

## Article Title: Promoting Secure Attachment

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Conflict of Interest statement: none declared

**Word count: 4210/3550**

(Deduct 150 words per table/figure = 4000-450)

## **Abstract 199/200**

Attachment is an infant's inherent drive to seek comfort from their caregiver, particularly at times of perceived threat. A child can show a number of attachment patterns, with a secure attachment pattern being linked to improved long term outcomes, such as healthy social and emotional development. A range of parenting interventions have been developed aiming to increase secure attachment.

In order to understand what interventions are being used and the evidence base behind these we undertook a national survey of relevant UK services about how attachment problems are assessed and treated. We identified the ten most commonly used interventions in UK practice. We then conducted two systematic reviews. One review searched for all randomised controlled trial (RCT) evidence for any attachment parenting intervention. The second review searched for all available research focused on the ten interventions identified from the survey.

For the first review, a meta-analysis showed parenting interventions are effective at increasing secure attachment in children. The second review found that the most commonly used interventions in UK services have a limited evidence base whereas the interventions with the most evidence are not as widely used. It is important to improve the integration of research and practice to develop the best care.

*Keywords: attachment, secure, childhood, parent, carer, intervention, infant*

This project was funded by the National Institute for Health Research (NIHR) HTA Programme (NIHR127810).

## **Background**

### *Attachment theory*

Attachment theory was originally described by John Bowlby in 1969 and refers to the innate drive to seek comfort from their primary caregiver (such as a parent). In particular this focuses on the way in which the infant seeks closeness to their caregiver when under threat or in a distressing or frightening situation. Bowlby's attachment theory was based on an evolutionary perspective, whereby survival is promoted by attachment instincts. Crying can elicit attention and protection when distressed and increases the chances of survival.

### *Attachment patterns*

The attachment pattern of an infant can be assessed through observation of behaviours in the infant-caregiver relationship. For example, this may be done through a 'separation-reunion' procedure such as the Strange Situation Procedure developed by Ainsworth and Wittig (1969). This is an experimental procedure allowing observation of an infant's behaviour through a series of eight episodes. The sequence involves the infant and caregiver in a room, who are then joined by a stranger. The eight episodes (approximately 3 minutes each) involve either the caregiver or stranger leaving and returning to the infant. The behaviour of the infant during the episodes involving reunion with the caregiver is then used to assess the child's attachment pattern, based on their proximity and comfort seeking.

Originally three attachment patterns were identified; secure, insecure avoidant and insecure resistant. Secure attachment is shown when infants demonstrate proximity seeking behaviours. They may be distressed when separated from their caregiver but seek comfort from them on their return. Secure attachment develops from consistent care seeking and caregiving response interactions between infant and caregiver, meaning the attachment figure becomes a secure base from which the infant can explore the world. In contrast, insecure attachment can develop when the infant experiences inconsistent or unpredictable caregiving responses to their care seeking behaviours. During a separation-reunion procedure, children showing an insecure-avoidant attachment pattern may not seek proximity on the caregivers return, and those showing an insecure-resistant attachment pattern may cry and resist comfort from the caregiver on their return.

Disorganised attachment was added later by Main and Solomon in 1986, and this refers to children who do not fit within the previous three categories and who display conflicted and contradictory behaviours in the separation-reunion procedure.

### *Later development*

Research has shown that child development and outcomes in later life can be affected by attachment in childhood. Specifically disorganised attachment has been linked to internalising and externalising behaviour problems, mental ill health and psychopathology. Insecure

attachment patterns have also been linked to poorer outcomes but to a much lesser extent compared to disorganised attachment.

In contrast, a secure attachment is often the result of sensitive caregiving responses and so this builds a foundation for future relationships as the infant learns how to trust and respond to others empathetically. Research has shown that a secure attachment in childhood has been linked to more positive outcomes across the lifespan, including improved peer relationships, increased independence and reduced behaviour problems. Research has linked the promotion of close relationships and safety for the infant to influences in the formation of relational and self-representational internal working models.

