

Review: Attachment and attachment-related outcomes in preschool children – a review of recent evidence

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Background: Secure attachment is associated with optimal outcomes across all domains in childhood, and both insecure and disorganised attachment are associated with a range of later psychopathologies. Insecure and disorganised attachment are common, particularly in disadvantaged populations, pointing to the need to identify effective methods of addressing such problems. **Aims:** This paper presents the findings of a review of secondary and primary studies evaluating the effectiveness of interventions aimed at improving attachment and attachment-related outcomes on a universal, targeted or indicated basis, which was undertaken as part of an update of the evidence base for a UK-based national programme targeting children aged 0–5 years (Healthy Child Programme). **Method:** A systematic search of key electronic databases was undertaken to identify secondary and primary sources of data that addressed the research question and that had been published between 2008 and 2014; search sources included Cochrane Collaboration, NICE, EPPI Centre, Campbell Collaboration and PubMed, PsychInfo, CINAHL databases. **Findings:** Six systematic reviews and 11 randomised controlled trials were identified that had evaluated the effectiveness of universal, selective or indicated interventions aimed at improving attachment and attachment-related outcomes in children aged 0–5 years. Potentially effective methods of improving infant attachment include parent–infant psychotherapy, video feedback and mentalisation-based programmes. Methods that appear to be effective in improving attachment-related outcomes include home visiting and parenting programmes. **Conclusions:** A number of methods of working to promote attachment and attachment-related outcomes in preschool children are now being recommended as part of the Healthy Child Programme. The implications in terms of the role and contribution of practitioners working in child and adolescent mental health service are discussed.

Key Practitioner Message

- Insecure and disorganised attachment are associated with later psychopathology.
- Both types of attachment have a high prevalence, particularly in disadvantaged and maltreated children.
- A number of methods of working show promise in terms of improving attachment security and reducing insecure and disorganised attachment in a range of high-risk parent–child dyads, including parent–infant psychotherapy, programmes involving the use of video feedback and mentalisation-based programmes.
- These interventions should be provided by practitioners working in child and adolescent mental health services to parents and children under 5 years of age, where children are experiencing problems that may be underpinned by attachment difficulties.

Keywords: Healthy Child Programme; 0–5 years; intervention; attachment; parental sensitivity; early years

Background

Secure attachment has been shown to be significantly associated with a range of improved outcomes for children across all domains of functioning, including emotional, social and behavioural adjustment, scholastic

achievement and peer-rated social status (Sroufe, 2005), while both insecure and disorganised attachment are associated with a range of later problems (van der Voort, Juffer, & Bakermans-Kranenburg, 2014) including externalising disorders (Fearon, Bakermans-Kranenburg, Van Ijzendoorn, Lapsley, & Roisin, 2010), dissociation (Lyons-Ruth, Yellin, Melnick, & Atwood, 2005), PTSD (MacDonald et al., 2008) and personality disorder (Steele & Siever, 2010). For example, one longitudinal study of children with disorganised attachment at 1-year of age found that

The copyright line for this article was changed on 7 January 2016 after original online publication.

by 6 years of age the children were showing signs of controlling behaviours towards their parents, avoidance of their parents, dissociative symptoms, behavioural/oppositional problems, emotional disconnection, aggression towards peers and low social competence in preschool (Lieberman & Amaya-Jackson, 2005).

Research conducted over the last few decades suggests that only two thirds of children are securely attached, and that disorganised attachment has a prevalence of 15–19% in population samples (De Wolff & Van Ijzendoorn, 1997), up to 40% in disadvantaged populations (Weinfield, Whaley, & Egeland, 2004) and 80% in maltreated populations (Cyr, Euser, Bakermans-Kranenburg, & Van Ijzendoorn, 2010).

An early systematic review of 12 studies found that parental sensitivity was a significant predictor of attachment security (De Wolff & Van Ijzendoorn, 1997). However, such sensitivity only explained around one third of the total variance, and recent research has identified the importance of the specific nature or quality of the attunement or contingency between parent and infant (Beebe et al., 2010), the parent's capacity for what has been termed 'maternal mind-mindedness' (Meins, Fernyhough, Fradley, & Tuckey, 2001) or 'reflective function' (Slade, Grienenberger, Bernbach, Levy, & Locker, 2005), and a range of anomalous forms of parent–infant interaction (Lyons-Ruth et al., 2005).

