

Narrative review of interventions suitable for well-baby clinics to promote infant attachment security and parents' sensitivity

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Abstract

Aim: The aim of this narrative review was to evaluate the evidence for interventions for children's secure attachment relationships and parents' caregiving sensitivity that could potentially be implemented in the context of a well-baby clinic.

Methods: Literature search on programmes for parental caregiving sensitivity and secure attachment for infants aged 0-24 months. Randomised controlled trials (RCTs) published 1995-2018 with interventions starting from one week postpartum, and with a maximum of 12 sessions (plus potential booster session) were included.

Results: We identified 25 studies, of which 22 studied effects of home-based programmes using video feedback techniques. Positive effects of these interventions in families at risk were found on parental caregiving sensitivity and to a lesser extent also on children's secure or disorganised attachment. The effects of two of these programmes were supported by several RCTs. Three intervention studies based on group and individual psychotherapy showed no significant positive effects. Most of the interventions targeted mothers only.

Conclusion: The review found some evidence for positive effects of selective interventions with video feedback techniques for children's secure attachment and strong evidence for positive effects on parental caregiving sensitivity. Important knowledge gaps were identified for universal interventions and interventions for fathers and parents with a non-Western background.

KEYWORDS

attachment, infants, parenting, sensitivity, well-baby clinics

1 | INTRODUCTION

Mental health problems are one of the largest public health challenges in Sweden today, and experiences in early life are important

for later health and development.¹ Infants and toddlers can suffer from psychological ill health, and their symptoms appear to be relatively stable over time.² During the first years of life, brain growth is immense and dependent on the child's experiences and environment,

Abbreviations: ABC, Attachment and Bio-behavioural Catch-up; RCT, randomised controlled trial; SES, socioeconomic status; VIPP, Video-feedback Intervention to promote Positive Parenting; WBC, well-baby clinic.

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in particular, the interaction with the caregivers.³ An important aspect of these experiences is the first attachment relationships, the emotional relationships of a special quality, that the child develops to those who continuously take care of it. A large body of research has confirmed the relationship between children's early attachment patterns and later social and behavioural development.⁴

New parents develop a motivational system for caregiving in parallel to children's motivation for establishing attachment bonds. The quality of this motivational system is related to the parent's ability to represent and hold in mind the internal states of the child and interpreting the child's behaviour. In practice, this means that the parent interprets the child's behaviour in terms of emotions, thoughts, desires and intentions before the child itself can recognise or understand such aspects. A parent's sensitivity is related both to this ability to attune to the child's internal states during actual interaction but to his or her own attachment experiences with significant others. The latter is theoretically described as attachment representations or internal working models.⁵ Bowlby states that these representations influence how the parent perceives the world and himself in it and guides his perception of events, forecasts of the future and strategies for interacting with others.⁶ The parent's attachment representations and ability for sensitive caregiving are significant for children's psychological health since it constitutes a fundamental part of the infant's psychological environment.⁵

Parents' ability to meet the child's need for security and exploration is the basis for the relationship-specific attachment patterns that develop between six and 12 months of age.⁷ A child with a secure attachment pattern is used to predictable, sensitive responses to its attachment behaviour. Children with insecure attachment patterns can either have an anxious-avoidant or anxious-ambivalent pattern. An avoidant pattern is characterised by minimised attachment signals and seeking of proximity only in states of strong fear. Children with an ambivalent pattern instead maximise their attachment signals, such as clinging intensively to the parent, in order to seek relief. These three attachment patterns are organised, based on a strategy the child uses in need of reducing stress or fear. A fourth group of children have not been able to develop any attachment strategy. This may arise when the parent, for example, is responding to the child's attachment behaviour in ways that are perceived as subtly frightening, frightened or dissociative, leading to a very confusing state where the parent is, at the same time, both the person who causes stress and fear and the one the child has to turn to for protection from these feelings.⁸ Disorganised attachment is characterised by a tendency to simultaneously approach and move away from the parent, leading to conflicted, confused or apprehensive behaviour when the child is afraid or stressed.⁶ This relation-specific attachment pattern has been observed in maltreated children, but parent's unresolved trauma or loss is other pathways to disorganised attachment.^{9,10}

Because early attachment is so important for infant development and mental health, it is essential to make sure that services are geared to offer evidence-based interventions to families at risk for disrupted attachment relationships.

Key notes

- An important task for well-baby clinics during the first years of life is to support children's secure attachment relationships and parents' sensitive caregiving.
- We identified effective home-delivered methods, based on video feedback, that can be recommended for further evaluation in the context of well-baby clinics
- Universal interventions and interventions for fathers and parents with non-Western backgrounds are lacking.

Well-baby clinics (WBCs) are the core of the public health services for infants and preschool children in several European countries such as Sweden, Norway, Finland, Belgium, Iceland and the Netherlands.¹¹ The WBCs are usually led by nurses who lead a team of child health professionals that often includes child psychologists. In Sweden, nurses meet with the family between 11 and 13 times during the first year.¹² They conduct home visits and promote children's health by preventing and detecting disabilities, through health surveillance and by supporting parents.