There is no evidence that attachment patterns in childhood cannot be changed, for example a child with an insecure attachment early in life can change to a secure attachment.

### *Interventions*

Consistent parenting responses and specifically parental sensitivity have been found to be predictors of secure attachment. Parental sensitivity involves the ability to interpret the infant's signals, and then respond in an appropriate way. Increasing responsiveness and sensitivity in the caregiver are therefore important. This can mean that for some children, for example those who have been maltreated, secure attachment is harder to achieve.

As a result many interventions aimed at parents and caregivers have been developed, to help them provide consistent responses and positive interactions to meet their infant's needs and to improve outcomes. A range of programmes have been created which aim to reduce disorganised attachment and promote secure attachment, often by targeting parental sensitivity. This includes interventions such as psychotherapies, play therapies or parental education.

### *Rationale*

It is important that UK services are using interventions that have been well researched and proven to be effective in promoting a secure attachment. Without appropriate research it is unclear whether the interventions that are currently being used are clinically effective, safe or used within the correct population. It is important to establish this for the wellbeing of children and their families. Therefore, our research set out to update a previous systematic review on the effectiveness of parenting interventions to promote a secure attachment, as well as to clarify what interventions are being used in UK services and the evidence base behind those commonly used interventions.

## **Review One**

We conducted a systematic review and meta-analysis of the randomised controlled trial evidence for any parenting intervention that aimed to promote secure attachment in children

at risk of a disorganised attachment pattern or developing attachment disorders. This was conducted as part of a large scale systematic review in 2015, and was subsequently updated in 2017 and 2021. The methods for this review are described in full detail in (reference HTA report). Here we present the results of the original review, and subsequent updates combined.

### *Methods*

We included studies based on the following PICOS criteria:

- Studies were included if they involved parents or caregivers of young children under 13 years who were identified to be at high risk of developing attachment problems.
- Included interventions were aimed at parents or caregivers, including foster carers.
- Interventions were excluded if aimed at teachers or teaching assistants (without parents or caregivers) or those not focused at a parental level.
- Comparators could include no intervention, an alternative intervention, an attention control or treatment as usual.
- Studies were only included if the child's attachment pattern to the caregiver was the primary aim of the child attachment measure.

Studies that did not use a true randomised controlled trial (RCT) design were excluded from the review as we were seeking the highest level of evidence. Published and unpublished papers were included, with no restrictions on years since publication. Foreign language papers were included where translation services could be accessed within necessary timescales.

### *Results*

Searches identified 23,359 records. After initial screening, 964 records were included to full paper screen. 930 records were excluded at full paper screen, leaving 34 papers of 26 studies that met the inclusion criteria. Papers were mainly excluded at full paper screen because they did not include an RCT study design, or because they were not including a validated attachment measure which provided a measurement of secure attachment to the caregiver. Figure 1 provides further detail on reasons for exclusion.