Early life experiences including, but not limited to, parenting behaviours and impact on the child's rapidly developing neurological system (Boyce, Sokolowski, & Robinson, 2012). Social adversity disrupts developing brain architecture and other organ systems and regulatory functions, with a range of long-term consequences in terms of children's learning (i.e. linguistic, cognitive and socio-emotional skills), behaviour (adaptive vs. maladaptive responses) and physiology (i.e. hyper-responsive/chronically activated stress response; Shonkoff, Boyce, & McEwen, 2009).

The provision of support for parenting with the aim of improving children's social, emotional and behavioural wellbeing is a central part of the UK government-funded Healthy Child Programme (HCP; Shribman & Billingham, 2009), which is the key universal public health service for improving the health and wellbeing of children through health and development reviews, health promotion, parenting support and screening and immunisation programmes. Its goals are to identify and treat problems early, help parents to care well for their children, to change health behaviours and to protect against preventable diseases. The programme is evidence-based, and aims to prevent problems in child health and development, and contribute to a reduction in health inequalities. The evidence underpinning the current programme for 0- to 5-year-olds was recently updated (Axford et al., 2015) and this paper presents the findings of that review in terms of interventions that are aimed at improving attachment or attachment-related parenting behaviour.

Method

A review was undertaken of a range of electronic databases to identify systematic reviews of interventions that met the agreed inclusion criteria. The review also involved a search for randomised controlled trials (RCTs) published during the relevant

period that met the inclusion criteria and that had not been included in the existing reviews. The search was undertaken as part of an update of the HCP (Shribman & Billingham, 2009), and therefore focused explicitly on evidence published since the previous update (Barlow et al., 2008).

Inclusion and exclusion criteria

Only studies published in English that met the following inclusion criteria were included:

- Study design – systematic reviews, reviews of reviews and RCTs.
- Intervention – any attachment-based intervention or interventions provided on an individual or group basis that was, and aimed at improving attachment status or attachment-related outcomes (listed below).
- Population – parents of preschool children.
- Outcomes – attachment status or attachment-related outcomes including parent–infant/toddler interaction; parental sensitivity or reflective functioning; parental emotional availability or mental health; child emotional or social adjustment.
- Years – a search was undertaken for systematic review studies during the period January 2008 to July 2014 and for RCTs that were not included in the systematic reviews during the period January 2009 to November 2014.

The following were excluded from the current report:

- Studies of sensitivity-based parenting interventions for pre-term infants (Benzies, Magill-Evans, Hayden, & Ballantyne, 2013; Evans, Whittingham, Sanders, Colditz, & Boyd, 2014) and all parenting programmes not explicitly targeting the above attachment related criteria.

Search terms and method

In order to identify studies meeting the inclusion criteria, relevant databases were searched, including those of key organisations (e.g. Cochrane Collaboration, NICE, EPPI Centre, Campbell Collaboration) and key electronic health, social science and education databases (e.g. PubMed, PsychInfo, CINAHL). A list of search terms that were used can be found in the full report (Axford et al., 2015). Experts in the respective fields were consulted and asked to identify any systematic reviews or primary studies that were not identified by the search of electronic databases.

Data synthesis

Data from each of the included reviews and primary studies are presented using a narrative that both describes the intervention and summarises the results from the individual studies.

Results

A total of six systematic reviews and 11 RCTs meeting the criteria were identified. Table 1 provides a summary of the included studies. Results are presented first for impact on attachment and second for impact on attachment-related outcomes.

Attachment

Six of the included papers provided an evaluation of the effectiveness of an intervention in changing infant attachment status (Table 1).

