAU = 14
- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment and complex trauma

Madigan 2015 *(Continued)*

- **Childhood maltreatment and/or trauma assessment:** Maltreatment Classification Scale, Childhood Trauma Questionnaire, Children's PTSD Inventory
- **Parenting stage:** pregnancy to 6 weeks postpartum
- **Recruitment setting:** the Young Families programme, an outpatient obstetrical programme for adolescents' pre- and postnatal care, located at a large metropolitan paediatric hospital or residential homes that offer pre- and post-natal residential and non-residential support to single pregnant and parenting adolescent mothers and their children
- **Baseline characteristics**
  - *Mean parent age:* 17.0 years
  - *Mean child age*: not reported
  - *Parent gender*: female participants
  - *Parent co-morbidity*: majority of participants experiencing mental health comorbidity (PTSD)
- **Progress+ coding:** age < 18 years; low SES; majority education less than high school

Interventions	**Intervention - trauma-focused (TF-CBT) + TAU (parenting course)** • **Category:** psychological interventions (TF-CBT) • **Description:** the core components of this treatment model include psycho-education, stress management, affective modulation, an understanding of the cognitive-emotional-behavioural triad, and the creation and cognitive processing of a detailed trauma narrative • **Mode of delivery:** face-to-face, individually • **Dose:** more than 10 hours • **Length:** 7 to 12 weeks • **Frequency:** weekly • **Protocol:** yes • **Provider:** single practitioner (psychologist, psychiatrist) • **Training:** TF-CBT therapists were thoroughly trained in administering the TF-CBT protocol and, in addition, met once a week for group supervision led by a senior psychologist and psychiatrist with extensive experience in TF-CBT. During these meetings, video-recorded TF-CBT sessions were reviewed to ensure treatment fidelity and consistency across all therapists • **Implementation fidelity:** during group supervision, video-recorded TF-CBT sessions were reviewed to ensure treatment fidelity and consistency across all therapists • **Treatment adherence:** there were significant problems with attendance, task completion and general commitment to engage in treatment **Comparator - parenting course** • **Category:** inactive comparator (treatment as usual) • **Description:** the parenting course covered topics such as preparing for baby, role of fathers, supports, relationships, stress, fears, anxieties, bonding with foetus/baby, prenatal nutrition, labour/delivery, time management and budgeting • **Mode of delivery:** face-to-face • **Dose:** more than 10 hours • **Length:** 7 to 12 weeks • **Frequency:** weekly • **Protocol:** not reported • **Provider:** not reported • **Training:** not reported • **Implementation fidelity:** not reported • **Uptake of standard care:** not reported
Outcomes	**Assessment time point(s)** • Baseline (average 18 to 20 weeks pregnant) • 6-month follow-up (child 6 months old; 3 to 12 months post-intervention) • 12-month follow-up (child 12 months old; 3 to 12 months post-intervention)

Madigan 2015 *(Continued)*

Note: behavioural problems only assessed at baseline and 12-month follow-up, and disorganised infant attachment only assessed at 12-month follow-up

Primary outcome(s)

Parental complex trauma symptoms

- **PTSD presence**
  - **Domain**: parental psychological and socio-emotional well-being
  - **Measure:** Children's PTSD Inventory
  - **Score range:** 0 to 80
  - **Direction of effect:** higher scores = worse/more harm
- **Dissociation experiences**
  - **Domain**: parental psychological and socio-emotional well-being
  - **Measure:** Adolescent Dissociative Experiences Scale
  - **Score range:** 0 to 10
  - **Direction of effect:** higher scores = worse/more harm

Parental psychological wellbeing

- **Depression symptom severity**
  - **Domain**: parental psychological and socio-emotional well-being
  - **Measure:** Beck Depression Inventory
  - **Score range:** 0 to 63
  - **Direction of effect:** higher scores = worse/more harm
- **Anxiety symptom severity**
  - **Domain**: parental psychological and socio-emotional well-being
  - **Measure:** Screen for Child Anxiety Related Emotional Disorders - parent version
  - **Score range:** 0 to 63
  - **Direction of effect:** higher scores = worse/more harm
- **Behavioural problems**
  - **Domain**: parental psychological and socio-emotional well-being
  - **Measure:** Youth Self-Report (externalising score)
  - **Score range:** 0 to 224
  - **Direction of effect:** higher scores = worse/more harm

Parent-child relationship

- **Disorganised infant attachment**
  - **Domain**: parenting capacity
  - **Measure:** Strange Situation paradigm
  - **Score range:** 1 to 7
  - **Direction of effect:** higher scores = worse/more harm

Secondary outcome(s):

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Adverse outcome(s): none specified

Notes	**Comment(s):**

- No unpublished data requested or reported in meta-analyses

Madigan 2015 *(Continued)*

- Implementation requirements for TF-CBT: "Consistent with TF-CBT protocol, the narrative component of the treatment focused on the trauma or traumatic loss event that the adolescent identified as being the worst or most distressing. In cases where a traumatic loss experience was the focus of treatment, adapted TF-CBT protocol designed specifically for traumatic loss was used (http://ctg.musc.edu/). The Parent-Adolescent Sessions that are typically incorporated into the TF-CBT protocol were not included in the current study because the majority of adolescents did not have a parent or primary caregiver involved" (Madigan 2015, page 183)

Funding source: Ontario Mental Health Foundation; the Provincial Centre for Excellence for Child and Youth Mental Health (Children's Hospital of Eastern Ontario); the Hospital for Sick Children's Psychiatry Endowment Fund

Conflicts of interest: the authors did not report if there were any conflicts of interest

Pasalich 2019

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** to contribute new understanding into how parenting intervention outcomes in early childhood may vary between vulnerable families of parents with versus without a history of significant abuse. It was hypothesised that "the impact of Promoting First Relationships (PFR) on enhanced parental sensitivity, and, in turn, increases in secure base behavior, would be evident or more pronounced in the families of parents with versus without an abuse history." (Pasalich 2019, page 58)
- **Study setting:** Snohomish, southern Skagit, or northern King County in Washington State, USA. Data collection between 2011 and 2014
- **Trial registration number:** NCT01332851

Participants

- **Inclusion criteria:** conversant in English; have housing and live in Snohomish, Southern Skagit, or Northern King County in Washington State; have a toddler aged between 10 and 24 months and an open case with an allegation of any type of maltreatment recorded in the database of one of the 6 collaborating child protective services offices at least 2 weeks prior to initial recruitment contact
- **Exclusion criteria:** not reported
- **N referred and randomised:** 384 referred, 247 randomised
  - **PRF:** 124
  - **R&R:** 123
- **N lost to follow-up (post-intervention):** 19 (7.7%)
- **N analysed**
  - **Total sample:** 201 to 247
  - **Subsample used in meta-analysis (unpublished data)**
    - Baseline: PRF = 33, R&R = 48
    - Post-intervention: PRF = 33, R&R = 42
    - Three month follow-up: PRF = 29, R&R = 41
    - Six month follow-up: PRF = 28, R&R = 38
- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
- **Childhood maltreatment and/or trauma assessment:** The Childhood Trauma Questionnaire-Short Form. "Dichotomous cutoff scores were used to measure significant (i.e. 'moderate to severe') levels of physical, sexual, and emotional abuse" Pasalich 2019, page 59). Subsample consisted of mothers with a history of moderate-severe levels of childhood maltreatment
- **Parenting stage:** > 7 weeks postpartum (up to 5 years)
- **Recruitment setting:** Washington State Department of Social and Health Services (DSHS) database
- **Baseline characteristics**
  - *Mean parent age*

Pasalich 2019 *(Continued)*

- **PFR:** 26.4 years
- **R&R:** 27.0 years

- *Mean child age*
  - **PFR:** 16.0 months
  - **R&R:** 16.8 months
- *Parent gender*
  - **PFR:** 90.3% female participants (n = 112)
  - **R&R:** 91.1% female participants (n = 113)
- *Parent co-morbidity*: not reported

- **Progress+ coding:** low SES

Interventions	**Intervention - Promoting First Relationships (PFR)** • **Category:** parenting, parent-child or relationship focused interventions (parent-child interventions) • **Description:** a relationship- and strengths-based home visiting service that aims to help families facing adversity • **Mode of delivery:** face-to-face, individually • **Dose:** more than 10 hours • **Length:** other - completed over 14 weeks • **Frequency:** weekly • **Protocol:** yes • **Provider:** single practitioner (Master's degrees in social work or counselling) • **Training:** specifics not reported, but the providers completed PFR training over a 5-month period to become certified. The PFR training model also included weekly reflective practice group sessions, facilitated by a PFR consultant, to support providers in their work with vulnerable families • **Implementation fidelity:** the providers submitted videotapes of themselves working with the families (one videotaped session for each family on their caseload), which the master trainer used to rate the quality of delivery on a 1- to 5-point scale. If a provider did not maintain fidelity (i.e. received a rating < 4 for a videotaped session), they received additional one-on-one mentoring until the fidelity to PFR was re-established. The training model also included weekly reflective practice group sessions. • **Treatment adherence:** 97% of the programme elements were completed, with 86% of families receiving all 10 sessions. Of those who started the PFR intervention, 7% missed between 1 and 9 sessions **Comparator - three-call resource and referral (R&R)** • **Category:** inactive comparator (attention control) • **Description:** R&R was delivered over the phone in 3 sessions, which consisted of a 30-minute needs assessment, a mailed packet of personalised information (e.g. local services), and followed up with 2 x 10-minute check-in calls • **Mode of delivery:** telephone • **Dose:** less than an hour • **Length:** other - the 3 contacts were spaced across approximately 14 weeks to mirror the average length of the PFR intervention • **Frequency:** not reported • **Protocol:** not reported • **Provider:** single practitioner (social service provider) • **Training:** not reported • **Implementation fidelity:** not reported • **Uptake of standard care:** 89% received all 3 telephone sessions
Outcomes	**Assessment time point(s)** • Baseline (child, on average, 16 months old)

Pasalich 2019 *(Continued)*

- Post-intervention (< 3 months post-intervention)
- 3-month follow-up (3 to 12 months post-intervention)
- 6-month follow-up (3 to 12 months post-intervention)

Note: secure base behaviour only assessed at baseline and 6-month follow-up

Primary outcome(s)

Parent-child relationship

- **Parent sensitivity**
  - **Domain**: parenting capacity
  - **Measure:** Nursing Child Assessment Teaching Scale
  - **Score range:** 0 to 45
  - **Direction of effect:** higher scores = better/less harm
- **Secure base behaviour**
  - **Domain**: parenting capacity
  - **Measure:** Toddler Attachment Sort-45
  - **Score range:** not reported
  - **Direction of effect:** higher scores = better/less harm

Secondary outcome(s):

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subgroup (81 participants) of mothers with moderate-severe levels of maltreatment as assessed on the Childhood Trauma Questionnaire (for any of the 5 maltreatment types)
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified

Funding source: Eunice Kennedy Shriver National Institute of Child Health and Human Development; Australian Research Council Discovery Early Career Researcher Award

Conflicts of interest: the authors declared that there were no conflicts of interest

Rosenblum 2017

Study characteristics

Methods

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** it was hypothesised that women in Mom Power would show improvements in "mental health, parenting, and connection to care, and that women in the control condition would evidence no changes on these outcomes" (Rosenblum 2017, page 12). It was also predicted that women with a history of interpersonal trauma would show greater treatment response than women without interpersonal trauma histories
- **Study setting:** USA. Data collection between 2011 and 2012

Rosenblum 2017 *(Continued)*

- **Trial registration number:** NCT01554215

Participants	• **Inclusion criteria:** > 15 years old, English-speaking and pregnant with a first child or having at least one child in the age range 0 to 5 years, interest in learning about parenting and willing to attend weekly sessions in group setting. Mothers were also required to endorse at least one risk factor known to interfere with effective parenting of young children: a mother's history of childhood maltreatment or adult interpersonal violence, past or current depression and anxiety, involvement with child protection services, social isolation (self-perceived/provider-rated) and/or limited access to resources such as food, finances or housing.
	• **Exclusion criteria:** mothers with no children aged < 6 years, younger than 15 years old, and unwilling to attend weekly sessions or participate in group/at home control
	• **N referred and randomised:** number referred not reported, 122 randomised
	  ◦ **Mom Power:** 68
	  ◦ **Attention control:** 54
	• **N lost to follow-up (post-intervention):** 45 (36.9%)
	• **N analysed**
	  ◦ **Total sample:** ~ 78
	  ◦ **Subsample used in meta-analysis (unpublished data, for all time points)**
	  ■ **Mom Power:** 15 to 19
	  ■ **Attention control**: 12 to 14
	• **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
	• **Childhood maltreatment and/or trauma assessment:** Life Stressor Checklist. "Endorsed lifetime stressors were categorised as interpersonal trauma or other trauma. Sums were calculated based on how many events were endorsed for each category (interpersonal trauma vs other trauma) and to ascertain a total number of traumas experienced across categories" (Rosenblum 2017, page 10). Subsample consisted of mothers endorsing childhood interpersonal trauma, which was defined as one person doing something abusive to another person and included personal childhood exposure to physical, sexual or emotional abuse and neglect, and/or personal adult exposure to harassment, rape and/or physical violence during childhood
	• **Parenting stage:** > 7 weeks postpartum (up to 5 years)
	• **Recruitment setting:** self-referral by responding to fliers posted in low-income community locations (e.g. child care facilities, WIC offices, women's shelters), primary care clinics (family medicine, paediatrics and OB/GYN), and community mental health clinics, or through active invitation and referral by primary care or mental health providers
	• **Baseline characteristics**
	  ◦ *Mean parent age*
	  ■ **Mom Power:** 23.7 years
	  ■ **Attention control:** 23.3 years
	  ◦ *Mean child age*
	  ■ **Mom Power:** 14.8 months
	  ■ **Attention control:** 19.8 months
	  ◦ *Parent gender:* female participants
	  ◦ *Parent co-morbidity*: majority of mothers not experiencing mental health co-morbidity
	• **Progress+ coding:** low SES; ethnic minority population

Interventions	**Intervention - Mom Power** • **Category:** parenting, parent-child or relationship focused interventions (social support) • **Description:** a multifamily intervention designed to strengthen protective factors for the individual and within the family system, and geared towards overcoming barriers to engagement. Consists of 3 individual and 10 groups sessions • **Mode of delivery:** face-to-face, 3 individual sessions and 10 group sessions • **Dose:** more than 10 hours • **Length:** 7 to 12 weeks • **Frequency:** weekly • **Protocol:** yes

Rosenblum 2017 *(Continued)*

- **Provider:** single practitioner (community clinicians)
- **Training:** 3-day in-person training and weekly reflective supervision
- **Implementation fidelity:** group sessions were video-taped for later coding utilising a fidelity monitoring scale of 12 criteria to evaluate whether facilitators adhered to core components of the Mom Power intervention in regard to content and framework. A random sample of 20% of all sessions were scored by the model developer for fidelity. On average, the groups received a content subscale score of 4.02 (SD 0.72) and framework subscale score of 3.85 (SD 0.69), both indicating satisfactory fidelity
- **Treatment adherence:** 20% dropped out before the first session, attendees received an average of 6 (SD 4) group sessions and 45 (66%) participants attended at least 7 out of the 10 possible group sessions

Comparator - attention control

- **Category:** inactive comparator (attention control)
- **Description:** mothers randomised into the control condition received 2 individual sessions and 10 weekly mailings of the Mom Power curriculum content, which included a pre-stamped post card for the mother to send back indicating that the week's material had been read
- **Mode of delivery:** mail-outs
- **Dose:** 1 to 10 hours
- **Length:** 7 to 12 weeks
- **Frequency:** weekly
- **Protocol:** not reported
- **Provider:** unclear
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Uptake of standard care:** not reported

Outcomes

Assessment time point(s)

- Baseline (child, on average, 14 to 20 months old)
- Post-intervention (< 3 months post-intervention)

Primary outcome(s)

Parental complex trauma symptoms

- **PTSD symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** National Women's Study PTSD Module
  - **Score range:** 0 to 17
  - **Direction of effect:** higher scores = worse/more harm

Parental psychological wellbeing

- **Postpartum depression symptom severity**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Postpartum Depression Screening Scale
  - **Score range:** 5 to 175
  - **Direction of effect:** higher scores = worse/more harm

Parenting skills

- **Parenting stress**
  - **Domain**: parenting capacity
  - **Measure:** Parenting Stress Index
  - **Score range:** 36 to 180
  - **Direction of effect:** higher scores = worse/more harm

Rosenblum 2017 *(Continued)*

- **Care-giving helplessness**
  - **Domain**: parenting capacity
  - **Measure:** Care-giving Helplessness Questionnaire
  - **Score range:** 6 to 30
  - **Direction of effect:** higher scores = worse/more harm
- **Child care-giving behaviour**
  - **Domain**: parenting capacity
  - **Measure:** Care-giving Helplessness Questionnaire
  - **Score range:** 6 to 30
  - **Direction of effect:** higher scores = worse/more harm

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Changes in parental social capital

- **Perceived connection to community professionals**
  - **Domain**: socio-ecological outcomes
  - **Measure:** non-validated, 6-item, self-report retrospective questionnaire assessing mothers' perceptions of their connection to community professionals (doctors, nurses, social workers, counsellors, etc.), understanding of their children's behaviours and comfort with seeking assistance or support from existing social supports
  - **Direction of effect:** higher scores = better/less harm

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subgroup (33 participant) of mothers endorsing childhood interpersonal trauma as assessed on the Life Stressor Checklist
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified

Funding source: Department of Community Health (State of Michigan); Michigan Institute for Clinical & Health Research; the Robert Wood Johnson Health & Society Scholars Program

Conflicts of interest: the authors declared that there were no conflicts of interest

Silverstein 2011

Study characteristics

Methods

- **Study design:** combined analysis of 2 individual RCTs (parallel groups)
- **Study aim/hypothesis:** It was hypothesised that "past trauma could moderate the effect of a cognitive behavioral intervention designed to prevent depression among urban, low-income mothers" (Silverstein 2011, page 478)
- **Study setting:** metropolitan area of the USA. Data collection dates not reported
- **Trial registration number:** registration details not found

Silverstein 2011 *(Continued)*

Participants	• **Inclusion criteria:** mothers were enrolled based on their risk for depressive illness and their children's risk for developmental impairment. NICU mothers were enrolled if their infants were ≤ 33 weeks gestation. Early intervention mothers were enrolled if they displayed at least one gateway symptom of depression on the Patient Health Questionnaire-2, had a personal or family history of depression, had low social support based on the Medical Outcomes Survey Social Support Scale, or had a child with a severe medical condition such as Down's syndrome or congenital heart disease
	• **Exclusion criteria:** mothers with psychosis, cognitive limitation or suicidal ideation
	• **N referred and randomised:** 207 referred, 93 randomised
	  ◦ **PSE:** 46
	  ◦ **TAU:** 47
	• **N lost to follow-up (post-intervention):** 16 (17.2%)
	• **N analysed**
	  ◦ **Total sample:** 93
	  ◦ **Subsample used in meta-analysis (published data):**
	  ▪ **PSE:** 19
	  ▪ **TAU:** 19
	• **Childhood maltreatment and/or complex trauma status:** complex trauma
	• **Childhood maltreatment and/or trauma assessment:** history of trauma and post-traumatic stress symptoms were assessed using the Modified PTSD Symptom Scale. Subsample consisted of mothers reporting prior exposure to trauma, although details of the age of trauma exposure were not provided. Review authors included the study based on the fact that the study was aimed at examining the effect of trauma history on effectiveness of an intervention to improve psychological health and wellbeing of parents
	• **Parenting stage:** unclear*
	• **Recruitment setting:** (1) 2 urban level 3 NICUs within academic teaching hospitals; (2) 4 community-based early intervention programmes
	• **Baseline characteristics**
	  ◦ *Mean parent age*
	  ▪ **PSE:** 29.1 years
	  ▪ **TAU:** 31 years
	  ◦ *Mean child age*: not reported
	  ◦ *Parent gender:* female participants
	  ◦ *Parent co-morbidity*: majority of mothers not experiencing mental health co-morbidity
	• **Progress+ coding:** low SES; ethnic minority population

Interventions	**Intervention - Problem-Solving Education (PSE)** • **Category:** psychological interventions (non-trauma-focused CBT-based intervention) • **Description:** a manualised, cognitive behavioural prevention intervention designed to impart recipients with stronger problem-solving skills • **Mode of delivery:** face-to-face, individually • **Dose:** 1 to 10 hours • **Length:** 7 to 12 weeks • **Frequency:** weekly or biweekly • **Protocol:** yes • **Provider:** multidisciplinary team (graduate students in social work, public health and graduate medical sciences, and graduate social workers, occupational and physical therapists) • **Training:** 1 day of didactics, followed by 3 to 5 practice sessions conducted under the supervision of investigators • **Implementation fidelity:** all training sessions were audiotaped and each educator received individualised feedback until they met predefined criteria for protocol adherence • **Treatment adherence:** not reported **Comparator - treatment as usual**

Silverstein 2011 *(Continued)*

- **Category:** inactive comparator (treatment as usual)
- **Description:** mothers received usual hospital or early intervention services
- **Mode of delivery:** face-to-face
- **Dose:** not reported
- **Length:** 7 to 12 weeks
- **Frequency:** not reported
- **Protocol:** not reported
- **Provider:** not reported
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Uptake of standard care:** not reported

Outcomes

Assessment time point(s)

- 3-month follow-up (age of child not reported; 3 to 12 months post-intervention)

Note: Assessments were also conducted as baseline, 1-month follow-up and 2-month follow-up (outcome data not reported for the subsample)

Primary outcome(s)

Parental psychological wellbeing

- **Number of participants with a depressive episode (during the follow-up period)**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Quick Inventory of Depressive Symptoms
  - **Score range:** 0 to 27
  - **Direction of effect:** higher scores = worse/more harm
- **Mean number of depressive episodes (during the follow-up period)**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Quick Inventory of Depressive Symptoms
  - **Score range:** 0 to 27
  - **Direction of effect:** higher scores = worse/more harm
- **Change in depression symptom severity (during the follow-up period)**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Quick Inventory of Depressive Symptoms
  - **Score range:** 0 to 27
  - **Direction of effect:** negative scores indicate a decrease in symptoms from baseline to follow-up
- **Perceived stress**
  - **Domain**: parental psychological or socio-emotional wellbeing
  - **Measure:** Perceived Stress Scale
  - **Score range:** 0 to 40
  - **Direction of effect:** higher scores = worse/more harm

Secondary outcome(s)

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Parental social functioning

- **Social functioning**

Silverstein 2011 *(Continued)*

- **Domain**: socio-ecological outcomes
- **Measure:** Social Adjustment Scale
- **Score range:** 0 to 40
- **Direction of effect:** higher scores = worse/more harm

Adverse outcome(s): none specified

Notes	**Comment(s)**

- *Parenting stage is not clearly stated. In the NICU cohort it is assumed parents are < 7 weeks postpartum; however, the Early Intervention cohort may be at later parenting stage; child ages not reported
- No unpublished data requested or reported in meta-analyses
- Mothers in the subsample reported in this review had all reported prior exposure to trauma, although details of the age of trauma exposure were not provided. Review authors included the study based on the fact that the study was aimed at examining the effect of trauma history on effectiveness of an intervention to improve psychological health and wellbeing of parents

Funding source: National Institute of Child Health and Human Development; the Robinhood Foundation; the Robert Wood Johnson Foundation under its Physician Faculty Scholars Program

Conflict of interest: the trial authors made the following declarations in the conflicts of interest statement: "Dr. Silverstein also receives support from the National Institute of Mental Health (K23MH074079). Dr. Feinberg receives support from the National Institute of Nursing Research (K23NR010588)" (Silverstein 2011, page 483)

Steele 2019

Study characteristics

Methods	

- **Study design:** individual RCT (parallel groups)
- **Study aim/hypothesis:** it was hypothesised that participation in GABI (Group Attachment Based Intervention) would lead to significant improvements in the mother-child relationship compared to the treatment as usual group, STEP (Systematic Training for Effective Parenting)
- **Study setting:** The Bronx, New York City, USA. Data collection between 2012 and 2017
- **Trial registration number:** NCT01641744

Participants	

- **Inclusion criteria:** mothers were biological parents and had custody of an infant up to 36 months old. Mothers were identified as being at risk of maltreating their children, due to their own history of maltreatment, social isolation or having lost custody of a child in the past
- **Exclusion criteria:** inability to provide informed consent due to mental illness or cognitive impairment and lack of fluency in English
- **N referred and randomised:** number referred not reported, 228 randomised
  - **GABI:** 117
  - **STEP:** 111
- **N lost to follow-up:** 150 (66%)
- **N analysed**
  - **GABI:** 43
  - **STEP:** 35
- **Childhood maltreatment and/or complex trauma status:** childhood maltreatment
- **Childhood maltreatment and/or trauma assessment:** Adverse Childhood Experiences Questionnaire, assessing 5 forms of abuse (physical, psychological, sexual abuse, physical neglect and emotional neglect) and 5 forms of household dysfunction (parent mentally ill, incarcerated, drug addicted, domestic violence and separation/divorce). 77% of parents experienced 4 or more adverse childhood experiences (high exposure); mean adverse childhood events was 5.7 events
- **Parenting stage:** > 7 weeks postpartum (up to 5 years)

Steele 2019 *(Continued)*

- **Recruitment setting:** Pediatrics, Child Welfare and Court Systems
- **Baseline characteristics**
  - *Mean parent age:* not reported
  - *Mean child age*: 15.9 months
  - *Parent gender:* female participants
  - *Parent co-morbidity*: not reported
- **Progress+ coding:** low SES; ethnic minority population

Interventions	**Intervention - Group Attachment-Based Intervention (GABI)** • **Category:** parenting, parent-child or relationship focused interventions (parent-child interventions) • **Description:** a multifamily, group-based, maltreatment prevention intervention consisting of a distinct set of attachment-relevant features • **Mode of delivery:** face-to-face, group • **Dose:** more than 10 hours • **Length:** other - 26 weeks • **Frequency:** 3 times a week • **Protocol:** yes • **Provider:** not reported • **Training:** 2-day didactic training followed by 6 months of co-leadership and supervision • **Implementation fidelity:** competence was monitored monthly via fidelity checklists developed and applied in both the STEP and GABI treatment groups. 80% or better fidelity ratings were consistently achieved • **Treatment adherence:** retention from allocation to end of treatment was 37% **Comparator - Systematic Training for Effective Parenting (STEP)** • **Category:** inactive comparator (treatment as usual) • **Description:** a treatment model consisting of anger management, psycho-education, the distinction between discipline and punishment, and role-playing adaptive parenting strategies • **Mode of delivery:** face-to-face • **Dose:** not reported • **Length:** 7 to 12 weeks • **Frequency:** not reported • **Protocol:** yes • **Provider:** single practitioner (STEP therapist) • **Training:** clinicians delivering STEP were trained to reliably follow the STEP manual • **Implementation fidelity:** competence was monitored monthly via fidelity checklists developed and applied in both the STEP and GABI treatment groups. 80% or better fidelity ratings were consistently achieved • **Uptake of standard care:** retention from allocation to end of treatment was 32%

Outcomes	**Assessment time point(s)**
	• Post-intervention (< 3 months post-intervention)
	
	Note: Assessments were also conducted at baseline; however, the results from this time point are not reported
	
	Primary outcome(s)
	
	Parent-child relationship
	• **Dyadic reciprocity**
	  ◦ **Domain**: parenting capacity
	  ◦ **Measure:** Coding Interactive Behaviour System

Steele 2019 *(Continued)*

- **Score range:** not applicable
- **Direction of effect:** higher scores = better/less harm

- **Dyadic constriction**
  - **Domain**: parenting capacity
  - **Measure:** Coding Interactive Behaviour System
  - **Score range:** not applicable
  - **Direction of effect:** higher scores = worse/more harm

Parenting skills

- **Maternal supportive presence**
  - **Domain**: parenting capacity
  - **Measure:** Coding Interactive Behaviour System
  - **Score range:** not applicable
  - **Direction of effect:** higher scores = better/less harm
- **Maternal hostility**
  - **Domain**: parenting capacity
  - **Measure:** Coding Interactive Behaviour System
  - **Score range:** not applicable
  - **Direction of effect:** higher scores = worse/more harm

Secondary outcome(s):

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Adverse outcome(s): none specified

Notes

Comment(s): unpublished data requested for subsample with high exposure (for or more adverse childhood events), but authors did not have capacity to send the data. No unpublished data reported in meta-analyses. As 77% of parents experienced 4 or more adverse childhood experiences (high exposure), the mean adverse childhood events was high (5.7 events) and other traumas and adversity were extremely high, data from the whole sample was included

Funding source: Health Resources and Services Administration Grant

Conflicts of interest: the authors declared that there were no conflicts of interest

Upshur 2016

Study characteristics

Methods

- **Study design:** cluster-RCT
- **Study aim/hypothesis:** it was hypothesised that compared to usual prenatal care and support, Seeking Safety (in conjunction with prenatal care and support) would show greater improvements in postpartum PTSD symptoms, postpartum depression symptoms, coping strategies and social support, as well as birth outcomes (low birth weight and preterm birth)
- **Study setting:** northeast metropolitan area, USA. Data collection between 2012 and 2015
- **Trial registration number:** NCT02807662

Upshur 2016 *(Continued)*

Participants	• **Inclusion criteria:** mothers scoring ≥ 2 on the Primary Care PTSD Screen, ≥ 18 years old, initiated prenatal care before 27 weeks gestation, and speak English, Spanish, Vietnamese or Portuguese
	• **Exclusion criteria:** < 18 years of age, could not speak one of the 4 above languages
	• **N referred and randomised:** 208 referred, 149 randomised
	  ○ **SS + TAU:** 89
	  ○ **TAU:** 60
	• **N lost to follow-up (post-intervention):** 21 (14.1%)
	• **N analysed**
	  ○ **Total sample:** 138
	  ○ **Subsample used in meta-analysis (unpublished data)**
	  ■ Baseline: SS + TAU = 75 to 76, TAU = 50
	  ■ Post-intervention: SS + TAU = 65, TAU = 46
	  ■ 1-month postpartum: SS + TAU = 65, TAU = 46 to 47
	• **Childhood maltreatment and/or complex trauma status:** childhood maltreatment and complex trauma
	• **Childhood maltreatment and/or trauma assessment:** The Stressful Life Events Screening Questionnaire. Subsample consisted of mothers with a history of any trauma before the age of 18 years
	• **Parenting stage:** pregnancy to 6 weeks postpartum
	• **Recruitment setting:** federally funded community health centres with prenatal care and delivery services
	• **Baseline characteristics** (subsample used in meta-analysis - unpublished data)
	  ○ *Mean parent age:* 26.6 years
	  ○ *Mean child age*: not reported
	  ○ *Parent gender:* female participants
	  ○ *Parent co-morbidity*: majority of participants experiencing mental health comorbidity (PTSD)
	• **Progress+ coding:** ethnic minority population

Interventions	**Intervention - Seeking Safety (SS) + TAU** • **Category:** psychological interventions (non-trauma-focused CBT-based intervention) • **Description:** a manualised, psychosocial education programme designed to improve coping skills among individuals with PTSD and comorbid substance abuse • **Mode of delivery:** face-to-face, individually • **Dose:** not reported • **Length:** other - 8 sessions during regularly scheduled prenatal care visits • **Frequency:** not reported • **Protocol:** yes • **Provider:** multidisciplinary team (community health workers) • **Training:** "An initial 10 hours of training was provided by a Treatment Innovations Inc. trainer that covered background about PTSD and trauma, and the structure of the SS sessions" (Upshur 2016, page 539). Two study team members became certified as SS supervisors and took over ongoing training and supervision of intervention implementation. • **Implementation fidelity:** weekly supervision meetings were used to monitor caseload, sessions completed and adherence. The advocates also completed and submitted a detailed checklist following the topic format in the manual for each session delivered. Finally, advocates were required to submit an audio tape or complete an observed session twice a year for the study supervisors to rate fidelity using the SS Adherence Scale. On average, advocates met adequate fidelity scores in session format, process (e.g. warmth and caring) and in the overall fidelity score, but were slightly weaker in fidelity scores on content (e.g. topic discussion and rehearsal) • **Treatment adherence:** 76% participated in one or more SS sessions; 13 women did not receive any sessions. The majority of participants received all planned sessions (n = 51, 57%), and 81% received at least one-half the sessions. The mean number of prenatal care visits was 11.7 (SD 4.3), with 72% reaching an adequate number of prenatal visits. The mean number of parental advocate visits was 12.4 (SD 7). The mean number of mental health visits was 1.6 (SD 3)

Upshur 2016 *(Continued)*

Comparator - treatment as usual

- **Category:** inactive comparator (treatment as usual)
- **Description:** prenatal advocates provided education and support to all women to supplement the nurse/physician prenatal care visits and conducted activities such as teaching about nutrition, exercise and healthy behaviour during pregnancy, providing childbirth education (e.g. phases of pregnancy, physical and mental health aspects of pregnancy, managing labour and delivery), and helping women obtain benefits and services such as health insurance, transportation, housing, legal assistance, nutrition services and refugee support
- **Mode of delivery:** face-to-face
- **Dose:** not reported
- **Length:** not reported
- **Frequency:** not reported
- **Protocol:** not reported
- **Provider:** multidisciplinary team (paraprofessional prenatal advocates, nurse midwives and physicians)
- **Training:** not reported
- **Implementation fidelity:** not reported
- **Uptake of standard care:** the mean number of prenatal care visits was 8.9 (SD 4.5), with 43% reaching an adequate number of prenatal visits. The mean number of parental advocate visits was 3.9 (SD 2.9). The mean number of mental health visits was 1.2 (SD 3)

Outcomes

Assessment time point(s)

- Baseline (average 8 weeks pregnant)
- Post-intervention (36 weeks gestation; < 3 months post-intervention)
- 1-month postpartum (< 3 months post intervention)

Primary outcome(s)

Parental complex trauma symptoms

- **PTSD symptom severity**
  - **Domain**: parental psychological or socio-emotional well-being
  - **Measure:** Post-traumatic Stress Scale
  - **Score range:** 0 to 80
  - **Direction of effect:** higher scores = worse/more harm