Over the past 15 years, the focus of the WBCs has gradually shifted from medical interventions towards providing support for infant and parent mental health and psychosocial issues.¹³ The WBC nurses screen mothers for postnatal depression and invite fathers or other nonbirthing parents to discuss their parenting. No particular methods to support children's attachment and parental sensitivity are included in the WBC programme, but the WBC psychologists are specialised on early parent-child relationships. A review of methods and programmes currently used in Sweden for promoting infant-parent relationships was published in 2018.¹⁴ There are large differences in methods used and geographical availability of interventions and/or specialised units.

According to the literature, a large number of interventions to help parents achieve sensitive caregiving and promote secure attachment relationships for their children have been trialled. The aim of this narrative was to identify such interventions that may be suitable for implementation within WBC settings.

2 | METHODS

This study was based on a review of the literature published in English and Swedish from 1995 to 2018. The following inclusion criteria were used:

1. **Population:** Infants 0-24 months of age and their parent/s.
2. **Interventions:** Any intervention with a primary focus on infant/child attachment, parental sensitivity (behaviour) or parental attachment representation, starting after discharge from the delivery/postpartum or neonatal ward, with timing of intervention start from one week postpartum and a maximum of 12 sessions (plus potential booster session).

3. **Study design:** Randomised controlled trials, or similar designs with samples selected from RCTs, with an active or passive control group.
4. **Outcome measure:** Infant/child attachment (type, pattern, security), parental sensitivity (behaviour), parental attachment representation

Literature searches were made in PubMed, Web of Science, PsycINFO and ERIC (see Table S1) with search strategies based on these criteria. A total of 1108 papers were found. Hand searches based on six meta-analyses complimented this search strategy and identified 156 additional studies. Articles were then transferred to the Rayan Web-based systematic review software¹⁵ for title and abstract screening. After removal of duplicates, 1045 titles and abstracts were screened. Of these, 99 papers were considered for full-text review (Figure 1 and Table 1).

3 | RESULTS

3.1 | Intervention characteristics

There were 25 studies that fulfilled the criteria of the review. Two were universal interventions aimed at improving sensitivity and/or attachment security in families in the general population. Of the 23 studies that evaluated selective interventions, two studied

interventions for families with risk factors on a group level and 21 studied indicated interventions for families with individual risk factors or established problems. Nine studies evaluated the effects of different versions of the method Video-feedback Intervention to promote Positive Parenting (VIPP),¹⁶⁻²⁴ and four studied Attachment and Bio-behavioural Catch-up (ABC).²⁵⁻²⁸

3.1.1 | Target populations

One of the interventions was aimed at fathers, one included parents of both sexes, while the others targeted mothers. The selective interventions targeted families in low-income areas and teenage mothers. The indicative interventions were evaluated with parents with children who were adopted in two studies, in foster care in one study and had irritable temperament in one study; with parents who had problematic attachment representations or low sensitivity in seven studies and depression in three studies or were at risk for maltreating their children or having harsh parenting in five studies.

3.1.2 | Video feedback and home-based interventions

An overwhelming majority of the interventions, one out of two of the universal and 21 of 23 selective and indicated interventions,