A systematic review of the effectiveness of parent–infant/toddler psychotherapy (PIP) included eight RCTs comparing the effectiveness of PIP with a no-treatment control group (four studies) or comparing PIP with other kinds of treatment (including an infant-led model of par-

Table 1. Summary of included interventions including the systematic review of secondary and primary studies evaluating the effectiveness of interventions aimed at improving attachment and attachment-related outcomes on a universal, targeted or indicated basis

Intervention type	Study design	Population	Outcomes measured	Conclusions
Studies assessing attachment				
Parent–infant psychotherapy	One systematic review of eight RCTs (Barlow et al., 2015)	Diverse high risk populations including maltreating and imprisoned women	Attachment; parental interaction; parental mental health	Two studies that measured attachment showed an improvement; little evidence of impact across other outcomes
Includes video feedback	One RCT (Bernard et al., 2012)	Parents at risk of maltreatment as indicated by recent contact with child protection services	Attachment	A lower proportion of children in the ABC group (32%) were classified as having a disorganised attachment compared with children in the control group (57%; excluding children over 24 months old at the time of assessment); a higher proportion of children in the ABC group were classified as securely attached (52%) compared with children in the control group (33%)
	One RCT (Moss et al., 2011)	Maltreating parents	Attachment; parental sensitivity; child behaviour problems	Significantly more children securely attached (reduction in insecure and disorganised attachment); significant improvements in parental sensitivity; reduction in internalising and externalising problems of older children
	One RCT – individually administered Circle of Security (Cassidy et al., 2011)	Parents of irritable infants	Attachment	Improvements in highly but not moderately irritable infants; maternal attachment status was an important modifying factor
	1 RCT – VIPP (Kalinauskienė et al., 2009)	Mothers low in sensitive responsiveness	Attachment and sensitivity	Statistically significant and large effect on mothers' sensitive responsiveness ($d = 0.78$), but no effect on attachment security
Mentalisation-based programme	One RCT – Minding the Baby (Sadler et al., 2013)	First-time mothers aged 14–25 experiencing a range of problems – including child protection issues, depression, homelessness, poverty or violent relationships	Attachment; maternal reflective functioning; maternal mental health; subsequent childbearing; mother–infant affective communication	Higher rates of secure attachment in the intervention group (64% cf 48%); and lower rates of disorganised attachment (27% cf 43%). Also reduced rapid subsequent childbearing; trend towards fewer open cases with child protection (0% cf 5%). No differences for reflective functioning or depression/psychological distress, but trend for improved communication
Studies assessing attachment-related outcomes only				
Infant massage	One systematic review of 34 RCTs (Bennett et al., 2013)	Healthy parent–infant dyads – infants less than 6 months of age	Parent–infant interaction; mental health; infant temperament; infant emotional and social development; infant physical and mental development	No evidence of effectiveness with low-risk populations

Table 1. (continued)

Intervention type	Study design	Population	Outcomes measured	Conclusions
Includes video feedback	One systematic review of 29 studies (13 RCTs, 8 QEDs, 8 pre-post design; Fukkink, 2008) One RCT – VIPP (Negrão et al., 2014)	Parents and children, only 23 focusing on parents of children under 5 Parents of children aged 1–4 years living in poverty	Parental behaviours – sensitivity, responsiveness, verbal and non-verbal communication; and child problem behaviours Maternal emotional availability; child behaviour; family environment	Statistically significant impact on parenting behaviours, particularly with parents in high-risk groups; small to moderate effect on child behaviours Significant improvements in maternal emotional availability; child behaviour and family environment
	One RCT (Lind et al., 2014)	Parents of children under 2 years of age following allegations of maltreatment	Child negative affect	Lower levels of child negative affect expression, including lower overall levels of anger, lower levels of anger towards parent, and lower levels of global anger/sadness
Home visiting	One RCT – VIPP (Yagmur et al., 2014) One systematic review of 35 controlled studies Nievar et al., 2010)	Turkish minority mother–infant dyads A range of targeted populations	Sensitivity; discipline Parental sensitivity	Significant improvements in sensitive parenting and non-intrusiveness; no effect on maternal discipline Moderately successful ($d = .37$) at improving maternal behaviours, as measured by a combination of survey and observational measures that assessed the home learning environment and maternal sensitivity
Mentalisation-based intervention	One RCT – Mothers and Toddlers Programme (Suchman et al., 2011)	Substance-dependent mothers of toddlers	Maternal reflective functioning; parent–child interaction; caregiving behaviour; maternal mental health	Moderately higher mean reflective functioning scores for the MTP group, and slightly higher scores for coherence, sensitivity and quality of representation subscales for the MTP group when compared with the comparison intervention; improved caregiving behaviour, and improved maternal depression and global distress
Parent–child psychotherapy	One RCT (Ghosh Ippen et al., 2011)	Parent–child dyads (3–5 yrs) who had experienced multiple traumatic life events	Parental mental health; child PTSD; depression and behaviour problems	Significant improvements in child PTSD (5% cf 53%), depression, cooccurring diagnoses and behaviour. Significant improvements in maternal PTSD and depression
Group-based parenting programme	One RCT – Mellow Babies (Puckering et al., 2010)	Depressed mothers of infants	Parent–infant interaction; parental mental health	Significant improvements in maternal depression and in some but not all aspects of parent–infant interaction, including positive anticipation, positive responsiveness, negative autonomy and negative control
Preventive interventions (e.g. including interpersonal psychotherapy, non-directive counselling, CBT, infant massage, home-based interaction coaching, parent training, support group and mother–infant therapy)	One systematic review including 13 controlled studies (Kersten-Alvarez et al., 2011)	Depressed mothers	Maternal sensitivity	Small-to-medium effect overall on sensitivity ($g = .32$)