Parental psychological wellbeing

- **Postpartum depression symptom severity**
  - **Domain**: parental psychological or socio-emotional well-being
  - **Measure:** Edinburgh Prenatal Depression Scale
  - **Score range:** 0 to 30
  - **Direction of effect:** higher scores = worse/more harm
- **Positive coping**
  - **Domain**: parental psychological or socio-emotional well-being
  - **Measure:** The Brief Copes Questionnaire
  - **Score range:** 14 to 56
  - **Direction of effect:** higher scores = better/less harm
- **Negative coping**
  - **Domain**: parental psychological or socio-emotional well-being
  - **Measure:** The Brief Copes Questionnaire
  - **Score range:** 14 to 56
  - **Direction of effect:** higher scores = worse/more harm

Secondary outcome(s)

Upshur 2016 *(Continued)*

Parent engagement

- **Dropout**
  - **Domain**: parental intervention acceptability
  - **Measure**: dropout for any reason between randomisation and post-intervention
  - **Score range**: not applicable
  - **Direction of effect**: higher events = more dropout

Parental social functioning

- **Perceived social support**
  - **Domain**: socio-ecological outcomes
  - **Measure:** Medical Outcomes Study Social Support Scale
  - **Score range:** 19 to 95
  - **Direction of effect:** higher scores = better/less harm

Adverse outcome(s): none specified

Notes

Comment(s)

- Authors provided unpublished data for the subgroup (111 participants) of mothers with a history of any trauma before the age of 18 as assessed on The Stressful Life Events Screening Questionnaire
- Baseline characteristics, Progress+ coding, enrolment/dropout details includes all participants in the study, unless otherwise specified

Funding source: Health Resources and Services Administration Grant

Conflicts of interest: the authors declared that there were no conflicts of interest

ACEs: Adverse Childhood Experiences; **CBASP:** Cognitive Behavioural Analysis System of Psychotherapy; **CBT:** Cognitive Behavioural Therapy; **Cluster-RCT:** cluster-randomised controlled trial; **CM-:** Low Exposure to Child Maltreatment; **CM+:** Exposure to Child Maltreatment; **CPP:** Child-Parent Psychotherapy; **CS:** Community Standard; **DHS:** Department of Human Services; **DSHS:** Department of Social and Health Services; **EHS:** Early Head Start; **E-TAU:** Enhanced Treatment as Usual; **FIND:** Filming Interactions to Nurture Development; **GABI:** Group Attachment-Based Intervention; **GYN:** gynaecologist; **HFA:** Healthy Families America; **HW:** Health and Wellness Control; **IH-CBT:** In Home Cognitive Behavioural Therapy; **IPP:** Infant-Parent Psychotherapy; **IPT:** Interpersonal Psychotherapy; **IPT-B:** Brief Interpersonal Psychotherapy; **MINI:** Mini International Neuropsychiatric Interview; **MSS:** Maternity Support Services; **MSS-Plus:** Maternity Support Services-PLUS; **N:** number of participants in the sample; **NFP:** Nurse-family Partnership; **NICU:** Neonatal Intensive Care Unit; **OB:** obstetrician; **PFR:** Promoting First Relationships; **PHQ-9:** Patient Health Questionnaire 9; **PPI:** Psychoeducational Parenting Intervention; **PREPP:** Practice Resources for Effective Postpartum Parenting; **PRIME-MD:** Primary Care Evaluation of Mental Disorders; **PSE:** Problem-Solving Education; **PTSD:** post-traumatic stress disorder; **QALYs**: quality adjusted life year; **R&R:** Three-call Resources and Referral; **RCT**: randomised controlled trial; **SCL:** Hopkins Symptom Checklist; **SD**: standard deviation; **SES:** socio-economic status; **SORT-45:** Toddler Attachment Sort-45; **SS:** Seeking Safety; **SS+TAU:** Seeking Safety + Treatment as Usual; **STEP:** Systematic Training for Effective Parenting; **TANF:** Temporary Assistance for Needy Families; **TAU:** treatment as usual; **TF-CBT:** Trauma Focused Cognitive Behavioural Therapy; **TLFB:** Timeline Follow-Back; **WIC:** Women, Infants and Children

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Ammerman 2022	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Cohen 2020	Ineligible study design: symposia highlights detailing ineligible studies
Demeusy 2020	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Fergusson 2005	Parents not experiencing CPTSD symptoms and/or childhood maltreatment

Study	Reason for exclusion
Hildebrandt 2020	Not an RCT
Hubmann 2015	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Lytle 2018	Not an RCT
Macfie 2020	Not an RCT
McGinnis 2018	Ineligible intervention
Perrone 2021	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Portwood 2011	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Riem 2021	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Stevens-Simon 2001	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Taylor 1997	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Taylor 1998	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Tiwari 2005	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Tomfohr-Madsen 2020	Parents not experiencing CPTSD symptoms and/or childhood maltreatment
Tran 2019	Not an RCT
Wisner 2017	Parents not experiencing CPTSD symptoms and/or childhood maltreatment

CPTSD: complex post-traumatic stress disorder
RCT: randomised controlled trial

Characteristics of ongoing studies *[ordered by study ID]*

Kaltenbach 2021

Study name	Life Beyond Trauma: 1-on-1 e-Health Program for Parents of Neurodiverse Children
Methods	Individual RCT (parallel groups; 2 arms)
Participants	**Target sample size:** 500 to 800 participants **Age:** 18 years and over **Sex:** female and male participants **Inclusion criteria** • Be a parent/caregiver of a neurodiverse child • Be at least 18 years of age • Be able to understand spoken and written English at a grade 8 level • Fulfil the criteria of full or subclinical PTSI according to DSM-5, measured with the Life Events Checklist for DSM-5, the Parent Trauma Checklist and the PTSD Checklist for DSM-5. For this they have to report at least one traumatic event in the LEC-5 or the Stressful Life Experiences of Parents Checklist. To fulfil all PTSI criteria, the participant additionally needs to respond with 'moderately'

Kaltenbach 2021 *(Continued)*

	or higher in at least 1 item for the criteria B and C and 2 items for criteria D and E. Subclinical PTSI is fulfilled if the participant meets all, but one criterion of B, C, D or E is not met • Have access to a computer with high-speed Internet • Live in Canada • Commit to the requirements of taking part in the study (12 weekly coaching calls) **Exclusion criteria** • Acute suicidal behaviour or other extreme forms of self-destructive behaviour • Moderate to severe symptoms of dissociation • Acute psychotic symptoms • Previously participated in exposure intervention for PTSI/PTSD
Interventions	**Intervention:** immediate e-NET Group; a version of narrative exposure therapy adapted to the needs of parents of neurodiverse children delivered via videoconferencing **Comparator:** wait-list control group; parents will receive e-NET 3 months after the baseline survey

Outcomes	**Assessment time point(s)**
	
	• Baseline
	• Post-intervention
	• 2-month follow-up
	• 6-month follow-up
	
	Primary outcome
	
	• PTSD symptom severity (PTSD Checklist - 5)
	  ◦ **Score range:** 0 to 80
	  ◦ **Direction of effect:** higher scores = worse/more harm
	
	Secondary outcomes
	
	• Overall health (PROMIS Global Health Caregiver's general health)
	  ◦ **Score range:** not reported
	  ◦ **Direction of effect:** not reported
	• Depression symptom severity (Patient Health Questionnaire-9)
	  ◦ **Score range:** 0 to 27
	  ◦ **Direction of effect:** higher scores = worse/more harm
	• Functioning (Sheehan Disability Scale)
	  ◦ **Score range:** 0 to 30
	  ◦ **Direction of effect:** higher scores = worse/more harm
	• Posttraumatic growth (Posttraumatic Growth Inventory-Short Form)
	  ◦ **Score range:** 0 to 50
	  ◦ **Direction of effect:** higher scores = better/less harm
	• Parent-child relationship (Parent and Family Adjustment Scales)
	  ◦ **Score range:** 0 to 90
	  ◦ **Direction of effect:** higher scores = worse/more harm
	• Life satisfaction (Lifeline Tool)
	  ◦ **Score range:** not reported
	  ◦ **Direction of effect:** higher scores = better/less harm
	• Anxiety symptom severity (Generalised Anxiety Disorder-7)
	  ◦ **Score range:** 0 to 27
	  ◦ **Direction of effect:** higher scores = worse/more harm
	• Physical health symptoms (Patient Health Questionnaire Physical Symptoms-15)
	  ◦ **Score range:** 0 to 30
	  ◦ **Direction of effect:** higher scores = worse/more harm

Kaltenbach 2021 *(Continued)*

- Adverse events
- Therapeutic alliance (Therapeutic Alliance-Working Alliance Inventory-Short Form Revised)
  - **Score range:** 12 to 84
  - **Direction of effect:** higher scores = better/less harm
- Participant satisfaction (Client Satisfaction Questionnaire-8)
  - **Score range:** 8 to 32
  - **Direction of effect:** higher scores = better/less harm

Starting date	29 June 2020
Contact information	• Elisa Kaltenbach (elisa.kaltenbach@vivo.org)
Notes	**Status:** completed (study results not published). Authors were contacted to request the unpublished data, but no response has been received **Location:** USA **Funding source:** Canadian Institutes for Health Research, the Strategy for Patient Oriented Research (CHILD-BRIGHT Network) and the IWK Health Centre **Conflicts of interest:** the authors declared that there were no conflicts of interest

NCT03175796

Study name	Infant mental health home visiting mitigates impact of maternal adverse childhood experiences on toddler language competence: a randomized controlled trial
Methods	RCT (parallel groups; 2 arms)
Participants	**Sample size:** 62 participants **Age:** 18 years and over **Sex:** female participants **Inclusion criteria** • Mothers who are the permanent, primary caregiver of a child between the ages of 0 and 24 months old or 29+ weeks pregnant • Be at least 18 years of age • Speak and understand English • Endorsed 2 or more of the following: adverse childhood experiences, possible depression diagnosis, challenges with parenting and eligibility for public services (based on income) **Exclusion criteria** • Women who live farther than 20 miles away from Ann Arbor • Women who are already enrolled in Infant Mental Health-Home Visiting services • Women who meet criteria for alcohol/substance use disorders, or who screen positive for psychosis
Interventions	**Intervention:** IMH-HV. Weekly home visits for up to one year by a trained IMH-HV treatment provider. Treatment delivery consistent with the IMH-HV manual **Comparator**: treatment as usual control group. No intervention provided as part of participation in this study; families are free to access community resources including any available treatment(s) in the community

NCT03175796 *(Continued)*

Outcomes	**Assessment time point(s)**
	• Baseline
	• 12-month follow-up
	Primary outcomes
	• PTSD symptom severity: PCL-5
	  ○ **Score range:** 0 to 80
	  ○ **Direction of effect:** higher scores = worse/more harm
	• Anxiety symptom severity: GAD-7
	  ○ **Score range:** 0 to 2
	  ○ **Direction of effect:** higher scores = worse/more harm
	• Depression symptom severity: PHQ-9
	  ○ **Score range:** 0 to 27
	  ○ **Direction of effect:** higher scores = worse/more harm
	• Emotional distress, rigidity, social isolation (risks associated with child maltreatment): BCAP
	  ○ **Score range:** 0 to24
	  ○ **Directions of effect:** higher scores = worse/more harm
	• Caregiver perception of child and relationship with child: WMCI
	  ○ **Score range:** distorted, disengaged to balanced
	  ○ **Direction of effect:** not applicable
	• Caregiver reported social-emotional behaviour problems of child: ITSEA
	  ○ **Scoring:** uses t-scores derived from ITSEA-provided standard norms

Starting date	12 October 2017
Contact information	Katherine Rosenblum (katier@med.umich.edu)
Notes	The report was published after we had completed data extraction and analysis for this review **Location:** USA **Funding source:** not reported **Conflicts of interest:** the authors declared that there were no conflicts of interest

NCT03938350

Study name	**Public title:** Dialectical behavior therapy for pregnant women **Scientific title:** Dialectical behavior therapy skills training for high-risk African American pregnant women: feasibility and acceptability of implementation in prenatal clinics
Methods	Individual RCT (parallel groups; 2 arms)
Participants	**Target sample size:** 60 participants **Age:** 18 years and over **Sex:** female participants **Inclusion criteria** • Self-identify as African American/Black (includes African American/Black and another race) • Able to read, speak and understand English • ACE score ≥ 4 from the Expanded ACE Questionnaire

NCT03938350 *(Continued)*

	• PHQ-9 score ≥ 9 or PC-PTSD-5 ≥ 3 • Within first or second trimester at time of recruitment • Willing and able to participate in research assessments • Willing and able to participate in an 8-week DBT skills training group for mothers-to-be group • Willing and able to provide informed consent **Exclusion criteria** • Presence of intellectual disability or actively displaying psychotic symptoms
Interventions	**Intervention:** DBT skills training. Participants in this group will receive 8 weeks of DBT skills training **Comparison:** treatment as usual. Participants in this study arm will receive treatment as usual consisting of routine prenatal care with any mental health assessment, social work involvement or mental health service provision based on clinician referral or self-referral

Outcomes	**Assessment time point(s)**
	
	• Baseline
	• Post-intervention
	
	Primary outcomes
	
	• Recruitment rate (feasibility)
	  ○ **Score range:** not applicable
	  ○ **Direction of effect:** not applicable
	• Retention rate (feasibility)
	  ○ **Score range:** not applicable
	  ○ **Direction of effect:** not applicable
	
	Secondary outcomes
	
	• Acceptability of the Intervention (qualitative participant feedback)
	  ○ **Score range:** not applicable
	  ○ **Direction of effect:** not applicable
	• Depression symptom severity (PHQ-9)
	  ○ **Score range:** 0 to 27
	  ○ **Direction of effect:** higher scores = worse/more harm
	• PTSD symptom severity (PTSD Checklist)
	  ○ **Score range:** 0 to 80
	  ○ **Direction of effect:** higher scores = worse/more harm
	• Emotion dysregulation (Difficulties in Emotion Regulation Scale)
	  ○ **Score range:** 0 to 180
	  ○ **Direction of effect:** higher scores = worse/more harm
	• Mentalising or reflective functioning (The Reflective Functioning Questionnaire)
	  ○ **Score range:** 0 to 56
	  ○ **Direction of effect:** higher scores = worse/more harm

Starting date	16 October 2019
Contact information	• Rebecca Hinrichs (rebecca.hinrichs@emory.edu) • Abigail Lott (abigail.lott@emoryhealthcare.org)
Notes	**Status:** completed, no results published **Location:** USA **Funding source:** not reported

NCT03938350 *(Continued)*

	Conflicts of interest: the authors did not report if there were any conflicts of interest

NCT04818112

Study name	**Public title:** A randomized controlled trial to improve mother-infant synchrony among women with childhood adversity **Scientific title:** same as public title
Methods	Individual RCT (parallel groups; 2 arms)
Participants	**Target sample size:** 250 participants **Age:** 18 years and over **Sex:** female participants **Inclusion criteria** 1. Pregnant, healthy (gestational diabetes is acceptable) 2. ≥ 18 years old 3. Nulliparous (previous miscarriage(s) and/or abortion(s) acceptable) 4. Speak and read English or Spanish 5. ≥ 2 on the ACE survey 6. Expect to deliver a healthy infant 7. Expect to deliver a full-term infant (greater than or equal to 37 weeks and 0/7 days) 8. Expect to deliver a singleton infant **Exclusion criteria** 1. Multiparous 2. Have no access to a cell phone during the first 3 postnatal months 3. Carrying multiple foetuses 4. Taking antidepressant(s) during pregnancy 5. Taking illicit drugs 6. Do not speak and read English or Spanish 7. < 18 years of age 8. < 2 on the ACE survey 9. Deliver an infant diagnosed with conditions that could affect normal development or the oxytocin system: pre-term gestation (less than 37 weeks and 0/7 days); IGR; SGA; chromosomal anomaly (Down syndrome, Trisomy 13, trisomy 18, Klinefelter syndrome, Turner syndrome, Triple X syndrome) and congenital anomaly (heart defect, musculoskeletal defect, neural tube defect, cystic fibrosis, haemophilia, microcephaly)
Interventions	**Intervention:** behavioural auditory, tactile, visual and vestibular intervention. A 15-minute behavioural intervention, which is a multisensory infant massage contingent on infant cues **Comparator:** attention control. An attention control group that receives education on safe infant care and the same amount of attention as the intervention group
Outcomes	**Assessment time point(s)** • Baseline (31 weeks gestation) • Every 28 days from birth until 3 months old **Primary outcome**

NCT04818112 *(Continued)*

- Mother-infant synchrony, gaze and affect (direct observation)
  - **Score range:** not applicable
  - **Direction of effect:** not applicable

Secondary outcomes

- Mother-infant synchrony, vocalisation and touch (direct observation)
  - **Score range:** not applicable
  - **Direction of effect:** not applicable
- Oxytocin receptor gene DNA methylation reflecting epigenetic marks, oxytocin receptor gene expression, oxytocin receptor protein, oxytocin peptide
  - **Score range:** not applicable
  - **Direction of effect:** higher scores = better/less harm

Starting date	12 July 2021
Contact information	• Cynthia Fastje (cfastje@arizona.edu) • Maria Miranda (maria80@arizona.edu)
Notes	**Status:** recruiting participants **Location:** USA **Funding source:** not reported **Conflicts of interest:** the authors did not report if there were any conflicts of interest

NL9179

Study name	**Public title:** Samen stap voor stap vooruit **Scientific title:** Effectively intervening in traumatized parents and children after structural domestic violence
Methods	Individual RCT (parallel groups; 2 arms)
Participants	**Target sample size:** 150 mother/child dyads **Age:** not specified (child aged between 6 months and 6 years old) **Sex:** female mothers **Inclusion criteria** • The mother and child are residing in a women's shelter because of severe domestic violence between the mother and her (ex-)partner • The child is aged between 6 months to 6 years old (if there is more than one child in this age range in the family, the youngest child between 1.5 and 6 years old will be selected as the target child for the study) • The mother speaks sufficient Dutch to be engaged in the treatment programme, or a translator is available **Exclusion criteria** • Mothers with extreme mental health problems (e.g. psychosis) that directly affect their ability to participate in an intervention and require immediate intervention for the parent • Mothers who hardly speak Dutch or not at all (note, only if no translator is available)

NL9179 *(Continued)*	• The mother and child are residing in a women's shelter because of severe domestic violence between the mother and someone other than her (ex-)partner
Interventions	**Intervention:** NIKA. A short-term, attachment-based, video-feedback intervention for parents and their children aged between 0 and 6 years old **Comparator:** eye movement desensitisation and reprocessing (EMDR, head-to-head trial). A brief trauma therapy aimed at reducing the negative load of the memories of traumatic events. The parent is asked to bring the traumatic event to mind while the therapist provides a distracting task
Outcomes	**Assessment time point(s):** not reported The trial registration did not specify the scales they will use to assess the primary and secondary outcomes **Primary outcomes** • Disrupted parenting behaviours • Sensitive parenting behaviours • PTSD symptoms severity (parent) **Secondary outcomes** • PTSD symptom severity (child) • Emotional and behavioural problems (child)
Starting date	7 January 2021
Contact information	Sabine van der Asdonk (s.van.der.asdonk@fsw.leidenuniv.nl)
Notes	**Status:** recruiting participants **Location:** The Netherlands **Funding source:** not reported **Conflicts of interest:** the authors did not report if there were any conflicts of interest

ACE: adverse childhood experience; **BCAP:** Brief Child Abuse Potential Inventory; **DBT:** Dialectical Behavioural Therapy; **DNA:** deoxyribonucleic acid; **DSM-5:** Diagnostic and Statistical Manual 5; **EMDR:** Eye Movement Desensitisation and Reprocessing; **e-NET:** Electronic Narrative Exposure Therapy; **GAD-7:** Generalised Anxiety Disorder-7; **IGR:** intrauterine growth retardation; **IMH-HV:** infant mental health home visiting; **ITSEA**: Infant-Toddler Social and Emotional Assessment; **LEC-5:** Life Events Checklist for DSM-5; **NIKA:** Nederlandse Interventie Kortdurend op Atypisch opvoedgedrag; **PCL-5:** PTSD Checklist for DSM-5; **PC-PTSD-5:** Primary Care PTSD Screen for DSM-5; **PHQ-9:** Patient Health Questionnaire-9; **PROMIS**: Patient-Reported Outcomes Measurement Information System; **PTSD:** post-traumatic stress disorder; **PTSI:** post-traumatic stress injury; **RCT:** randomised controlled trial; **SGA:** small for gestational age; **WMCI**: Working Model of the Child Interview

RISK OF BIAS

Legend: ✓ Low risk of bias ✗ High risk of bias ~ Some concerns

Risk of bias for analysis 1.1 Parenting interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Rosenblum 2017	~	✓	~	~	~	~

Risk of bias for analysis 1.2 Parenting interventions vs inactive control, Outcome 2: Psychological wellbeing, at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Rosenblum 2017	~	✓	~	~	~	~

Risk of bias for analysis 1.3 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (continuous data), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Pasalich 2019	~	✓	✓	✓	✓	~
Steele 2019	~	✓	✗	✓	✓	✗

Risk of bias for analysis 1.4 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (dichotomous data), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Cicchetti 2006	~	✗	✓	✓	~	✗
Cicchetti 2006	~	✗	✓	✓	~	✗

Risk of bias for analysis 1.5 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (disorganised attachment), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Cicchetti 2006	~	✗	✓	✓	~	✗
Cicchetti 2006	~	✗	✓	✓	~	✗

Risk of bias for analysis 1.8 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (secure attachment), at 12-month follow-up

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Cicchetti 2006	~	✗	✓	✓	~	✗
Cicchetti 2006	~	✗	✓	✓	~	✗

Risk of bias for analysis 1.9 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (disorganised attachment), at 12-month follow-up

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Cicchetti 2006	~	✗	✓	✓	~	✗
Cicchetti 2006	~	✗	✓	✓	~	✗

Risk of bias for analysis 1.11 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (avoidant attachment), at 12-month follow-up

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Cicchetti 2006	~	✗	✓	✓	~	✗
Cicchetti 2006	~	✗	✓	✓	~	✗

Risk of bias for analysis 1.12 Parenting interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Haight 2005	~	✓	✓	✓	~	~
Liu 2021	~	✓	~	~	✓	~
Rosenblum 2017	~	✓	~	~	~	~
Steele 2019	~	✓	✗	✓	✓	✗

Risk of bias for analysis 1.13 Parenting interventions vs inactive control, Outcome 7: Parenting skills (maternal hostility), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Haight 2005	~	✓	✓	✓	~	~
Steele 2019	~	✓	✗	✓	✓	✗

Risk of bias for analysis 1.15 Socio-ecological outcomes (connection to community professionals) - secondary outcome

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Rosenblum 2017	~	✓	~	~	~	~

Risk of bias for analysis 1.21 Parenting interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention, subgroup analysis (multiple component interventions)

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Subgroup 1.21.1 Single component interventions						
Haight 2005	~	✓	✓	✓	~	~
Liu 2021	~	✓	~	~	✓	~
Steele 2019	~	✓	✗	✓	✓	✗
Subgroup 1.21.2 Multiple component interventions						
Rosenblum 2017	~	✓	~	~	~	~

Risk of bias for analysis 2.1 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Grote 2012	~	✓	✓	~	✓	~
Grote 2015	✓	✓	~	✓	✗	✗
Madigan 2015	~	✓	✗	~	✓	✗

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Upshur 2016	~	✓	~	~	✓	✗

Risk of bias for analysis 2.2 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at 6-month follow-up

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Grote 2012	~	✓	✓	~	✓	~
Grote 2015	✓	✓	~	✓	✗	✗
Madigan 2015	~	✓	✗	~	✓	✗

Risk of bias for analysis 2.3 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at 12-month follow-up

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Grote 2015	✓	✓	~	✓	✗	✗
Madigan 2015	~	✓	✗	~	✓	✗

Risk of bias for analysis 2.4 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (continuous data), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Ammerman 2016	~	✓	✓	~	✓	~
Berry 2021	~	✓	✓	✓	✓	~
Blalock 2013	~	✓	~	~	✓	~
Grote 2012	~	✓	✓	~	✓	~
Grote 2015	✓	✓	~	✓	✓	~
Madigan 2015	~	✓	✗	~	✓	✗
Silverstein 2011	✓	✓	~	✓	✓	~
Upshur 2016	~	✓	~	~	✓	✗

Risk of bias for analysis 2.5 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (dichotomous data), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Grote 2015	✓	✓	~	✓	✓	~
Silverstein 2011	✓	✓	~	✓	✓	~

Risk of bias for analysis 2.6 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (postpartum depression symptom severity), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Grote 2012	~	✓	✓	~	✓	~
Upshur 2016	~	✓	~	~	✓	✗

Risk of bias for analysis 2.7 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (anxiety symptom severity), at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Berry 2021	~	✓	✓	✓	✓	~
Grote 2012	~	✓	✓	~	✓	~

Risk of bias for analysis 2.12 Psychological interventions vs inactive control, Outcome 4: Parent relationship quality, at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Ammerman 2016	~	✓	✓	~	✓	~

Risk of bias for analysis 2.13 Psychological interventions vs inactive control, Outcome 6: Parent–child relationship, at post-intervention

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Madigan 2015	~	✓	✗	✓	✓	✗

Risk of bias for analysis 2.18 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention, subgroup (multiple component interventions)

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Subgroup 2.18.1 Single component - psychological interventions						
Madigan 2015	~	✓	✗	~	✓	✗
Upshur 2016	~	✓	~	~	✓	~
Subgroup 2.18.2 Multiple component interventions						
Grote 2012	~	✓	✓	~	✓	~
Grote 2015	✓	✓	~	✓	✗	✗

Risk of bias for analysis 2.19 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (continuous data), at post-intervention, subgroup (multiple component interventions)

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Subgroup 2.19.1 Single component - psychological interventions						
Ammerman 2016	~	✓	✓	~	✓	~
Blalock 2013	~	✓	~	~	✓	~

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Madigan 2015	~	✓	✗	~	✓	✗
Silverstein 2011	✓	✓	~	✓	✓	~
Upshur 2016	~	✓	~	~	✓	~
Subgroup 2.19.2 Multiple-component interventions						
Berry 2021	~	✓	✓	✓	✓	~
Grote 2012	~	✓	✓	~	✓	~
Grote 2015	✓	✓	~	✓	✓	~

Risk of bias for analysis 2.20 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (dichotomous data), at post-intervention, subgroup (multiple component interventions)

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Subgroup 2.20.1 Single component - psychological interventions						
Silverstein 2011	✓	✓	~	✓	✓	~
Subgroup 2.20.2 Multiple component interventions						
Grote 2015	✓	✓	~	✓	✓	~

Risk of bias for analysis 3.8 Socioecological outcomes (hardship) - post-intervention (3-month follow-up)

	Bias					
Study	**Randomisation process**	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of the reported results**	**Overall**
Booshehri 2018	~	✓	✗	~	✗	✗
Booshehri 2018	~	✓	✗	~	✗	✗

DATA AND ANALYSES

Comparison 1. Parenting interventions vs inactive control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.1 Parenting interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention	1	33	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.85, 0.53]
1.2 Parenting interventions vs inactive control, Outcome 2: Psychological wellbeing, at post-intervention	1	33	Std. Mean Difference (IV, Random, 95% CI)	-0.00 [-0.69, 0.69]
1.3 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (continuous data), at post-intervention	2	153	Std. Mean Difference (IV, Random, 95% CI)	0.45 [-0.06, 0.96]
1.4 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (dichotomous data), at post-intervention	1	104	Risk Ratio (M-H, Random, 95% CI)	20.11 [4.09, 98.89]
1.5 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (disorganised attachment), at post-intervention	1	104	Risk Ratio (M-H, Random, 95% CI)	0.50 [0.35, 0.73]
1.6 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (avoidant attachment), at post-intervention	1	104	Risk Ratio (M-H, Random, 95% CI)	0.29 [0.07, 1.13]
1.7 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (ambivalent attachment), at post-intervention	1	104	Risk Ratio (M-H, Random, 95% CI)	0.32 [0.01, 7.57]
1.8 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (secure attachment), at 12-month follow-up	1	98	Risk Ratio (M-H, Random, 95% CI)	3.11 [1.33, 7.27]

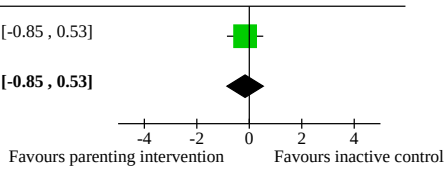
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.9 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (disorganised attachment), at 12-month follow-up	1	98	Risk Ratio (M-H, Random, 95% CI)	0.83 [0.35, 1.96]
1.10 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (ambivalent attachment), at 12-month follow-up	1	98	Risk Ratio (M-H, Random, 95% CI)	0.78 [0.22, 2.76]
1.11 Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (avoidant attachment), at 12-month follow-up	1	98	Risk Ratio (M-H, Random, 95% CI)	0.37 [0.14, 0.95]
1.12 Parenting interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention	4	149	Std. Mean Difference (IV, Random, 95% CI)	0.25 [-0.07, 0.58]
1.13 Parenting interventions vs inactive control, Outcome 7: Parenting skills (maternal hostility), at post-intervention	2	98	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.95, 0.73]
1.14 Parent engagement (dropout) - earliest time point	6	938	Risk Ratio (M-H, Random, 95% CI)	1.14 [0.89, 1.46]
1.15 Socio-ecological outcomes (connection to community professionals) - secondary outcome	1	29	Std. Mean Difference (IV, Fixed, 95% CI)	0.12 [-0.62, 0.86]
1.16 Child's physical, socio-emotional wellbeing (externalising behaviour) - post-intervention	1	25	Std. Mean Difference (IV, Fixed, 95% CI)	-0.19 [-0.99, 0.62]
1.17 Child's physical, socio-emotional wellbeing (internalising behaviour) - post-intervention	1	25	Std. Mean Difference (IV, Fixed, 95% CI)	0.32 [-0.48, 1.13]
1.18 Child's physical, socio-emotional wellbeing (externalising behaviour) - 12-month follow-up	1	98	Std. Mean Difference (IV, Fixed, 95% CI)	0.03 [-0.37, 0.43]
1.19 Child's physical, socio-emotional wellbeing (internalising behaviour) - 12-month follow-up	1	98	Std. Mean Difference (IV, Fixed, 95% CI)	0.05 [-0.35, 0.45]
1.20 Child's physical, socio-emotional wellbeing (total behaviour problems) - 12-month follow-up	1	98	Std. Mean Difference (IV, Fixed, 95% CI)	-0.03 [-0.43, 0.37]
1.21 Parenting interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention, subgroup analysis (multiple component interventions)	4	149	Std. Mean Difference (IV, Random, 95% CI)	0.25 [-0.07, 0.58]
1.21.1 Single component interventions	3	123	Std. Mean Difference (IV, Random, 95% CI)	0.31 [-0.06, 0.68]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.21.2 Multiple component interventions	1	26	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.83, 0.71]

Analysis 1.1. Comparison 1: Parenting interventions vs inactive control, Outcome 1: Parenting interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Rosenblum 2017 (1)	6.26	4.94	19	7.07	4.97	14	100.0%	-0.16 [-0.85 , 0.53]
Total (95% CI)			**19**			**14**	**100.0%**	**-0.16 [-0.85 , 0.53]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.45 (P = 0.65)
Test for subgroup differences: Not applicable

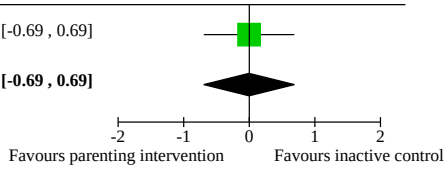


Footnotes
(1) Outcome: PTSD symptom severity (The National Women's Study PTSD Module)

Analysis 1.2. Comparison 1: Parenting interventions vs inactive control, Outcome 2: Parenting interventions vs inactive control, Outcome 2: Psychological wellbeing, at post-intervention

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Rosenblum 2017 (1)	82.31	25.98	19	82.43	41.76	14	100.0%	-0.00 [-0.69 , 0.69]
Total (95% CI)			**19**			**14**	**100.0%**	**-0.00 [-0.69 , 0.69]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.01 (P = 0.99)
Test for subgroup differences: Not applicable

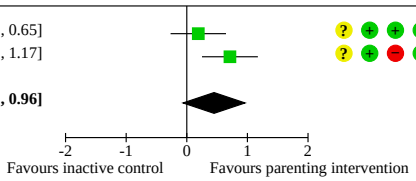


Footnotes
(1) Outcome: Postpartum depression (Postpartum Depression Screening Scale)

Analysis 1.3. Comparison 1: Parenting interventions vs inactive control, Outcome 3: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (continuous data), at post-intervention

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Pasalich 2019 (1)	35.38	4.85	33	34.4	5.31	42	50.2%	0.19 [-0.27 , 0.65]		? + + + + ?
Steele 2019 (2)	3.15	0.85	43	2.57	0.75	35	49.8%	0.71 [0.25 , 1.17]		? + − + + −
Total (95% CI)			**76**			**77**	**100.0%**	**0.45 [-0.06 , 0.96]**		

Heterogeneity: Tau² = 0.08; Chi² = 2.49, df = 1 (P = 0.11); I² = 60%
Test for overall effect: Z = 1.72 (P = 0.08)
Test for subgroup differences: Not applicable



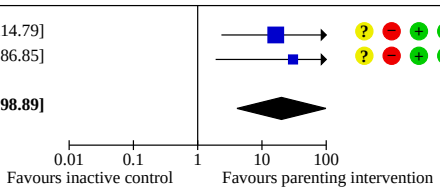
Footnotes
(1) Outcome: Parental sensitivity (Nursing Child Assessment Teaching Scale)
(2) Outcome: Dyadic reciprocity (Coding Interactive Behaviour System)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.4. Comparison 1: Parenting interventions vs inactive control, Outcome 4: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (dichotomous data), at post-intervention

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI	Risk of Bias A B C D E F
Cicchetti 2006 (1)	17	28	1	27	67.0%	16.39 [2.34 , 114.79]		? − + + ? −
Cicchetti 2006 (2)	12	22	0	27	33.0%	30.43 [1.90 , 486.85]		? − + + ? −
Total (95% CI)		**50**		**54**	**100.0%**	**20.11 [4.09 , 98.89]**		
Total events:	29		1					