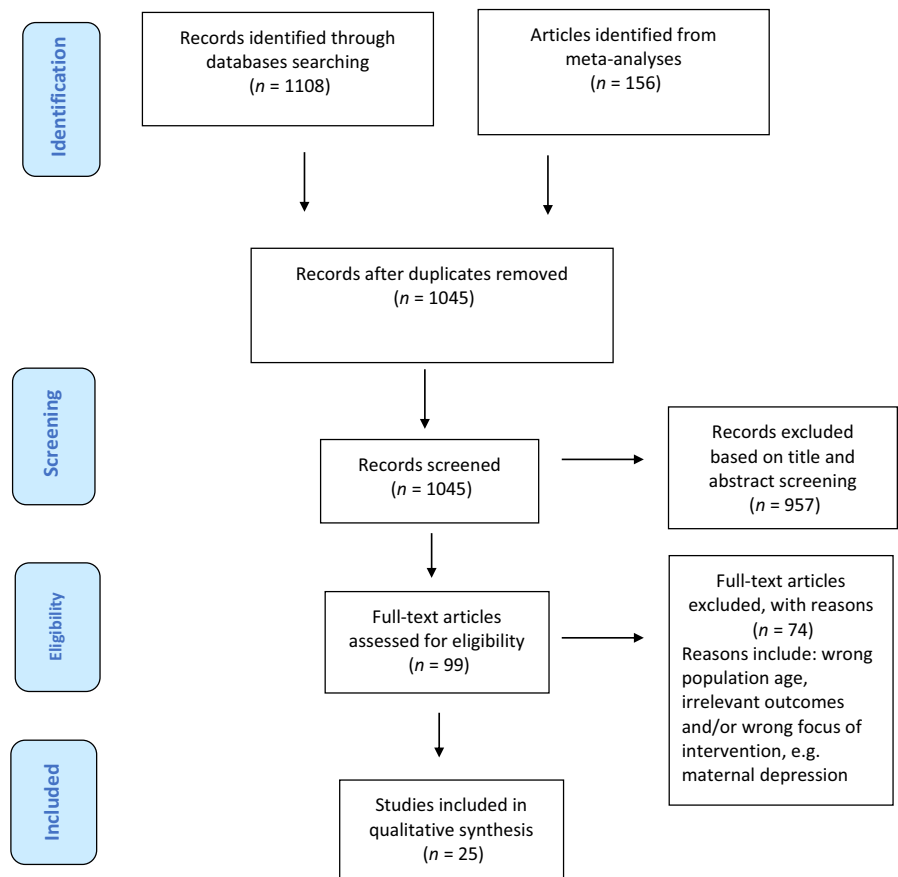


FIGURE 1 A flow chart of articles included according to PRISMA guidelines

TABLE 1 Studies that fulfilled the criteria of the review

Authors/Year	Sample	Setting and delivery	Intervention and control group details	Outcome measures and follow-up	Outcome
Universal interventions					
Magill-Evans et al./2007	First-time fathers Age at intervention start: 5 mo	Setting Home Delivered by trained home visitors Video feedback Yes	<i>Video-self modelling with feedback (home-based) education programme</i> , 2 individual home visits with video feedback Control group —home visits, but fathers received no videotape or feedback	Sensitivity was measured using Nursing Child Assessment Teaching Scale (NCATS) Follow-up period —outcomes measured at 8 mo	Intervention improved sensitivity Effect size: partial eta-squared (η^2) = 0.03
Niccols./2008	Primiparous mothers Age at intervention start: 1–24 mo	Setting Healthcare facility Delivered by psychologists, infant development educators and/or social workers Video feedback No	<i>Right from the start (RFTS)</i> , an intervention with 8 group sessions Control group —TAU	Sensitivity was measured using Maternal Behavior Q-sort and HOME Responsivity Scale. Attachment was measured using Attachment Q-set Follow-up period —outcomes measured at 8 wk and 6 mo after the intervention	No differences at postintervention or at follow-up were found in the primary analysis. In the secondary analyses, however, some effects with respect to compliance were observed Effect size: For the RFTS group: effect size for attachment was Cohen's $d = 0.35$ & 0.55 and for sensitivity was $d = 0.11$ & -0.04 with MBQ & $d = 0.52$ & $d = 0.34$ with HOME at 8 wk and 6 mo follow-up, respectively
Selective interventions					
Moran et al./2005	Teenage mothers (<20 y) (selective intervention) Age at intervention start: 7 mo	Delivered by psychologist and child educator	<i>Home visiting programme</i> , with 8 sessions Control group —received one home visit	Attachment and sensitivity were measured with SSP and Maternal Behavior Q-set, respectively Follow-up period —outcomes measured preintervention and at 12 and 24 mo	Higher proportion of children with secure attachment in the intervention group. Higher sensitivity in the intervention group at 24 mo Effect size: medium for attachment was Cohen's $w = 0.25$ and for sensitivity, $w = 0.21$
Baggett et al./2010	Low-SES families, infants at risk for poor socioemotional outcomes (selective intervention) Age at intervention start: 3–8 mo (mean 4 mo)	Delivered by MSc-level online coaches Video feedback Yes	<i>Infant-Net program</i> with ten Internet-delivered individual sessions Control group —computer-control condition	Mother-infant interaction was measured using The Landry Parent-Child Interaction Scales Follow-up period —outcomes measured 6 mo after baseline assessment	Intervention increased infant social engagement and positive child-parent interaction Effect size: a moderate effect size ($\eta^2 = 0.05$) for child-parent interaction
Indicated interventions					

(Continues)

TABLE 1 (Continued)