Table 1. (continued)

Intervention type	Study design	Population	Outcomes measured	Conclusions
Relationship-based programmes (e.g. homevisiting, VIPP, Parent-Infant Programme, Family Check-Up and pregnancy programmes focusing on alcohol use)	One systematic review of 18 interventions – 15 RCTs (Mortensen & Mastergeorge, 2014)	Low-income mother-child dyads	Parenting behaviours – parent-infant interaction	Limited evidence of effectiveness across all interventions; the most effective programmes were shorter in duration and provided direct services to the parent-child dyad used intervenors with professional qualifications and assessed parent-child interactions with free-play tasks

ent-infant psychotherapy, counselling/CBT and interaction guidance) (Barlow, Bennett, Midgley, Larkin, & Wei, 2015). Parent-infant/child psychotherapy involves a therapist working with the parent and infant/toddler together, establishing a therapeutic alliance with the parent in order to identify unconscious patterns of relating in terms of the parent's own experiences of being parented and their internal working models. The aim of the therapy is to help the parent to recognise the way in which their current interactions are shaped by past experiences in order to enable them to respond more freely and sensitively to their infant (Barlow et al., 2015). The included studies targeted parents experiencing a range of problems, such as those who have maltreated their children and parents in prison. Meta-analyses based on data from two of the included studies indicated that parents who received PIP were more likely to have an infant who was rated as being securely attached to the parent; however, there were no significant differences in studies comparing outcomes of PIP with one of the other models of treatment (e.g. video feedback, counselling, CBT). The authors concluded that PIP is a promising model in terms of improving infant attachment in high-risk families but that further research is needed into its impact on potentially important mediating factors, such as mental health, reflective functioning and parent-infant interaction, and its effectiveness relative to other methods of working.

Bernard et al. (2012) evaluated the effectiveness of the Attachment and Biobehavioural Catch-Up (ABC) programme in an RCT involving 113 parents and 120 young children (aged 1.7–21.4 months) at risk of maltreatment, as indicated by recent contact with Child Protection Services. ABC is a manualised intervention that typically involves around ten 1-hr sessions that focus primarily on providing parents with 'in the moment' feedback about their interactions with their child using video feedback to highlight parents' strengths, challenge weaknesses, and celebrate changes in behaviours (Lind, Bernard, Ross, & Dozier, 2014). The study found that a lower proportion of children in the ABC group (32%) were classified as having a disorganised attachment compared with children in the control group (57%), an effect that was sustained after excluding children over 24 months old at the time of assessment. Further, a higher proportion of children in the ABC group were classified as securely attached (52%) compared with children in the control group (33%), although this effect was not sustained after children over 24 months old at the time of assessment were excluded.