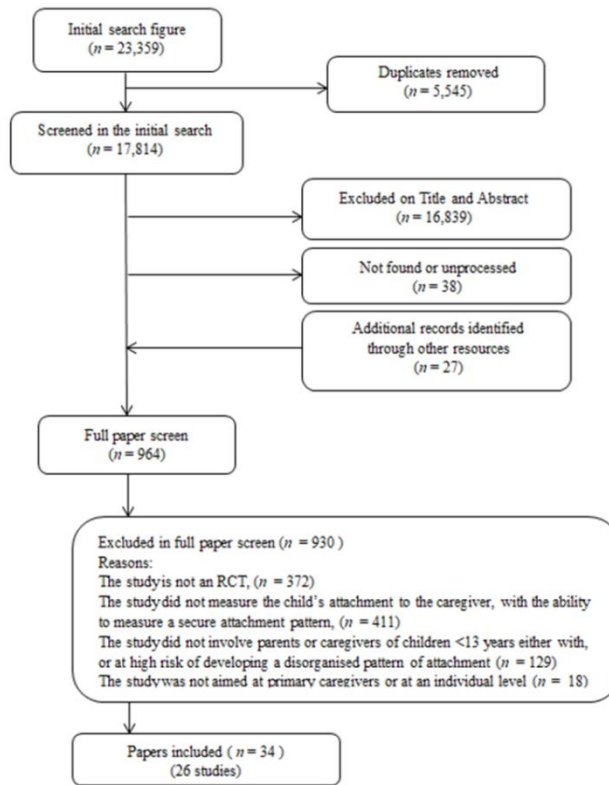


Figure 1. PRISMA diagram for Review 1

The primary outcome extracted from included papers was the child attachment classification. Data was also extracted based on demographics (including the age of parent and child), ethnicity and the risk (of severe attachment problems). Intervention characteristics were extracted including who was involved in the intervention; whether it was delivered to the parent alone, parent and child dyads or a mixture of the two, whether a male caregiver was involved, the aim or focus of the intervention, the number of sessions and length of time it ran for, where it was delivered, by whom it was delivered and the care or alternative treatment received by the comparison group. A risk of bias assessment was carried out using the revised Cochrane risk of bias tool for randomised controlled trials (ROB-2) tool.

### Meta-analysis

Overall 26 studies were included that reported outcomes for secure attachment. Overall meta-analyses results show statistically significant intervention effects ( $p < 0.001$ ), with pooled OR of 1.85 (95%CI: 1.36-2.52) and a medium effect size ( $d = 0.34$ ). Therefore there is evidence that parenting interventions can increase secure attachment.

### Exploratory analysis

Exploratory analyses were conducted based on characteristics of the studies including; number of sessions, whether video feedback was included, age of child and whether a male caregiver was included. There were no significant differences for any of the sub analyses. However, this is to be taken with caution as there were no included studies that directly compared them.

### *Included studies*

The 26 studies included a range of interventions which aimed to promote secure attachment. There was a range of psychotherapy based interventions for parents, including programs to support mother anxiety, individual and group psychotherapy, cognitive behavioural therapy (CBT) and skill-based training programs. There were multiple intensive home visiting programs and one to specifically address infant sleep problems. Manualised interventions included ABC, Circle of Security, VIPP, Child-Parent Psychotherapy, Parent-Infant Psychotherapy and Toddler-Parent Psychotherapy, Healthy Families Durham, Minding the Baby and Mothering from the Inside Out. There were also interventions focused on skin-to-skin contact including; baby carriers, baby massage classes and baby wearing.

Video feedback was used as part of the intervention in 7 of the 26 included studies.

The age of the child at the beginning of the intervention ranged from neonatal, prenatal to across the early years, up to 5 years. One study focused on the 'Circle of Security' intervention included children aged 3-5 years. The interventions were mainly delivered with the mother as the primary caregiver, although five included some level of male caregiver involvement.

Samples included a range of risk factors for developing a disorganised attachment pattern. This included maltreatment or child protection concerns, parental mental health problems, parental substance abuse, insecure adult attachment, social and economic deprivation, concerns of domestic violence and infant sleep difficulties.

Aspects of parental sensitivity were targeted across many of the included interventions. It was often the main focus of the intervention although this varied dependent on the risk factors faced by the populations targeted. Parental sensitivity was addressed through different techniques, such as promoting closeness and attunement, parental mentalisation and reflective functioning. Often parent wellbeing was addressed, including supporting parental attachment and educating parents about their infant such as looking for cues and signals and supporting parental communication. Psychological therapies were included as part of the interventions, as well as skin to skin contact.

Almost all included studies used separation-reunion procedures to measure attachment. This included the Strange Situation Procedure or modified versions dependent on the child's age (e.g. preschool attachment classification system or MacArthur Preschool Strange Situation if the child was older than 24 months). One study used Global Rating Scales to classify attachment using the Still Face Paradigm.