Authors/Year	Sample	Setting and delivery	Intervention and control group details	Outcome measures and follow-up	Outcome
Juffer et al, /1997	Parents and adopted Asian infants (indicated intervention) Age at intervention start: 6 mo	Delivered by researchers with MSc in child and family studies	Intervention 1—two home visits with a book on sensitive parenting. Intervention 2—two home visits with the book on sensitive parenting + three sessions of video feedback Control group —TAU	Sensitivity was measured with scales for sensitivity and cooperation, and attachment with SSP Follow-up period —outcomes measured at infant age 12 mo	Intervention 1(book) showed no effect on either sensitivity or attachment, whereas Intervention 2 (book + video feedback) gave significant effect on both sensitivity and attachment compared to control group Effect size: NR
Bakermans-Kranenburg et al, /1998	Mothers classified as insecure on AAI (indicated intervention) Age at intervention start: 7-10 mo	Delivered by two of the authors	<i>Video-feedback Intervention to promote Positive Parenting (and Sensitive Discipline from 18 mo) (VIPP-SD)</i> . Two interventions with four individual home visits: one with video feedback only and the other with video feedback + discussions about mothers' own childhood Control group —TAU	Sensitivity measured with Ainsworth's scale and attachment with SSP Follow-up period —outcomes measured within 13 mo	Positive effects on sensitivity in both intervention groups. Some between group differences (between the two intervention groups) observed, only if consideration was taken to the mother's type of representation based on AAI No effects on attachment Effect size: Cohen's $d = 0.87$ for sensitivity in the intervention group
Juffer et al, /2005	Parents and adopted children (indicated intervention) Age at intervention start: 5 mo	Delivered by home visitors	<i>Video-feedback Intervention to promote Positive Parenting (VIPP)</i> . Three home visits Control group —Two groups: No treatment and control group receiving only written materials about sensitivity	Attachment measured with SSP. Sensitivity with the 'sensitivity' and 'cooperation' parts of Ainsworth's scale Follow-up period —outcomes measured at 12 and 18 mo	Intervention led to higher sensitivity and lower proportion of children with disorganised attachment Effect size: $d = 0.65$ for sensitivity, $d = 0.46$ for likely hood to be classified as disorganised and $d = 0.62$ for score on disorganisation scale
Velderman et al, 2006a; Velderman et al, 2006b	Mothers with insecure attachment representation based on AAI (indicated intervention) Age at intervention start: 7-10 mo	Delivered by home visitors educated in education and child studies	<i>Video-feedback Intervention to promote Positive Parenting + representational focus (VIPP-R)</i> . Four home visits Control group —TAU	Attachment measured with SSP and AQS, sensitivity with Ainsworth's rating scale for sensitivity and EAS Follow-up period —outcomes measured at 11, 13 and 40 mo	Intervention had positive effects on sensitivity at 13 mo, but not later. Increased number of secure children in the intervention group but not significant Effect size: $d = 0.49$ (VIPP, $d = 0.46$ & VIPP-R, $d = 0.52$) for sensitivity, and $d = 0.22$ for attachment
Bakermans-Kranenburg et al, /2008	Mothers dismissive/preoccupied on AAI (indicated intervention) Age at intervention start: 7 mo	Delivered by home visitors	<i>Video-feedback Intervention to promote Positive Parenting/representational focus (VIPP-R)</i> . Four home visits were given to two different groups Control group —TAU	Sensitivity measured with Ainsworth's scale and attachment with SSP Follow-up period —outcomes measured at 11 and 13 mo	Sensitivity improved in both intervention groups, but no significant effect difference on children's attachment Effect size: $d = 0.49$ for sensitivity and $d = 0.22$ for attachment

(Continues)

TABLE 1 (Continued)

Authors/Year	Sample	Setting and delivery	Intervention and control group details	Outcome measures and follow-up	Outcome
Kalinauskienė et al. /2009	Mothers with low sensitivity (indicated intervention) Age at intervention start: 7 mo	Delivered by psychologists	<i>Video-feedback Intervention to promote Positive Parenting (VIPP)</i> . Four home visits and one booster session Control group —monthly phone calls	Attachment measured with Attachment Q-sort and sensitivity with parts of the Ainsworth scale Follow-up period —outcomes measured at 12 mo	Higher sensitivity among intervention group but no effect on attachment Effect size: for sensitivity $d = 0.78$
Pereira et al. /2014; Negrao et al. /2014	Severely socioeconomically deprived mothers of children with risk of harsh parenting and maltreatment (indicated intervention) Age at intervention start: 12–48 mo	Delivered by interveners with a MSc in psychology	<i>Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPPSD)</i> . Six home visits Control group —phone calls about child development	Sensitivity measured with Emotional Availability Scale (EAS). Harsh physical and verbal discipline and psychological control was observed during a mother-child interaction situation (clean-up task) Follow-up period —outcomes measured one month after the last home visit	Intervention effect on enhancing positive parent-child interactions, and positive family relations and, for mothers with high parental stress, in decreasing maternal harsh discipline Effect size: condition X time interaction, partial $\eta^2 = 0.31$
Cassibba et al. /2015	Primiparous mothers with different attachment representations according to AAI: (indicated intervention) Age at intervention start: 7 mo	Delivered by Not reported	<i>Video-feedback Intervention to promote Positive Parenting + representational focus (VIPP-R)</i> . Five home visits Control group —two 'dummy' home visits	Representations, sensitivity and attachment were measured with AAI, EAS and SSP, respectively Follow-up period —outcomes measured at 6 and 13 mo	The VIPP-R improved maternal sensitivity and infant attachment security only in mothers with an insecure attachment compared to control, but no effects in secure mothers Effect size: NR
Cassidy et al. /2011	Low-SES and irritable children (indicated intervention) Age at intervention start: 1 mo	Delivered by master's- and doctoral-level clinicians	<i>Circle of Security-HV4</i> , four individual home visiting sessions with video feedback Control group —psychoeducation	Attachment was measured using SSP Follow-up period —outcomes measured within 12 mo	No main effect for the intervention. Interaction effects in relation to children with the highest level of irritability Interaction effects with mother's attachment patterns were also observed Effect size: OR = 4.87 for highly irritable children
Lind et al. /2014	Children reported to Child Protective Services (indicated intervention) Age at intervention termination: 3.4 to 25.8 mo	Delivered by BSc- and MSc-level parent coaches	<i>Attachment and Bio-behavioural Catch-up (ABC)</i> with ten home visits Control group —Received developmental education for families	Tool Task was measured using <i>Revised Manual for Scoring Mother Variables in the Tool-Use</i> Follow-up period —outcomes measured at 24 to 36 mo	Children in the intervention group showed lower levels of negative affect during a parent-child interaction procedure designed to assess children's emotion expression during a challenging task Effect size: $d = 0.42$