Moss et al. (2011) evaluated the effectiveness of a home-delivered programme using video feedback with maltreating parents. The programme consisted of eight weekly home visits of approximately 90 min structured in four sequences, including discussion on a parent-chosen theme, videotaped interactive session, video feedback session and wrap-up session. The RCT involving 67 maltreating caregiver-child dyads found significant improvements for the intervention group in parental sensitivity; more intervention children became secure and fewer remained insecure; and more intervention children moved from being disorganised to organised. Older children in the intervention group showed lower levels of internalising and externalising problems (Moss et al., 2011).

One RCT (Cassidy, Woodhouse, Sherman, Stupica, & Lejuez, 2011) examined the effectiveness of an individually delivered version of the group-based Circle of Security programme, which involves the use of videotaped feedback to help the mother enhance her observation skills and to recognise infant signals related to these needs. The programme also seeks to help parents to understand and manage psychological factors that may interfere with their responses. This programme involves three 1-hr home visits every 3 weeks between 6.5 and 9 months. Approximately 2 weeks later, a final visit is delivered during which the home visitor gives the mother a copy of videotapes used in the intervention and discusses any ongoing parenting concerns (Cassidy et al., 2011). An RCT involving 220 parents of irritable infants found evidence of improved attachment security for the highly (89% cf. 62%) but not moderately irritable infants (63% cf. 58%). Maternal security was also an important moderating factor, with highly irritable infants of securely attached mothers being more likely to become securely attached compared with no effect for moderately irritable infants. For fearful mothers, highly irritable infants were equally likely to be secure in the intervention group (69% probability) and in the control group (69% probability); similarly, for moderately irritable infants, no effect of intervention emerged. For more dismissing mothers, the intervention was efficacious for highly irritable infants but not for moderately irritable infants of more dismissing mothers. By contrast, when mothers were classified as preoccupied, there was evidence of an intervention effect for moderately irritable infants but not highly irritable infants.

Kalinauskienė et al. (2009) conducted an RCT of the Video-feedback Intervention to Promote Positive Parenting (VIPP) developed at Leiden University (Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2008) with 54 Lithuanian mothers rated low in sensitive responsiveness. The intervention comprised five 90-min sessions at home (the last one with fathers) and was delivered by two clinical psychologists. Infants were aged 6 months and 12 days on average at the first visit. The intervention had a statistically significant and large effect ($d = .78$) on mothers' sensitive responsiveness, but there was no effect on attachment security. The authors concluded that a relatively brief and low-cost programme can effectively support mothers who lack sensitivity in interactions with their infants.

Sadler et al. (2013) examined the effectiveness of Minding the Baby (MTB), a mentalisation-based home visiting intervention focused on improving the reflective functioning of first-time mothers aged 14–25 experiencing a range of problems during the perinatal period, including child protection issues, depression, homelessness, poverty or violent relationships. 'Mentalisation' refers to the ability to understand behaviour in terms of mental states (Fonagy, Gergely, Jurist, & Target, 2002). MTB is home-visiting programme delivered by two specially trained practitioners (a qualified nurse and social worker alternate) for an hour a week, from the third trimester of pregnancy until the infant is 2 years of age. Clinicians provide developmental guidance, crisis intervention, and parenting and practical support in order to increase reflective parenting, promote the mother–infant attachment relationship, and model and foster a range of parenting skills (Sadler et al., 2013). The RCT involved

139 mothers of mostly Latina, African-American or Caribbean descent with low education and income, some of whom (11%) had child protection concerns, and found a significantly higher percentage of secure infants in the MTB group ($n = 41$, 64%) compared with the control group ($n = 30$, 48%). In addition, a significantly lower percentage of intervention group dyads (27%) were classified as having disorganised attachment, compared with the control group dyads (43%). The intervention group mothers had fewer instances of rapid subsequent childbearing and a trend towards fewer open cases with child protection services than mothers in the control group (0% compared to 5%). There were no significant differences between groups in maternal reflective functioning, depression or psychological distress but a trend towards improved communication for teenage mothers – 67% of the intervention group teenage mothers versus 94% of the control group had scores in the disrupted range.