Heterogeneity: Tau² = 0.00; Chi² = 0.13, df = 1 (P = 0.72); I² = 0%
Test for overall effect: Z = 3.69 (P = 0.0002)
Test for subgroup differences: Not applicable



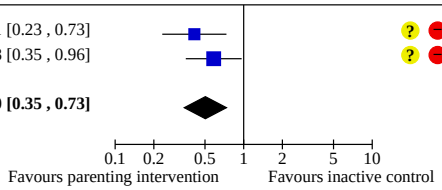
Footnotes
(1) Intervention: infant parent psychotherapy. Outcome: Secure attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: psychoeducational parenting intervention. Outcome: Secure attachment (Ainsworth Strange Situation Paradigm)

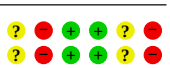
Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.5. Comparison 1: Parenting interventions vs inactive control, Outcome 5: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (disorganised attachment), at post-intervention

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Cicchetti 2006 (1)	9	28	21	27	43.1%	0.41 [0.23 , 0.73]
Cicchetti 2006 (2)	10	22	21	27	56.9%	0.58 [0.35 , 0.96]
Total (95% CI)		**50**		**54**	**100.0%**	**0.50 [0.35 , 0.73]**
Total events:	19		42			

Heterogeneity: Tau² = 0.00; Chi² = 0.81, df = 1 (P = 0.37); I² = 0%
Test for overall effect: Z = 3.57 (P = 0.0004)
Test for subgroup differences: Not applicable





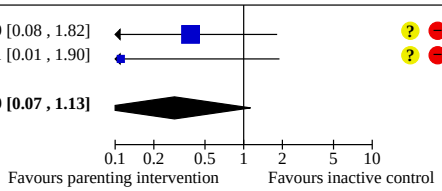
Footnotes
(1) Intervention: infant parent psychotherapy. Outcome: Disorganised attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: psychoeducational parenting intervention. Outcome: Disorganised attachment (Ainsworth Strange Situation Paradigm)

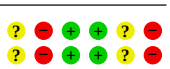
Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.6. Comparison 1: Parenting interventions vs inactive control, Outcome 6: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (avoidant attachment), at post-intervention

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Cicchetti 2006 (1)	2	28	5	27	77.0%	0.39 [0.08 , 1.82]
Cicchetti 2006 (2)	0	22	5	27	23.0%	0.11 [0.01 , 1.90]
Total (95% CI)		**50**		**54**	**100.0%**	**0.29 [0.07 , 1.13]**
Total events:	2		10			

Heterogeneity: Tau² = 0.00; Chi² = 0.62, df = 1 (P = 0.43); I² = 0%
Test for overall effect: Z = 1.78 (P = 0.07)
Test for subgroup differences: Not applicable

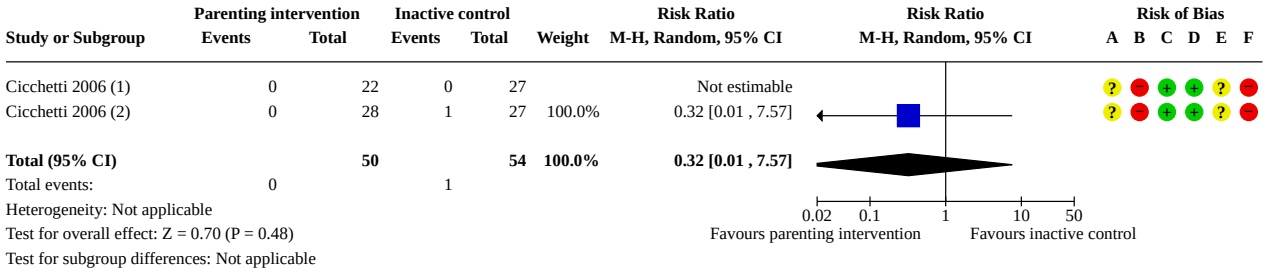




Footnotes
(1) Intervention: infant parent psychotherapy. Outcome: Avoidant attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: psychoeducational parenting intervention. Outcome: Avoidant attachment (Ainsworth Strange Situation Paradigm)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.7. Comparison 1: Parenting interventions vs inactive control, Outcome 7: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (ambivalent attachment), at post-intervention



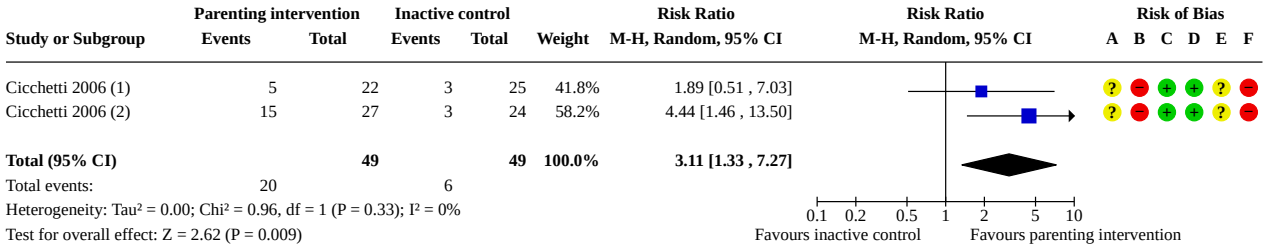
Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Cicchetti 2006 (1)	0	22	0	27		Not estimable
Cicchetti 2006 (2)	0	28	1	27	100.0%	0.32 [0.01 , 7.57]
Total (95% CI)		**50**		**54**	**100.0%**	**0.32 [0.01 , 7.57]**
Total events:	0		1			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.70 (P = 0.48)
Test for subgroup differences: Not applicable

Footnotes
(1) Intervention: psychoeducational parenting intervention. Outcome: Ambivalent attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: infant parent psychotherapy. Outcome: Ambivalent attachment (Ainsworth Strange Situation Paradigm)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.8. Comparison 1: Parenting interventions vs inactive control, Outcome 8: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (secure attachment), at 12-month follow-up



Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Cicchetti 2006 (1)	5	22	3	25	41.8%	1.89 [0.51 , 7.03]
Cicchetti 2006 (2)	15	27	3	24	58.2%	4.44 [1.46 , 13.50]
Total (95% CI)		**49**		**49**	**100.0%**	**3.11 [1.33 , 7.27]**
Total events:	20		6			

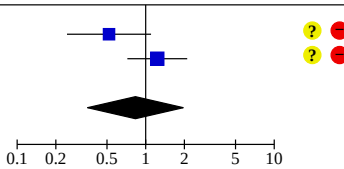
Heterogeneity: Tau² = 0.00; Chi² = 0.96, df = 1 (P = 0.33); I² = 0%
Test for overall effect: Z = 2.62 (P = 0.009)
Test for subgroup differences: Not applicable

Footnotes
(1) Intervention: psychoeducational parenting intervention. Outcome: Secure attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: infant parent psychotherapy. Outcome: Secure attachment (Ainsworth Strange Situation Paradigm)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.9. Comparison 1: Parenting interventions vs inactive control, Outcome 9: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (disorganised attachment), at 12-month follow-up

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI	Risk of Bias A B C D E F
Cicchetti 2006 (1)	7	27	12	24	45.3%	0.52 [0.24 , 1.10]		? − + + ? −
Cicchetti 2006 (2)	13	22	12	25	54.7%	1.23 [0.72 , 2.10]		? − + + ? −
Total (95% CI)		**49**		**49**	**100.0%**	**0.83 [0.35 , 1.96]**		
Total events:	20		24					



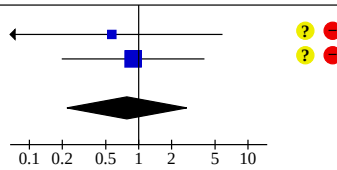
Heterogeneity: Tau² = 0.28; Chi² = 3.48, df = 1 (P = 0.06); I² = 71%
Test for overall effect: Z = 0.42 (P = 0.67)
Test for subgroup differences: Not applicable

Footnotes
(1) Intervention: infant parent psychotherapy. Outcome: Disorganised attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: psychoeducational parenting intervention. Outcome: Disorganised attachment (Ainsworth Strange Situation Paradigm)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.10. Comparison 1: Parenting interventions vs inactive control, Outcome 10: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (ambivalent attachment), at 12-month follow-up

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI	Risk of Bias A B C D E F
Cicchetti 2006 (1)	1	22	2	25	29.4%	0.57 [0.06 , 5.85]		? − + + ? −
Cicchetti 2006 (2)	3	27	3	24	70.6%	0.89 [0.20 , 4.00]		? − + + ? −
Total (95% CI)		**49**		**49**	**100.0%**	**0.78 [0.22 , 2.76]**		
Total events:	4		5					



Heterogeneity: Tau² = 0.00; Chi² = 0.10, df = 1 (P = 0.75); I² = 0%
Test for overall effect: Z = 0.39 (P = 0.70)
Test for subgroup differences: Not applicable

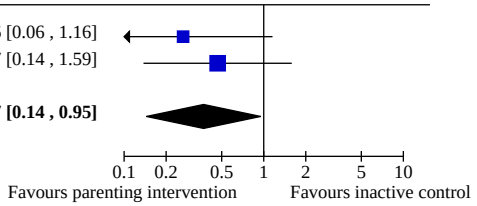
Footnotes
(1) Intervention: psychoeducational parenting intervention. Outcome: Ambivalent attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: infant parent psychotherapy. Outcome: Ambivalent attachment (Ainsworth Strange Situation Paradigm)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.11. Comparison 1: Parenting interventions vs inactive control, Outcome 11: Parenting interventions vs inactive control, Outcome 6: Parent–child relationship (avoidant attachment), at 12-month follow-up

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Cicchetti 2006 (1)	2	27	7	25	40.7%	0.26 [0.06 , 1.16]
Cicchetti 2006 (2)	3	22	7	24	59.3%	0.47 [0.14 , 1.59]
Total (95% CI)		**49**		**49**	**100.0%**	**0.37 [0.14 , 0.95]**
Total events:	5		14			

Heterogeneity: Tau² = 0.00; Chi² = 0.34, df = 1 (P = 0.56); I² = 0%
Test for overall effect: Z = 2.07 (P = 0.04)
Test for subgroup differences: Not applicable



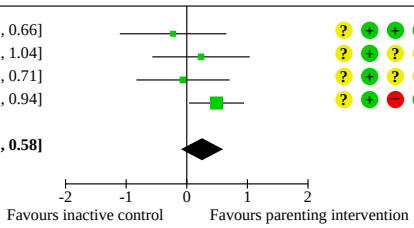
Footnotes

(1) Intervention: infant parent psychotherapy. Outcome: Avoidant attachment (Ainsworth Strange Situation Paradigm)
(2) Intervention: psychoeducational parenting intervention. Outcome: Avoidant attachment (Ainsworth Strange Situation Paradigm)

Analysis 1.12. Comparison 1: Parenting interventions vs inactive control, Outcome 12: Parenting interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Haight 2005 (1)	5.1	1.8	10	5.5	1.6	10	13.7%	-0.22 [-1.10 , 0.66]	? + + + ? ?
Liu 2021 (2)	41.85	2.51	15	40.88	5.57	10	16.5%	0.23 [-0.57 , 1.04]	? + ? ? + ?
Rosenblum 2017 (3)	-22.46	6.6	13	-22.08	5.35	13	18.0%	-0.06 [-0.83 , 0.71]	? + ? ? ? ?
Steele 2019 (4)	3.26	0.89	43	2.84	0.79	35	51.8%	0.49 [0.04 , 0.94]	? + - + + -
Total (95% CI)			**81**			**68**	**100.0%**	**0.25 [-0.07 , 0.58]**	

Heterogeneity: Tau² = 0.00; Chi² = 2.84, df = 3 (P = 0.42); I² = 0%
Test for overall effect: Z = 1.51 (P = 0.13)
Test for subgroup differences: Not applicable



Footnotes

(1) Outcome: Maternal supportive presence (Direct observation, non-validated tool)
(2) Outcome: Parental self-efficacy in nurturance, valuing the child, and empathetic responsiveness (Self-Efficacy for Parenting Tasks Index - Toddler Scale)
(3) Outcome: Child care-giving behaviour (Care-giving Helplessness Questionnaire); Following guidance from section 6.5.1.2 from the Cochrane Handbook, this outcome has been multiplied by -1
(4) Outcome: Maternal supportive presence (Coding Interactive Behaviour System)

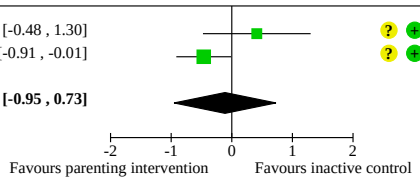
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.13. Comparison 1: Parenting interventions vs inactive control, Outcome 13: Parenting interventions vs inactive control, Outcome 7: Parenting skills (maternal hostility), at post-intervention

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Haight 2005 (1)	1.7	0.9	10	1.4	0.4	10	40.1%	0.41 [-0.48 , 1.30]
Steele 2019 (2)	1.6	0.86	43	2.03	0.99	35	59.9%	-0.46 [-0.91 , -0.01]
Total (95% CI)			**53**			**45**	**100.0%**	**-0.11 [-0.95 , 0.73]**

Heterogeneity: Tau² = 0.25; Chi² = 2.96, df = 1 (P = 0.09); I² = 66%
Test for overall effect: Z = 0.26 (P = 0.79)
Test for subgroup differences: Not applicable



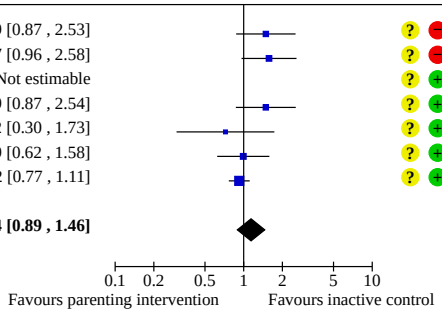
Footnotes
(1) Outcome: Maternal hostility (direct observation, non-validated tool)
(2) Outcome: Maternal hostility (Coding Interactive Behaviour System)

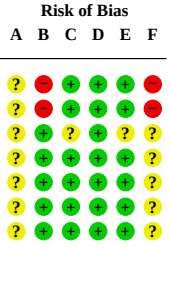
Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.14. Comparison 1: Parenting interventions vs inactive control, Outcome 14: Parent engagement (dropout) - earliest time point

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Cicchetti 2006 (1)	25	53	13	41	14.0%	1.49 [0.87 , 2.53]
Cicchetti 2006 (2)	27	49	14	40	15.5%	1.57 [0.96 , 2.58]
Haight 2005	0	10	0	10		Not estimable
Liu 2021	34	88	13	50	13.9%	1.49 [0.87 , 2.54]
Pasalich 2019	8	124	11	123	6.6%	0.72 [0.30 , 1.73]
Rosenblum 2017	25	68	20	54	16.6%	0.99 [0.62 , 1.58]
Steele 2019	74	117	76	111	33.4%	0.92 [0.77 , 1.11]
Total (95% CI)		**509**		**429**	**100.0%**	**1.14 [0.89 , 1.46]**
Total events:	193		147			

Heterogeneity: Tau² = 0.04; Chi² = 8.81, df = 5 (P = 0.12); I² = 43%
Test for overall effect: Z = 1.06 (P = 0.29)
Test for subgroup differences: Not applicable





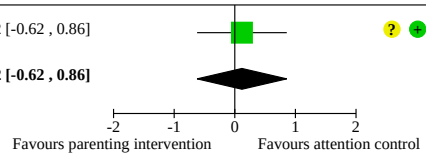
Footnotes
(1) Intervention: infant parent psychotherapy
(2) Intervention: psychoeducational parenting intervention

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.15. Comparison 1: Parenting interventions vs inactive control, Outcome 15: Socio-ecological outcomes (connection to community professionals) - secondary outcome

Study or Subgroup	Parenting intervention Mean	SD	Total	Attention control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI	Std. Mean Difference IV, Fixed, 95% CI	Risk of Bias A B C D E F
Rosenblum 2017	7.1	2.7	17	6.8	2.1	12	100.0%	0.12 [-0.62 , 0.86]		? + ? ? ? ?
Total (95% CI)			**17**			**12**	**100.0%**	**0.12 [-0.62 , 0.86]**		

Heterogeneity: Not applicable
Test for overall effect: Z = 0.31 (P = 0.75)
Test for subgroup differences: Not applicable

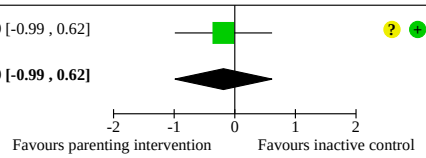


Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.16. Comparison 1: Parenting interventions vs inactive control, Outcome 16: Child's physical, socio-emotional wellbeing (externalising behaviour) - post-intervention

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI	Std. Mean Difference IV, Fixed, 95% CI	Risk of Bias A B C D E F
Liu 2021	0.291	0.183	15	0.329	0.216	10	100.0%	-0.19 [-0.99 , 0.62]		? + ? ? ? ?
Total (95% CI)			**15**			**10**	**100.0%**	**-0.19 [-0.99 , 0.62]**		

Heterogeneity: Not applicable
Test for overall effect: Z = 0.46 (P = 0.65)
Test for subgroup differences: Not applicable

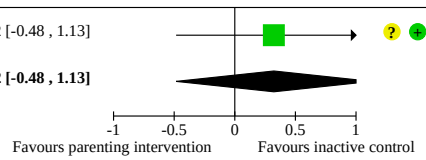


Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.17. Comparison 1: Parenting interventions vs inactive control, Outcome 17: Child's physical, socio-emotional wellbeing (internalising behaviour) - post-intervention

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI	Std. Mean Difference IV, Fixed, 95% CI	Risk of Bias A B C D E F
Liu 2021	0.145	0.114	15	0.111	0.08	10	100.0%	0.32 [-0.48 , 1.13]		? + ? ? + ?
Total (95% CI)			**15**			**10**	**100.0%**	**0.32 [-0.48 , 1.13]**		

Heterogeneity: Not applicable
Test for overall effect: Z = 0.78 (P = 0.43)
Test for subgroup differences: Not applicable

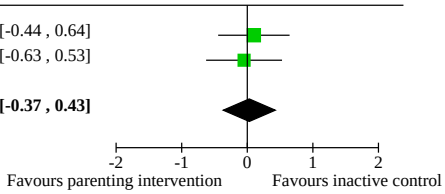


Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 1.18. Comparison 1: Parenting interventions vs inactive control, Outcome 18: Child's physical, socio-emotional wellbeing (externalising behaviour) - 12-month follow-up

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Cicchetti 2006 (1)	54.52	8.49	27	53.47	11.95	25	53.0%	0.10 [-0.44 , 0.64]
Cicchetti 2006 (2)	52.95	8.49	22	53.47	11.95	24	47.0%	-0.05 [-0.63 , 0.53]
Total (95% CI)			**49**			**49**	**100.0%**	**0.03 [-0.37 , 0.43]**

Heterogeneity: Chi² = 0.14, df = 1 (P = 0.71); I² = 0%
Test for overall effect: Z = 0.15 (P = 0.88)
Test for subgroup differences: Not applicable

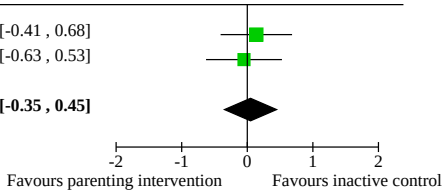


Footnotes
(1) Intervention: infant parent psychotherapy. Outcome: Externalising behaviour (Child Behavior Checklist)
(2) Intervention: psychoeducational parenting intervention. Outcome: Externalising behaviour (Child Behavior Checklist)

Analysis 1.19. Comparison 1: Parenting interventions vs inactive control, Outcome 19: Child's physical, socio-emotional wellbeing (internalising behaviour) - 12-month follow-up

Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Cicchetti 2006 (1)	54.74	8.64	27	53.1	14.3	25	53.0%	0.14 [-0.41 , 0.68]
Cicchetti 2006 (2)	52.45	10.72	22	53.1	14.3	24	47.0%	-0.05 [-0.63 , 0.53]
Total (95% CI)			**49**			**49**	**100.0%**	**0.05 [-0.35 , 0.45]**

Heterogeneity: Chi² = 0.22, df = 1 (P = 0.64); I² = 0%
Test for overall effect: Z = 0.24 (P = 0.81)
Test for subgroup differences: Not applicable

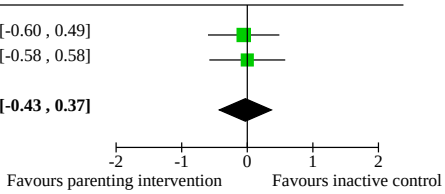


Footnotes
(1) Intervention: infant parent psychotherapy. Outcome: Internalising behaviour (Child Behavior Checklist)
(2) Intervention: psychoeducational parenting intervention. Outcome: Internalising behaviour (Child Behavior Checklist)

Analysis 1.20. Comparison 1: Parenting interventions vs inactive control, Outcome 20: Child's physical, socio-emotional wellbeing (total behaviour problems) - 12-month follow-up

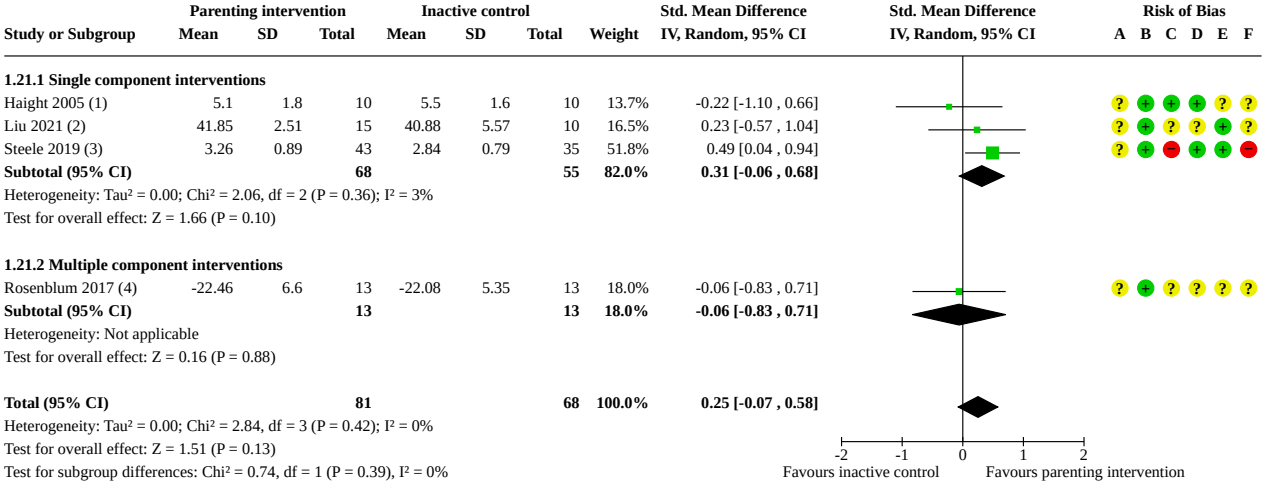
Study or Subgroup	Parenting intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Cicchetti 2006 (1)	52.74	9.19	27	53.41	14.43	25	53.1%	-0.06 [-0.60 , 0.49]
Cicchetti 2006 (2)	53.41	10.22	22	53.41	14.43	24	46.9%	0.00 [-0.58 , 0.58]
Total (95% CI)			**49**			**49**	**100.0%**	**-0.03 [-0.43 , 0.37]**

Heterogeneity: Chi² = 0.02, df = 1 (P = 0.89); I² = 0%
Test for overall effect: Z = 0.14 (P = 0.89)
Test for subgroup differences: Not applicable



Footnotes
(1) Intervention: infant parent psychotherapy. Outcome: Total behaviour problems (Child Behavior Checklist)
(2) Intervention: psychoeducational parenting intervention. Outcome: Total behaviour problems (Child Behavior Checklist)

Analysis 1.21. Comparison 1: Parenting interventions vs inactive control, Outcome 21: Parenting interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention, subgroup analysis (multiple component interventions)



Footnotes

(1) Outcome: Maternal supportive presence (Direct observation, non-validated tool)
(2) Outcome: Parental self-efficacy in nurturance, valuing the child, and empathetic responsiveness (Self-Efficacy for Parenting Tasks Index - Toddler Scale)
(3) Outcome: Maternal supportive presence (Coding Interactive Behaviour System)
(4) Outcome: Child care-giving behaviour (Care-giving Helplessness Questionnaire); Following guidance from section 6.5.1.2 from the Cochrane Handbook, this outcome has been multiplied by -1

Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

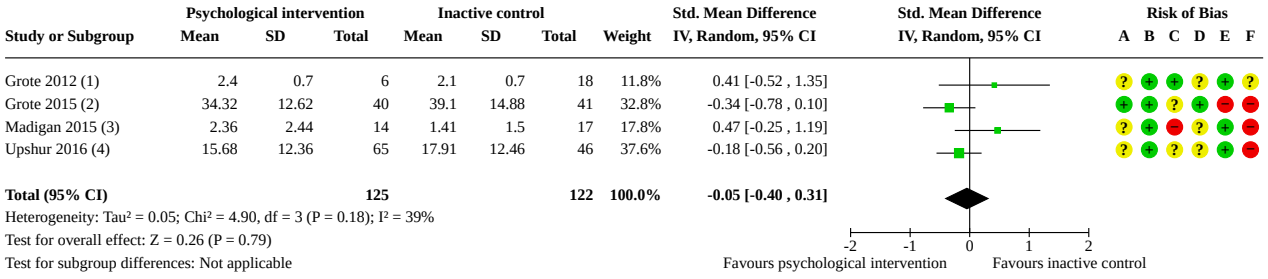
Comparison 2. Psychological interventions vs inactive control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
2.1 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention	4	247	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.40, 0.31]
2.2 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at 6-month follow-up	3	136	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.56, 0.46]
2.3 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at 12-month follow-up	2	106	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.62, 0.34]
2.4 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (continuous data), at post-intervention	8	507	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.66, -0.03]
2.5 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (dichotomous data), at post-intervention	2	116	Risk Ratio (M-H, Random, 95% CI)	0.99 [0.81, 1.22]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
2.6 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (postpartum depression symptom severity), at post-intervention	2	135	Std. Mean Difference (IV, Random, 95% CI)	-0.22 [-0.57, 0.13]
2.7 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (anxiety symptom severity), at post-intervention	2	54	Std. Mean Difference (IV, Random, 95% CI)	-0.00 [-0.57, 0.57]
2.8 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (depression symptom severity), at 6-month follow-up	3	136	Std. Mean Difference (IV, Random, 95% CI)	-0.29 [-1.21, 0.63]
2.9 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (anxiety symptom severity), at 6-month follow-up	2	55	Std. Mean Difference (IV, Random, 95% CI)	-0.33 [-1.30, 0.63]
2.10 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (depression symptom severity), at 12-month follow-up	2	106	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.80, 1.14]
2.11 Psychological interventions vs inactive control, Outcome 3: Substance use, at post-intervention	1	189	Risk Ratio (IV, Random, 95% CI)	1.57 [0.72, 3.45]
2.12 Psychological interventions vs inactive control, Outcome 4: Parent relationship quality, at post-intervention	1	67	Std. Mean Difference (IV, Random, 95% CI)	0.49 [0.00, 0.98]
2.13 Psychological interventions vs inactive control, Outcome 6: Parent–child relationship, at post-intervention	1	26	Risk Ratio (M-H, Random, 95% CI)	4.67 [0.60, 36.29]
2.14 Psychological interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention	1	66	Std. Mean Difference (IV, Random, 95% CI)	0.51 [0.01, 1.00]
2.15 Parent engagement (dropout) - earliest time point	7	926	Risk Ratio (M-H, Random, 95% CI)	1.04 [0.64, 1.68]
2.16 Socio-ecological outcomes (social support) - secondary outcome	4	240	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.39, 0.13]
2.17 Child's physical, socio-emotional wellbeing (daytime sleeping) - secondary outcome	1	14	Std. Mean Difference (IV, Fixed, 95% CI)	1.08 [-0.08, 2.24]
2.18 Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention, subgroup (multiple component interventions)	4	247	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.40, 0.31]
2.18.1 Single component - psychological interventions	2	142	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.55, 0.69]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
2.18.2 Multiple component interventions	2	105	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.79, 0.62]
2.19 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (continuous data), at post-intervention, subgroup (multiple component interventions)	8	507	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.66, -0.03]
2.19.1 Single component - psychological interventions	5	375	Std. Mean Difference (IV, Random, 95% CI)	-0.31 [-0.78, 0.15]
2.19.2 Multiple-component interventions	3	132	Std. Mean Difference (IV, Random, 95% CI)	-0.41 [-0.76, -0.05]
2.20 Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (dichotomous data), at post-intervention, subgroup (multiple component interventions)	2	116	Risk Ratio (M-H, Random, 95% CI)	0.99 [0.81, 1.22]
2.20.1 Single component - psychological interventions	1	38	Risk Ratio (M-H, Random, 95% CI)	1.11 [0.59, 2.10]
2.20.2 Multiple component interventions	1	78	Risk Ratio (M-H, Random, 95% CI)	0.98 [0.79, 1.22]

Analysis 2.1. Comparison 2: Psychological interventions vs inactive control, Outcome 1: Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention



Footnotes

(1) Outcome: Interpersonal problems (Inventory of Interpersonal Problems)
(2) Outcome: PTSD (PTSD CheckList - Civilian Version)
(3) Outcome: Dissociation (Adolescent Dissociative Experiences Scale)
(4) Outcome: PTSD (Posttraumatic Stress Scale)

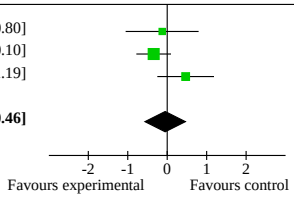
Risk of bias legend

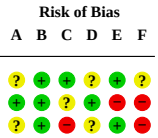
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.2. Comparison 2: Psychological interventions vs inactive control, Outcome 2: Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at 6-month follow-up

Study or Subgroup	Psychological interventions Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Grote 2012 (1)	2.2	0.9	6	2.3	0.7	18	21.7%	-0.13 [-1.05 , 0.80]
Grote 2015 (2)	34.32	12.62	40	39.1	14.88	41	48.1%	-0.34 [-0.78 , 0.10]
Madigan 2015 (3)	2.36	2.44	14	1.41	1.5	17	30.2%	0.47 [-0.25 , 1.19]
Total (95% CI)			**60**			**76**	**100.0%**	**-0.05 [-0.56 , 0.46]**

Heterogeneity: Tau² = 0.09; Chi² = 3.56, df = 2 (P = 0.17); I² = 44%
Test for overall effect: Z = 0.20 (P = 0.84)
Test for subgroup differences: Not applicable





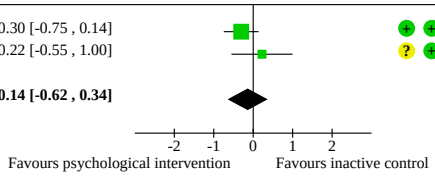
Footnotes
(1) Outcome: Interpersonal problems assessed with Inventory of Interpersonal Problems (IPP)
(2) Outcome: PTSD symptom severity assessed with PTSD - Civilian version (PCL-C)
(3) Outcome: Dissociation assessed with Adolescent - Dissociative Experience Scale (A-DES)

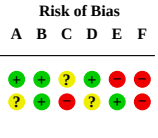
Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.3. Comparison 2: Psychological interventions vs inactive control, Outcome 3: Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at 12-month follow-up

Study or Subgroup	Psychological interventions Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Grote 2015 (1)	33.21	13.22	39	37.46	14.41	41	69.0%	-0.30 [-0.75 , 0.14]
Madigan 2015 (2)	2.09	1.96	12	1.69	1.54	14	31.0%	0.22 [-0.55 , 1.00]
Total (95% CI)			**51**			**55**	**100.0%**	**-0.14 [-0.62 , 0.34]**

Heterogeneity: Tau² = 0.04; Chi² = 1.34, df = 1 (P = 0.25); I² = 25%
Test for overall effect: Z = 0.58 (P = 0.56)
Test for subgroup differences: Not applicable





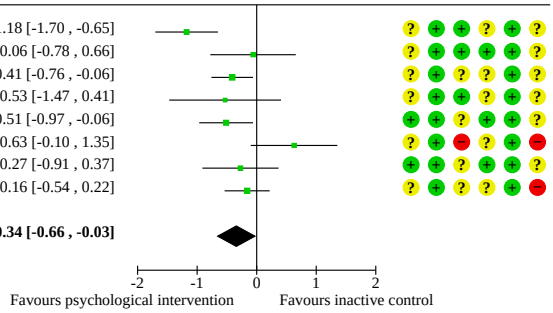
Footnotes
(1) Outcome: PTSD symptom severity assessed with PTSD - Civilian version (PCL-C)
(2) Adolescent Dissociative Experiences Scale

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.4. Comparison 2: Psychological interventions vs inactive control, Outcome 4: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (continuous data), at post-intervention

Study or Subgroup	Psychological intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Ammerman 2016 (1)	12.03	15.53	31	28.57	12.27	35	13.3%	-1.18 [-1.70 , -0.65]
Berry 2021 (2)	12.29	7.11	14	12.81	9.16	16	10.1%	-0.06 [-0.78 , 0.66]
Blalock 2013 (3)	10.97	9.94	64	15.48	11.77	65	16.9%	-0.41 [-0.76 , -0.06]
Grote 2012 (4)	16.6	11.5	6	23.3	12.4	18	7.3%	-0.53 [-1.47 , 0.41]
Grote 2015 (5)	0.97	0.6	40	1.33	0.78	38	14.8%	-0.51 [-0.97 , -0.06]
Madigan 2015 (4)	18.55	14.42	14	10.87	9.42	17	9.9%	0.63 [-0.10 , 1.35]
Silverstein 2011 (6)	-2.94	5.05	19	-1.56	4.87	19	11.3%	-0.27 [-0.91 , 0.37]
Upshur 2016 (7)	9.37	6.57	65	10.41	6.25	46	16.3%	-0.16 [-0.54 , 0.22]
Total (95% CI)			**253**			**254**	**100.0%**	**-0.34 [-0.66 , -0.03]**