(Continues)

TABLE 1 (Continued)

Authors/Year	Sample	Setting and delivery	Intervention and control group details	Outcome measures and follow-up	Outcome
Bick & Dozier, /2013	Children in foster care (indicated intervention) Age at intervention start: about 9.5 mo	Delivered by Experienced parent trainers	<i>Attachment and Bio-behavioural Catch-up (ABC)</i> with ten home visits Control group —received developmental education for families	Sensitivity measured with video play, coded on 5-point Likert scale Follow-up period —outcomes measured at pre, 30 d' postintervention, at 1 and 2 y infant age	Effects on the sensitivity scales were observed in the intervention group Effect size: NR
Bernard et al, /2012	Parents in contact with social services + children with risk of maltreatment (indicated intervention) Age at intervention start: 1.7–21.4 mo	Delivered by experienced parent trainers	<i>Attachment and Bio-behavioural Catch-up (ABC)</i> with ten home visits Control group —received developmental education for families	Attachment was measured using SSP Follow-up period —outcomes measured around 11.7 and 31.9 mo	Lower proportion of children with disorganisation and higher attachment security in the intervention group Effect size: $d = 0.52$ for disorganisation, $d = 0.38$ for rates of secure attachment
Yarger et al, /2016	Mothers with low sensitivity or high intrusiveness (indicated intervention) Age at intervention start: 6–20 mo	Delivered by experienced interventionists	<i>Attachment and Bio-behavioural Catch-up (ABC)</i> with ten home visits Control group —received developmental education for families	Sensitivity measured by a scale coded using adapted version of the Observational Record of the Caregiving Environment (ORCE) Follow-up period —outcomes measured postintervention (18.8 wk after start on average)	Mothers in the intervention showed greater increase in sensitivity and decrease in intrusiveness compared to the control condition Effect size: $d = 0.70$ for sensitivity and $d = -0.81$ for intrusiveness
Van Doesum et al, /2008; Kersten-Alvarez et al, /2010	Mothers with depression (indicated intervention) Age at intervention start: 5.5 mo	Delivered by prevention specialists (MSc in psychology or social psychiatry)	<i>Home visiting mother-baby intervention</i> with 8–10 home visits. Control group —support through phone calls	Attachment was measured using AQS, and sensitivity with EAS. At follow-up at age 5 y, attachment was measured with Attachment Story Completion Task Follow-up period —outcomes measured pre-post and 6 mo after intervention completion (which was around 5.5, 12 and 18.8 mo and at child age 5 y)	Higher proportion of children with secure attachment and improved sensitivity were observed among the intervention group mothers. No effects on attachment at age 5 y Effect size: $\eta^2 = 0.28$ for sensitivity, $\eta^2 = 0.16$ for child responsiveness and $\eta^2 = 0.13$ for child involvement
Moss et al, /2011	Children vulnerable for maltreatment, families in contact with social services (indicated intervention) Age at intervention start: 12–71 mo,	Delivered by trained clinical workers (with psychology background)	<i>Home visiting intervention</i> , with eight sessions Control group —TAU (received support from social workers)	Attachment measured with SSP and The Preschool Separations and Reunion Procedure and sensitivity with The Maternal Behavior Q-Set Follow-up period —outcomes measured pre and post 8 wk of intervention	Intervention gave effects for secure, insecure and disorganised attachment Effect size: $d = 0.47$ for sensitivity, and $r = 0.36$ for secure attachment and $r = 0.37$ for disorganisation (became organised)

(Continues)

TABLE 1 (Continued)

Authors/Year	Sample	Setting and delivery	Intervention and control group details	Outcome measures and follow-up	Outcome
Stein et al, /2018	Mothers with major depressive disorder (indicated intervention) Age at intervention start: 4.5–9 mo	Delivered by CBT and VFT trained clinical psychologists	Parenting video feedback therapy (VFT). Eleven home visits with 2 booster sessions Control group —progressive muscle relaxation (PMR) Note: Both intervention and control group were receiving cognitive behavioural therapy (CBT)	Attachment measured with Attachment Q-Sort (AQS) Follow-up period —outcomes measured at 2 y	No differences were found Effect size: risk difference of 0.06 (95% CI –0.03 to 0.15)
Risholm Mothander et al, /2018	Parents with identified problems in the parent-child relation Age at intervention start: 0–48 mo (mean age 21 and 8 mo respectively in the two groups)	Delivered by therapists at infant mental health clinics	Circle of Security Parenting (COS-P) in addition to treatment at infant mental health clinic. Eight group sessions with discussions about preproduced video vignettes of secure and problematic caregiver-child interactions (ie not of the participating parents) Control group —TAU in infant mental health clinic	Representation measured using Working Model of the Child Interview (WMCI) and caregiver-child interaction using the Emotional Availability (EA) Scale Follow-up period —outcomes measured pre and 6 and 12 mo after inclusion	No differences in the comparisons between the two groups. Significant change in parental representations in the intervention group Effect size: NR
Forman et al, /2007	Mothers with postpartum depression Age at intervention start: 6 mo	Setting Health care facility Delivered by psychotherapist Video feedback No	Interpersonal psychotherapy (IP) with twelve individual sessions Control group – waitlist and a non-depressed comparison group	Maternal responsiveness measured with global ratings based on Ainsworth's system and attachment with Waters' Attachment Q-Set (AQS) Follow-up period —outcomes measured at 6 and 9 mo, and 2.4 y of infant age	No effect on maternal responsiveness Lower attachment security in children in the intervention group at 2.4 y Effect size: partial $\eta^2 = 0.10$ for attachment security