Attachment-related outcomes

Five systematic reviews and five RCTs evaluated the effectiveness of interventions in improving an attachment-related outcome (Table 1).

One systematic review of infant massage was identified (Bennett, Underdown, & Barlow, 2013), comprising 34 RCTs involving healthy parent–infant dyads in which the infant was under the age of 6 months. Infant massage involves the teaching of infant massage strokes within a group setting of around 6–8 mothers for 1–2 hrs on a weekly basis. No significant differences were found for a range of aspects of infant temperament, parent–infant interaction and mental development. The authors concluded that the findings do not currently support the use of infant massage with low-risk groups of parents and infants, that there may be more potential for change with demographically and socially deprived parent–infant dyads, and that future research should focus on this.

One review of 29 studies (13 RCTs, eight quasi-experimental designs, eight pre-post designs) examined the effectiveness of video feedback on parental behaviours, sensitivity, responsiveness, verbal and non-verbal communication and child problem behaviours (Fukink, 2008). Of these, 23 included children aged under 5 years. A meta-analysis showed a statistically significant positive effect for video feedback intervention on parenting behaviours. Brief video-feedback interventions with parents in high-risk groups were the most effective. The aggregate effect on child behaviour was described as being between 'small' and 'average'. The authors concluded that family programmes that include video feedback achieve the intended dual level effect in terms of parents improving their interaction skills, which in turn help in the development of their children.

Three RCTs were identified that evaluated the effectiveness of video feedback with a range of high-risk parent–child dyads involving children under the age of 5 years, including Portuguese parents living in poverty (Negrão, Pereira, Soares, & Mesman, 2014), parents of children under 2 years of age following allegations of maltreatment (Lind et al., 2014) and Turkish minority parents living in the Netherlands (Yagmur, Mesman, Malda, Bakermans-Kranenburg, & Ekmekci, 2014). Negrão et al. (2014) examined the use of VIPP and Sensi-

tive Discipline (VIPP-SD) with 55 Portuguese mothers of children aged 1–4 years who were living in poverty and about whom there were concerns in terms of their caregiving. The six sessions were spread over 3–4 months, and mother and child interaction was videotaped followed by feedback of videos recorded in the previous session. The RCT found significant improvements favouring the intervention group in overall measures of maternal emotional availability, child behaviour and family environment, with post hoc results showing significant improvements in a number of domains: maternal non-intrusiveness, child responsiveness and involvement. The domains of maternal sensitivity, structuring and non-hostility also improved but failed to achieve significance. The results also showed a significant improvement in family cohesion but not expressiveness or conflict. Lind et al. (2014) examined the effectiveness of the ABC intervention with 260 US vulnerable parents of children under 2 years of age following allegations of maltreatment. The results of the RCT showed significant differences favouring the ABC group in terms of lower levels of negative affect expression. Children in the ABC group displayed lower overall levels of anger, lower levels of anger towards parent and lower levels of global anger/sadness. Yagmur et al. (2014) evaluated the effectiveness of a culturally sensitive adaptation of VIPP-SD for 86 Turkish minority parents in the Netherlands (VIPP-TM). The intervention involved six home visits lasting 2.5–3 hr over 4 months. Visits were recorded and used to illustrate themes. The RCT found significant improvements favouring the intervention groups for sensitive parenting and non-intrusiveness. There was no effect on maternal discipline overall or on the subscales for laxness, physical discipline or supportive presence.

One systematic review was identified that evaluated the effectiveness of home visiting on attachment-related outcomes (Nievar, Van Egeren, & Pollard, 2010). Home visiting programmes are manualised interventions that involve an intensive series of home visits beginning prenatally (in some models) and continuing during the child's first 2 years of life. They are delivered by specially trained personnel who provide information, support and training regarding child health, development and care. Common themes include early infant care, infant health and development and parenting skills, but programmes may also cover maternal health and well-being, diet, smoking, drug/alcohol use, exercise, transition to parenthood and the parent's relationship with their partner. This review included 35 controlled studies evaluating the effectiveness of home visiting programmes and found that interventions were moderately successful ($d = .37$) at improving maternal behaviours, as measured by a combination of survey and observational measures that assessed the home learning environment and maternal sensitivity.