Heterogeneity: Tau² = 0.12; Chi² = 18.80, df = 7 (P = 0.009); I² = 63%
Test for overall effect: Z = 2.14 (P = 0.03)
Test for subgroup differences: Not applicable



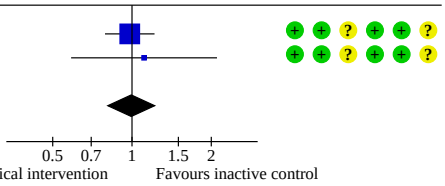
Footnotes
(1) Outcome: Depression (Beck Depression Inventory II)
(2) Outcome: Depression (Hamilton Rating Scale for Depression)
(3) Outcome: Depression (Center for Epidemiologic Studies Depression Scale)
(4) Outcome: Depression (Beck Depression Inventory)
(5) Outcome: Depression (Hopkins Symptom Checklist)
(6) Outcome: Depression (Quick Inventory of Depressive Symptoms). Mean change in depression symptoms over the follow-up period
(7) Outcome: Postpartum depression (Edinburgh Postnatal Depression Scale)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.5. Comparison 2: Psychological interventions vs inactive control, Outcome 5: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (dichotomous data), at post-intervention

Study or Subgroup	Psychological intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Grote 2015 (1)	32	40	31	38	89.7%	0.98 [0.79 , 1.22]
Silverstein 2011 (2)	10	19	9	19	10.3%	1.11 [0.59 , 2.10]
Total (95% CI)		**59**		**57**	**100.0%**	**0.99 [0.81 , 1.22]**
Total events:	42		40			

Heterogeneity: Tau² = 0.00; Chi² = 0.16, df = 1 (P = 0.69); I² = 0%
Test for overall effect: Z = 0.06 (P = 0.95)
Test for subgroup differences: Not applicable



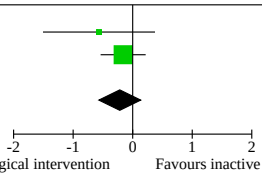
Footnotes
(1) Outcome: no. of participants who did not achieve depression remission at 3 month follow up (Hopkins Symptom Checklist score ≥0.5) (calculated using n and remission data)
(2) Outcome: no. of participants who experienced at least one moderate-severe depression symptom episode (Quick Inventory of Depressive Symptoms) during 4-month follow-up period

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.6. Comparison 2: Psychological interventions vs inactive control, Outcome 6: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (postpartum depression symptom severity), at post-intervention

Study or Subgroup	Psychological intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Grote 2012	9	5.8	6	13	7.1	18	13.9%	-0.57 [-1.51 , 0.37]	? + + ? + ?
Upshur 2016	9.37	6.57	65	10.41	6.25	46	86.1%	-0.16 [-0.54 , 0.22]	? + ? ? + -
Total (95% CI)			**71**			**64**	**100.0%**	**-0.22 [-0.57 , 0.13]**	

Heterogeneity: Tau² = 0.00; Chi² = 0.61, df = 1 (P = 0.43); I² = 0%
Test for overall effect: Z = 1.21 (P = 0.23)
Test for subgroup differences: Not applicable

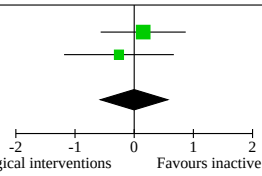


Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.7. Comparison 2: Psychological interventions vs inactive control, Outcome 7: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (anxiety symptom severity), at post-intervention

Study or Subgroup	Psychological interventions Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Berry 2021	12.21	8.73	14	10.94	7.58	16	62.5%	0.15 [-0.57 , 0.87]	? + + + + ?
Grote 2012	12.4	4.6	6	14.5	8.6	18	37.5%	-0.26 [-1.18 , 0.67]	? + + ? + ?
Total (95% CI)			**20**			**34**	**100.0%**	**-0.00 [-0.57 , 0.57]**	

Heterogeneity: Tau² = 0.00; Chi² = 0.47, df = 1 (P = 0.49); I² = 0%
Test for overall effect: Z = 0.01 (P = 1.00)
Test for subgroup differences: Not applicable

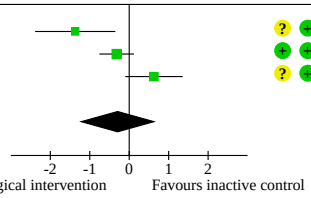


Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.8. Comparison 2: Psychological interventions vs inactive control, Outcome 8: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (depression symptom severity), at 6-month follow-up

Study or Subgroup	Psychological interventions Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Grote 2012 (1)	7.8	5.4	6	22.1	11.1	18	27.9%	-1.37 [-2.38 , -0.35]	? + + ? + ?
Grote 2015 (2)	0.81	0.66	40	1.05	0.83	41	38.6%	-0.32 [-0.76 , 0.12]	+ + ? + + ?
Madigan 2015 (1)	18.55	14.42	14	10.87	9.42	17	33.5%	0.63 [-0.10 , 1.35]	? + − ? + −
Total (95% CI)			**60**			**76**	**100.0%**	**-0.29 [-1.21 , 0.63]**	

Heterogeneity: Tau² = 0.52; Chi² = 10.31, df = 2 (P = 0.006); I² = 81%
Test for overall effect: Z = 0.63 (P = 0.53)
Test for subgroup differences: Not applicable



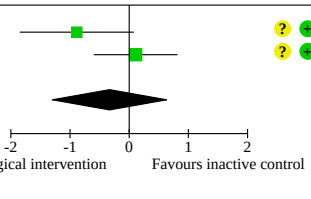
Footnotes
(1) Beck Depression Inventory
(2) Hopkins Symptom Checklist

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.9. Comparison 2: Psychological interventions vs inactive control, Outcome 9: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (anxiety symptom severity), at 6-month follow-up

Study or Subgroup	Psychological interventions Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Grote 2012 (1)	6.6	9.8	6	13.3	6.4	18	44.4%	-0.88 [-1.85 , 0.08]	? + + ? + ?
Madigan 2015 (2)	25.73	13.6	14	24	16.98	17	55.6%	0.11 [-0.60 , 0.82]	? + − ? + −
Total (95% CI)			**20**			**35**	**100.0%**	**-0.33 [-1.30 , 0.63]**	

Heterogeneity: Tau² = 0.31; Chi² = 2.65, df = 1 (P = 0.10); I² = 62%
Test for overall effect: Z = 0.67 (P = 0.50)
Test for subgroup differences: Not applicable



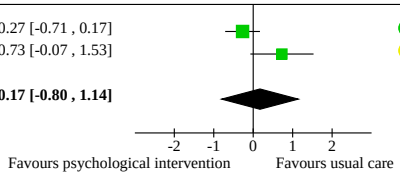
Footnotes
(1) Outcome: Anxiety symptoms (Beck Anxiety Inventory)
(2) Outcome: Anxiety symptoms (Screen for Child Anxiety Related Emotional Disorders)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.10. Comparison 2: Psychological interventions vs inactive control, Outcome 10: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (depression symptom severity), at 12-month follow-up

Study or Subgroup	Psychological interventions Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Grote 2015 (1)	0.82	0.74	39	1.03	0.8	41	55.8%	-0.27 [-0.71 , 0.17]
Madigan 2015 (2)	18.27	12.09	12	10.13	9.61	14	44.2%	0.73 [-0.07 , 1.53]
Total (95% CI)			**51**			**55**	**100.0%**	**0.17 [-0.80 , 1.14]**

Heterogeneity: Tau² = 0.39; Chi² = 4.59, df = 1 (P = 0.03); I² = 78%
Test for overall effect: Z = 0.35 (P = 0.73)
Test for subgroup differences: Not applicable



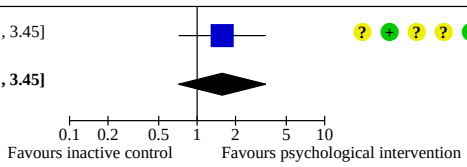
Footnotes
(1) 6m follow up
(2) 12m follow up

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.11. Comparison 2: Psychological interventions vs inactive control, Outcome 11: Psychological interventions vs inactive control, Outcome 3: Substance use, at post-intervention

Study or Subgroup	Psychological intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio IV, Random, 95% CI
Blalock 2013 (1)	14	94	9	95	100.0%	1.57 [0.72 , 3.45]
Total (95% CI)		**94**		**95**	**100.0%**	**1.57 [0.72 , 3.45]**
Total events:	14		9			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.13 (P = 0.26)
Test for subgroup differences: Not applicable



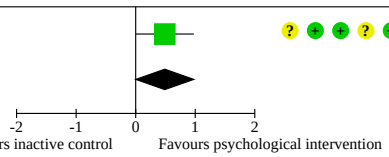
Footnotes
(1) Outcome: Smoking cessation (Timeline follow-back interview)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.12. Comparison 2: Psychological interventions vs inactive control, Outcome 12: Psychological interventions vs inactive control, Outcome 4: Parent relationship quality, at post-intervention

Study or Subgroup	Psychological intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Ammerman 2016 (1)	75.69	23.97	32	63.66	24.63	35	100.0%	0.49 [0.00 , 0.98]		? + + ? + ?
Total (95% CI)			**32**			**35**	**100.0%**	**0.49 [0.00 , 0.98]**		

Heterogeneity: Not applicable
Test for overall effect: Z = 1.97 (P = 0.05)
Test for subgroup differences: Not applicable



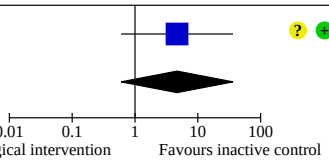
Footnotes
(1) Outcome: Social support (Interpersonal Support Evaluation List)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.13. Comparison 2: Psychological interventions vs inactive control, Outcome 13: Psychological interventions vs inactive control, Outcome 6: Parent–child relationship, at post-intervention

Study or Subgroup	Psychological intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI	Risk of Bias A B C D E F
Madigan 2015 (1)	4	12	1	14	100.0%	4.67 [0.60 , 36.29]		? + − + + −
Total (95% CI)		**12**		**14**	**100.0%**	**4.67 [0.60 , 36.29]**		
Total events:	4		1					

Heterogeneity: Not applicable
Test for overall effect: Z = 1.47 (P = 0.14)
Test for subgroup differences: Not applicable



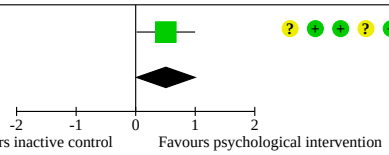
Footnotes
(1) Outcome: Disorganised infant attachment (Strange Situation Paradigm)

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.14. Comparison 2: Psychological interventions vs inactive control, Outcome 14: Psychological interventions vs inactive control, Outcome 7: Parenting skills, at post-intervention

Study or Subgroup	Psychological intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Ammerman 2016 (1)	34.87	5.45	31	31.83	6.33	35	100.0%	0.51 [0.01 , 1.00]
Total (95% CI)			**31**			**35**	**100.0%**	**0.51 [0.01 , 1.00]**

Heterogeneity: Not applicable
Test for overall effect: Z = 2.02 (P = 0.04)
Test for subgroup differences: Not applicable



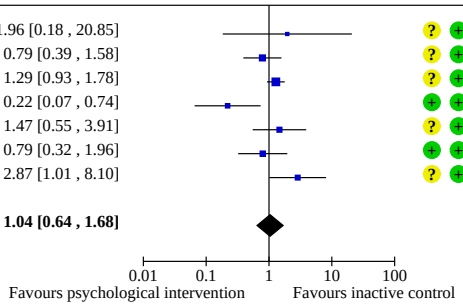
Footnotes
(1) Outcome: providing a stimulating, nurturing and safe environment assessed with Home Observation for Measurement of the Environment Inventory (HOME)

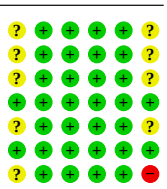
Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.15. Comparison 2: Psychological interventions vs inactive control, Outcome 15: Parent engagement (dropout) - earliest time point

Study or Subgroup	Psychological intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Ammerman 2016	2	47	1	46	3.6%	1.96 [0.18 , 20.85]
Berry 2021	11	57	14	57	18.5%	0.79 [0.39 , 1.58]
Blalock 2013	54	133	42	133	26.9%	1.29 [0.93 , 1.78]
Grote 2015	3	83	14	85	10.4%	0.22 [0.07 , 0.74]
Madigan 2015 (1)	7	21	5	22	13.4%	1.47 [0.55 , 3.91]
Silverstein 2011	7	46	9	47	14.7%	0.79 [0.32 , 1.96]
Upshur 2016	17	89	4	60	12.5%	2.87 [1.01 , 8.10]
Total (95% CI)		**476**		**450**	**100.0%**	**1.04 [0.64 , 1.68]**
Total events:	101		89			

Heterogeneity: Tau² = 0.19; Chi² = 12.94, df = 6 (P = 0.04); I² = 54%
Test for overall effect: Z = 0.16 (P = 0.87)
Test for subgroup differences: Not applicable





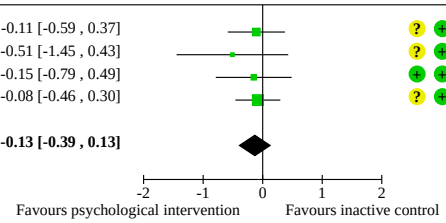
Footnotes
(1) First available time point is 6 months post-intervention

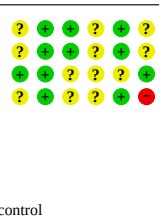
Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.16. Comparison 2: Psychological interventions vs inactive control, Outcome 16: Socio-ecological outcomes (social support) - secondary outcome

Study or Subgroup	Psychological intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Ammerman 2016 (1)	-12.16	8.64	32	-11.34	6.54	35	29.1%	-0.11 [-0.59 , 0.37]
Grote 2012 (2)	2.7	0.6	6	3.1	0.8	18	7.6%	-0.51 [-1.45 , 0.43]
Silverstein 2011 (3)	1.98	0.52	19	2.06	0.52	19	16.5%	-0.15 [-0.79 , 0.49]
Upshur 2016 (4)	-3.58	1.1	65	-3.49	1.09	46	46.8%	-0.08 [-0.46 , 0.30]
Total (95% CI)			**122**			**118**	**100.0%**	**-0.13 [-0.39 , 0.13]**

Heterogeneity: Tau² = 0.00; Chi² = 0.70, df = 3 (P = 0.87); I² = 0%
Test for overall effect: Z = 1.01 (P = 0.31)
Test for subgroup differences: Not applicable





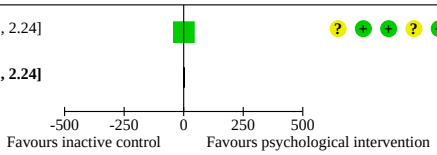
Footnotes
(1) Outcome: Size of the mother's social network assessed with Social network number (SNN)
(2) Outcome: Quality of functioning with friends assessed with SAS - social leisure domain
(3) Outcome: Social functioning assessed with SAS - social adjustment domain
(4) Outcome: Perceived social support assessed with Medical Outcomes Study Social Support Scale

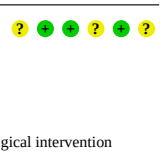
Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.17. Comparison 2: Psychological interventions vs inactive control, Outcome 17: Child's physical, socio-emotional wellbeing (daytime sleeping) - secondary outcome

Study or Subgroup	Psychological intervention Mean	SD	Total	inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Berry 2021	526.67	120.67	6	392.97	111.75	8	100.0%	1.08 [-0.08 , 2.24]
Total (95% CI)			**6**			**8**	**100.0%**	**1.08 [-0.08 , 2.24]**

Heterogeneity: Not applicable
Test for overall effect: Z = 1.83 (P = 0.07)
Test for subgroup differences: Not applicable

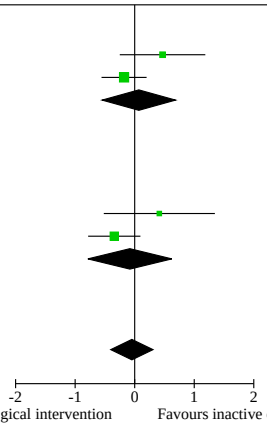




Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.18. Comparison 2: Psychological interventions vs inactive control, Outcome 18: Psychological interventions vs inactive control, Outcome 1: Trauma-related symptoms, at post-intervention, subgroup (multiple component interventions)

Study or Subgroup	Psychological intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
2.18.1 Single component - psychological interventions									
Madigan 2015 (1)	2.36	2.44	14	1.41	1.5	17	17.8%	0.47 [-0.25 , 1.19]	? + − ? + −
Upshur 2016 (2)	15.68	12.36	65	17.91	12.46	46	37.6%	-0.18 [-0.56 , 0.20]	? + ? ? + ?
Subtotal (95% CI)			**79**			**63**	**55.4%**	**0.07 [-0.55 , 0.69]**	
Heterogeneity: Tau² = 0.12; Chi² = 2.44, df = 1 (P = 0.12); I² = 59%									
Test for overall effect: Z = 0.22 (P = 0.82)									
2.18.2 Multiple component interventions									
Grote 2012 (3)	2.4	0.7	6	2.1	0.7	18	11.8%	0.41 [-0.52 , 1.35]	? + + ? + ?
Grote 2015 (4)	34.32	12.62	40	39.1	14.88	41	32.8%	-0.34 [-0.78 , 0.10]	+ + ? + − −
Subtotal (95% CI)			**46**			**59**	**44.6%**	**-0.08 [-0.79 , 0.62]**	
Heterogeneity: Tau² = 0.15; Chi² = 2.07, df = 1 (P = 0.15); I² = 52%									
Test for overall effect: Z = 0.23 (P = 0.82)									
Total (95% CI)			**125**			**122**	**100.0%**	**-0.05 [-0.40 , 0.31]**	
Heterogeneity: Tau² = 0.05; Chi² = 4.90, df = 3 (P = 0.18); I² = 39%									
Test for overall effect: Z = 0.26 (P = 0.79)									
Test for subgroup differences: Chi² = 0.10, df = 1 (P = 0.75), I² = 0%									



Footnotes

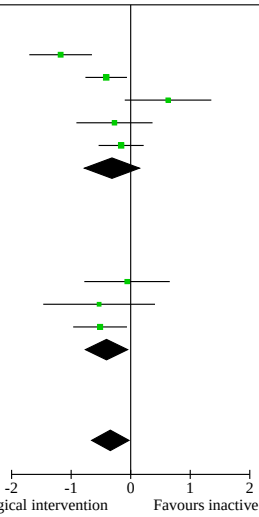
(1) Outcome: Dissociation (Adolescent Dissociative Experiences Scale)
(2) Outcome: PTSD (Posttraumatic Stress Scale)
(3) Outcome: Interpersonal problems (Inventory of Interpersonal Problems). Intervention includes psychological + parenting components
(4) Outcome: PTSD (PTSD CheckList - Civilian Version). Intervention includes psychological + parenting components

Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.19. Comparison 2: Psychological interventions vs inactive control, Outcome 19: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (continuous data), at post-intervention, subgroup (multiple component interventions)

Study or Subgroup	Psychological intervention Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
2.19.1 Single component - psychological interventions									
Ammerman 2016 (1)	12.03	15.53	31	28.57	12.27	35	13.3%	-1.18 [-1.70 , -0.65]	? + + ? + ?
Blalock 2013	10.97	9.94	64	15.48	11.77	65	16.9%	-0.41 [-0.76 , -0.06]	? + ? ? + ?
Madigan 2015 (2)	18.55	14.42	14	10.87	9.42	17	9.9%	0.63 [-0.10 , 1.35]	? + − ? + −
Silverstein 2011 (3)	-2.94	5.05	19	-1.56	4.87	19	11.3%	-0.27 [-0.91 , 0.37]	+ + ? + + ?
Upshur 2016 (4)	9.37	6.57	65	10.41	6.25	46	16.3%	-0.16 [-0.54 , 0.22]	? + ? ? + ?
Subtotal (95% CI)			**193**			**182**	**67.8%**	**-0.31 [-0.78 , 0.15]**	
Heterogeneity: Tau² = 0.21; Chi² = 17.57, df = 4 (P = 0.001); I² = 77%									
Test for overall effect: Z = 1.34 (P = 0.18)									
2.19.2 Multiple-component interventions									
Berry 2021 (5)	12.29	7.11	14	12.81	9.16	16	10.1%	-0.06 [-0.78 , 0.66]	? + + + + ?
Grote 2012 (6)	16.6	11.5	6	23.3	12.4	18	7.3%	-0.53 [-1.47 , 0.41]	? + + ? + ?
Grote 2015 (7)	0.97	0.6	40	1.33	0.78	38	14.8%	-0.51 [-0.97 , -0.06]	+ + ? + + ?
Subtotal (95% CI)			**60**			**72**	**32.2%**	**-0.41 [-0.76 , -0.05]**	
Heterogeneity: Tau² = 0.00; Chi² = 1.17, df = 2 (P = 0.56); I² = 0%									
Test for overall effect: Z = 2.25 (P = 0.02)									
Total (95% CI)			**253**			**254**	**100.0%**	**-0.34 [-0.66 , -0.03]**	
Heterogeneity: Tau² = 0.12; Chi² = 18.80, df = 7 (P = 0.009); I² = 63%									
Test for overall effect: Z = 2.14 (P = 0.03)									
Test for subgroup differences: Chi² = 0.10, df = 1 (P = 0.76), I² = 0%									



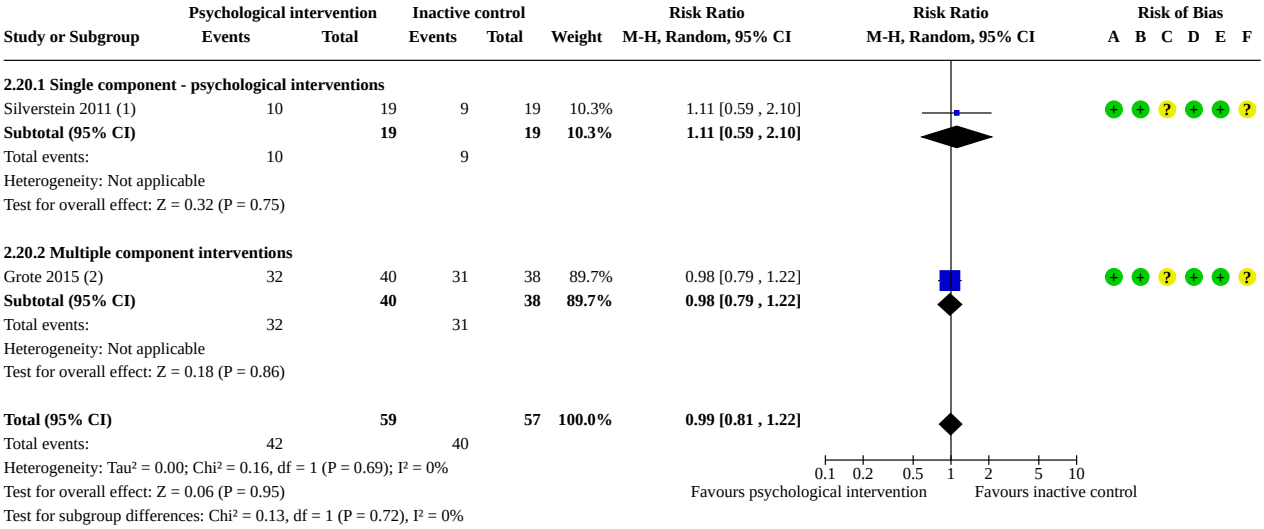
Footnotes

(1) Outcome: Depression (Beck Depression Inventory II)
(2) Outcome: Depression (Beck Depression Inventory)
(3) Outcome: Depression (Quick Inventory of Depressive Symptoms); Mean change in depression symptoms over the follow-up period
(4) Outcome: Postpartum depression (Edinburgh Postnatal Depression Scale)
(5) Outcome: Depression (Hamilton Rating Scale for Depression). Intervention includes psychological + parenting + service system components
(6) Outcome: Depression (Beck Depression Inventory). Intervention includes psychological + parenting components
(7) Outcome: Depression (Hopkins Symptom Checklist). Intervention includes psychological + parenting components

Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 2.20. Comparison 2: Psychological interventions vs inactive control, Outcome 20: Psychological interventions vs inactive control, Outcome 2: Psychological wellbeing (dichotomous data), at post-intervention, subgroup (multiple component interventions)



Footnotes

(1) Outcome: no. of participants who experienced at least one moderate-severe depression symptom episode (Quick Inventory of Depressive Symptoms) during 4 month follow up period

(2) Outcome: no. of participants who did not achieve depression remission at 3 month follow up (Hopkins Symptom Checklist score ≥0.5) (calculated using n and remission data). Interventi

Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Comparison 3. Service system approaches vs inactive control

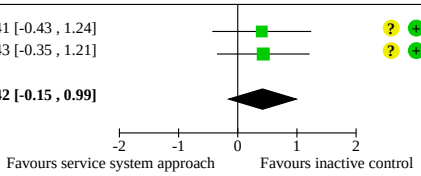
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3.1 Service system approaches vs inactive control, Outcome 2: Psychological wellbeing, at post-intervention	1	52	Std. Mean Difference (IV, Random, 95% CI)	0.42 [-0.15, 0.99]
3.2 Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (self-efficacy), at post-intervention (3-month follow-up)	1	52	Std. Mean Difference (IV, Random, 95% CI)	0.79 [0.20, 1.37]
3.3 Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (depression symptom severity), at 6-month follow-up	1	53	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.60, 0.55]
3.4 Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (self-efficacy), at 6-month follow-up	1	53	Std. Mean Difference (IV, Random, 95% CI)	0.56 [-0.03, 1.15]
3.5 Service system approaches vs inactive control, Outcome 2: Psychological wellbeing	1	46	Std. Mean Difference (IV, Random, 95% CI)	-0.46 [-1.43, 0.51]

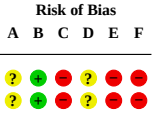
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
(depression symptom severity), at 9-month follow-up				
3.6 Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (self-efficacy), at 9-month follow-up	1	46	Std. Mean Difference (IV, Random, 95% CI)	0.43 [-0.20, 1.07]
3.7 Parent engagement (dropout) - earliest time point	1	103	Risk Ratio (M-H, Random, 95% CI)	1.40 [0.86, 2.29]
3.8 Socioecological outcomes (hardship) - post-intervention (3-month follow-up)	1	52	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.53, 0.59]
3.9 Socioecological outcomes (employment status) - post-intervention (3-month follow-up)	1	52	Risk Ratio (M-H, Random, 95% CI)	1.16 [0.62, 2.18]
3.10 Socioecological outcomes (hardship) - 6-month follow-up	1	53	Std. Mean Difference (IV, Fixed, 95% CI)	-0.49 [-1.07, 0.10]
3.11 Socioecological outcomes (employment status) - 6-month follow-up	1	53	Risk Ratio (M-H, Fixed, 95% CI)	0.85 [0.51, 1.41]
3.12 Socioecological outcomes (hardship) - 9-month follow-up	1	46	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.79, 0.47]
3.13 Socioecological outcomes (employment status) - 9-month follow-up	1	46	Risk Ratio (M-H, Random, 95% CI)	1.37 [0.63, 2.96]
3.14 Child's physical, socio-emotional wellbeing (child developmental risk) - post-intervention (3-month follow-up)	1	52	Risk Ratio (M-H, Random, 95% CI)	0.68 [0.27, 1.73]
3.15 Child's physical, socio-emotional wellbeing (child developmental risk) - 6-month follow-up	1	53	Risk Ratio (M-H, Random, 95% CI)	1.86 [0.44, 7.89]
3.16 Child's physical, socio-emotional wellbeing (child developmental risk) - 9-month follow-up	1	46	Risk Ratio (M-H, Random, 95% CI)	2.44 [0.49, 12.25]

Analysis 3.1. Comparison 3: Service system approaches vs inactive control, Outcome 1: Service system approaches vs inactive control, Outcome 2: Psychological wellbeing, at post-intervention

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Booshehri 2018 (1)	0.44	1.835415	15	-1.11	5.610221	9	46.7%	0.41 [-0.43 , 1.24]
Booshehri 2018 (2)	0.58	2.343971	18	-1.11	5.610221	10	53.3%	0.43 [-0.35 , 1.21]
Total (95% CI)			**33**			**19**	**100.0%**	**0.42 [-0.15 , 0.99]**

Heterogeneity: Tau² = 0.00; Chi² = 0.00, df = 1 (P = 0.97); I² = 0%
Test for overall effect: Z = 1.44 (P = 0.15)
Test for subgroup differences: Not applicable





Footnotes

(1) Partial intervention vs control. Outcome: Depression (Center for Epidemiological Studies Depression). The data presented in this analysis is a least square mean change score
(2) Full intervention vs control. Outcome: Depression (Center for Epidemiological Studies Depression). The data presented in this analysis is a least square mean change score

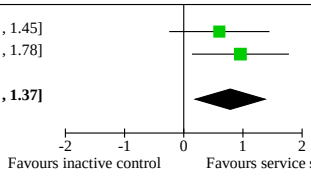
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.2. Comparison 3: Service system approaches vs inactive control, Outcome 2: Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (self-efficacy), at post-intervention (3-month follow-up)

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Booshehri 2018 (1)	-0.44	1.338501	15	-2.84	6.138447	9	48.3%	0.60 [-0.25 , 1.45]
Booshehri 2018 (2)	1.08	2.04624	18	-2.84	6.138447	10	51.7%	0.96 [0.14 , 1.78]
Total (95% CI)			**33**			**19**	**100.0%**	**0.79 [0.20 , 1.37]**

Heterogeneity: Tau² = 0.00; Chi² = 0.35, df = 1 (P = 0.55); I² = 0%
Test for overall effect: Z = 2.62 (P = 0.009)
Test for subgroup differences: Not applicable



Footnotes

(1) Patrial intervention vs control. Outcome: Parental self-efficacy (General Self-Efficacy Scale). Higher scores = better/less harm. The data presented in this analysis is a least square mean change score
(2) Full intervention vs control. Outcome: Parental self-efficacy (General Self-Efficacy Scale). Higher scores = better/less harm. The data presented in this analysis is a least square mean change score

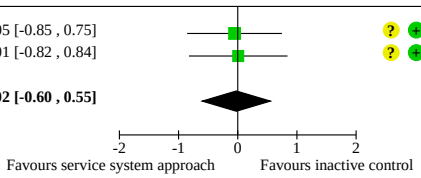
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.3. Comparison 3: Service system approaches vs inactive control, Outcome 3: Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (depression symptom severity), at 6-month follow-up

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Booshehri 2018 (1)	0.48	8.061762	18	0.89	5.489988	9	52.0%	-0.05 [-0.85 , 0.75]
Booshehri 2018 (2)	0.95	8.061762	18	0.89	5.489988	8	48.0%	0.01 [-0.82 , 0.84]
Total (95% CI)			**36**			**17**	**100.0%**	**-0.02 [-0.60 , 0.55]**

Heterogeneity: Tau² = 0.00; Chi² = 0.01, df = 1 (P = 0.92); I² = 0%
Test for overall effect: Z = 0.08 (P = 0.93)
Test for subgroup differences: Not applicable



Risk of Bias: A B C D E F

Footnotes

(1) Full intervention vs control. Outcome: Depression (Center for Epidemiological Studies Depression). The data presented in this analysis is a least square mean change score.
(2) Partial intervention vs control. Outcome: Depression (Center for Epidemiological Studies Depression). The data presented in this analysis is a least square mean change score

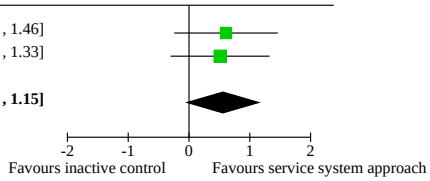
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.4. Comparison 3: Service system approaches vs inactive control, Outcome 4: Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (self-efficacy), at 6-month follow-up

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Booshehri 2018 (1)	1.3	3.599006	18	-1.53	6.16222	8	47.7%	0.61 [-0.24 , 1.46]
Booshehri 2018 (2)	0.49	1.923968	18	-1.53	6.16222	9	52.3%	0.51 [-0.30 , 1.33]
Total (95% CI)			**36**			**17**	**100.0%**	**0.56 [-0.03 , 1.15]**

Heterogeneity: Tau² = 0.00; Chi² = 0.03, df = 1 (P = 0.87); I² = 0%
Test for overall effect: Z = 1.86 (P = 0.06)
Test for subgroup differences: Not applicable



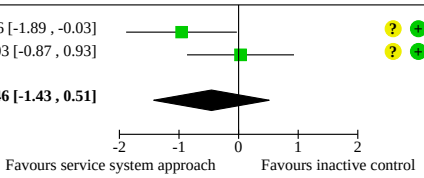
Footnotes

(1) Patrial intervention vs control. Outcome: Parental self-efficacy (General Self-Efficacy Scale). Higher scores = better/less harm. The data presented in this analysis is a least square mean change
(2) Full intervention vs control. Outcome: Parental self-efficacy (General Self-Efficacy Scale). Higher scores = better/less harm. The data presented in this analysis is a least square mean change sc

Analysis 3.5. Comparison 3: Service system approaches vs inactive control, Outcome 5: Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (depression symptom severity), at 9-month follow-up

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Booshehri 2018 (1)	-1.13	2.341646	17	2.17	5.09302	7	49.2%	-0.96 [-1.89 , -0.03]
Booshehri 2018 (2)	2.34	5.09302	15	2.17	5.09302	7	50.8%	0.03 [-0.87 , 0.93]
Total (95% CI)			**32**			**14**	**100.0%**	**-0.46 [-1.43 , 0.51]**

Heterogeneity: Tau² = 0.27; Chi² = 2.26, df = 1 (P = 0.13); I² = 56%
Test for overall effect: Z = 0.92 (P = 0.36)
Test for subgroup differences: Not applicable



Risk of Bias: A B C D E F

Footnotes

(1) Full intervention vs control. Outcome: Depression (Center for Epidemiological Studies Depression). The data presented in this analysis is a least square mean change score
(2) Partial intervention vs control. Outcome: Depression (Center for Epidemiological Studies Depression). The data presented in this analysis is a least square mean change score