Abbreviation: NR, not reported.

were delivered in the families' homes and used video feedback techniques to enhance sensitivity and secure attachment relationships. Video feedback techniques involved filming short episodes of parent-infant interaction and watching selected parts together while providing personal feedback on parent and infant behaviour with a focus on sensitive responsiveness. Positive moments in the interaction were emphasised to highlight the parent's ability to be sensitive and responsive towards the child. During the first sessions of the programmes, the focus was primarily on parental capabilities and positive interaction, while difficulties were brought up in the later sessions when a sense of trust between the intervener and the parent had been established.

One of the selective interventions was delivered online, and the participants only had chat, email and telephone contact with their facilitator.²⁹ In the other methods, one or two interveners visited the parent and child in their homes.

3.2 | Effects and description of the interventions

Of the three programmes that did not use home-based video feedback, two were eight-session group interventions where the participants discussed prefabricated video clips of typical examples of positive and negative parent-child interactions.^{30,31} Right from the start was a universal intervention for primiparous mothers, and Circle of Security Parenting was an indicated intervention for parents referred to or in treatment at infant mental health clinics. None of these programmes showed positive effects in the primary analyses when compared to the control groups. The third intervention, Interpersonal therapy, was psychotherapeutic with 12 sessions for mothers with depression.³² This programme had no effect on sensitivity and a negative effect on child attachment security at follow-up at age 2.4 years.

3.2.1 | Home-based programmes with video feedback

Of the included programmes, VIPP was the most well-studied with nine studies.¹⁶⁻²⁴ This intervention includes four sessions with different themes, and is manual-based but adapted to the needs of the individual family. The first two sessions are focused on the infant, the child's explorative behaviour is contrasted with its attachment behaviour and the intervener is 'giving the infant a voice'. The two remaining sessions cover parental behaviour in terms of sensitivity and sharing emotions with the infant. Other versions have been added during programme development. VIPP-Sensitive Discipline is based on coercive theory and was developed for children with problematic behaviours. VIPP-R includes parental attachment representations and has been studied in parents with insecure attachment representations.²⁰ Significant effects in terms of increased parental sensitivity were found in four studies covering about 300 infants aged 0-2 years.^{17,18,20,23} A decrease in infant insecure attachment was reported in two studies including 113 infants,^{18,24} whereas one study with around 50 infants²¹ found no

significant differences regarding attachment security. One study with 130 infants¹⁷ demonstrated a decrease in disorganised attachment.

Four RCTs of the intervention ABC were included in this review.²⁵⁻²⁸ ABC includes 10 one-hour home visiting sessions. Besides video feedback, the method consists of 'in the moment comments', which is instant, rapid and frequent oral feedback on parent and child behaviours observed in vivo during the sessions. The method focuses on three specific aspects of parental behaviour: nurturance and caregiving, following the (child's) lead and nonfrightening behaviour. The ten sessions have different themes. Significant effects of ABC have been reported on maternal sensitivity and intrusiveness and lower frequencies of disorganised attachment and higher frequencies of secure attachment in children. Child outcomes have been followed longitudinally into middle childhood with positive results.³³

3.2.2 | Universal interventions

Of the home-based programmes with video feedback, the only universal intervention was designed for fathers and included two sessions at child age 5-6 months. A control group received two home visits discussing age-appropriate toys. Eighty-one first-time fathers were randomly assigned, and fathers in both groups reported increased competence in parenting over time, but fathers in the intervention group to a higher degree maintained their sensitivity to infant cues when the baby was eight months old.³⁴

3.2.3 | Selective interventions

The Infant-Net program, one of the two selective interventions, is an Internet-adapted programme derived from Playing and Learning Strategies programme, with video feedback during 10 sessions of online coaching via email and phone calls. The Infant-Net was studied in the United States among low socioeconomic status mothers with infants aged 3-8 months at risk for poor social and emotional development.²⁹ The control group received computers with access to online parenting material. Significant improvement in child-parent interaction and better social engagement in the infants were observed in the intervention group at the six months of follow-up. Moran et al assessed the effects of eight home visits with video feedback among teenage mothers (<20 years). At inclusion, their infants were 7-12 months old.³⁵ The intervention was found to have significant improvement in attachment security at 12 months and for maternal sensitivity at 24 months of infant age.