## Survey

### Methods

A national survey was conducted to identify what interventions are currently being used in services to support children who have or are at risk of developing attachment problems. The survey also collected data about the assessment measures used, and practitioner training. Full details of the survey methods and results can be found in (reference HTA report).

### Results

The survey was completed by 625 respondents from 724 different services across the UK; some respondents worked with more than one services explaining the higher number of services than respondents. The majority of services were in England (n=600), with the rest based in Scotland, Wales and Northern Ireland. The majority of respondents were working for the NHS (41.6%).

From the survey results, the most commonly used interventions in current UK practice were identified. These top ten manualised interventions are shown in Table 1.

Intervention	Respondents (%)	Services (%)
Other	368 (58.9)	436 (59.4)
Dyadic Developmental Psychotherapy (DDP)	150 (24.0)	173 (23.6)
Individual Child Psychotherapy (ICP)	147 (23.5)	168 (22.9)
Theraplay	137 (21.9)	151 (20.6)
Video Interactive Guidance (VIG)	96 (15.4)	108 (14.7)
Child-Parent Psychotherapy (CPP)	75 (12.0)	86 (11.7)
Parent-Infant Psychotherapy (PIP)	74 (11.8)	89 (12.1)
Circle of Security (COS)	64 (10.2)	72 (9.8)
Watch, Wait and Wonder (WWW)	50 (8.0)	58 (7.9)
Video Feedback to Promote Positive Parenting (VIPPP)	26 (4.2)	28 (3.8)
Attachment and Biobehavioral Catch-up (ABC)	10 (1.6)	11 (1.5)

Table 1. The number/percentage of respondents and services describing what interventions they use to improve attachment problems in infants.

The named interventions being declared as in use by the highest number of respondents and services were Dyadic Developmental Psychotherapy (DDP), Individual Child Psychotherapy (ICP) and Theraplay. Video Feedback to Promote Positive Parenting (VIPPP) and Attachment Biobehavioural catch up (ABC) had the least number of respondents out of the top ten most commonly used interventions. Those in the 'Other' category included non-manualised interventions and interventions with a lower response rate than those in Table 1. Although these were the 10 most common interventions, it is important to note there was a large difference in number of respondents between the top of the list (DDP) and the bottom of the list (VIPPP).



## **Review Two**

### *Methods*

The main aim for Review 2 was to look at all the research evidence to support the most commonly used interventions, as identified by the survey. The most commonly used interventions as mentioned previously were based on frequency of respondents.

For Review 2 we used an adapted version of the Review 1 PICOS criteria. To ensure all relevant studies were included, extensive reference checking and grey literature searching was conducted. The original methods for this review are described in full detail in (reference HTA report). We included studies based on the following PICOS criteria:

- Parents/ caregivers of young children or children themselves (to account for Individual Child Psychotherapy) who were identified as high risk of developing attachment problems.
- Interventions were included if they were one of the commonly used interventions identified in the survey (based on frequency of respondents reporting using the intervention), aimed at improving attachment or improving parental sensitivity.
- Where the study was a randomised controlled trial any comparator was included. The same comparator criteria were included for other designs. Other empirical designs such as pre-post designs were included in the absence of a comparator.
- Studies were included if the child's attachment to the caregiver or parental sensitivity were the primary outcome measures.

We included all study designs including Randomised Controlled Trials (RCTs), non-randomised comparisons, pre and post studies and case series. We included studies that were assessing either parental sensitivity, child attachment or both, as recommended by NICE guidelines. There was no limit on publication date and we included both published and unpublished papers.