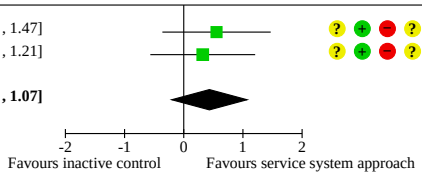
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.6. Comparison 3: Service system approaches vs inactive control, Outcome 6: Service system approaches vs inactive control, Outcome 2: Psychological wellbeing (self-efficacy), at 9-month follow-up

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% CI	Risk of Bias A B C D E F
Booshehri 2018 (1)	2.56	5.745506	15	-0.79	5.979257	7	48.4%	0.55 [-0.36 , 1.47]		? + − ? − −
Booshehri 2018 (2)	0.72	3.865643	17	-0.79	5.979257	7	51.6%	0.32 [-0.56 , 1.21]		? + − ? − −
Total (95% CI)			**32**			**14**	**100.0%**	**0.43 [-0.20 , 1.07]**		

Heterogeneity: Tau² = 0.00; Chi² = 0.13, df = 1 (P = 0.72); I² = 0%
Test for overall effect: Z = 1.34 (P = 0.18)
Test for subgroup differences: Not applicable



Footnotes

(1) Patrial intervention vs control. Outcome: Parental self-efficacy (General Self-Efficacy Scale). Higher scores = better/less harm. The data presented in this analysis is a least square mean change score
(2) Full intervention vs control. Outcome: Parental self-efficacy (General Self-Efficacy Scale). Higher scores = better/less harm. The data presented in this analysis is a least square mean change score

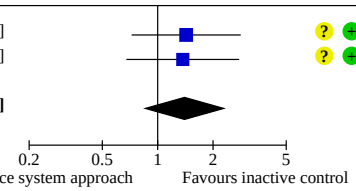
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.7. Comparison 3: Service system approaches vs inactive control, Outcome 7: Parent engagement (dropout) - earliest time point

Study or Subgroup	Parenting intervention Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI	Risk of Bias A B C D E F
Booshehri 2018 (1)	20	35	6	15	51.7%	1.43 [0.72 , 2.83]		? + + + + ?
Booshehri 2018 (2)	19	37	6	16	48.3%	1.37 [0.68 , 2.77]		? + + + + ?
Total (95% CI)		**72**		**31**	**100.0%**	**1.40 [0.86 , 2.29]**		
Total events:	39		12					

Heterogeneity: Tau² = 0.00; Chi² = 0.01, df = 1 (P = 0.93); I² = 0%
Test for overall effect: Z = 1.34 (P = 0.18)
Test for subgroup differences: Not applicable



Footnotes

(1) First available time point is 3 months post-intervention. Partial intervention vs control
(2) First available time point is 3-months post-intervention. Full intervention vs control

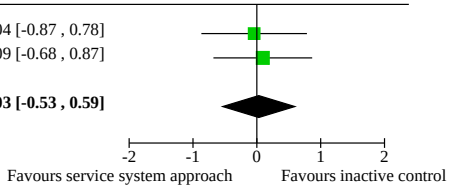
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.8. Comparison 3: Service system approaches vs inactive control, Outcome 8: Socioecological outcomes (hardship) - post-intervention (3-month follow-up)

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Booshehri 2018 (1)	-0.3	1.56104	15	-0.23	1.683871	9	46.7%	-0.04 [-0.87 , 0.78]
Booshehri 2018 (2)	-0.03	2.257706	18	-0.23	1.683871	10	53.3%	0.09 [-0.68 , 0.87]
Total (95% CI)			**33**			**19**	**100.0%**	**0.03 [-0.53 , 0.59]**

Heterogeneity: Tau² = 0.00; Chi² = 0.06, df = 1 (P = 0.81); I² = 0%
Test for overall effect: Z = 0.10 (P = 0.92)
Test for subgroup differences: Not applicable



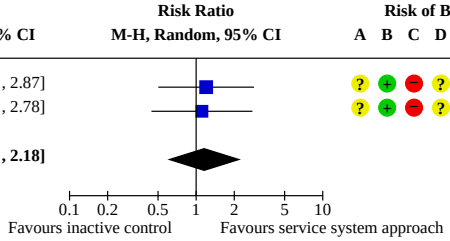
Footnotes

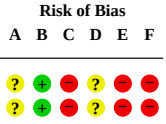
(1) Partial intervention vs control. Outcome: Hardship index (an aggregate of the US Household Food Security Survey Module, an energy security survey, and housing security survey). T
(2) Full intervention vs control. Outcome: Hardship index (an aggregate of the US Household Food Security Survey Module, an energy security survey, and housing security survey). The

Analysis 3.9. Comparison 3: Service system approaches vs inactive control, Outcome 9: Socioecological outcomes (employment status) - post-intervention (3-month follow-up)

Study or Subgroup	Service system approach Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Booshehri 2018 (1)	8	15	4	9	52.7%	1.20 [0.50 , 2.87]
Booshehri 2018 (2)	8	18	4	10	47.3%	1.11 [0.44 , 2.78]
Total (95% CI)		**33**		**19**	**100.0%**	**1.16 [0.62 , 2.18]**
Total events:	16		8			

Heterogeneity: Tau² = 0.00; Chi² = 0.01, df = 1 (P = 0.90); I² = 0%
Test for overall effect: Z = 0.45 (P = 0.65)
Test for subgroup differences: Not applicable





Footnotes

(1) Partial intervention vs control. Outcome: Current employment status.
(2) Full intervention vs control. Outcome: Current employment status.

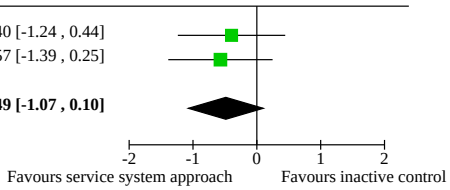
Risk of bias legend

(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.10. Comparison 3: Service system approaches vs inactive control, Outcome 10: Socioecological outcomes (hardship) - 6-month follow-up

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Booshehri 2018 (1)	-0.45	1.587851	18	0.21	1.671308	8	48.5%	-0.40 [-1.24 , 0.44]
Booshehri 2018 (2)	-0.73	1.56338	18	0.21	1.671308	9	51.5%	-0.57 [-1.39 , 0.25]
Total (95% CI)			**36**			**17**	**100.0%**	**-0.49 [-1.07 , 0.10]**

Heterogeneity: Chi² = 0.08, df = 1 (P = 0.77); I² = 0%
Test for overall effect: Z = 1.62 (P = 0.10)
Test for subgroup differences: Not applicable



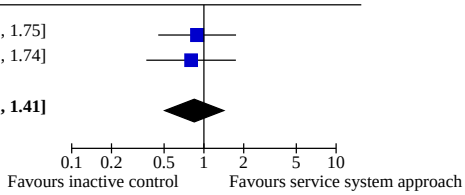
Footnotes

(1) Partial intervention vs control. Outcome: Hardship index (an aggregate of the US Household Food Security Survey Module, an energy security survey and housing security survey). Tl
(2) Full intervention vs control. Outcome: Hardship index (an aggregate of the US Household Food Security Survey Module, an energy security survey, and housing security survey). The

Analysis 3.11. Comparison 3: Service system approaches vs inactive control, Outcome 11: Socioecological outcomes (employment status) - 6-month follow-up

Study or Subgroup	Service system approach Events	Total	inactive control Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Booshehri 2018 (1)	10	18	5	8	50.9%	0.89 [0.45 , 1.75]
Booshehri 2018 (2)	8	18	5	9	49.1%	0.80 [0.37 , 1.74]
Total (95% CI)		**36**		**17**	**100.0%**	**0.85 [0.51 , 1.41]**
Total events:	18		10			

Heterogeneity: Chi² = 0.04, df = 1 (P = 0.84); I² = 0%
Test for overall effect: Z = 0.64 (P = 0.52)
Test for subgroup differences: Not applicable

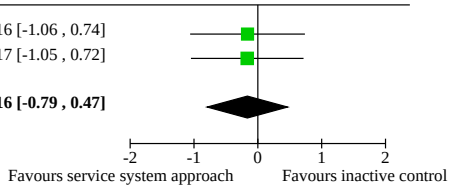


Footnotes
(1) Partial intervention vs control. Outcome: Current employment status
(2) Full intervention vs control. Outcome: Current employment status

Analysis 3.12. Comparison 3: Service system approaches vs inactive control, Outcome 12: Socioecological outcomes (hardship) - 9-month follow-up

Study or Subgroup	Service system approach Mean	SD	Total	Inactive control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Booshehri 2018 (1)	-0.38	1.515279	15	-0.12	1.626126	7	49.0%	-0.16 [-1.06 , 0.74]
Booshehri 2018 (2)	-0.4	1.630387	17	-0.12	1.626126	7	51.0%	-0.17 [-1.05 , 0.72]
Total (95% CI)			**32**			**14**	**100.0%**	**-0.16 [-0.79 , 0.47]**

Heterogeneity: Tau² = 0.00; Chi² = 0.00, df = 1 (P = 0.99); I² = 0%
Test for overall effect: Z = 0.51 (P = 0.61)
Test for subgroup differences: Not applicable

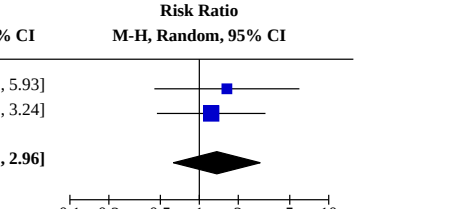


Footnotes
(1) Partial intervention vs control. Outcome: Hardship index (an aggregate of the US Household Food Security Survey Module, an energy security survey, and housing security survey). T
(2) Full intervention vs control. Outcome: Hardship index (an aggregate of the US Household Food Security Survey Module, an energy security survey and housing security survey). The

Analysis 3.13. Comparison 3: Service system approaches vs inactive control, Outcome 13: Socioecological outcomes (employment status) - 9-month follow-up

Study or Subgroup	Service system approach Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Booshehri 2018 (1)	7	15	2	7	35.9%	1.63 [0.45 , 5.93]
Booshehri 2018 (2)	9	17	3	7	64.1%	1.24 [0.47 , 3.24]
Total (95% CI)		**32**		**14**	**100.0%**	**1.37 [0.63 , 2.96]**
Total events:	16		5			

Heterogeneity: Tau² = 0.00; Chi² = 0.12, df = 1 (P = 0.73); I² = 0%
Test for overall effect: Z = 0.79 (P = 0.43)
Test for subgroup differences: Not applicable

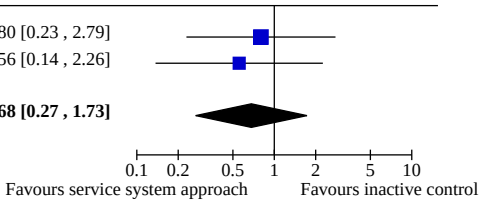


Footnotes
(1) Partial intervention vs control. Outcome: Current employment status
(2) Full intervention vs control. Outcome: Current employment status

Analysis 3.14. Comparison 3: Service system approaches vs inactive control, Outcome 14: Child's physical, socio-emotional wellbeing (child developmental risk) - post-intervention (3-month follow-up)

Study or Subgroup	Service system approach Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Booshehri 2018 (1)	4	15	3	9	55.8%	0.80 [0.23 , 2.79]
Booshehri 2018 (2)	3	18	3	10	44.2%	0.56 [0.14 , 2.26]
Total (95% CI)		**33**		**19**	**100.0%**	**0.68 [0.27 , 1.73]**
Total events:	7		6			

Heterogeneity: Tau² = 0.00; Chi² = 0.15, df = 1 (P = 0.70); I² = 0%
Test for overall effect: Z = 0.81 (P = 0.42)
Test for subgroup differences: Not applicable

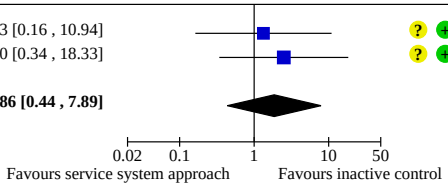


Footnotes
(1) Partial intervention vs control. Outcome: Child's developmental risk (Parent's Evaluation of Developmental Status Scale)
(2) Full intervention vs control. Outcome: Child's developmental risk (Parent's Evaluation of Developmental Status Scale)

Analysis 3.15. Comparison 3: Service system approaches vs inactive control, Outcome 15: Child's physical, socio-emotional wellbeing (child developmental risk) - 6-month follow-up

Study or Subgroup	Service system approach Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk of Bias A B C D E F
Booshehri 2018 (1)	3	18	1	8	47.3%	1.33 [0.16 , 10.94]	? + − ? − −
Booshehri 2018 (2)	5	18	1	9	52.7%	2.50 [0.34 , 18.33]	? + − ? − −
Total (95% CI)		**36**		**17**	**100.0%**	**1.86 [0.44 , 7.89]**	
Total events:	8		2				

Heterogeneity: Tau² = 0.00; Chi² = 0.18, df = 1 (P = 0.67); I² = 0%
Test for overall effect: Z = 0.84 (P = 0.40)
Test for subgroup differences: Not applicable



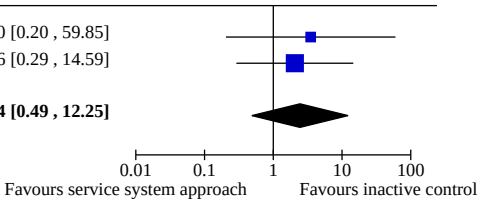
Footnotes
(1) Partial intervention vs control. Outcome: Child's developmental risk (Parent's Evaluation of Developmental Status Scale).
(2) Full intervention vs control. Outcome: Child's developmental risk (Parent's Evaluation of Developmental Status Scale).

Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias

Analysis 3.16. Comparison 3: Service system approaches vs inactive control, Outcome 16: Child's physical, socio-emotional wellbeing (child developmental risk) - 9-month follow-up

Study or Subgroup	Service system approach Events	Total	Inactive control Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Booshehri 2018 (1)	3	15	0	7	32.2%	3.50 [0.20 , 59.85]
Booshehri 2018 (2)	5	17	1	7	67.8%	2.06 [0.29 , 14.59]
Total (95% CI)		**32**		**14**	**100.0%**	**2.44 [0.49 , 12.25]**
Total events:	8		1			

Heterogeneity: Tau² = 0.00; Chi² = 0.09, df = 1 (P = 0.76); I² = 0%
Test for overall effect: Z = 1.09 (P = 0.28)
Test for subgroup differences: Not applicable



Footnotes
(1) Partial intervention vs control. Outcome: Child's developmental risk (Parent's Evaluation of Developmental Status Scale)
(2) Full intervention vs control. Outcome: Child's developmental risk (Parent's Evaluation of Developmental Status Scale)

ADDITIONAL TABLES

Table 1. Intervention categories, descriptions and examples

Category	Description/identifying features	Examples
Psychological interventions	These approaches address the emotions, cognitions, meanings, perceptions and behaviours associated with or arising from complex trauma, with the primary goal of improving participant mental health and social and emotional wellbeing (Lewis 2020).	• *CBT-trauma focused*, 8 types: cognitive processing therapy; single session CBT; 3 types of exposure therapy (narrative, prolonged, virtual reality); brief eclectic psychotherapy; reconstruction of traumatic memories • *CBT* (not trauma focused) • *Other psychological interventions*: psychodynamic therapies; psychological de-briefing – individual and group psychological debriefing, interpersonal therapies, supportive counselling or stabilising therapies; psycho-education; narrative therapies; interpersonal therapies; supportive counselling (present-centred therapy); stress inoculation training; mindfulness-based stress reduction/mindfulness; present-centred therapy; relaxation training; eye movement desensitisation and reprocessing; emotional freedom technique; hypnotherapy; written exposure therapy; observe and experiential integration dialogic exposure; guided Internet therapy with a trauma focus
Parenting-, parent–child- or relationship-focused interventions	These approaches seek to support the healthy development of early parent–child or couple's relationships, typically grounded in attachment theory. They may or may not additionally address parental emotions, cognitions and behaviours associated with or arising from complex trauma. These are relational approaches that view the parent–child or couple relationship "as the vehicle for change, insofar as mothers' representations of her child, reflexive capacity, parenting behaviours and mental well-being are targets for intervention" (Erickson 2019, page 251-4).	• *Parenting interventions*: Circle of Security (home visiting, individual, group versions); Minding the Baby • *Parent–child interventions*: Attachment & Biobehavioural Catch-Up (infant, toddler versions); Child FIRST; CPP, Mom Power; M-ITG • *Family-focused/couple-focused* strategies: couples CBT with a trauma focus • *Social support:* Mom Power, the Social Support Pillar, provides a group setting for mothers to connect

Table 1. Intervention categories, descriptions and examples *(Continued)*

	Most include a range of educational and cognitive behavioural elements and techniques. Some include specific elements on peer support, and efforts to link parents to relevant services and social supports (Rosenblum 2017).	
Mind–body approaches	Non-clinical, non-pharmacological approaches that adopt emerging or longstanding holistic strategies or theories to promoting wellbeing and recovery from trauma (Bisson 2020).	• Mantram repetition or meditation • Acupuncture • Somatic experiencing • Group music therapy • Yoga • Nature adventure therapy • Neurofeedback • Saikikeishikankyoto (Japanese herbal medicine) • Attention bias modification • Mind–body skills (in children) • Trauma-focused art therapy (in children) • Structured writing therapies
Pharmacological and biomedical therapies	Pharmacological treatments provided as an adjunct to other interventions that aim to address symptoms/comorbidities of complex trauma such as depression, anxiety and psychosis (Bisson 2021; Hoskins 2021).	• *Pharmacological medications*: antidepressant medications (e.g. selective serotonin reuptake inhibitors such as fluoxetine or sertraline); anxiety and depression medication (e.g. venlafaxine); antipsychotic medications (e.g. quetiapine) • *Biomedical therapies*: neuromodulation therapies (e.g. transcranial magnetic stimulation or electroconvulsive therapy)
Service system approaches	These approaches refer to those that are aimed at addressing issues with the care system to improve access and support for parents experiencing complex trauma or with past experiences of childhood maltreatment (or both), rather than individuals. These include targeted models of care, specific training and strategies to improve access to care (Morelen 2018; Muzik 2015; Rosenblum 2018).	• *Models of care*: stepped care, collaborative care, continuity of care models • *Trauma-informed care*: training for maternity and early parent care and support workers • *Care co-ordination strategies*: to facilitate access to support services (e.g. 'care navigators,' 'case management')

Categories include all modes of delivery (individual, group, Internet etc.).
CBT: cognitive behavioural therapy; **Child FIRST:** Child and Family Interagency Resource, Support & Training; **CPP:** Infant/Child Parent Psychotherapy; **M-ITG:** Mother-Infant Therapy Group.

Table 2. Methods of outcome assessment

Outcome category	Outcome	Outcome domain	Example measures
Critical outcomes	Parental psychological or socio-emotional well-being	Trauma-related symptoms	International Trauma Questionnaire (Hyland 2017); Disturbances in Self-Organisation (Shevlin 2018); Trauma-Related Guilt Inventory (Kubany 1996); Post-Traumatic Cognitions Inventory (Foa 1999); Difficulties in Emotion Regulation Scale (Gratz 2004)
		Anxiety symptoms, depression symptoms, other validated measures of psy-	Beck Depression Inventory (Beck 1988a); Beck Anxiety Inventory (Beck 1988b); Post-partum Depression Screen-

Table 2. Methods of outcome assessment *(Continued)*

		chological wellbeing, or a combination of these	ing Scale (Beck 2000); Edinburgh Postnatal Depression Scale (Cox 1987)
		Substance use (commenced, recommenced, increased, decreased)	Validated questionnaire such as the Leeds Dependence Questionnaire (Raistrick 1994) or self-report or other documented programme or administrative evidence
		Parent relationship quality (with partner or significant others)	Relationship Scales Questionnaire (Bartholomew 1991); Relationship Quality Questionnaire (Griffin 1994); Interpersonal Support Evaluation List (Cohen 1983)
		Parental self-harm (attempted or actual)	Validated questionnaire or self-report or other documented programme or administrative evidence, such as the Deliberate Self-Harm Inventory or Self-Harm Inventory (Latimer 2013)
	Parenting capacity	Parent–child relationship (e.g. interaction, warmth, attachment, mutual responsivity)	Strange Situation paradigm (Ainsworth 1978); Nursing Child Assessment Teaching Scale (Gross 1993); Toddler Attachment Sort-45 (Bimler 2002; Kirkland 2004)
		Parenting skills (e.g. problem-solving, coping, self-efficacy, parent sensitivity and responsiveness)	Parenting Stress Index (Abidin 1990; Abidin 1995); Coping Orientation to Problems Experienced (Carver 1989); Coding Interactive Behaviour system (Feldman 2010)
Important outcomes	Parental intervention acceptability	Parent satisfaction with intervention (e.g. emotional safety, cultural safety, appreciation)	Validated questionnaires such as Client Satisfaction Questionnaire Scales and the Service Satisfaction Scale-30 (Attkisson 1996), or self-report measures (continuous and binary outcomes measured separately)
		Medication compliance (if applicable)	Self-report or other documented programme or administrative evidence such as pickup/refill rates (Anghel 2019)
		Parent engagement (including dropouts; programme completion)	Self-report measures of fidelity and engagement including self-report, reported dropout (for any reason), retention and participation, adherence to target behaviour or attendance rates with programme or other aspects of care such as antenatal care and maternal child health visits (continuous and binary outcomes measured separately) (Walton 2017)
	Socio-ecological outcomes	Social functioning (increased social functioning or social networks, or both)	Interpersonal Support Evaluation List (Cohen 1983); Social Network Index (Cohen 1997); Work and Social Adjustment Scale (Marks 1986; Mundt 2002)
		Changes in social capital (e.g. increased access to employment, education, support/health services) or resources (food, housing, clothing)	Validated questionnaire or self-report or other documented or administrative evidence, measures of access or process measures such as: Life Stressor Checklist (Rosenblum 2018); Work and Social Adjustment Scale (Marks 1986; Mundt 2002); Cornell Service Index (Sirey 2005)
	Child adverse events recorded during the intervention	Child maltreatment occurrence (including exposure to family violence)	Assessed by process or administrative evidence such as reported (self-report or medically attended injuries) and documented as part of the intervention (programme) design; process or administrative evidence such as re-

Table 2. Methods of outcome assessment *(Continued)*

	Family disruptions and child removals	ported and documented in the intervention outcomes; and validated questionnaires such as the Childhood Trauma Questionnaire, Escape Tool or SPUTOVAMO checklist (McTavish 2020)
	Other adverse childhood experiences	
Child's physical, socio-emotional well-being	Child physical outcomes (e.g. preterm birth, low birth weight, small-for-gestational age, neonatal intensive care admission, immunisations, hospitalisations)	Validated measures for indicators of child development such as the Bayley Scales of Infant and Toddler Development, Third Edition (Bayley 2006)
	Child developmental outcomes (e.g. cognition, speech, language, motor skills)	
	Child emotional and behavioural outcomes (e.g. internalising and externalising behaviour)	Validated measures for child emotional and behavioural functioning or other measures of child's socio-emotional wellbeing such as the Brief Infant-Toddler Social and Emotional Assessment (Briggs-Gowan 2004)
Other outcomes	Service provider knowledge, attitudes and practices	Validated questionnaires (or self-report) directed at the intervention (programme) workforce such as a Knowledge, Attitude, and Practice survey (King 2019), or the Attitudes Related to Trauma-Informed Care scale (Baker 2016)
	Cost or cost-effectiveness	Assessed by process measures, such as reported or documented evidence of parenting intervention costs (e.g. programme material, transport, childcare, catering) relative to the costs of an alternative intervention or minimal support, or economic evaluation methods, as outlined by Elbanna 2021

Table 3. Unused methods

Method	Details (for future updates)
Time-to-event outcomes	We will use HRs as our measure of treatment effect for any time-to-event outcomes and will present these with 95% CIs.
Individually randomised trials with clustering	Clustering may arise in individually randomised trials where each therapist treats multiple patients. For these trials, we use the same approach as described for cluster randomised trials to inflate the variance of the intervention estimates (using a design effect) when clustering has not been accounted for in the trial analysis. However, we would only apply this correction in trials where we can establish the mean number of participants per therapist, and where this number is large enough to affect the variance importantly (Higgins 2022a).
Cross-over trials	If cross-over designs had been used to evaluate any of our eligible interventions, other than pharmacotherapy, we would only use the data from the first period (if available). A cross-over design for the interventions eligible for this review (aside from pharmacotherapy) is inappropriate because these interventions can lead to permanent change. In cross-over trials evaluating pharmacological interventions, where an appropriate paired analysis is not available, we will attempt to approxi-

Table 3. Unused methods *(Continued)*

	mate a paired analysis by imputing missing statistics (e.g. missing standard deviation, correlation). The values of these statistics will be informed by other trials included in the review, or trials outside the meta-analysis (Elbourne 2002; Higgins 2022a). We would only include the first period data (if possible) in cross-over trials in which there is less than two weeks' washout, because in this circumstance there is a serious risk of carry-over effects arising from the effects of the first-period antidepressant or antipsychotic persisting into subsequent period(s) (Hosenbocus 2011; Hulshof 2020).
Assessment of reporting biases	The risk of missing studies (termed 'unknown-unknowns'): we will consider qualitative signals of non-publication of studies (e.g. research area is in the early stages) and statistical signals of missing results. To examine the latter, we plan to investigate the potential for small-study effects using contour-enhanced funnel plots. Contour-enhanced funnel plots aid in determining whether funnel plot asymmetry is due to publication bias or other factors (Peters 2008).
Data imputation	We will impute missing summary data (e.g. ICCs, standard deviations), where we are unable to obtain these data from the trial authors, and document the methods used and any assumptions made
Meta-analyses	Given that random-effects models can yield CIs that are too small, particularly in meta-analyses with few trials, we will undertake sensitivity analyses using the restricted maximum likelihood (REML) estimator of between trial heterogeneity variance and the Hartung-Knapp-Sidik-Jonkman CI methods (Hartung 2001; Sidik 2002).

CI: confidence interval; **HR:** hazard ratio; **ICC:** intraclass correlation coefficients; **REML:** restricted maximum likelihood

Table 4. Details of interventions

Study	Intervention	Delivery setting and modality	Frequency of intervention delivery	Length of treatment	Description
Parenting interventions					
Cicchetti 2006	Arm 1: IPP, called child-parent psychotherapy in Stronach 2013 Arm 2: PPI	Face-to-face, in-home	Weekly	12 months	Arm 1 (IPP) A manualised intervention focusing on the relationship between the mother and the child following a supportive, nondirective and non-didactic approach, which includes developmental guidance based on the mother's concerns. Sessions typically occur in the families' living rooms using toys and materials already present in the home. During sessions, the therapist observes and responds empathically to the interactions between the mother and the infant, providing comment on processes in the parent-child relationship as they occur. Arm 2 (PPI) Focus of the intervention is on the psycho-education of the mothers (rather than on the mother-child dyad), using a variety of cognitive and behavioural techniques to address parenting skill deficits and social-ecological factors. This included parental edu-

Table 4. Details of interventions *(Continued)*

					cation and parenting skill training to reduce maternal stress, foster social support and increase life satisfaction. The approach is didactic in nature, providing mothers with specific information and knowledge regarding child development. Training in parenting techniques, problem-solving and relaxation were also utilised.
Haight 2005	Emotional support coaching	Individual, face-to-face, community setting	Single session	Once	The "intervention focused on emotion support and coaching" (Haight 2005, page 466) and occurred immediately prior to the foster parent visit. The first phase of the intervention involved a discussion with the mother "about her family and any other significant relationships, and her experiences with Department of Children and Family Services" (Haight 2005, page 467). The second phase of the intervention focused on leave-taking, including a discussion of how mothers had "tried to support their children during leave-taking, the... interviewer sharing additional strategies" (Haight 2005, page 467) and the interviewer and mother role-playing the implementation of strategies the child might respond to.
Liu 2021	FIND, augmented with treatment as usual (standard Early Head Start services)	Individual, face-to-face in-home	Weekly	10 weeks	A manualised brief, flexible, and strength-based video feedback intervention programme that "uses video coaching to strengthen developmentally supportive 'serve and return' interactions, a pattern characterised by attuned, reciprocal, and well-regulated interactions." (Liu 2021, page 2) FIND is based on five core elements: (1) sharing the child's focus; (2) supporting and encouraging; (3) naming; (4) back and forth interaction; and (5) endings and beginnings.
Pasalich 2019	PFR	Individual, face-to-face in-home	Weekly	10 weeks	A manualised relationship- and strengths-based home visiting service that aims to help families facing adversity. "PFR seeks to increase caregivers' awareness of their children's social and emotional needs, including their need for a sense of safety and security, as well as increasing caregivers' understanding of their own needs as parents" (Oxford 2018, page 268). "Using video-based feedback... the parent and child are recorded playing together" (Oxford 2018, page 268). The provider reviews a recorded play session with the parent, who reflects on the "recorded interactions, noting what the child is doing in relation to the caregiver's behavior and what the caregiver is doing in response to the child" (Oxford 2018, page 268).
Rosenblum 2017	Mom Power	3 x individual, in-home,	Weekly	10 weeks	A manualised multifamily intervention "designed to strengthen protective factors for

Table 4. Details of interventions *(Continued)*

		10 x community, group sessions			the individual and within the family system, and geared towards overcoming barriers to engagement... The fundamental aim of the intervention is to enhance mothers' wellbeing and positive parenting and to ignite motivation for further connection with care, ultimately improving children's outcomes" (Rosenblum 2017, page 3). The Mom Power curriculum rests on five core pillars: "attachment-based parenting education, self-care, practice, social support, and connection to resources" (Rosenblum 2017, page 4). "The Mom Power curriculum is structured but personalised, building a framework for understanding children's behaviours and paired with tailored feedback that addresses the unique experiences of each mother-child dyad" (Rosenblum 2017, page 6).
Steele 2019	GABI	Group, in-clinic	3 x weekly	26 weeks	A manualised, multifamily, group-based maltreatment prevention intervention, consisting of a distinct set of attachment-relevant features: (1) a specified time for parents and children to interact with one another; (2) "a time for parents to interact with other parents while their children experience individual time with their age-mates in the presence of trained clinicians who help them to engage with peers" (Steele 2019, page 205); and (3) a 'reunion' where children and parents are together again.
Psychological interventions					
Ammerman 2016	IH-CBT	Individual, face-to-face, in-home	Weekly	15 weeks	IH-CBT follows the directives (principles and techniques) of traditional CBT, consisting of behavioural activation, identification of automatic thoughts/schemas, thought restructuring and relapse prevention, and is delivered concurrently with home visiting. Adaptions were made to maximise engagement, including (1) delivering CBT in home; (2) tailoring treatment content to issues relevant to the population (e.g. transition to adult roles, living with parents, parenting challenges); and (3) allowing communication between therapists and home visitors.
Berry 2021	PREPP	Individual, 3 x face-to-face, clinical setting, 1 x telephone	4 sessions	7 to 12 weeks	A manualised coaching programme including infant behavioural interventions and targeted psychotherapy techniques. "The psychologist also contacted participants by telephone at 2 weeks postpartum and, using motivational interviewing techniques, encouraged the use of PREPP skills and answered specific participant questions" (Berry 2021, page 190). The infant behavioural interventions included: "feeding the infant between 10 PM and midnight, ac-

Table 4. Details of interventions *(Continued)*

					centuating differences between day and night by providing higher levels of stimulation during the day, lengthening the latency to feeding time in the middle of the night by engaging in other attentive activities such as walking with the baby and diapering, thereby extinguishing the association between nighttime waking and feeding, carrying infants for a minimum of 3 hours a day, throughout the day, in addition to the carrying that occurs in response to crying and feeding, and learning to swaddle the baby" (Berry 2021, page 189). Psychotherapy techniques included supportive psychological interviewing that encourages reflection on their own childhood and how it will inform the development of their parental identity, psycho-education about the postpartum period, and mindfulness techniques aimed at (a) helping mothers to cope better when their babies are distressed and/or unsoothable and (b) aiding mothers to return to sleep after tending to their babies during the nighttime.
Blalock 2013	CBASP, augmented with standard behavioural and motivational smoking cessation counselling	Individual, face-to-face, clinical setting	Weekly	10 weeks	"Each session consisted of 15 minutes of standard behavioural and motivational smoking cessation counselling (based on the Clinical Practice Guidelines)...plus 45 minutes of CBASP, a manualised, interpersonally focused psychotherapy that reduces interpersonal stress and increases the quality of one's relationships with significant others" (Blalock 2013, page 5). It includes "development of secure therapeutic relationships, improvement in interpersonal and emotion regulation skills, reduction in avoidant behaviours, examination of implicit assumptions regarding relational expectations, and activation and processing of interpersonal schema and negative emotional states associated with traumatic relational memories" (Blalock 2013, page 4).
Grote 2012	IPT-B	Individual, face-to-face, telephone, clinical setting	Weekly during the acute phase (8 sessions) then variable	3 to 6 months	Culturally relevant IPT-B is a manualised, "multicomponent model of care, consisting of a motivationally enhanced, pretreatment engagement session" (Grote 2012, page 5) (whereby the interviewer elicits participant's unique barriers to care within a culturally sensitive manner and engages in collaborative problem-solving to overcome barriers), 8 acute sessions of IPT-B (targeting 4 interpersonal problem areas related to the onset/maintenance of a depressive episode: role transition, role dispute, grief and interpersonal deficits), and maintenance IPT-B (mothers encouraged to be watchful for the appearance of early somatic, affective or cognitive symptoms related to prior depres-

Table 4. Details of interventions *(Continued)*

					sive episodes and to practice skills learned in IPT-B to prevent relapse). A number of culturally relevant additions were integrated into IPT-B, including free bus passes, childcare and the facilitation of access to needed social services.
Grote 2015	MOMCare, augmented with treatment as usual (MSS-Plus)	Individual, face-to-face, telephone, community setting or in-home	Weekly during the acute phase (8 sessions) then variable	3 to 6 months	MOMCare consisted of manualised IPT-B and/or pharmacotherapy for acute treatment, as well as outreach for women missing sessions and pre-therapy engagement session. IPT-B consists of an engagement session followed by "eight acute sessions of IPT-B before the birth and IPT-B maintenance sessions up to about 1-year postpartum and has been adapted to be relevant to the culture of race/ethnicity by incorporating the patient's cultural views of depression, treatment goals, and resources" (Grote 2015, page 823). For mothers requesting antidepressants as an initial treatment, they were encouraged to engage in a risk-benefit decision-making process with their OB provider to "discuss the risks of both antidepressants and untreated depression during pregnancy and lactation" (Grote 2015, page 823), which was then implemented using a stepped-care treatment approach. Mothers with less than 50% improvement on the PHQ-9 by 6 to 8 weeks received a revised treatment plan. Mothers receiving IPT-B alone could be augmented with a trial of antidepressant medication. Mothers "on medication alone could receive an adjusted dosage to achieve optimal outcomes, medication change, and/or augmentation with IPT-B" (Grote 2015, page 823). The MOMCare intervention was added onto usual care (MSS-Plus).
Madigan 2015	TF-CBT, augmented with treatment as usual (parenting course)	Individual, face-to-face, clinical setting	Weekly	12 weeks	A manualised cognitive behavioural therapy, including "psychoeducation, stress management, affective modulation, an understanding of the cognitive-emotional-behavioural triad, and the creation and cognitive processing of a detailed trauma narrative... In cases where a traumatic loss experience was the focus of treatment, an adapted TF-CBT protocol designed specifically for traumatic loss was used" (Madigan 2015, page 183).
Silverstein 2011	PSE	Individual, face-to-face, in-home	Weekly or bi-weekly	7 to 12 weeks	A "manualised, cognitive behavioral prevention intervention, adapted from Problem-Solving Treatment...designed to impart recipients with stronger problem-solving skills, which are theorised to reduce the negative impact of stress on personal-social functioning, and thereby prevent the development of impairing psycholog-

Table 4. Details of interventions *(Continued)*

					ical distress... In a PSE session, educators guide participants in selecting an objective, measurable problem, then proceed through a series of steps that include goal setting, brainstorming and evaluating solutions, choosing a solution, and action planning" (Silverstein 2011, page 479).
Upshur 2016	SS, augmented with treatment as usual	Individual, face-to-face, clinical setting	Not reported	Not reported	A "manualised, psychosocial education program designed to improve coping skills among individuals with PTSD and comorbid substance abuse. It uses cognitive-behavioral theory as its underlying change mechanism, focusing on solutions to present problems, with a major emphasis on safety, and explicitly does not focus on exploring past trauma or psychoanalytic work" (Upshur 2016, page 538). For this study, eight of the 25 topics were chosen to be delivered.
Service system approaches					
Booshehri 2018	Building Wealth and Health Network	Group, face-to-face, clinical setting	Weekly	6 months	Arm 1 (partial) The programme consists of helping parents open bank accounts and financial empowerment classes. Parents are encouraged to make weekly deposits over a 12-month period, with the assistance of bank representatives. The goal of this aspect of the programme is to create a practice of asset-building that would carry beyond their participation in the programme. The financial empowerment classes consisted of interactive exercises, worksheets and journal assignments, with the aim to foster understanding and practice of banking, building credit and debt management, making the most of one's money, and setting financial goals for oneself and one's family. Arm 2 (full) In addition to the assistance with opening a bank account and the financial empowerment classes, parents participate in trauma-informed peer support groups called SEG. SEG is based on the SELF tool - "creating personal, emotional, moral and physical safety (S), processing and managing emotions (E), recognising loss and letting go (L), and developing goals for a sense of future (F)" (Booshehri 2018, page 1597).