3.2.4 | Indicated interventions for mothers with depression

In the UK, the parenting video feedback therapy was studied. This programme consisted of six weekly and a mean of five fortnightly therapy sessions in the first year of infancy followed by two booster

sessions during the second year.³⁶ Mothers with persistent depression were randomised to intervention or to progressive muscle relaxation in addition to cognitive behavioural therapy. Attachment security was measured at age 2, and there was no significant difference between the groups. The mother-baby intervention with eight to ten home visiting sessions with video feedback could be complemented with either modelling behaviour, cognitive restructuring, practical pedagogical support or baby massage depending on the needs of the parents. Each session lasted around 60-90 minutes and was delivered over a 3- to 4-month period. One study³⁷ measured attachment and sensitivity at a pre-post intervention and six-month follow-up, compared with support through phone calls. Significant intervention effects were noted on both sensitivity and infant attachment. A follow-up study assessed attachment when the children were around 5.5 years of age and found no long-term effects on attachment security.³⁸

3.2.5 | Indicated interventions for parental problematic attachment representations or insensitivity

A small-scale RCT compared effects of ABC with a control condition where a home visitor interacted with children and mothers with low sensitivity and high intrusiveness, in order to support child motor and cognitive development. The researchers found a greater increase in sensitivity and decrease in intrusiveness in the intervention group.²⁸ Six studies reported results for VIPP for mothers with insecure^{16,18,19,24} and dismissive/preoccupied attachment representations²⁰ and in mothers with low sensitivity.²¹ The interventions were given around child age seven months, and outcomes were measured around child age 12 months, with positive effects on maternal sensitivity but not on child attachment. One study followed up maternal sensitivity at 40 months and then found no effect.¹⁹ Interaction effects of maternal sensitivity and attachment representations were identified; the intervention was more effective for mothers with more problematic representations.^{16,24}

3.2.6 | Indicated interventions for adopted children and children in foster care

Two studies on adopted children were conducted by Juffer et al, one of VIPP and one of a preceding version with three home sessions of video feedback plus two sessions discussing a personalised book on sensitive parenting.^{17,39} The samples in these two studies were selected from RCTs, where the interventions started at infant age five and six months, respectively, and outcomes were collected at 12 months and in 2005 also at 18 months. Effects on sensitivity and on attachment were found. Bick and Dozier evaluated the effects of ABC on children in foster care compared with developmental parent education.²⁶ The interventions started around infant age 9.5 months, and effects on sensitivity were identified.

3.2.7 | Indicated interventions for neglect, maltreatment and harsh parenting

Negrao et al and Pereira et al presented results from an RCT of VIPP-Sensitive Discipline in a sample of very poor mothers with risks of harsh parenting.^{22,23} Six home visits were included, while the control condition received six phone calls about child development. The intervention had effect on enhancing positive parent-child interactions in terms of maternal nonintrusiveness, child responsiveness and involvement. Effects on decreasing maternal harsh discipline were found only for mothers with high parental stress. ABC was studied with families with children with risk of neglect and maltreatment and in families with children reported to the child protection services.^{25,27} The control groups received education on child development. Child age at inclusion was heterogeneous in both studies and ranged between 2 and 26 months. Bernard et al found effects of secure and disorganised attachment, and Lind et al found lower levels of negative affect in children in the intervention group during parent-child interaction. Moss et al evaluated 8 weekly home visits with video feedback among families monitored by the social services for maltreatment of their children.⁴⁰ Apart from video feedback, the intervention included brief discussions of attachment-emotion regulation-related themes. At postintervention, they reported significant improvements in sensitivity and attachment security in the intervention group.

3.2.8 | Indicated intervention for infant irritable temperament and economic stress

Circle of Security-home visits-HV4 with four home visits with video feedback and 'in the moment comments' about mother-child interaction were given about every third week at infant age 6.5 to 9.5 months. Attachment patterns and maternal sensitivity were compared between 220 participants randomised to the intervention or a control group receiving led home visits with psychoeducation on caregiving. No significant differences were found regarding primary outcomes on attachment quality and maternal sensitivity.⁴¹

4 | DISCUSSION

The widespread knowledge about the importance of parents' sensitivity and children's early attachment has led researchers to create a multitude of interventions in order to strengthen these relationships. Since the focus of this narrative review was on methods that may be suitable for use in WBCs, strict inclusion criteria were implemented, leaving us with 25 RCTs. Of the studies, 21 were indicated and aimed at families with established problems or risk factors on an individual level. Two studies were selective, for families belonging to a risk group, while another two programmes used a universal strategy, for families with no established risk factors.

The included studies showed a large homogeneity in the content and strategy of interventions for parental sensitivity and children's attachment relationships. All but three (one psychotherapeutic intervention and two group interventions) were carried out in the homes of the families and used video feedback techniques, filmed parent-infant interaction and gave feedback on relevant sections of these clips during the next session. Of the indicated studies, 17 had maternal/parental risk factors, such as depression, negative parenting styles or unresolved/insecure attachment representations as inclusion criteria. Only one intervention was specifically aimed at fathers, one included primary caregivers of both sexes, while all the others primarily addressed mothers.