One RCT evaluated the effectiveness of a mentalisation-based programme known as the Mothers and Toddlers Programme (MTP), which comprises 12 weeks of individual therapy as an adjunct to standard outpatient substance abuse treatment programmes (Suchman, Decoste, McMahon, Rounsaville, & Mayes, 2011). The aim of MTP is to improve maternal capacity for reflective functioning and for sensitivity and responsiveness to toddler emotional cues. The results of this small RCT involving 47 women and their children found moderately

higher mean reflective functioning scores for the MTP group, and slightly higher scores for coherence, sensitivity and quality of representation subscales for the MTP group, when compared with the comparison intervention (Suchman et al., 2010). There was improved caregiving behaviour for MTP mothers, and improvements in depression and global distress. At 6-week follow-up, the combined data for women receiving the 12- and 24-week programmes showed that the higher mean reflective functioning score was maintained but reduced. At follow-up, there was also a slightly higher quality of maternal representation for the MTP group and moderately higher mean Nursing Child Assessment Satellite Training scores for child communication with the mother for the MTP group. However, effects for depression were not sustained at 6-week follow-up (Suchman et al., 2011).

One further relevant RCT evaluating the effectiveness of parent-child psychotherapy was identified. Ghosh Ippen, Harris, Van Horn, and Lieberman (2011) examined the effectiveness of a standard parent-child psychotherapy intervention that was delivered by a psychotherapist and involved a mean number of 32 weekly sessions of 60 min duration with both the parent and child aimed at enhancing the parent's capacity to provide safe and developmentally appropriate caregiving to the child. The results of an RCT with 75 parent-child dyads involving preschool age children (3–5 years) who had experienced multiple traumatic and stressful life events found significant improvements favouring the intervention group for child PTSD (5% cf. 53%), depression, co-occurring diagnoses and behaviour, maternal PTSD and depression.

One RCT examined the effectiveness of a group-based programme spanning the perinatal period in improving parent-infant interaction (Puckering, McIntosh, Hickey, & Longford, 2010). Mellow Babies is a 14-week group-based day programme targeting women experiencing depression and is underpinned by cognitive behavioural theory. Morning sessions provide the mothers with an opportunity to reflect on their own lives, draw links between past and present feelings and relationships and consider ways of managing depression using broadly cognitive behavioural approaches. In the afternoon, participants engage in play-time involving interaction coaching, baby massage, looking at picture books, lap games and nursery rhymes to promote sensitive interaction and attunement, after which videos of mothers interacting with their babies are used to demonstrate sensitive interaction. The results of the small RCT involving 20 mothers found significant improvements in maternal depression and parent-infant interaction in terms of positive anticipation, positive responsiveness, negative autonomy and negative control. There were also trends favouring the intervention group for negative distress, positive control, positive cooperation and positive autonomy. There were no significant differences between groups for positive distress, negative anticipation, negative responsiveness or negative cooperation.

Two reviews examined a range of sensitivity- and relationship-focused interventions in specific populations, including depressed mothers (Kersten-Alvarez, Hosman, Riksen-Walraven, Van Doesum, & Hoefnagels, 2011) and low-income mother-infant dyads (Mortensen & Mastergeorge, 2014). Kersten-Alvarez et al. (2011)

included 10 controlled studies evaluating 13 preventive interventions (including interpersonal psychotherapy, non-directive counselling, CBT, infant massage, home-based interaction coaching, parent training, support group and mother–infant therapy) aimed at improving sensitivity in depressed mothers, and found a small-to-medium effect overall ($g = .32$). Interventions providing infant massage were found to be highly effective in improving maternal sensitivity. Mortensen and Mastergeorge (2014) included 18 studies (15 of which were RCTs) of 19 relationship-based interventions (including home visiting, VIPP, Parent–Infant Programme, Family Check-Up, and pregnancy programmes focusing on alcohol use), all targeting disadvantaged mother–child dyads. Most of the interventions took place exclusively in the home. A meta-analysis focusing on observed parent–child interaction found a small mean effect size ($d = .23$).