CBASP: cognitive behavioural analysis system of psychotherapy; **FIND:** Filming Interactions to Nurture Development; **GABI:** Group Attachment-Based Intervention; **IH-CBT:** In-Home Cognitive Behavioural Therapy; **IPP:** infant-parent psychotherapy; **IPT-B:** brief interpersonal psychotherapy; **MSS-Plus:** Maternity Support Services-Plus; **OB:** obstetrician; **PFR:** Promoting First Relationships; **PHQ-9:** Patient Health Questionnaire-9; **PPI:** psycho-educational parenting intervention; **PREPP:** Practical Resources for Effective Postpartum

Parenting; **PSE:** Problem-Solving Education; **PTSD:** post-traumatic stress disorder; **SEG:** Self Empowerment Groups; **SELF:** **S**afety, **E**motions, **L**oss/letting go, **F**uture; **SS:** Seeking Safety; **TF-CBT:** trauma-focused CBT.

Table 5. Details of comparisons

Study	Intervention	Description
Comparators for parenting interventions		
Cicchetti 2006	Treatment as usual	"Families continued to receive services that were typically available to maltreating families in the community" (Cicchetti 2006, page 630), including case management from the Department of Human Services and assistance in obtaining referrals to services and resources that may have been more difficult to access outside the research trial.
Haight 2005	Wait-list	Parents received no treatment.
Liu 2021	Treatment as usual (EHS programme)	EHS is a federal programme for low-income pregnant women and families with infants and toddlers, and includes home visits, child care, case management, parenting education, health care and referrals and family support.
Pasalich 2019	Attention control (R&R)	R&R was delivered over the phone in 3 sessions, which consisted of a 30-minute needs assessment and a mailed packet of personalised information (e.g. local services). Parents also received 2 follow-up, 10-minute check-in calls.
Rosenblum 2017	Attention control	Mothers randomised into the control condition received 2 individual sessions and 10 weekly mailings of the Mom Power curriculum content, which "included a pre-stamped post card for the mother to send back indicating that the week's material had been read" (Rosenblum 2017, page 679).
Steele 2019	Treatment as usual (STEP)	A treatment model consisting of anger management, psycho-education, the distinction between discipline and punishment, and role playing adaptive parenting strategies.
Comparators for psychological interventions		
Ammerman 2016	Inactive control (standard home visiting)	Mothers received regular services from home visitors, with an emphasis child health and development, nurturing the mother-child relationship, maternal health and self-sufficiency, and linkage to other community services (including community-based treatment for depression).
Berry 2021	Enhanced treatment as usual	Discussion of postpartum depression symptoms (including psycho-educational materials) and referrals for mental health treatment (including supportive services in the community).
Blalock 2013	Enhanced treatment as usual (HW)	"Each session consisted of 15 minutes of standard behavioral and motivational smoking cessation counselling" (Blalock 2013, page 5) (based on the Clinical Practice Guidelines), plus 45 minutes of HW, a time- and attention-matched control that was pregnancy relevant but instructional in nature. "Participants were allowed to choose from a list of discussion topics such as stress, pregnancy symptoms, sleep, exercise, yoga, and relaxation training" (Blalock 2013, page 5). Therapists were allowed to provide reflective, supportive listening, but were prohibited from conducting solution-focused exercises.
Grote 2012	Enhanced treatment as usual	Mothers received psycho-educational materials about depression, and were strongly encouraged to seek treatment where they were receiving prenatal services. They were provided easy access to depression treatment in the obstetrics and gynaecology clinics, familiarity with the setting, decreased stigma,

Table 5. Details of comparisons *(Continued)*

		childcare and free bus passes. They were also provided additional monitoring of their depression severity and diagnostic status than they typically received in the clinic.
Grote 2015	Enhanced treatment as usual (MSS-PLUS)	MSS "is the usual standard of care in the public health system of Seattle-King County for pregnant women on Medicaid"(Grote 2015, page 823). Goals include "offering services to promote healthy pregnancies and positive birth and parenting outcomes, providing case management services to meet basic needs, and facilitating regular contact" (Grote 2015, page 823) with an obstetrician. Pregnant women scoring PHQ-9 > 10 were eligible for intensive MSS-Plus services, entailing more frequent, and longer visits from their multidisciplinary team.
Madigan 2015	Treatment as usual	A parenting course consisting of 12 x 60-minute sessions, covering topics such as "preparing for baby, role of fathers, supports, relationships, stress, fears, anxieties, bonding with fetus/baby, prenatal nutrition, labor/delivery, time management and budgeting" (Madigan 2015, page 182).
Silverstein 2011	Treatment as usual	Mothers received usual hospital or early intervention services.
Upshur 2016	Treatment as usual	"Prenatal advocates provided education and support to all women to supplement nurse/physician prenatal care visits and conducted activities such as teaching about nutrition, exercise and healthy behavior during pregnancy, providing childbirth education (e.g. phases of pregnancy, physical and mental health aspects of pregnancy, managing labor and delivery), and helping women obtain benefits and services such as health insurance, transportation, housing, legal assistance, nutrition services, and refugee support" (Upshur 2016, page 538).
Comparators for service system approaches		
Booshehri 2018	Treatment as usual	Standard temporary assistance for needy families programming, which consisted of 20 hours per week "of scheduled supervised job training and job search activities" (Booshehri 2018, page 1597).

EHS: Early Head Start; **HW:** Health and Wellness Control; **MSS(-PLUS):** Maternity Support Services(-PLUS); **PHQ-9:** Patient Health Questionnaire-9; **R&R:** three-call resource and referral; **STEP:** Systematic Training for Effective Parenting.

Table 6. Details of outcomes

Outcome category	Outcome	Outcome domain	Specific outcome: measure(s) (study)
Primary (critical) outcomes	Parental psychological or socio-emotional wellbeing	Trauma-related symptoms	• **Interpersonal problems:** Inventory of Interpersonal Problems (Grote 2012) • **PTSD symptom severity:** PTSD Checklist for DSM-5 (Grote 2015); National Women's Study PTSD Module (Rosenblum 2017); Post-traumatic Stress Scale (Upshur 2016) • **PTSD presence** (number of individuals with PTSD): Children's PTSD Inventory (Madigan 2015) • **Dissociation severity:** Adolescent Dissociative Experiences Scale (Madigan 2015)
		Anxiety symptoms, depression symptoms, other validated measures of psychological wellbeing,	• **Depression symptom severity:** Beck Depression Inventory (Ammerman 2016; Grote 2012; Madigan 2015); Hamilton Depression Rating Scale (Berry 2021); Center for Epidemiologic Studies Depression Scale (Booshehri 2018; Blalock 2013);

Table 6. Details of outcomes *(Continued)*

	or a combination of these	Hopkins Symptom Checklist (Grote 2015); Quick Inventory of Depressive Symptoms (Silverstein 2011) • **Anxiety symptom severity:** Hamilton Anxiety Rating Scale (Berry 2021); Beck Anxiety Inventory (Grote 2012); Screen for Child Anxiety Related Emotional Disorder (Grote 2015) • **Self-efficacy:** General Self-Efficacy Scale (Booshehri 2018) • **Postpartum depression symptom severity:** Edinburgh Postnatal Depression Scale (Grote 2012; Upshur 2016); Postpartum Depression Screening Scale (Rosenblum 2017) • **Depression remission:** number of individuals with Symptom Checklist Depression Scale scores less than 0.5 (Grote 2015) • **Generalised anxiety disorder**: number of individuals with generalised anxiety disorder on the Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (Grote 2015) • **Functional impairment:** Work and Social Adjustment Scale (Grote 2015**)** • **Behavioural problems:** externalising subscale of the Youth Self-Report (Grote 2015) • **Number of parents with a depressive episode:** Quick Inventory of Depressive Symptoms (Silverstein 2011) • **Mean number of depressive episodes:** Quick Inventory of Depressive Symptoms (Silverstein 2011) • **Stress severity:** Perceived Stress Scale (Silverstein 2011) • **Positive coping:** The Brief Copes Questionnaire (Upshur 2016) • **Negative coping:** The Brief Copes Questionnaire (Upshur 2016)
	Substance use (commenced, recommenced, increased, decreased)	• **Smoking abstinence:** number of parents abstaining from smoking on the Timeline Follow-back Interview (Blalock 2013)
	Parent relationship quality (with partner or significant others)	• **Perceivedsocial support:** Interpersonal Support Evaluation List (Ammerman 2016)
	Parental self-harm (attempted or actual)	No studies reported data.
Parenting capacity	Parent–child relationship (e.g. interaction, warmth, attachment, mutual responsivity)	• **Attachment style (secure attachment**, **disorganised attachment**, **avoidant attachment**, **ambivalent attachment):** number of parents assigned to each style on the observer-rated Strange Situation Paradigm (Cicchetti 2006) • **Parent sensitivity:** Nursing Child Assessment Teaching Scale (Pasalich 2019) • **Secure base behaviour:** Toddler Attachment Sort-45 (Pasalich 2019) • **Dyadic constriction:** Coding Interactive Behaviour System (Steele 2019) • **Dyadic reciprocity:** Coding Interactive Behaviour System (Steele 2019)

Table 6. Details of outcomes *(Continued)*

		Parenting skills (e.g. problem-solving, coping, self-efficacy, parent sensitivity and responsiveness)	• **Child and parent functioning/coping:** Parenting Stress Index–Short Form (Ammerman 2016) • **Home environment** (nurturing and stimulating parenting): Home Observation for Measurement of the Environment Inventory (Ammerman 2016) • **Leave taking behaviours:** direct observations (Haight 2005) • Eight domains of maternal affect and interaction **(maternal supportive presence**, **maternal hostility**, **generational boundary dissolution**, **detachment/disengagement**, **positive regard**, **intrusiveness**, **engagement/interpersonal involvement, andinventiveness):** coding behaviours based on direct observations (Haight 2005) • **Parental confidence:** Parental Sense of Competence Scale (Liu 2021) • **Parental self-efficacy(teaching**, **nurturance**, **discipline, andinstrumental care):** Self-Efficacy for Parenting Tasks Index-Toddler Scale (Liu 2021) • **Parental stress** Parenting Stress Index–Short Form (Rosenblum 2017) • **Care-giving helplessness:** Care-giving Helplessness Questionnaire (Rosenblum 2017) • **Child care-giving behaviour:** Care-giving Helplessness Questionnaire (Rosenblum 2017) • **Maternal supportive presence:** Coding Interactive Behaviour System (Steele 2019) • **Maternal hostility:** Coding Interactive Behaviour System (Steele 2019)
Secondary (important) outcomes	Parental intervention acceptability	Parent satisfaction with intervention (e.g. emotional safety, cultural safety, appreciation)	No studies reported data.
		Medication compliance (if applicable)	No studies reported data.
		Parent engagement (including dropouts; programme completion)	• **Treatment dropout:** (Ammerman 2016; Berry 2021; Blalock 2013; Booshehri 2018; Cicchetti 2006; Grote 2012; Grote 2015; Haight 2005; Liu 2021; Madigan 2015; Pasalich 2019; Rosenblum 2017; Silverstein 2011; Steele 2019; Upshur 2016)
	Socio-ecological outcomes	Social functioning (increased social functioning or social networks, or both)	• **Social networks:** Social Network Index (Ammerman 2016) • **Social functioning:** Social Adjustment Scale (Silverstein 2011) • **Perceived social support:** Medical Outcomes Study Social Support Scale (Upshur 2016)
		Changes in social capital (e.g. increased access to employment, education, support/health services) or re-	• **Economic hardship:** United States Household Food Security Survey Module, an energy security survey and housing security survey (Booshehri 2018) • **Current employment status:** self-reported survey item (Booshehri 2018)

Table 6. Details of outcomes *(Continued)*

	sources (food, housing, clothing)	• **Perceived connection to community professionals:** non-validated, 6-item self-report retrospective questionnaire (Rosenblum 2017)
Child adverse events recorded during the intervention	Child maltreatment occurrence (including exposure to family violence)	No studies reported data.
	Family disruptions and child removals	No studies reported data.
	Other adverse childhood experiences	No studies reported data.
Child's physical or socio-emotional wellbeing	Child physical outcomes (e.g. preterm birth, low birth weight, small-for-gestational age, neonatal intensive care admission, immunisations, hospitalisations)	No studies reported data.
	Child developmental outcomes (e.g. cognition, speech, language, motor skills)	• **Childdevelopmental risks**: Parent's Evaluation of Developmental Status Scale (Booshehri 2018)
	Child emotional and behavioural outcomes (e.g. internalising and externalising behaviour)	• **Daytime sleeping:** Baby's Day Diary (Berry 2021) • **Child behaviour problems:** Child Behaviour Checklist (Cicchetti 2006) • **Internalising behaviour:** Child Behaviour Checklist (Cicchetti 2006; Liu 2021) • **Externalising behaviour:** Child Behaviour Checklist (Cicchetti 2006; Liu 2021)
Other outcomes	Service provider knowledge, attitudes and practices	No studies reported data.
	Cost or cost-effectiveness	• **QALYs:** a probabilistic, patient-level Markov model/Medical Expenditure Panel Survey (Ammerman 2016) • **Depression free days:** number of depression-free days over 18 months (Grote 2015); Markov model/Medical Expenditure Panel Survey (Ammerman 2016) • **Intervention costs:** study staff salary and fringe benefit rates plus a 30% overhead rate (Grote 2015); Markov model/Medical Expenditure Panel Survey (Ammerman 2016)

DSM-5: Diagnostic and Statistical Manual of Mental Disorders - 5th Edition; **PTSD:** post-traumatic stress disorder; **QALYs:** quality adjusted life years

Table 7. Additional outcomes: parenting interventions

Outcome measure (scale)	Direction of effect	Intervention mean (SD)/ events	n	Control mean (SD)/ events	n	Effect estimate, 95% CI	P value	Study	Risk of bias
Primary outcomes									
Parent-child relationship									
Post-intervention									
Dyadic constriction (CIB)	Higher scores = worse	2.60 (1.04)	43	3.26 (1.03)	35	MD -0.66 (-1.12 to -0.20)	0.005	Steele 2019	High
3-month follow-up									
Parent sensitivity (NCATS)	Higher scores = better	36.17 (3.67)	29	35.02 (5.03)	41	MD 1.15 (-0.89 to 3.19)	0.27	Pasalich 2019	Some concerns
6-month follow-up									
Parent sensitivity (NCATS)	Higher scores = better	37.14 (4.28)	28	35.18 (5.96)	38	MD 1.96 (-0.51 to 4.43)	0.12	Pasalich 2019	Some concerns
Secure base behaviour (TAS-45)	Higher scores = better	0.16 (0.08)	28	0.13 (0.08)	38	MD 0.03 (-0.01 to 0.07)	0.13	Pasalich 2019	Some concerns
Parenting skills									
Post-intervention									
Leaving taking behaviours (direct observation)	Higher scores = better	4.6 (1.9)	10	3.3 (1.3)	10	MD 1.30 (-0.13 to 2.73)	0.07	Haight 2005	Some concerns
Generational boundary dissolution (direct observation)	Higher scores = worse	1.9 (1.4)	10	1.8 (1.3)	10	MD 0.10 (-1.08 to 1.28)	0.87	Haight 2005	Some concerns
Detachment/disengagement (direct observation)	Higher scores = worse	1.9 (1.3)	10	1.6 (1.2)	10	MD 0.30 (-0.80 to 1.40)	0.59	Haight 2005	Some concerns
Positive regard (direct observation)	Higher scores = better	5.0 (1.7)	10	5.1 (1.4)	10	MD -0.10 (-1.46 to 1.26)	0.89	Haight 2005	Some concerns

Table 7. Additional outcomes: parenting interventions *(Continued)*

Intrusiveness (direct observation)	Higher scores = worse	1.9 (1.0)	10	2.2 (0.9)	10	MD -0.30 (-1.13 to 0.53)	0.48	Haight 2005	Some concerns
Engagement/interpersonal involvement (direct observation)	Higher scores = better	5.6 (1.1)	10	5.7 (1.0)	10	MD -0.10 (-1.02 to 0.82)	0.83	Haight 2005	Some concerns
Inventiveness (direct observation)	Higher scores = better	4.3 (1.0)	10	4.2 (0.7)	10	MD 0.10 (-0.66 to 0.86)	0.80	Haight 2005	Some concerns
Parental self-efficacy in teaching (SEPTI-TS)	Higher scores = better	50.38 (3.07)	15	43.63 (8.88)	10	MD 6.76 (1.04 to 12.48)	0.02	Liu 2021	Some concerns
Parental self-efficacy in discipline (SEPTI-TS)	Higher scores = better	30.69 (8.0)	15	29.25 (8.84)	10	MD 1.44 (-5.37 to 8.25)	0.68	Liu 2021	Some concerns
Parental self-efficacy in instrumental care (SEPTI-TS)	Higher scores = better	38.31 (5.48)	15	37.88 (7.41)	10	MD 0.43 (-4.94 to 5.80)	0.88	Liu 2021	Some concerns
Parental sense of confidence (PSOC)	Higher scores = better	41.86 (4.0)	15	38.60 (5.58)	10	MD 3.20 (-0.80 to 7.20)	0.12	Liu 2021	Some concerns
Parenting Stress (PSI-SF)	Higher scores = worse	72.54 (22.8)	16	83.01 (20.6)	13	MD -10.47 (-26.29 to 5.35)	0.19	Rosenblum 2017	Some concerns
Care-giving Helplessness (CHQ)	Higher scores = worse	11.0 (5.1)	15	12.2 (5.6)	13	MD -1.16 (-5.14 to 2.82)	0.57	Rosenblum 2017	Some concerns

CI: confidence interval; **CIB:** Coding Interactive Behaviour System; **CHQ:** Care-giving Helplessness Questionnaire; **NCATS:** Nursing Child Assessment Teaching Scale; **PSI-SF:** Parenting Stress Index – Short Form; **PSOC:** Parenting Sense of Competence Scale; **SD:** standard deviation; **SEPTI-TS:** Self-Efficacy for Parenting Tasks Index – Toddler Scale; **TAS-45**: Toddler Attachment Sort-45.

Table 8. Additional outcomes: psychological interventions

Outcome measure (scale)	Direction of effect	Intervention mean (SD)/ events	n	Control mean (SD)/ events	n	Effect estimate, 95% CI	P value	Study	Risk of bias
Primary outcomes									
Trauma-related symptoms									

Table 8. Additional outcomes: psychological interventions *(Continued)*

Post-intervention									
PTSD presence (CPI)	Higher scores = worse	7	14	9	17	RR 0.94 (0.47 to 1.88)	0.87	Madigan 2015	High
6-month follow-up									
Interpersonal problems (IIP)	Higher scores = worse	2.2 (0.9)	6	2.3 (0.7)	18	MD -0.10 (-0.89 to 0.69)	0.80	Grote 2012	Some concerns
12-month follow-up									
PTSD presence (CPI)	Higher scores = worse	7	12	3	14	RR 2.72 (0.90 to 8.27)	0.08	Madigan 2015	High
18-month follow-up									
PTSD symptom severity (PCL-C)	Higher scores = worse	32.10 (13.48)	39	37.48 (15.39)	40	MD -5.38 (-11.76 to 1.00)	0.10	Grote 2015	High
Psychological wellbeing									
Post-intervention									
Functional impairment severity (WSAS)	Higher scores = worse	13.68 (9.39)	40	15.42 (10.69)	38	MD -1.74 (-6.21 to 2.73)	0.45	Grote 2015	Some concerns
Perceived stress (PSS)	Higher scores = worse	9.78 (3.44)	19	9.38 (3.59)	19	MD 0.40 (-1.84 to 2.64)	0.73	Silverstein 2011	Some concerns
Positive coping (BCQ)	Higher scores = better	2.67 (0.68)	65	2.7 (0.66)	46	MD -0.03 (-0.28 to 0.22)	0.82	Upshur 2016	High
Negative coping (BCQ)	Higher scores = worse	1.88 (0.57)	65	1.89 (0.59)	46	MD 0.01 (-0.21 to 0.23)	0.93	Upshur 2016	High
3-month follow-up									
Depression symptoms (BDI-II)	Higher scores = worse	12.24 (14.4)	29	23.19 (14.44)	31	MD -10.95 (-18.25 to -3.65)	0.003	Ammerman 2016	Some concerns
6-month follow-up									

Table 8. Additional outcomes: psychological interventions *(Continued)*

Postpartum depression (EPDS)	Higher scores = worse	5.8 (2.8)	6	13.9 (6)	18	MD -8.10 (-11.66 to -4.54)	< 0.001	Grote 2012	Some concerns
Depression remission (SCL)	Higher scores = better	17	40	13	41	RR 1.34 (0.75 to 2.38)	0.32	Grote 2015	Some concerns
Anxiety presence (PHQ)	Higher scores = worse	5	40	10	41	RR 0.51 (0.19 to 1.37)	0.18	Grote 2015	High
Functional impairment severity (WSAS)	Higher scores = worse	11.5 (9.55)	40	13.56 (9.03)	41	MD -2.06 (-6.11 to 1.99)	0.32	Grote 2015	Some concerns
12-month follow-up									
Depression remission (SCL)	Higher scores = better	15	39	11	41	RR 1.43 (0.75 to 2.73)	0.27	Grote 2015	Some concerns
Anxiety presence (PHQ)	Higher scores = worse	5	39	10	41	RR 0.53 (0.20 to 1.50)	0.20	Grote 2015	High
Functional impairment severity (WSAS)	Higher scores = worse	11.21 (9.4)	39	13.85 (10.96)	41	MD -2.64 (-7.11 to 1.83)	0.25	Grote 2015	Some concerns
Anxiety symptoms (SCARED)	Higher scores = worse	23.18 (12.84)	12	16.87 (9.5)	14	MD 6.31 (-2.50 to 15.12)	0.16	Madigan 2015	High
Behavioural problems (YSR)	Higher scores = worse	14.92 (9.63)	12	11.13 (8.5)	14	MD 3.79 (-3.25 to 10.83)	0.29	Madigan 2015	High
18-month follow-up									
Depression symptoms (SCL)	Higher scores = worse	0.78 (0.69)	39	1.07 (0.78)	40	MD -0.29 (-0.61 to 0.03)	0.08	Grote 2015	Some concerns
Depression remission (SCL)	Higher scores = better	17	39	12	40	RR 1.45 (0.80 to 2.63)	0.22	Grote 2015	Some concerns
Anxiety presence (PHQ)	Higher scores = worse	5	39	10	40	RR 0.51 (0.19 to 1.36)	0.18	Grote 2015	High
Functional impairment severity (WSAS)	Higher scores = worse	9.08 (8.16)	39	13.33 (9.93)	40	MD -4.25 (-8.25 to -0.25)	0.04	Grote 2015	Some concerns

Table 8. Additional outcomes: psychological interventions *(Continued)*

Parent relationship quality									
3-month follow-up									
Social support (ISEL)	Higher scores = better	83.31 (22.03)	29	65.10 (23.9)	31	MD 18.21 (6.59 to 29.83)	0.002	Ammerman 2016	Some concerns
Parenting skills									
Post-intervention									
Functioning/coping (PSI-SF)	Higher scores = worse	73.47 (24.68)	32	80.77 (17.63)	35	MD -7.30 (-17.66 to 3.06)	0.17	Ammerman 2016	Some concerns
3-month follow-up									
Providing a stimulating, nurturing, safe environment (HOME)	Higher scores = better	34.61 (6.24)	28	33.13 (4.95)	30	MD 1.48 (-1.43 to 4.39)	0.32	Ammerman 2016	Some concerns
Functioning/coping (PSI-SF)	Higher scores = worse	67.11 (32.1)	28	75.07 (26.3)	30	MD -7.96 (-23.12 to 7.20)	0.30	Ammerman 2016	Some concerns
Secondary outcomes									
Socioecological outcomes									
3-month follow-up									
Social network size (SNI)	Higher scores = better	14.15 (9.78)	27	11.03 (5.83)	29	MD 3.12 (-1.14 to 7.38)	0.15	Ammerman 2016	Some concerns
6-month follow-up									
Quality of social functioning with friends (SAS)	Higher scores = worse	2.1 (0.7)	6	3.3 (0.8)	18	MD -1.20 (-1.87 to -0.53)	< 0.001	Grote 2012	Some concerns

CI: confidence interval; **BCQ:** Brief-COPE Questionnaire; **BDI:** Beck Depression Inventory; **BDI-II:** Beck Depression Inventory, Second Edition; **CPI:** Californian Psychological Inventory – Socialization Scale; **EPDS:** Edinburgh Postnatal Depression Scale; **HOME:** Home Observation for Measurement of the Environment Inventory; **IIP:** Inventory of Interpersonal Problems; **ISEL:** Interpersonal Support Evaluation List; **MD:** mean difference; **PCL-C:** PTSD CheckList – Civilian Version; **PHQ:** PRIME-MD Patient Health Questionnaire; **PSI-SF:** Parenting Stress Index Short-Form; **PSS:** Perceived Stress Scale; **PTSD:** posttraumatic stress disorder; **RR:** risk ratio; **SAS:** Social Adjustment Scale; **SCARED:**

Screen for Child Anxiety Related Emotional Disorders; **SCL:** Symptom Checklist Depression Scale; **SD:** standard deviation; **SNI:** Social Network Index; **WSAS:** Work and Social Adjustment Scale; **YSR:** Youth Self-Report.

Table 9. Sensitivity analysis results

Outcome	Description sensitivity analysis	Measure	No. studies	Original effect estimate (95% CI)	No. studies remaining	Sensitivity analysis effect estimate (95% CI)
Parenting interventions						
Parent-child relationship	Investigation of robustness of meta-analytic effect excluding studies of high risk of bias	Parental sensitivity (NCATS)	2	SMD 0.45, 95% CI -0.06 to 0.96 I^2 = 60% Tau^2 = 0.08	1	SMD 0.19, 95% CI -0.27 to 0.65 I^2 = NA Tau^2 = NA
	Investigation of robustness of meta-analytic effect to type of meta-analytic model[a]	Parental sensitivity (NCATS); Dyadic reciprocity (CIB)			2	SMD 0.45, 95% CI 0.12 to 0.77 I^2 = 60% Chi^2 = 2.49
Parenting skills	Investigation of robustness of meta-analytic effect excluding studies of high risk of bias	Maternal supportive presence (Direct observation, non-validated tool); Parental self-efficacy in nurturance (SEPTI-TS); Child care-giving behaviour (CHQ)	4	SMD 0.25, 95% CI -0.07 to 0.58 I^2 = 0% Tau^2 = 0.00	3	SMD -0.01, 95% CI -0.48 to 0.46 I^2 = 0% Tau^2 = 0.00
	Investigation of robustness of meta-analytic effect excluding studies with < 50 participants	Maternal supportive presence (CIB)			1	SMD 0.49, 95% CI 0.04 to 0.94 I^2 = NA Tau^2 = NA
	Investigation of robustness of meta-analytic effect to type of meta-analytic model[a]	Maternal supportive presence (Direct observation, non-validated tool); Parental self-efficacy in nurturance (SEPTI-TS); Child care-giving behaviour (CHQ); Maternal supportive presence (CIB)			4	SMD 0.25, 95% CI -0.07 to 0.58 I^2 = 0% Chi^2 = 2.84
Psychological interventions						
Trauma-related symptoms	Investigation of robustness of meta-analytic effect excluding studies of high risk of bias	Interpersonal problems (IIP); PTSD (PSS)	4	SMD -0.05, 95% CI -0.40 to 0.31 I^2 = 39% Tau^2 = 0.05	1	SMD 0.41, 95% CI -0.52 to 1.35 I^2 = NA Tau^2 = NA
	Investigation of robustness of meta-analytic effect to type of meta-analytic model[a]	Interpersonal problems (IIP); PTSD (PCL-C); Dissociation (ADES); PTSD (PSS)			4	SMD -0.11, 95% CI -0.36 to 0.15 I^2 = 39% Chi^2 = 4.90

Table 9. Sensitivity analysis results *(Continued)*

Psychological well-being	Investigation of robustness of meta-analytic effect excluding studies of high risk of bias	Depression (BDI; HRSD; CESDS; HSC; QIDS); Postpartum depression (EPDS)	8	SMD -0.34, 95% CI -0.66 to -0.03 I^2 = 63% Tau^2 = 0.12	6	SMD -0.52, 95% CI -0.81 to -0.22 I^2 = 41% Tau^2 = 0.05
	Investigation of robustness of meta-analytic effect excluding studies with < 50 participants	Depression (BDI; CESDS; HSC); Postpartum depression (EPDS)			4	SMD -0.53, 95% CI -0.91 to -0.16 I^2 = 69% Tau^2 = 0.10
	Investigation of robustness of meta-analytic effect to type of meta-analytic model[a]	Depression (BDI; HRSD; HSC; QIDS); Postpartum depression (EPDS)			8	SMD-0.37, 95% CI -0.55 to -0.19 I^2 = 63% Chi^2 = 18.8

[a] i.e. comparing the combined effect from a random-effects model (original) with a fixed-effect model (sensitivity analysis)
ADES: Adolescent Dissociative Experiences Scale; **BDI**: Beck Depression Inventory; **CESDS**: Center for Epidemiologic Studies Depression Scale; **CHQ**: Care-giving Helplessness Questionnaire; **CI:** confidence interval; **CIB**: Coding Interactive Behaviour System; **EPDS**: Edinburgh Postnatal Depression Scale; **HRSD**: Hamilton Rating Scale for Depression; **HSC**: Hopkins Symptom Checklist; **IIP**: Inventory of Interpersonal Problems; **NCATS**: Nursing Child Assessment Teaching Scale; **PCL-C**: PTSD CheckList - Civilian Version; **PSS**: Posttraumatic Stress Scale; **PTSD**: post-traumatic stress disorder; **QIDS**: Quick Inventory of Depressive Symptoms; **SEPTI-TS**: Self-Efficacy for Parenting Tasks Index - Toddler Scale

APPENDICES

Appendix 1. Search strategies

Cochrane Central Register of Controlled Trials (CENTRAL)