Possibly, the homogeneity of the included studies is related to our exclusion of interventions with more than 12 sessions (plus potential booster sessions). A large number of group and home visit interventions and an even larger number of psychotherapeutic interventions were excluded due to their (sometimes very) high number of sessions, based on the assumption that longer interventions are outside of the scope of universal WBCs. Universal WBCs aim at promotion, prevention and early treatment interventions for infant attachment and parental sensitivity.¹³ More intensive interventions are hence more suitable for specialised services such as child psychiatry and child social services. It should also be noted that a large number of sessions are not necessarily related to a better treatment outcome.⁴² Despite the limitation of numbers of sessions applied in this review, we could identify interventions with effect on sensitivity and on child attachment. This was in line with a previous review that argued for fewer contacts being somewhat more effective on these outcomes.⁴²

We excluded methods starting during pregnancy or at postpartum or neonatal wards to make the review relevant for the WBCs, where contact is established after discharge from the hospital. Also, this is in line with arguments from a previous review, concluding that interventions starting 6 months after birth or later were more efficient than those introduced earlier.⁴² Most of the interventions in this review were studied on populations of mothers and children around age 6-12 months. A few had very heterogeneous age samples and one, Circle of Security-HV4, started at age one month.⁴¹

4.1 | Usefulness of specific interventions

The review found more evidence of positive effects for interventions for families with individual risk factors than for selective programmes for teenage mothers or low-SES families. In modern WBCs, the Internet-delivered selective Infant-Net Intervention for low-SES families may, however, be of interest.²⁹ Further studies could evaluate the potential contributions of Internet-delivered methods for WBCs.

Many high-income countries today have policies that promote gender equity in parenting. In the Nordic countries, such policies have been in place since the 1970s.⁴³ Thus, the lack of intervention studies that include fathers is a major knowledge gap in this area.

The most well-studied method in this review was VIPP, with positive effects particularly on parental sensitivity but also in some studies on children's attachments security and disorganisation. This method may be suitable in WBCs, with its scope of four home-based sessions. The sample in several of the studies of VIPP consisted of mothers with difficulties related to their caregiving (attachment representations), which may be well in line with whom the WBC psychologists frequently meet and support. Moreover, most of the studies on VIPP are from the Netherlands, a country with a strong WBC tradition,⁴⁴ which makes these effect sizes of these studies particularly relevant for the WBC context of this review, since the Dutch control groups can be expected to have access to a similar psychosocial support as parents in other countries with WBC. It has also been trialled in other contexts and is currently studied with fathers in the UK.⁴⁵

The other well-studied method was ABC with ten one-hour home visiting sessions. This intervention showed positive effects on maternal sensitivity and children's attachment patterns but seems unsuitable for the WBCs since it is targeting high-risk families. For the social or child protection services, it may, however, be a valuable addition, possibly in liaison with the WBC.

Three programmes aimed at mothers with depression. Van Doesum et al found positive effects on secure attachment and maternal sensitivity post-treatment of their home visiting mother-baby intervention but no effects on child attachment at follow-up at five years.^{37,38} Stein et al found no effects of their 11-session parenting video feedback therapy, and Forman et al found no effect of interpersonal therapy on maternal responsiveness and negative effects on attachment security at follow-up at child age 2.4 years.^{32,36} New mothers are screened for depression at 6-8 weeks in Swedish WBCs, and methods for protecting the child from negative consequences of depression are important. In the study of Stein et al, mothers in the intervention and in the control condition received cognitive behavioural therapy and the rate of remission was high in both groups. The authors propose this as an explanation for the close to the normative means of attachment security in the children at age 2 years. This contradicts the review findings of Tsivos et al, who instead found that programmes targeting maternal sensitivity and responsiveness had the greatest efficacy at reducing depression.⁴⁶ Whether treatment focus for WBC psychologists should be on the depression per se or whether and when interventions for attachment and sensitivity are warranted are important questions for further studies.

4.2 | A Swedish perspective

In Swedish WBC and infant mental health clinics, the programmes Circle of Security Parenting and International Child Development Program have been widely implemented.^{14,47} No studies on effects of International Child Development Program for parents with children 0-2 years were found in our search, and one small-scale single trial of Circle of Security Parenting found no positive results compared to treatment as usual in an infant mental health

clinic.³¹ When comparing the studied interventions to those currently used in Sweden, a gap is thus revealed. The most popular methods in use have limited, if any, scientific support. Our findings regarding the benefits of including home-based video feedback in interventions for parents' sensitivity and children's attachments have not influenced Swedish clinical practice.

4.3 | Strengths and limitations

This review should be regarded as a narrative rather than a systematic review, since no systematic quality assessment of the included studies was performed. Our criteria of including only studies with a RCT design, however, limited our review to studies with a state of the art design in intervention research. Thus, we believe that the review allows for some tentative conclusions based on the identified homogeneity in the methods and location of studies with effect on parental sensitivity and to some extent on children's attachment relationships. On the other hand, studies with other less satisfactory study designs were not included in our review, limiting the comprehensiveness of the review with regard to the diversity of interventions.

5 | CONCLUSION

Selective home-based interventions with video feedback on parent-child interaction show consistent positive effects on parental sensitivity and to a certain degree also on children's attachment and can be a useful contribution to psychosocial support provided to parents in well-baby clinics for families at risk, both for direct use and in liaison with the social services. There are important knowledge gaps with regard to the efficacy of these interventions to fathers and parents of non-Western background and for programmes with a universal strategy in general. There is a clear gap between the evidence-based methods and the methods currently in use in the Swedish WBCs.

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CONFLICTS OF INTEREST

None of the authors have any conflicts of interests to declare.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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