## **Results**

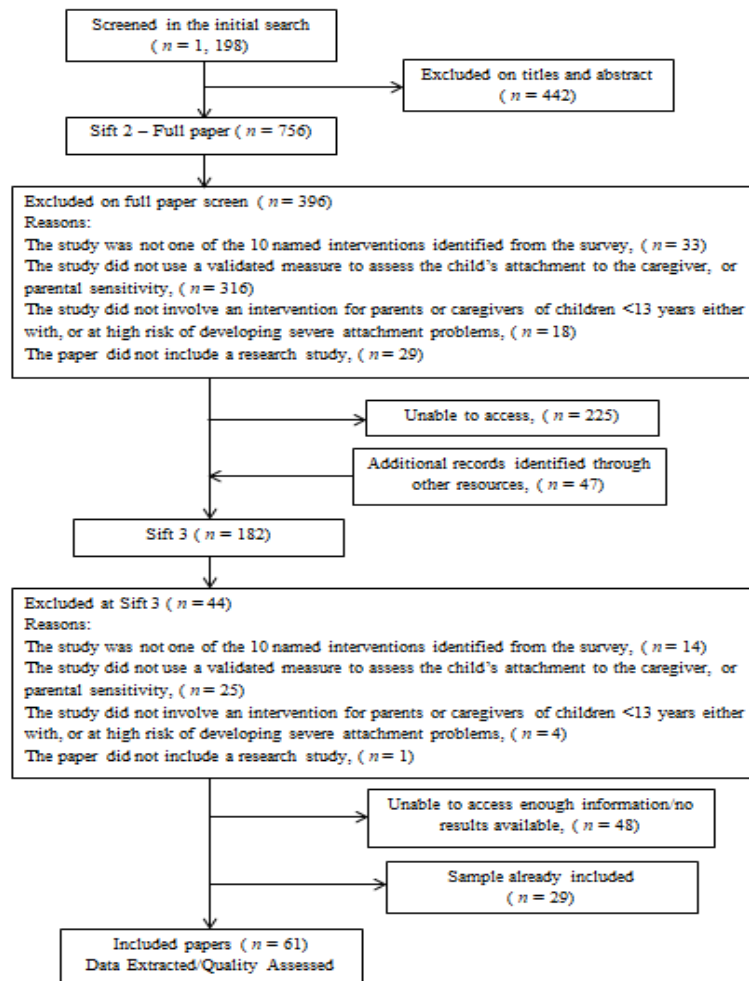


Figure 2. PRISMA diagram for Review 2

As shown in Figure 2, initial database searches identified 1,198 records. We pulled 756 through to full paper screening as they met the first-sift inclusion criteria. We excluded 396 records based on the exclusion criteria in sift 2 as well as 225 that we were unable to access. We pulled through a further 6 records identified through reference checking for sift 3. 61 studies met the final inclusion criteria and were included in the review. 27 out of the 61 included studies had outcomes for secure attachment.

Of the 61 included studies, 27 provided outcomes for secure attachment.

10 of these were using the Circle of Security (COS) intervention, and COS adaptations (e.g. COS-Parenting, COS-Intensive and COS-Home Visiting). Six studies focused on Parent-Infant Psychotherapy (PIP). Four studies focused on Video Interaction for Positive Parenting (VIPP) including adaptations of VIPP such as Video Interaction for Positive Parenting with discussions on the representational level (VIPP-R). Four studies used Attachment and Biobehavioural Catch Up (ABC). Three studies focused on Child Parent Psychotherapy (CPP) and two studies used the Watch, Wait, Wonder (WWW) intervention. Despite being identified from the survey as commonly used in practice, there were no studies identified that used Dyadic Developmental Psychotherapy (DDP), Theraplay or Individual Child Psychotherapy

(ICP) that presented outcomes for secure attachment. There were also no studies identified for Video Interactive Guidance (VIG) that presented outcomes for secure attachment.

### *Circle of Security*

Circle of Security is often delivered in group sessions, using videos to facilitate reflective discussions. It aims to help parents reflect and learn from their own past experiences to overcome challenges with meeting their own children's needs.