#1 [mh parents] or [mh ^"single-parent family"]
#2 [mh "Child Rearing"] or [mh "father-child relations"] or [mh "intergenerational relations"] or [mh "maternal behavior"] or [mh "maternal deprivation"] or [mh "mother-child relations"] or [mh "maternal-fetal relations"] or [mh "parent-child relations"] or [mh parenting] or [mh "paternal behavior"] or [mh "paternal deprivation"]
#3 [mh pregnancy] or [mh "pregnancy, unplanned"] or [mh "pregnancy, unwanted"] or [mh "Pregnant Women"]
#4 [mh "perinatal care"] or [mh "peripartum period"] or [mh "postnatal care"] or [mh "postpartum period"] or [mh "Preconception Care"] or [mh "prenatal care"]
#5 [mh "Labor, Obstetric"] or [mh "Delivery, obstetric"] or [mh midwifery] or [mh "Obstetric nursing"]
#6 (parenthood or motherhood or fatherhood or parentificat*)
#7 ((parental or maternal or paternal) NEXT(care* or relations* or behavio* or interact* or bonding))
#8 ((parent* or mother* or father*) NEAR/5 (Adaptation or adjustment or becoming or become or expect* or Transform* or transition*))
#9 ((Parents or mothers or fathers) NEAR/5 (breastfeed* or breast NEXT feed* or young NEXT children or small NEXT children or toddlers or infants or preschool* or pre NEXT school* or baby or babies or newborn* or new NEXT born* or caregiving or early NEXT years or nursery))
#10 ((new or young or "first time") NEXT(Parents or Mothers or Fathers))
#11 ((child* or infant* or babies or toddler* or famil*) NEAR/3 (raise or raising or rear* or "bringing up" or "bring up"))
#12 ((antenatal or antepartum or ante NEXT natal or ante NEXT partum or birth* or childbirth* or childbearing or conception or parturition or perinatal or peri NEXT natal or postpartum or post NEXT partum or postnatal or post NEXT natal or prenatal or pre NEXT natal or postnatal or pregnancy or primipara* or primigravid* or trimester*) NEAR/3 (care or healthcare or health or service*))
#13 (wom*n NEAR/2 (birth* or labour* or labor*))
#14 (Pregnan* NEAR/3 wom*n) or (Pregnan* NEAR/3 (adolescen* or teen*))
#15 {or #1-#14}
#16 [mh "Adult survivors of child abuse"]
#17 [mh "Adult Survivors of Child Adverse Events"]
#18 [mh "child abuse"]
#19 [mh "Battered Child Syndrome"]
#20 [mh "adverse childhood experiences"]
#21 [mh "Exposure to violence"]

#22 ((Childhood or children or "as a child" or "as an infant" or "early life") NEAR/3 (abuse or abused or abusive or neglect* or maltreat* or incest* or assault* or trauma* or victimi*ed or violen*))
#23 ((witness* or expos*) NEAR/3 (abuse* or abusive or trauma* or violen*))
#24 ((intergeneration* or inter NEXT generation* or transgeneration* or trans NEXT generation* or famil*) NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi*ed or violence))
#25 (generation* NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi*ed or violence))
#26 (cycle NEAR/2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress))
#27 ((Transmission or transmit*) NEAR/2 (generation* or family NEXT pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress)
#28 ((Transmission or transmit*) NEAR/2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress))
#29 ((break or breaking or breaks or broke) NEAR/3 (cycle* or pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress)
#30 (Adverse NEXT child* NEXT experience* or adverse NEXT child* NEXT event* or aversive NEXT child* NEXT experience* or child* NEXT adversity or early NEXT life NEXT trauma or traumatic NEXT child* NEXT experience)
#31 {or #16-#30}
#32 #15 and #30
#33 ([mh survivors] or [mh disclosure] or [mh "medical history taking"]) and [mh "child abuse"]
#34 ((History or histories or historic* or survivor* or continuity or cycle* or discontinuity or disclosure or legacy or disclose* or recovery or unresolved or past) NEAR/3 (abus* or adversity or maltreat* or neglect* or posttrauma* or post NEXT trauma* or stress or trauma* or violen*))
#35 {or #33-#34}
#36 #15 AND #35
#37 MeSH descriptor: [Stress, Psychological] this term only
#38 MeSH descriptor: [Stress Disorders, Post-Traumatic] explode all trees
#39 (Post NEXT traumatic NEXT stress* or Posttraumatic NEXT stress* or PTSD)
#40 (relational NEXT trauma or developmental NEXT trauma or toxic NEXT stress or trauma NEXT informed or complex NEXT trauma*)
#41 {or #37-#40}
#42 #15 AND #41
#43 #32 OR #36 OR #42 in Trials
#44 (CHICTR* OR CHI NEXT CTR OR IRCT* OR RBR* OR JPRN* OR TCTR* OR SLCTR* OR CTRI* OR EUCT* OR NCT* OR NTR* OR ISRCTN* OR ACTRN* OR DRKS* OR PACT*):AU
#45 #43 NOT #44

MEDLINE Ovid

1 exp parents/ or single-parent family/
2 Child Rearing/ or father-child relations/ or intergenerational relations/ or maternal behavior/ or maternal deprivation/ or mother-child relations/ or maternal-fetal relations/ or parent-child relations/ or parenting/ or paternal behavior/ or paternal deprivation/
3 pregnancy/ or pregnancy, unplanned/ or pregnancy, unwanted/ or Pregnant Women/
4 perinatal care/ or peripartum period/ or postnatal care/ or postpartum period/ or Preconception Care/ or prenatal care/
5 Labor, Obstetric/ or Delivery, obstetric/ or midwifery/ or Obstetric nursing/
6 (parenthood or motherhood or fatherhood or parentificat$).tw,kf.
7 ((parental or maternal or paternal) adj (care$ or relations$ or behavio$ or interact$ or bonding)).tw,kf.
8 ((parent$ or mother$ or father$) adj5 (Adaptation or Adjustment or becoming or become or expect$ or Transform$ or transition$)).tw,kf.
9 ((Parents or Mothers or Fathers) and (breastfeed$ or "young children" or "small children" or toddlers or infants or preschool$ or baby or babies or newborn$ or new born$ or new-born$ or caregiving or early years or nursery)).tw,kf.
10 ((new or young or "first time") adj (Parents or Mothers or Fathers)).tw,kf.
11 ((child$ or infant$ or babies or toddler$ or famil$) adj3 (raise or raising or rear$ or "bringing up" or "bring up")).tw,kf.
12 ((antenatal or antepartum or ante-natal or ante-partum or birth$ or childbirth$ or childbearing or conception or parturition or perinatal or peri-natal or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara$ or primigravid$ or trimester$) adj3 (care or healthcare or health or service$)).tw,kf.
13 (wom#n adj2 (birth$ or labour$ or labo?r$)).tw,kf.
14 ((Pregnan$ adj3 wom#n) or (Pregnan$ adj3 (adolescen$ or teen$))).tw,kf.
15 or/1-14
16 Adult survivors of child abuse/
17 "Adult Survivors of Child Adverse Events"/
18 exp child abuse/
19 Battered Child Syndrome/
20 adverse childhood experiences/
21 Exposure to violence/

22 ((Childhood or children or "as a child" or "as an infant" or "early life") adj3 (abuse or abused or abusive or neglect$ or maltreat$ or incest $ or assault$ or trauma$ or victimi#ed or violen$)).tw,kf.
23 ((witness$ or expos$) adj3 (abuse$1 or abusive or trauma$ or violen$)).tw,kf.
24 ((intergeneration$ or inter-generation$ or transgeneration$ or trans-generation$ or famil$) adj3 (abus$ or assault$ or incest$ or maltreat $ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
25 (generation$ adj3 (abus$ or assault$ or incest$ or maltreat$ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
26 (cycle adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
27 (((Transmission or transmit$) adj2 (generation$ or family pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
28 ((Transmission or transmit$) adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
29 (((break or breaking or breaks or broke) adj3 (cycle$ or pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
30 (Adverse child$ experience$ or adverse child$ event$ or aversive child$ experience$ or child$ adversity or "early life trauma" or traumatic child$ experience).tw,kf.
31 or/16-30
32 15 and 31
33 (survivors/ or disclosure/ or medical history taking/) and exp child abuse/
34 ((History or histories or historic$ or survivor$ or continuity or cycle$ or discontinuity or disclosure or legacy or disclose$ or recovery or unresolved or past) adj3 (abus$ or adversity or maltreat$ or neglect$ or posttrauma$ or post-trauma$ or stress or trauma$ or violen $)).tw,kf.
35 or/33-34
36 15 and 35
37 Stress Disorders, Post-Traumatic/ or Stress, Psychological/)
38 (Post-traumatic stress$ or Post traumatic stress$ or PTSD).tw,kf.
39 (relational trauma or developmental trauma or toxic stress or trauma-informed or complex trauma$).tw,kf.
40 or/37-39
41 15 and 40
42 32 or 36 or 41
43 randomized controlled trial.pt.
44 controlled clinical trial.pt.
45 randomi#ed.ab.
46 placebo$.ab.
47 drug therapy.fs.
48 randomly.ab.
49 trial.ab.
50 groups.ab.
51 or/43-50
52 exp animals/ not humans.sh.
53 51 not 52
54 42 and 53

MEDLINE(R) In-Process & Other Non-Indexed Citations Ovid

1 (parenthood or motherhood or fatherhood or parentificat$).tw,kf.
2 ((parental or maternal or paternal) adj (care$ or relations$ or behavio$ or interact$ or bonding)).tw,kf.
3 ((parent$ or mother$ or father$) adj5 (Adaptation or Adjustment or becoming or become or expect$ or Transform$ or transition$)).tw,kf.
4 ((Parents or Mothers or Fathers) and (breastfeed$ or "young children" or "small children" or toddlers or infants or preschool$ or baby or babies or newborn$ or new born$ or new-born$ or caregiving or early years or nursery)).tw,kf.
5 ((new or young or "first time") adj (Parents or Mothers or Fathers)).tw,kf.
6 ((child$ or infant$ or babies or toddler$ or famil$) adj3 (raise or raising or rear$ or "bringing up" or "bring up")).tw,kf.
7 ((antenatal or antepartum or ante-natal or ante-partum or birth$ or childbirth$ or childbearing or conception or parturition or perinatal or peri-natal or peripartum or peri-partum or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara$ or primigravid$ or trimester$) adj3 (care or healthcare or health or service$)).tw,kf.
8 (wom#n adj2 (birth$ or labour$ or labo?r$)).tw,kf.
9 ((Pregnan$ adj3 wom#n) or (Pregnan$ adj3 (adolescen$ or teen$))).tw,kf.
10 (((midwi#e$ or obstetric or labour) adj3 (care or healthcare)) or (midwi#e$ service$ or obstetric$ service$)).ti,kf.
11 or/1-10
12 "Adult survivor$".tw,kf.
13 ((Childhood or children or "as a child" or "as an infant" or "early life") adj3 (abuse or abused or abusive or adverse or adversity or neglect $ or maltreat$ or incest$ or assault$ or trauma$ or victimi#ed or violen$)).tw,kf.
14 ((witness$ or expos$) adj3 (abuse$1 or abusive or trauma$ or violen$)).tw,kf.

15 ((intergeneration$ or inter-generation$ or transgeneration$ or trans-generation$ or famil$) adj3 (abus$ or assault$ or incest$ or maltreat $ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
16 (generation$ adj3 (abus$ or assault$ or incest$ or maltreat$ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
17 (cycle adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
18 (((Transmission or transmit$) adj2 (generation$ or family pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
19 ((Transmission or transmit$) adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
20 (((break or breaking or breaks or broke) adj3 (cycle$ or pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
21 (Adverse child$ experience$ or adverse child$ event$ or aversive child$ experience$ or child$ adversity or "early life trauma" or traumatic child$ experience).tw,kf.
22 ((History or histories or historic$ or survivor$ or continuity or cycle$ or discontinuity or disclosure or legacy or disclose$ or recovery or unresolved or past) adj3 (abus$ or adversity or maltreat$ or neglect$ or posttrauma$ or post-trauma$ or stress or trauma$ or violen $)).tw,kf.
23 (Post-traumatic stress$ or Post traumatic stress$ or PTSD).tw,kf.
24 (relational trauma or developmental trauma or toxic stress or trauma-informed or complex trauma$).tw,kf.
25 or/12-24
26 11 and 25
27 (random$ or control$ or group$ or cluster$ or placebo$ or trial$ or assign$ or allocat$ or prospectiv$ or meta-analysis or systematic review or longitudinal$).tw,kf.
28 26 and 27

MEDLINE Epub Ahead of Print Ovid

1 (parenthood or motherhood or fatherhood or parentificat$).tw,kf.
2 ((parental or maternal or paternal) adj (care$ or relations$ or behavio$ or interact$ or bonding)).tw,kf.
3 ((parent$ or mother$ or father$) adj5 (Adaptation or Adjustment or becoming or become or expect$ or Transform$ or transition$)).tw,kf.
4 ((Parents or Mothers or Fathers) and (breastfeed$ or "young children" or "small children" or toddlers or infants or preschool$ or baby or babies or newborn$ or new born$ or new-born$ or caregiving or early years or nursery)).tw,kf.
5 ((new or young or "first time") adj (Parents or Mothers or Fathers)).tw,kf.
6 ((child$ or infant$ or babies or toddler$ or famil$) adj3 (raise or raising or rear$ or "bringing up" or "bring up")).tw,kf.
7 ((antenatal or antepartum or ante-natal or ante-partum or birth$ or childbirth$ or childbearing or conception or parturition or perinatal or peri-natal or peripartum or peri-partum or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara$ or primigravid$ or trimester$) adj3 (care or healthcare or health or service$)).tw,kf.
8 (wom#n adj2 (birth$ or labour$ or labo?r$)).tw,kf.
9 ((Pregnan$ adj3 wom#n) or (Pregnan$ adj3 (adolescen$ or teen$))).tw,kf.
10 (((midwi#e$ or obstetric or labour) adj3 (care or healthcare)) or (midwi#e$ service$ or obstetric$ service$)).ti,kf.
11 or/1-10
12 "Adult survivor$".tw,kf.
13 ((Childhood or children or "as a child" or "as an infant" or "early life") adj3 (abuse or abused or abusive or adverse or adversity or neglect $ or maltreat$ or incest$ or assault$ or trauma$ or victimi#ed or violen$)).tw,kf.
14 ((witness$ or expos$) adj3 (abuse$1 or abusive or trauma$ or violen$)).tw,kf.
15 ((intergeneration$ or inter-generation$ or transgeneration$ or trans-generation$ or famil$) adj3 (abus$ or assault$ or incest$ or maltreat $ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
16 (generation$ adj3 (abus$ or assault$ or incest$ or maltreat$ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
17 (cycle adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
18 (((Transmission or transmit$) adj2 (generation$ or family pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
19 ((Transmission or transmit$) adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
20 (((break or breaking or breaks or broke) adj3 (cycle$ or pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
21 (Adverse child$ experience$ or adverse child$ event$ or aversive child$ experience$ or child$ adversity or "early life trauma" or traumatic child$ experience).tw,kf.
22 ((History or histories or historic$ or survivor$ or continuity or cycle$ or discontinuity or disclosure or legacy or disclose$ or recovery or unresolved or past) adj3 (abus$ or adversity or maltreat$ or neglect$ or posttrauma$ or post-trauma$ or stress or trauma$ or violen $)).tw,kf.
23 (Post-traumatic stress$ or Post traumatic stress$ or PTSD).tw,kf.
24 (relational trauma or developmental trauma or toxic stress or trauma-informed or complex trauma$).tw,kf.
25 or/12-24
26 11 and 25

27 (random$ or control$ or group$ or cluster$ or placebo$ or trial$ or assign$ or allocat$ or prospectiv$ or meta-analysis or systematic review or longitudinal$).tw,kf.
28 26 and 27

Embase Ovid

1 exp parent/
2 child rearing/
3 exp child parent relation/
4 human relation/
5 maternal deprivation/
6 parental deprivation/
7 mother fetus relationship/
8 pregnancy/ or adolescent pregnancy/ or unplanned pregnancy/ or unwanted pregnancy/
9 pregnant woman/
10 perinatal care/ or perinatal period/
11 puerperium/ or postnatal care/
12 prenatal care/
13 prepregnancy care/
14 labor/ or childbirth/ or labor management/
15 perinatology/
16 obstetrical nursing/
17 (parenthood or motherhood or fatherhood or parentificat$).tw,kf.
18 ((parent$ or mother$ or father$) adj5 (Adaptation or Adjustment or becoming or become or expect$ or Transform$ or transition$)).tw,kf.
19 ((Parents or mothers or fathers) and (breastfeed$ or "young children" or "small children" or toddlers or infants or preschool$ or baby or babies or newborn$ or new born$ or new-born$ or caregiving or early years or nursery)).tw,kf.
20 ((new or young or "first time") adj (Parents or Mothers or Fathers)).tw,kf.
21 ((Parents or mothers or fathers) adj10 (breastfeed$ or "young children" or "small children" or toddlers or infants or preschool$ or baby or babies or newborn$ or new born$ or new-born$ or caregiving or early years or nursery)).tw,kf.
22 ((new or young or "first time") adj (Parents or Mothers or Fathers)).tw,kf.
23 ((child$ or infant$ or babies or toddler$ or famil$) adj3 (raise or raising or rear$ or "bringing up" or "bring up")).tw,kf.
24 or/1-23
25 child abuse survivor/ or childhood trauma survivor/ or childhood sexual abuse survivor/
26 child abuse/ or child neglect/ or child sexual abuse/
27 battered child syndrome/
28 childhood adversity/
29 childhood trauma/
30 exposure to violence/
31 ((Childhood or children or "as a child" or "as an infant" or "early life") adj3 (abuse or abused or abusive or neglect$ or maltreat$ or incest $ or assault$ or trauma$ or victimi#ed or violen$)).tw,kf.
32 ((witness$ or expos$) adj3 (abuse$1 or abusive or trauma$ or violen$)).tw,kf.
33 ((intergeneration$ or inter-generation$ or transgeneration$ or trans-generation$ or famil$) adj3 (abus$ or assault$ or incest$ or maltreat $ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
34 (generation$ adj3 (abus$ or assault$ or incest$ or maltreat$ or neglect$ or trauma$ or victimi#ed or violence)).tw,kf.
35 (cycle adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
36 (((Transmission or transmit$) adj2 (generation$ or family pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
37 ((Transmission or transmit$) adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
38 (((break or breaking or breaks or broke) adj3 (cycle$ or pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw,kf.
39 (Adverse child$ experience$ or adverse child$ event$ or aversive child$ experience$ or child$ adversity or "early life trauma" or traumatic child$ experience).tw,kf.
40 or/25-39
41 24 and 40
42 (survivor/ or exp anamnesis/) and exp child abuse/
43 ((History or histories or historic$ or survivor$ or continuity or cycle$ or discontinuity or disclosure or legacy or disclose$ or recovery or unresolved or past) adj3 (abus$ or adversity or maltreat$ or neglect$ or posttrauma$ or post-trauma$ or stress or trauma$ or violen $)).tw,kf.
44 or/42-43
45 24 and 44
46 posttraumatic stress disorder/ or sexual trauma/ or mental stress/

47 psychotrauma/
48 posttraumatic stress disorder/ or sexual trauma/ or mental stress/ or psychotrauma/
49 (relational trauma or developmental trauma or toxic stress or trauma-informed or complex trauma$).tw,kf.
50 or/46-49
51 24 and 50
52 41 or 45 or 51
53 Randomized controlled trial/
54 Controlled clinical study/
55 random$.ti,ab.
56 randomization/
57 intermethod comparison/
58 placebo.ti,ab.
59 (compare or compared or comparison).ti.
60 ((evaluated or evaluate or evaluating or assessed or assess) and (compare or compared or comparing or comparison)).ab.
61 (open adj label).ti,ab.
62 ((double or single or doubly or singly) adj (blind or blinded or blindly)).ti,ab.
63 double blind procedure/
64 parallel group$1.ti,ab.
65 (crossover or cross over).ti,ab.
66 ((assign$ or match or matched or allocation) adj5 (alternate or group$1 or intervention$1 or patient$1 or subject$1 or participant $1)).ti,ab.
67 (assigned or allocated).ti,ab.
68 (controlled adj7 (study or design or trial)).ti,ab.
69 (volunteer or volunteers).ti,ab.
70 human experiment/
71 trial.ti.
72 or/53-71
73 (random$ adj sampl$ adj7 ("cross section$" or questionnaire$1 or survey$ or database$1)).ti,ab. not (comparative study/ or controlled study/ or randomi?ed controlled.ti,ab. or randomly assigned.ti,ab.)
74 Cross-sectional study/ not (randomized controlled trial/ or controlled clinical study/ or controlled study/ or randomi?ed controlled.ti,ab. or control group$1.ti,ab.)
75 (((case adj control$) and random$) not randomi?ed controlled).ti,ab.
76 (Systematic review not (trial or study)).ti.
77 (nonrandom$ not random$).ti,ab.
78 "Random field$".ti,ab.
79 (random cluster adj3 sampl$).ti,ab.
80 (review.ab. and review.pt.) not trial.ti.
81 "we searched".ab. and (review.ti. or review.pt.)
82 "update review".ab.
83 (databases adj4 searched).ab.
84 (rat or rats or mouse or mice or swine or porcine or murine or sheep or lambs or pigs or piglets or rabbit or rabbits or cat or cats or dog or dogs or cattle or bovine or monkey or monkeys or trout or marmoset$1).ti. and animal experiment/
85 Animal experiment/ not (human experiment/ or human/)
86 or/73-85
87 72 not 86
88 52 and 87

CINAHL Plus EBSCOhost

S1 (MH "Parents+")
S2 (MH "Child Rearing") OR (MH "Parenting Education") OR (MH "Parenting") OR (MH "Intergenerational Relations") OR (MH "Parent-Child Relations+") OR (MH "Maternal Role") OR (MH "Paternal Behavior") OR (MH "Paternal Attitudes") OR (MH "Maternal Attitudes") OR (MH "Attachment Behavior")
S3 (MH "Pregnancy") OR (MH "Attitude to Pregnancy") OR (MH "Pregnancy, Unwanted") OR (MH "Pregnancy, Unplanned") OR (MH "Expectant Mothers")
S4 (MH "Obstetric Care") OR (MH "Midwifery") OR (MH "Midwifery Service") OR (MH "Obstetric Nursing") OR (MH "Perinatal Nursing") OR (MH "Labor")
S5 TI(parenthood or motherhood or fatherhood or parentificat*) OR AB(parenthood or motherhood or fatherhood or parentificat*)
S6 TI((parental or maternal or paternal) N1 (care* or relations* or behavio* or interact* or bonding)) OR AB((parental or maternal or paternal) N1 (care* or relations* or behavio* or interact* or bonding))
S7 TI((parent* or mother* or father*) N5 (Adaptation or adjustment or becoming or become or expect* or Transform* or transition*)) OR AB((parent* or mother* or father*) N5 (Adaptation or adjustment or becoming or become or expect* or Transform* or transition*))

S8 TI((Parents or mothers or fathers) N3 (breastfeed* or "young children" or "small children" or toddlers or infants or preschool* or baby or babies or newborn* or "new born*" or "new-born*" or caregiving or "early years" or nursery)) OR AB((Parents or mothers or fathers) N3 (breastfeed* or "young children" or "small children" or toddlers or infants or preschool* or baby or babies or newborn* or "new born*" or "new-born*" or caregiving or "early years" or nursery))
S9 TI((new or young or "first time") N1 (parents or mothers or fathers)) OR AB((new or young or "first time") N1 (parents or mothers or fathers))
S10 TI((child* or infant* or babies or toddler* or famil*) N3 (raise or raising or rear* or "bringing up" or "bring up")) OR AB((child* or infant* or babies or toddler* or famil*) N3 (raise or raising or rear* or "bringing up" or "bring up"))
S11 TI((antenatal or antepartum or ante-natal or ante-partum or birth* or childbirth* or childbearing or conception or parturition or perinatal or peri-natal or peripartum or peri-partum or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara* or primigravid* or trimester*) N3 (care or healthcare or health or service*)) OR AB((antenatal or antepartum or ante-natal or ante-partum or birth* or childbirth* or childbearing or conception or parturition or perinatal or peri-natal or peripartum or peri-partum or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara* or primigravid* or trimester*) N3 (care or healthcare or health or service*))
S12 TI(wom?n N2 (birth* or labo#r*)) OR AB(wom?n N2 (birth* or labo#r*))
S13 TI((Pregnan* N1 wom?n) or (Pregnan* N1 (adolescen* or teen*))) OR AB((Pregnan* N1 wom?n) or (Pregnan* N1 (adolescen* or teen*)))
S14 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13
S15 (MH "Child Abuse Survivors")
S16 (MH "Child Abuse, Sexual")
S17 (MH "Adverse Childhood Experiences")
S18 (MH "Exposure to Violence")
S19 TI((Childhood or children or "as a child" or "as an infant" or "early life") N3 (abuse or abused or abusive or neglect* or maltreat* or incest* or assault* or trauma* or victimi?ed or violen*)) OR AB((Childhood or children or "as a child" or "as an infant" or "early life") N3 (abuse or abused or abusive or neglect* or maltreat* or incest* or assault* or trauma* or victimi?ed or violen*))
S20 TI((witness* or expos*) N3 (abuse* or abusive or trauma* or violen*)) OR AB((witness* or expos*) N3 (abuse* or abusive or trauma* or violen*))
S21 TI((intergeneration* or inter-generation* or transgeneration* or trans-generation* or famil*) N3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi?ed or violence)) OR AB((intergeneration* or inter-generation* or transgeneration* or trans-generation* or famil*) N3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi?ed or violence))
S22 TI(generation* N3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi?ed or violence)) OR AB(generation* N3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi?ed or violence))
S23 TI(cycle N2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress")) OR AB(cycle N2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress"))
S24 TI(((Transmission or transmit*) N2 (generation* or family pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress")) OR AB(((Transmission or transmit*) N2 (generation* or family pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress"))
S25 TI((Transmission or transmit*) N2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress")) OR AB((Transmission or transmit*) N2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress"))
S26 TI (((break or breaking or breaks or broke) N3 (cycle* or pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress")) OR AB(((break or breaking or breaks or broke) N3 (cycle* or pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post-trauma* or "toxic stress"))
S27 TI("Adverse child* experience*" or "adverse child* event*" or "aversive child* experience*" or "child* adversity" or "early life trauma" or "traumatic child* experience") OR AB("Adverse child* experience*" or "adverse child* event*" or "aversive child* experience*" or "child* adversity" or "early life trauma" or "traumatic child* experience")
S28 S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27
S29 ((MH "Survivors") OR (MH "Self Disclosure") OR (MH "Patient History Taking+") AND (MH "Child Abuse+")
S30 TI((History or histories or historic* or survivor* or continuity or cycle* or discontinuity or disclosure or legacy or disclose* or recovery or unresolved or past) N3 (abus* or adversity or maltreat* or neglect* or posttrauma* or post-trauma* or stress or trauma* or violen*)) OR AB((History or histories or historic* or survivor* or continuity or cycle* or discontinuity or disclosure or legacy or disclose* or recovery or unresolved or past) N3 (abus* or adversity or maltreat* or neglect* or posttrauma* or post-trauma* or stress or trauma* or violen*))
S31 S29 OR S30
S32 (MH "Stress Disorders, Post-Traumatic") OR (MH "Stress, Psychological")
S33 TI(("Post-traumatic stress*" or "Post traumatic stress*" or PTSD) N5 (abus* or adversity or maltreat* or neglect* or posttrauma* or post-trauma* or stress or trauma* or violen*)) OR AB(("Post-traumatic stress*" or "Post traumatic stress*" or PTSD) N5 (abus* or adversity or maltreat* or neglect* or posttrauma* or post-trauma* or stress or trauma* or violen*))
S34 TI("relational trauma" or "developmental trauma" or "toxic stress" or "trauma-informed" or "complex trauma*") OR AB("relational trauma" or "developmental trauma" or "toxic stress" or "trauma-informed" or "complex trauma*")
S35 S32 OR S33 OR S34
S36 S14 AND (S28 OR S31 OR S35)

S37 MH ("Randomized controlled trials") or MH(" double-blind studies") OR MH ("single-blind studies") OR MH(" random assignment") OR MH("pretest-posttest design") OR MH ("cluster sample") or MH (placebos) or MH ("crossover design") OR MH ("comparative studies") or PT("randomized controlled trial")
S38 TI (randomised OR randomized) OR AB (random*) OR AB(control W5 group) or AB (cluster W3 RCT) OR TI (trial) OR (MH (sample size) AND AB (assigned OR allocated OR control))
S39 S37 OR S38
S40 (MH (animals+) or MH (animal studies) or TI (animal model*)) NOT MH (human)
S41 S39 NOT S40
S42 S36 AND S41

APA PsycInfo Ovid

1 parents/ or exp adoptive parents/ or expectant parents/ or exp fathers/ or exp mothers/ or exp single parents/
2 exp Childrearing Attitudes/ or exp Childrearing Practices/ or exp Parenting/ or exp Parenting Style/
3 exp parent child relations/
4 intergenerational relations/
5 attachment behavior/
6 exp pregnancy/ or *birth/ or childbirth training/ or perinatal period/ or postnatal period/ or exp prenatal care/
7 exp "labor (childbirth)"/ or exp intrapartum period/
8 midwifery/
9 Obstetrics/ and Nursing/
10 (parenthood or motherhood or fatherhood or parentificat$).tw.
11 ((parental or maternal or paternal) adj (care$ or relations$ or behavio$ or interact$ or bonding)).tw.
12 ((parent$ or mother$ or father$) adj5 (Adaptation or Adjustment or becoming or become or expect$ or Transform$ or transition$)).tw.
13 ((Parents or Mothers or Fathers) and (breastfeed$ or "young children" or "small children" or toddlers or infants or preschool$ or baby or babies or newborn$ or new born$ or new-born$ or caregiving or early years or nursery)).tw.
14 ((Parents or Mothers or Fathers) and (breastfeed$ or breast feed$ or "young children" or "small children" or toddlers or infants or preschool$ or baby or babies or newborn$ or new born$ or new-born$ or caregiving or early years or nursery)).tw.
15 ((new or young or "first time") adj (Parents or Mothers or Fathers)).tw.
16 ((child$ or infant$ or babies or toddler$ or famil$) adj3 (raise or raising or rear$ or "bringing up" or "bring up")).tw.
17 ((antenatal or antepartum or ante-natal or ante-partum or birth$ or childbirth$ or childbearing or conception or parturition or perinatal or peri-natal or peripartum or peri-partum or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara$ or primigravid$ or trimester$) adj3 (care or healthcare or health or service$)).tw.
18 (wom#n adj2 (birth$ or labour$ or labo?r$)).tw.
19 ((Pregnan$ adj3 wom#n) or (Pregnan$ adj3 (adolescen$ or teen$))).tw.
20 or/1-19
21 exp Child Abuse/
22 Battered Child Syndrome/
23 exposure to violence/
24 childhood adversity/
25 survivors/ and Sexual Abuse/)
26 ((Childhood or children or "as a child" or "as an infant" or "early life") adj3 (abuse or abused or abusive or neglect$ or maltreat$ or incest $ or assault$ or trauma$ or victimi#ed or violen$)).tw.
27 ((witness$ or expos$) adj3 (abuse$1 or abusive or trauma$ or violen$)).tw.
28 ((intergeneration$ or inter-generation$ or transgeneration$ or trans-generation$ or famil$) adj3 (abus$ or assault$ or incest$ or maltreat $ or neglect$ or trauma$ or victimi#ed or violence)).tw.
29 (generation$ adj3 (abus$ or assault$ or incest$ or maltreat$ or neglect$ or trauma$ or victimi#ed or violence)).tw.
30 (cycle adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw.
31 (((Transmission or transmit$) adj2 (generation$ or family pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw.
32 ((Transmission or transmit$) adj2 (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw.
33 (((break or breaking or breaks or broke) adj3 (cycle$ or pattern$)) and (abus$ or trauma$ or neglect$ or maltreat$ or violen$ or posttrauma$ or post-trauma$ or "toxic stress")).tw.
34 (Adverse child$ experience$ or adverse child$ event$ or aversive child$ experience$ or child$ adversity or "early life trauma" or traumatic child$ experience).tw.
35 or/21-34
36 20 and 35
37 (Survivors/ or Self-Disclosure/ or Patient History/) and exp child abuse/
38 ((History or histories or historic$ or survivor$ or continuity or cycle$ or discontinuity or disclosure or legacy or disclose$ or recovery or unresolved or past) adj3 (abus$ or adversity or maltreat$ or neglect$ or posttrauma$ or post-trauma$ or stress or trauma$ or violen$)).tw.
39 37 or 38

40 20 and 39
41 posttraumatic stress disorder/ or complex ptsd/ or posttraumatic stress/ or trauma-informed care/ or trauma/ or "stress and trauma related disorders"/
42 (relational trauma or developmental trauma or toxic stress or trauma-informed or complex trauma$).tw.
43 (Post-traumatic stress$ or Post traumatic stress$ or PTSD).tw.
44 or/41-43
45 20 and 44
46 36 or 40 or 45
47 randomized controlled trials/
48 clinical trials/
49 treatment effectiveness evaluation/
50 exp treatment outcomes/
51 followup studies/
52 longitudinal studies/
53 Placebo/
54 Experiment Controls/
55 exp program evaluation/
56 (randomis$ or randomiz$).tw.
57 placebo.ab.
58 (control$ adj (experiment$ or trial$)).tw.
59 (TAU or "treatment as usual" or "usual care" or "wait$ list").ab.
60 (random$ adj3 (allocat$ or assign$)).ab.
61 or/47-60
62 46 and 61

Web of Science Core Collection databases (Science Citation Index, Social Science Citation Index, Conference Proceedings Citation Index - Science, Conference Proceedings Citation Index - Social Sciences & Humanities)