Discussion

The results of this review of systematic reviews, and RCTs not included in the reviews, show that parent–infant psychotherapy, video feedback and mentalisation-based programmes appear to be promising approaches to improving attachment in a range of high-risk infants, including those with maltreating parents. These and other interventions, such as home visiting and parenting programmes, also appear to be effective in improving a range of attachment-related outcomes, such as aspects of parent–infant/toddler interaction related to maternal sensitivity and reflective functioning. Although only evidence published since 2008 has been included, these results confirm the findings of earlier systematic reviews (e.g. Bakermans-Kranenburg, Van Ijzendoorn, & Juffer, 2003; Barnes & Freude-Lagevardi, 2003).

The theories of change underpinning the different programmes are diverse and range from psychoanalytic models (e.g. parent–infant psychotherapy) that focus primarily on changing the parents' internal working models, through programmes that focus explicitly on improving parents' capacity for reflective functioning (e.g. MTB, Mother and Toddler Programme) to those that focus more explicitly on the interaction between the parent and infant/toddler, and on sensitive parenting based on attachment theory (video feedback and VIPP). There is, however, an increasing eclecticism, with programmes focusing explicitly on parent–child interactions drawing on different theoretical traditions, and almost all (apart from the home visiting programmes) building in the use of video feedback.

There is also considerable divergence in terms of the frequency and duration of interventions, with home visiting programmes such as MTB involving intensive visits over a prolonged period of time, and most other types of programme involving intensive work over brief periods of time, typically a few months (e.g. Video-feedback and parent–infant psychotherapy). The limited evidence available regarding the comparative effectiveness of these interventions shows that there is little difference between them (Barlow et al., 2015), and increasing evidence supporting the use of brief, sensitivity-focused interventions (cf. Bakermans-Kranenburg et al., 2003).

A number of implementation issues were identified. The Mortensen and Mastergeorge (2014) review of interventions that targeted low-income mother–child dyads

found that the most effective programmes were shorter in duration, provided direct services to the parent–child dyad, used intervenors with professional qualifications and assessed parent–child interactions with free-play tasks.

Although some of these interventions need to be delivered by specialist practitioners (e.g. psychologists and parent–child psychotherapists), many of the remaining interventions are manualised (e.g. ABC, VIPP), and some can arguably be delivered effectively by health visitors as part of the HCP (Shribman & Billingham, 2009) following appropriate training (e.g. video-feedback). There is a high prevalence of disorganised attachment, particularly in disadvantaged populations, and the strong association between such attachment patterns and later problems suggests the need for specialist CAMHS practitioners to have the necessary skills to deliver some of these methods of working.

The current review is limited in terms of the fact that we did not search for studies prior to 2008, and only included primary studies that met the inclusion criteria but were not included in existing reviews. We were, as such, reliant on the findings of systematic reviews, some of which had methodological limitations in terms of the inclusion of less rigorous studies, and the comprehensiveness of their searches. We also adopted wide inclusion criteria (e.g. parent–infant interaction and parental mental health problems), which may have resulted in the inclusion of studies that have less focus on attachment.

Conclusion

This review has identified some interventions that appear to be effective in improving attachment but the evidence is limited, and most studies have focused predominantly on attachment-related outcomes. Although both insecure and disorganised attachment have a high prevalence in disadvantaged populations in particular, and both are strongly associated with a range of later problems including externalising and personality disorders, many of the methods of working identified by this review are not yet routinely available to preschool children in the UK. Practitioners working within a range of CAMHS settings should have the skills to deliver some of the identified methods of working with parent–child dyads, including video feedback and mentalisation-based techniques.

Acknowledgements

The research was funded by Public Health England. The views expressed in this article are those of the authors only. J.B. was Vice-chair of the NICE Children's Attachment Guideline Committee, and Deputy Chair of the related National Collaborating Centre for Mental Health (NCCMH) review team (NICE, 2015). The authors have declared that they have no competing or potential conflicts of interest.

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Accepted for publication: 30 September 2015
Published online: 25 November 2015