28 #27 AND #26
27 TS=(random* OR control* OR RCT* OR placebo* OR blind* OR longitudinal or prospective or TAU or "usual care" or "treatment as usual")
26 #25 OR #21 OR #19
25 #24 AND #9
24 #23 OR #22
23 TI=("relational trauma" or "developmental trauma" or "toxic stress" or" trauma informed "or "complex trauma*") OR AB=("relational trauma" or "developmental trauma" or "toxic stress" or" trauma informed "or "complex trauma*")
22 (TI=("Post traumatic stress*" or "Posttraumatic stress*" or PTSD) OR AB=("Post traumatic stress*" or "Posttraumatic stress*" or PTSD)) AND (TI=(abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi*ed or violence) or AB=(abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi*ed or violence))
21 #20 AND #9
20 TI=((History or histories or historic* or survivor* or continuity or cycle* or discontinuity or disclosure or legacy or disclose* or recovery or unresolved or past) NEAR/3 (abus* or adversity or maltreat* or neglect* or posttrauma* or "post trauma*" or stress or trauma* or violen*)) OR AB=((History or histories or historic* or survivor* or continuity or cycle* or discontinuity or disclosure or legacy or disclose* or recovery or unresolved or past) NEAR/3 (abus* or adversity or maltreat* or neglect* or posttrauma* or "post trauma*" or stress or trauma* or violen*))
19 #18 AND #9
18 #17 OR #16 OR #15 OR #14 OR #13 OR #12 OR #11 OR #10
17 TI=("Adverse child* experience*" or "adverse child* event*" or "aversive child* experience*" or "child* adversity" or "early life trauma" or "traumatic child* experience") OR AB=("Adverse child* experience*" or "adverse child* event*" or "aversive child* experience*" or "child* adversity" or "early life trauma" or "traumatic child* experience")
16 TI=(((break or breaking or breaks or broke) NEAR/3 (cycle* or pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or "post trauma*" or "toxic stress"))
15 TI=(((Transmission or transmit*) NEAR/2 (generation* or "family pattern*")) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or "post trauma*" or "toxic stress")) OR AB=(((Transmission or transmit*) NEAR/2 (generation* or "family pattern*")) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or "post trauma*" or "toxic stress"))
14 TI=(cycle NEAR/2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or "post trauma*" or "toxic stress")) OR AB=(cycle NEAR/2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or "post trauma*" or "toxic stress"))
13 TI=(generation* NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victim*ed or violence)) OR AB=(generation* NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victim*ed or violence))
12 TI=((intergeneration* or "inter generation*" or transgeneration* or "trans generation*" or famil*) NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi*ed or violence)) OR AB=((intergeneration* or "inter generation*" or transgeneration* or "trans generation*" or famil*) NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi*ed or violence))

11 TI= ((witness* or expos*) NEAR/3 (abuse* or abusive or trauma* or violen*)) OR AB=((witness* or expos*) NEAR/3 (abuse* or abusive or trauma* or violen*))
10 TI=((Childhood or children or "as a child" or "as an infant" or "early life") NEAR/3 (abuse or abused or abusive or neglect* or maltreat* or incest* or assault* or trauma* or victimi*ed or violen*)) OR AB=((Childhood or children or "as a child" or "as an infant" or "early life") NEAR/3 (abuse or abused or abusive or neglect* or maltreat* or incest* or assault* or trauma* or victimi*ed or violen*))
9 #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2 OR #1
8 TI=((Pregnan* NEAR/3 wom*n) or (Pregnan* NEAR/3 (adolescen* or teen*)))
7 TI=(wom*n NEAR/2 (birth* or labour* or labor*))
6 TI=((antenatal or antepartum or "ante natal" or "ante partum" or birth* or childbirth* or childbearing or conception or parturition or perinatal or "peri natal" or postpartum or "post partum" or postnatal or "post natal" or prenatal or "pre natal" or postnatal or pregnancy or primipara* or primigravid* or trimester*) NEAR/3 (care or healthcare or health or service*)) OR AB=((antenatal or antepartum or "ante natal" or "ante partum" or birth* or childbirth* or childbearing or conception or parturition or perinatal or "peri natal" or postpartum or "post partum" or postnatal or "post natal" or prenatal or "pre natal" or postnatal or pregnancy or primipara* or primigravid* or trimester*) NEAR/3 (care or healthcare or health or service*))
5 TI=((new or young or "first time") AND (Parents or Mothers or Fathers))
4 TI=((Parents or mothers or fathers) NEAR/3 (breastfeed* or "breast feed*" or "young children" or "small children" or toddlers or infants or preschool* or "pre school*" or baby or babies or newborn* or "new born*" or caregiving or "early years" or nursery)) OR AB=((Parents or mothers or fathers) NEAR/3 (breastfeed* or "breast feed*" or "young children" or "small children" or toddlers or infants or preschool* or "pre school*" or baby or babies or newborn* or "new born*" or caregiving or "early years" or nursery))
3 TI=((parent* or mother* or father*) NEAR/3 (Adaptation or adjustment or becoming or become or expect* or Transform* or transition*)) OR AB=((parent* or mother* or father*) NEAR/3 (Adaptation or adjustment or becoming or become or expect* or Transform* or transition*))
2 TI=((parental or maternal or paternal) NEAR/1 (care* or relations* or behavio* or interact* or bonding)) OR AB=((parental or maternal or paternal) NEAR/1 (care* or relations* or behavio* or interact* or bonding)) OR AK=((parental or maternal or paternal) NEAR/1 (care* or relations* or behavio* or interact* or bonding))
1 TI= (parenthood or motherhood or fatherhood or parentificat*)

Cochrane Database of Systematic Reviews (CDSR)

#1 [mh parents] or [mh ^"single-parent family"]
#2 [mh "Child Rearing"] or [mh "father-child relations"] or [mh "intergenerational relations"] or [mh "maternal behavior"] or [mh "maternal deprivation"] or [mh "mother-child relations"] or [mh "maternal-fetal relations"] or [mh "parent-child relations"] or [mh parenting] or [mh "paternal behavior"] or [mh "paternal deprivation"]
#3 [mh pregnancy] or [mh "pregnancy, unplanned"] or [mh "pregnancy, unwanted"] or [mh "Pregnant Women"]
#4 [mh "perinatal care"] or [mh "peripartum period"] or [mh "postnatal care"] or [mh "postpartum period"] or [mh "Preconception Care"] or [mh "prenatal care"]
#5 [mh "Labor, Obstetric"] or [mh "Delivery, obstetric"] or [mh midwifery] or [mh "Obstetric nursing"]
#6 (parenthood or motherhood or fatherhood or parentificat*)
#7 ((parental or maternal or paternal) NEXT(care* or relations* or behavio* or interact* or bonding)):TI,AB
#8 ((parent* or mother* or father*) NEAR/5 (Adaptation or adjustment or becoming or become or expect* or Transform* or transition*)):TI,AB
#9 ((Parents or mothers or fathers) NEAR/5 (breastfeed* or breast NEXT feed* or young NEXT children or small NEXT children or toddlers or infants or preschool* or pre NEXT school* or baby or babies or newborn* or new NEXT born* or caregiving or early NEXT years or nursery)):TI,AB
#10 ((new or young or "first time") NEXT(Parents or Mothers or Fathers)):TI,AB
#11 ((child* or infant* or babies or toddler* or famil*) NEAR/3 (raise or raising or rear* or "bringing up" or "bring up")):TI,AB
#12 ((antenatal or antepartum or ante NEXT natal or ante NEXTpartum or birth* or childbirth* or childbearing or conception or parturition or perinatal or peri NEXT natal or postpartum or post NEXT partum or postnatal or post NEXT natal or prenatal or pre NEXT natal or postnatal or pregnancy or primipara* or primigravid* or trimester*) NEAR/3 (care or healthcare or health or service*)):TI,AB
#13 (wom*n NEAR/2 (birth* or labour* or labor*)):TI,AB
#14 (Pregnan* NEAR/3 wom*n) or (Pregnan* NEAR/3 (adolescen* or teen*)):TI,AB
#15 {or #1-#14}
#16 [mh "Adult survivors of child abuse"]
#17 [mh "Adult Survivors of Child Adverse Events"]
#18 [mh "child abuse"]
#19 [mh "Battered Child Syndrome"]
#20 [mh "adverse childhood experiences"]
#21 [mh "Exposure to violence"]
#22 ((Childhood or children or "as a child" or "as an infant" or "early life") NEAR/3 (abuse or abused or abusive or neglect* or maltreat* or incest* or assault* or trauma* or victimi*ed or violen*)):TI
#23 ((witness* or expos*) NEAR/3 (abuse* or abusive or trauma* or violen*)):TI
#24 ((intergeneration* or inter NEXT generation* or transgeneration* or trans NEXT generation* or famil*) NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victimi*ed or violence)):TI

#25 (generation* NEAR/3 (abus* or assault* or incest* or maltreat* or neglect* or trauma* or victim*ed or violence)):TI
#26 (cycle NEAR/2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress)):TI
#27 ((Transmission or transmit*) NEAR/2 (generation* or family NEXT pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress):TI
#28 ((Transmission or transmit*) NEAR/2 (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress)):TI
#29 ((break or breaking or breaks or broke) NEAR/3 (cycle* or pattern*)) and (abus* or trauma* or neglect* or maltreat* or violen* or posttrauma* or post NEXT trauma* or toxic NEXT stress):TI
#30 (Adverse NEXT child* NEXT experience* or adverse NEXT child* NEXT event* or aversive NEXT child* NEXT experience* or child* NEXT adversity or early NEXT life NEXT trauma or traumatic NEXT child* NEXT experience):TI
#31 {or #16-#30}
#32 #15 and #31
#33 ([mh survivors] or [mh disclosure] or [mh "medical history taking"]) and [mh "child abuse"]
#34 ((History or histories or historic* or survivor* or continuity or cycle* or discontinuity or disclosure or legacy or disclose* or recovery or unresolved or past) NEAR/3 (abus* or adversity or maltreat* or neglect* or posttrauma* or post NEXT trauma* or stress or trauma* or violen*)):TI
#35 {or #33-#34}
#36 #15 AND #35
#37 MeSH descriptor: [Stress, Psychological] this term only
#38 MeSH descriptor: [Stress Disorders, Post-Traumatic] explode all trees
#39 (Post NEXT traumatic NEXT stress* or Posttraumatic NEXT stress* or PTSD):TI
#40 (relational NEXT trauma or developmental NEXT trauma or toxic NEXT stress or trauma NEXT informed or complex NEXT trauma*):TI
#41 {or #37-#40}
#42 #15 AND #41
#43 #32 OR #36 OR #42 in Cochrane Reviews, Cochrane Protocols

PTSDPubs ProQuest

(MAINSUBJECT.EXACT("Pregnancy") OR MAINSUBJECT.EXACT("Childbirth") OR MAINSUBJECT.EXACT("Single Parents") OR MAINSUBJECT.EXACT("Parents") OR MAINSUBJECT.EXACT("Intergenerational Effects") OR MAINSUBJECT.EXACT("Midwifery") OR TI(parenthood or motherhood or fatherhood or parentificat*) OR AB(parenthood or motherhood or fatherhood or parentificat*) OR TI((parental or maternal or paternal) NEAR/1 (care* or relations* or behavio* or interact* or bonding)) OR AB((parental or maternal or paternal) NEAR/1 (care* or relations* or behavio* or interact* or bonding)) OR TI((parent* or mother* or father*) NEAR/5 (Adaptation or adustment or becoming or become or expect* or Transform* or transition*)) OR AB((parent* or mother* or father*) NEAR/5 (Adaptation or adustment or becoming or become or expect* or Transform* or transition*)) OR TI((Parents or mothers or fathers) NEAR/3 (breastfeed* or "young children" or "small children" or toddlers or infants or preschool* or baby or babies or newborn* or "new born*" or "new-born*" or caregiving or "early years" or nursery)) OR AB((Parents or mothers or fathers) NEAR/3 (breastfeed* or "young children" or "small children" or toddlers or infants or preschool* or baby or babies or newborn* or "new born*" or "new-born*" or caregiving or "early years" or nursery)) OR TI((new or young or "first time") NEAR/1 (parents or mothers or fathers)) OR AB((new or young or "first time") NEAR/1 (parents or mothers or fathers)) OR TI((child* or infant* or babies or toddler* or famil*) NEAR/3 (raise or raising or rear* or "bringing up" or "bring up")) OR AB((child* or infant* or babies or toddler* or famil*) NEAR/3 (raise or raising or rear* or "bringing up" or "bring up")) OR TI((antenatal or antepartum or ante-natal or ante-partum or birth* or childbirth* or childbearing or conception or parturition or perinatal or peri-natal or peripartum or peri-partum or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara* or primigravid* or trimester*) NEAR/3 (care or healthcare or health or service*)) OR AB((antenatal or antepartum or ante-natal or ante-partum or birth* or childbirth* or childbearing or conception or parturition or perinatal or peri-natal or peripartum or peri-partum or postpartum or post-partum or postnatal or post-natal or prenatal or pre-natal or postnatal or pregnancy or primipara* or primigravid* or trimester*) NEAR/3 (care or healthcare or health or service*)) OR TI(wom*n NEAR/2 (birth* or labor or labour)) OR AB(wom*n Near/2 (birth* or labor* or labour)) OR TI((Pregnan* NEAR/1 wom*n) or (Pregnan* NEAR/1 (adolescen* or teen*))) OR AB((Pregnan* NEAR/1 wom*n) or (Pregnan* NEAR/1 (adolescen* or teen*)))) AND (MAINSUBJECT.EXACT.EXPLODE("Clinical Trial") OR TI(TRIAL OR RANDOMLY OR RAND0MI*ED OR RCT) OR AB (trial or random* or control* or group* or cluster* or placebo* or trial* or assign* or allocat* or RCT))

EPISTEMONIKOS

title:(abus* OR trauma* OR neglect* OR maltreat* OR violen* OR posttrauma* OR "post traumatic" OR PTSD OR "toxic stress") AND title:(pregnan* OR pre-pregnan* OR birth OR labour OR labor OR prenatal* OR pre-natal* OR peri-natal OR perinatal OR antenatal OR ante-natal OR postnatal* OR post-natal* OR childbirth OR parent* OR mother* OR father*)

Publication type: Systematic review

ClinicalTrials.gov

Interventional Studies | abuse OR survivor | birth OR pregnancy OR perinatal OR prenatal OR postnatal OR parent OR mother OR father

WHO ICTRP

(child AND maltreat OR child AND abuse OR abuse AND survivor OR adult AND survivor OR child AND trauma) AND (birth OR pregnancy OR perinatal OR prenatal OR postnatal OR parent OR mother OR father)

Appendix 2. Example data extraction form

1. Study identifiers and characteristics of the study design	• Study ID, authors, year, study title • Name of intervention (multiple publications arising from the same study will be matched to authors and intervention) • Study aim/research question or hypothesis (primary outcome identified) • Study design (categorised as individually randomised parallel group, cluster randomised, factorial) • Randomisation process (described, flow charts, numbers) • Trial registration number (if available)
2. Participant characteristics	• Setting: country, state (jurisdiction); location, social context (including whether there is universal healthcare coverage or fee-for-service); service type; timing, start, end dates • Participant inclusion criteria and exclusion criteria • Participant recruitment and numbers (intervention and control) and withdrawals/dropouts; location (mental health service, prison, notified to child protection services) • Summary study statistics (e.g. mean/standard deviation index/interquartile range/range where available) of parent and child characteristics; parent type (biological, surrogate), stage of parenting (pregnant, perinatal, up five years, other), age (parent and child), gender (male, female, binary) parents (including LGBTQI+ (lesbian, gay, bisexual, transgender, queer and intersex)) and whether intervention offered to men/women equally), comorbidities • Demographic baseline characteristics and PROGRESS+ characteristics (e.g. age, income, ethnicity, indigeneity, incarceration, education, other). • Study focus is on parental experiences of complex trauma or history of childhood maltreatment or has a history of removal from family of origin, or a combination of these • Study assessment for complex trauma or maltreatment in childhood (how study assessed childhood maltreatment/complex trauma/adverse experiences and methods/tools used) • Study description of childhood maltreatment or complex trauma symptoms parents have experienced (or not specified) • Details (percent of total) if study involved parents who have and have not experienced complex trauma or childhood maltreatment or both (and outcomes reported by group status) • Whether trial investigators were legally required to report to child protection services any suspected instances of abuse or neglect
3. Characteristics of intervention and control (comparator) intervention for parents	• Intervention category: (1. psychological interventions, 2. parenting, parent–child or relationship focused interventions, 3. mind–body approaches, 4. pharmacological and biomedical interventions, 5. service system approaches and responses); definition and description; mode of delivery; dose, length, protocol involved with delivery; health professional delivering intervention (social worker, nurse, psychologist/therapist; trained advocate); training provided; implementation requirements; implementation fidelity (implemented as planned); uptake of standard care • Comparator; category (inactive comparator or head-to-head) definition and description; mode of delivery; dose, length, protocol involved with delivery; health professional delivering intervention (social worker, nurse, psychologist/therapist; trained advocate); implementation requirements; implementation fidelity (i.e. implemented as planned); uptake of standard care
4. Outcomes	• Prespecified outcome domains of the studies (primary and secondary outcomes as per study aim/objectives or hypotheses) and outcomes reported • Measurement methods, quantitative instruments/tools (define and describe instrument, aggregation methods); and qualitative methods (and when collected for each data collection method (recruitment, baseline, mid, end, follow-up)) • Time points of measurement (within perinatal period and postperinatal period)

(Continued)

	• Results including; summary statistics by group (for continuous outcomes: means, standard deviations, medians, interquartile ranges, ranges, sample sizes; and for binary outcomes: number of events, proportions, sample sizes), and effect estimates (e.g. mean differences, odds ratios, risk ratios), measures of precision (e.g. standard errors, confidence intervals) or results from statistical tests (e.g. test statistic (e.g. t test), test value (e.g. observed t value), degrees of freedom (df), P value) • Data required to assess risk of bias
5. Other information	• Funding source • Potential commercial interest • Study ethical approval • Other important comments from other authors • References to other relevant studies • Correspondence required • Miscellaneous notes by review authors

ID: identifier; **PROGRESS+:** place of residence, race/ethnicity/culture/language, occupation, gender/sex, religion, education, socioeconomic status, social capital; and personal characteristics associated with discrimination (e.g. age), features of relationships (e.g. parents who smoke), and time-dependent relationships (e.g. leaving hospital).

Appendix 3. Glossary of terms

Term	Acronym	Definition
Adverse childhood experiences	ACEs	ACE refers to some of the most intensive and frequently occurring sources of stress that children may experience early in life. Such experiences include multiple types of abuse; neglect; violence between parents or carers; other types of serious household dysfunction such as alcohol and substance abuse; and peer, community and collective violence (WHO 2018a).
Child–parent psychotherapy	CPP	CPP is an intervention model for children aged 0 to 5 years who: • have experienced ≥ 1 traumatic event; • are experiencing mental health or attachment or behavioural problems (or a combination of these), including post-traumatic stress disorder; and • have experienced ≥ 1 traumatic event and are experiencing mental health or attachment or behavioural problems (or a combination of these). The treatment is based in attachment theory but also integrates psychodynamic, developmental, trauma, social learning and cognitive behavioural theories. Therapeutic sessions include the child and parent or primary carer. The primary goal of CPP is to support and strengthen the relationship between a child and his or her carer as a vehicle for restoring the child's cognitive, behavioural and social functioning. Treatment also focuses on contextual factors that may affect the carer–child relationship (Lieberman 2004; NCTSN 2012).
Cognitive behavioural therapy	CBT	CBT is a form of psychological treatment that has been demonstrated to be effective for a range of problems, including depression, anxiety disorders, alcohol and drug use problems, marital problems, eating disorders and severe mental illness. Numerous research studies suggest that CBT leads to significant improvement in functioning and quality of life. In many studies, CBT has been as effective as, or more effective than, other forms of psychological therapy or psychiatric medications. CBT is based on several core principles, including:

(Continued)

		• psychological problems are based, in part, on faulty or unhelpful ways of thinking; • psychological problems are based, in part, on learned patterns of unhelpful behaviour; and • people experiencing psychological problems can learn better ways of coping with them, thereby relieving their symptoms and becoming more effective in their lives. CBT treatment usually involves efforts to change thinking patterns; strategies might include: • learning to recognise one's distortions in thinking that are creating problems, and then to re-evaluate them in light of reality; • gaining a better understanding of the behaviour and motivation of others; • using problem-solving skills to cope with difficult situations; and • learning to develop a greater sense of confidence is one's own abilities. CBT treatment usually involves efforts to change behavioural patterns; strategies might include: • facing one's fears instead of avoiding them; • using role-playing to prepare for potentially problematic interactions with others; and • learning to calm one's mind and relax one's body (APA 2017).
Hyperarousal	—	Hyperarousal is the abnormally heightened state of anxiety, which occurs whenever you think about a traumatic event. It is 1 of 3 sets of criteria used to diagnose post-traumatic stress disorder and acute stress disorder. Symptoms of hyperarousal include exaggerated startle response, disturbed sleep, difficulty in concentrating or remembering, and excessive vigilance (APA 2020).
Hypervigilance	—	Hypervigilance is 1 hyperarousal symptom of post-traumatic stress disorder, which manifests as a need to always scan the surroundings for potential threats. The result of constantly being on alert can be inappropriate (or even aggressive) reactions in everyday situations. Those displaying hypervigilance can be so involved in their scrutiny of what is around them, that they tend to ignore their family and friends. They may overreact to loud sounds and bangs, unexpected noises, smells, etc. Even familiar surroundings and people can be an issue as hypervigilance can make people acutely aware of subtle details normally ignored, e.g. body language, a person's voice and tone, their mood, their expressions – all things that are continually assessed. Some common behaviours of hypervigilance are: • lack of objectivity – reading too much into situations; • an over-awareness of what people see or think about us; • looking for others to betray constantly; • constantly concerned about others; • not being aware of what is obvious to others; and • over scrutiny/analysing behaviour of situations (Ford 2006; PTSD UK 2021).
Parenting capacity	—	Parenting capacity is defined as the ability of parents or carers to ensure that the child's developmental needs are being appropriately and adequately responded to, and to be able to adapt to their child/ren's changing needs over time (Budd 1996).
Parent–infant attachment	—	Parent–infant attachment is 1 unique aspect of the emotional relationship between a child and a parent (carer), with its purpose being to make a child

(Continued)

		safe, secure and protected. Attachment is distinguished from other aspects of parenting, such as disciplining, entertaining and teaching. It is a key factor in the way an infant's brain organises itself and how the child develops socially, emotionally, intellectually and physically. Observations of parent–infant attachment include the attitudes and behaviours of parents towards their children, in addition to the reciprocity (exchange of positive emotions and mutually satisfying behaviour) that occurs in the interactional process and the situational factors that may influence the relationship (Bell 1998; Belsky 1980; Benoit 2004; Bowlby 1988).
Parenting self-efficacy	PSE	Parenting self-efficacy is a cognitive construct, which refers to the parent's (carer's) confidence about their ability to successfully raise children. Jones and Prinz (2005) define PSE as the expectation carers hold about their ability to parent successfully. PSE is important as it relates to family functioning (Jones 2005; Wittkowski 2017).
Power Threat Meaning Framework	PTMF	The PTMF is a new perspective on why people sometimes experience a whole range of forms of distress, confusion, fear, despair and troubled or troubling behaviour. It is an alternative to the more traditional models based on psychiatric diagnosis. The main aspects of the PTMF are summarised in the following questions, which can apply to individuals, families or social groups. • "What has happened to you?" (How is Power operating in your life?) • "How did it affect you?" (What type of Threats does this pose?) • "What sense did you make of it?" (What is the Meaning of these situations and experiences to you?) • "What did you have to do to survive?" (What types of Threat Response are you using?) An additional 2 questions help to think about the skills and resources people might have, and how these ideas and responses can be pulled together into a personal narrative or story. • "What are your strengths?" (What access to Power resources do you have?) • "What is your story?" (How does all this fit together?) (BPS 2021; Johnstone 2018).
PROGRESS–Plus	PROGRESS+	PROGRESS refers to the following. • Place of residence • Race/ethnicity/culture/language • Occupation • Gender/sex • Religion • Education • Socioeconomic status • Social capital Plus refers to: • personal characteristics associated with discrimination (e.g. age, disability); • features of relationships (e.g. smoking parents, excluded from school; and • time-dependent relationships (e.g. leaving the hospital, respite care, other instances where a person may be temporarily at a disadvantage) (Cochrane Methods Equity 2021; O'Neill 2014).
Psycho-educational programme	—	Psycho-educational parenting programmes can be utilised as a universal approach to teach problem-solving and communication skills and provide education and resources. Brief psycho-educational interventions providing infor-

(Continued)

		mation can be effective in reducing symptoms of psychological distress and support parents with stress (Missler 2020).
Trauma-informed care	TIC	TIC is an approach based on knowledge of the impact of trauma, aimed at ensuring environments and services are welcoming and engaging for service recipients and staff. TIC is a strengths-based framework grounded in an understanding of and responsiveness to the impact of trauma, which emphasises physical, psychological and emotional safety for everyone, and which creates opportunities for survivors to rebuild a sense of control and empowerment. A programme, organisation or system that is trauma informed: • realises the widespread impact of trauma and understand potential paths for recovery; • recognises the signs and symptoms of trauma in clients, families, staff and others involved with the system; and • responds by fully integrating knowledge about trauma into policies, procedures and practices; and seeks to actively resist re-traumatisation (Hopper 2010; SAMHSA 2014; Trauma Informed Oregon 2016).
Trauma-focused cognitive behavioural therapy	TF-CBT	TF-CBT was developed by Cohen, Mannarino and Deblinger. It is a parent–child treatment, which uses cognitive behavioural principles and exposure techniques to prevent and treat post-traumatic stress, depression and behavioural problems. The goal of TF-CBT is to reduce post-traumatic stress disorder symptoms (De Arellano 2014; Deblinger 2003).

HISTORY

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CONTRIBUTIONS OF AUTHORS

Initials of author	Contribution of author
KAJ	Responsible for managing and co-ordinating the review; responsible for conceptualisation and write up of the overall review; responsible for selection and screening of studies, data extraction form development, data extraction and entry to RevMan Web; responsible for the assessment of risk of bias; substantial responsibility for planned data analysis, interpretation of results, and development of summary of findings tables; responsible for GRADE certainty assessments; all with contributions from other review authors, as described
IF	Provided substantial support to conceptualisation and write up overall review; contributed to selection (screening) of studies; data extraction; data analysis; responsible for the assessment of risk of bias; responsible for GRADE certainty assessments and editing of review
SEB	Topic expertise; contributed substantially to conceptualisation, planning of methods and provided statistical advice for development of the analysis plan; critically reviewed the review; responsible for GRADE certainty assessments; contributed to data analysis, interpretation of results and editing of review
JEM	Topic expertise; contributed substantially to conceptualisation, planning of methods and provided advice for development of the analysis plan; critically reviewed the review; contributed to data analysis, interpretation of results and editing of review

TMB	Critically reviewed the review; contributed to data extraction form development; selection of studies (screening); data extraction; assessment of risk of bias and editing of review
CR	Contributed to conceptualisation of the overall review, critically reviewed the review; contributed to the selection of studies (screening)
RF	Critically reviewed the review; contributed to the selection of studies (screening); data extraction; assessment of risk of bias and editing of review
ED	Critically reviewed the review; contributed to the selection of studies (screening); data extraction; assessment of risk of bias and editing of review
IK	Critically reviewed the review; contributed to the selection of studies (screening); data extraction; assessment of risk of bias and editing of review
SA	Topic expertise; critically reviewed the review; contributed to data extraction and appraisal of studies
MM	Topic expertise; critically reviewed the review
LS	Contributed to conceptualisation of the review, topic expertise; critically reviewed the review
HH	Contributed substantial support to conceptualisation of the review, topic expertise; critically reviewed the review
CC	Senior and corresponding author; guarantor for the review; topic expertise; conceptualisation of this review and critical input into the review design and methods; contributed to data extraction, data analysis and editing of review; and Principal Investigator for the Healing the Past by Nurturing the Future project, from which this review has been conducted.

DECLARATIONS OF INTEREST

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All authors declare they have no financial, personal or professional interests that could be construed to have influenced the conduct or results of this systematic review.

KAJ: reports a grant from the Medical Research Future Fund (MRFF), which aims to improve the health and wellbeing of Aboriginal and Torres Strait Islander mothers and babies, paid to the Indigenous Health Equity Unit, Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia.

SEB: has declared that she has no conflicts of interest.

JEM: has declared that she has no conflicts of interest.

IF: has declared that she has no conflicts of interest.

TMB: reports a grant from the MRFF, which aims to improve the health and wellbeing of Aboriginal and Torres Strait Islander mothers and babies; paid to the Indigenous Health Equity Unit, Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia.

RF is a qualified nurse and reports a grant from the MRFF, which aims to improve the health and wellbeing of Aboriginal and Torres Strait Islander mothers and babies; paid to the Indigenous Health Equity Unit, Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia.

ED: reports two grants from the MRFF, which (1) aim to improve health outcomes for Indigenous parents and their infants in a rural setting and (2) aim to improve the health and wellbeing of Aboriginal and Torres Strait Islander mothers and babies; both paid to the Indigenous Health Equity Unit, Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia.

IK: reports a grant from the MRFF, which aims to improve the health and wellbeing of Aboriginal and Torres Strait Islander mothers and babies; paid to the Indigenous Health Equity Unit, Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia.

SA: has declared that she has no conflicts of interest.

MM: reports being the PI of three studies that are eligible for inclusion in the work: Rosenblum KL, Muzik M, Morelen DM, Alfafara EA, Miller NM, Waddell RM, et al. A community-based randomized controlled trial of Mom Power parenting intervention for mothers with interpersonal trauma histories and their young children. Archives of Women's Mental Health 2017;20(5):673-86. [DOI: 10.1007/s00737-017-0734-9; PMCID: PMC5709180; PubMed: 28647759]; Rosenblum KL, Lawler J, Alfafara EA, Miller N, Schuster M, Muzik M. Improving maternal representations in high-risk mothers: a randomized, controlled trial of the Mom Power parenting intervention. Child Psychiatry & Human Development 2018;49(3):372-84. [DOI: 10.1007/s10578-017-0757-5; PMCID: PMC5862741; PubMed: 28936602]; Muzik M, Rosenblum K L, Schuster M, Ribaudo J, Alfafara E, Miller N. Mom Power: a multi-family intervention for mothers with childhood trauma histories and their young children, aimed to support mental health and parenting. Archives of women's mental health 2019;22(5):672. These studies were funded by: Department of Community Health, State of Michigan (grants F023865-2009 and F029321-2010); Michigan Institute for Clinical & Health Research (grant UL1RR024986-2010); and the Robert Wood Johnson Health & Society Scholars Program (grant N012918-2010). The funders had no role in the design, methods, data analysis or reporting.

LS: has declared that she has no conflicts of interest.

HH: has declared that she has no conflicts of interest.

CR: has declared that she has no conflicts of interest.

CC: reports being the Principal Investigator for two MRFF grants, which aim to implement and evaluate trauma-integrated perinatal care for Aboriginal and Torres Strait Islander families from the Australian Medical Research Future Fund, and the recipient of a Career Development Fellowship and Project Grant to improve health equity for Aboriginal and Torres Strait Islander families from the National Health and Medical Research Council; all paid to the Indigenous Health Equity Unit, Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia. CC is a Women in Science and Principal Indigenous Committee member with National Health and Medical Research Council, and a board member with the Australian Health Practitioner Regulation Agency; personal payments.

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DIFFERENCES BETWEEN PROTOCOL AND REVIEW

- We planned to include a comparison of all interventions versus control. We did not include this comparison as we considered that there was too high a level of heterogeneity across the intervention categories for this comparison to add any value. For example, psychological interventions assessed psychological wellbeing outcomes, while parenting interventions assessed parenting capacity and parenting skills outcomes. We felt that combining these diverse outcomes in a single comparison would not be useful to readers. Subsequently, the planned subgroup analyses detailed below could not be conducted.
  - For the comparison of all interventions versus control:
    - Type of intervention (psychological therapies, parenting programmes, mind–body approaches, pharmacological and biomedical therapies, and service system approaches).

- Participant characteristics using PROGRESS+ plus framework (O'Neill 2014): age (under 18 years, 18 to 29 years, 30 or over years); ethnicity (dominant or 'minority' ethnic population at risk of disadvantage); country of birth (low- to middle-income or high-income); indigenous status (all indigenous); socioeconomic status (SES; low or not low SES); parent gender (majority male versus majority female); majority current complex trauma symptoms or childhood maltreatment history (sexual abuse versus other type of abuse history); education (majority less than high school versus majority completed high school); mental health comorbidity (yes or no); recruitment through mental health service, prison, or government mandated parenting programme, as there is substantial evidence that complex trauma does not impact parents uniformly, and some population groups experience greater impacts of complex trauma, as well as potentially differential experiences of 'parenting interventions'.
- Intervention characteristics (delivery modality, face-to-face or online); in home or group-based, single practitioner or multidisciplinary team delivery, or both; number of contacts (one, two to five, more than five); total length of contact time (less than one hour, two to 10 hours, more than 10 hours), as knowledge of intervention characteristics that may enhance the effectiveness of an intervention is important for decision-makers and programme developers.

  - In terms of participant characteristics, we planned to report any factors that may account for increased heterogeneity, and if this was not feasible to report all the above factors individually. We planned to use the data to generate the following variables to conduct subgroup analyses to examine their effects:
    - 'any indicator of disadvantage', generated from a combination of the following: aged less than 18 years, 'minority' ethnic population at risk of disadvantage, low- to middle-income country, majority indigenous parents, low SES, majority education less than high school, or recruited through prison;
    - 'mental health comorbidity', generated from current complex trauma symptoms, mental health comorbidity or recruited through mental health service or government mandated parenting programme; and
    - maltreatment involving sexual abuse (no studies found).

- In the protocol we said we would code studies as meeting the PROGRESS+ criteria for 'indigenous' population when all participants were indigenous. This was amended to code studies as meeting the criteria when the majority of participants identified as indigenous in line with other criteria used in the review (e.g. majority ethnic minority population).
- We planned to group outcomes for synthesis, considering the following two periods: pregnancy, up to six weeks' postpartum; and more than seven weeks' postpartum (up to five years, to account for longer-term follow-up after intervention completion) and to select the outcome measured at the longest follow-up where an outcome was measured at multiple time points within a period. We selected broad time periods in anticipation of having sparse data for synthesis. Given the importance of understanding effects across the postpartum period, we planned to extract data for outcomes at three, six, 12, 18 and 24 months' postpartum, and for birth to six months, seven to 12 months and greater than one year after intervention, for synthesis at a more granular level, if sufficient data were available (including in future updates, as the evidence base in this emerging area grows). Due to a limited range of time points available, we extracted and reported data for all available time points.

INDEX TERMS

Medical Subject Headings (MeSH)

Mothers [education]; Parents [education]; Pregnant Women; Psychotherapy [methods]; *Stress Disorders, Post-Traumatic [therapy]

MeSH check words

Female; Humans; Pregnancy