The intervention with the most evidence on its effects for secure attachment is COS with 10 studies. Four of these studies were randomised controlled trials (RCTs), three found no significant intervention effects on secure attachment and one found a shift to secure attachment post intervention and follow up in 25% of cases. Three studies were pre-post design; one study showed that levels of attachment security increased post intervention however the change was not significant, similarly another study found that half of the participants showed some improvement in secure attachment. A non-randomised study did find significant within-subject changes from disorganised to organised attachment classifications, with a majority changing to the secure classification. Two case studies and one case series also investigated the effects of COS on attachment. A case study testing the effectiveness of COS found a shift from a disorganised pattern of attachment to a secure attachment post intervention. Similarly, COS led to increased security in the parent and child relationship, however although the Strange Situation Procedure was conducted this was not formally coded. The case series found a shift from insecure to secure attachment in one dyad whilst the other dyad remained secure across time.

### *Video-feedback Intervention for Positive Parenting*

VIPP involves recording family activities, which can be watched together to teach parents about their child's behaviour and development.

For VIPP three studies were RCTs, two of them found no significant difference between the VIPP groups and the control groups in terms of attachment security and number of infants with a secure attachment post intervention. The third RCT was a follow up study, which found no long term intervention effects on children's attachment security. One matched comparison group study however did find that children of insecure mothers were assessed as more secure than comparison children of insecure mothers post intervention.

### *Attachment and Biobehavioural Catch Up*

ABC aims to help caregivers re-interpret their child's behaviour to enhance sensitivity. It is usually delivered through weekly home sessions covering structured topics, with positive feedback given during the sessions and also through reviews of video clips.

ABC has four studies with three RCTs, one found significantly higher rates of secure attachment in those who had the ABC intervention compared to the control and at the follow up 9 years later children who received ABC had higher perceived attachment security ratings than children in the control group. Preliminary results from another RCT found ABC was effective at reducing the child's avoidance behaviour; however outcomes for attachment security were not significant. Results from a case study found that ABC changed the attachment pattern from insecure to secure between mother and infant.

### *Parent-Infant Psychotherapy*

PIP has been described with both the parent-infant dyad individually and in group therapy settings. It uses a psychodynamic approach to address issues in the parent-infant relationship.

Four RCTs were found looking at the effectiveness of PIP on secure attachment. Three of these found no significant between group differences in terms of attachment security. However, one RCT found that children in the PIP groups demonstrated substantial increases in secure attachment, compared to the control groups. Two pre-post studies involving two of the 10 most commonly used interventions, compared the direct effects between parent infant psychotherapy and Watch, wait and Wonder (WWW) post intervention and at follow up. Infants in the WWW group were significantly more likely than infants in the PIP group to move towards a secure attachment relationship. In the follow up there were no between group differences.

### *Watch, Wait, Wonder*

Watch, Wait and Wonder is a child led approach involving a free play activity aiming to increase maternal sensitivity and improve the child-parent relationship. It is delivered individually usually consisting of 8-18 sessions.

As mentioned previously two pre-post studies were identified comparing the direct effects between PIP and WWW. Infants had higher chances of moving to a secure attachment in the WWW group compared to PIP, although there were no differences between interventions at follow up.

### *Child Parent Psychotherapy*

CPP is a psychoanalytic intervention, which aims to improve the child's representations of their relationship with their parent. It involves parent sessions and sessions with the child, and aims to help the parent reflect on their own previous experiences.

Two RCTs investigating the effects of CPP found significantly higher rates of secure attachment in the intervention group compared to the control group at post intervention and

follow up. One RCT found a trend towards higher rates of secure attachment in the intervention group; however statistical significance was not achieved.

## **Discussion**

Parenting interventions used with children at risk of attachment problems are effective for increasing rates of secure attachment. This was evident from the meta-analysis in the first review and this also confirms findings from previous research.

The sub analysis indicated no differences in effectiveness of interventions in terms of whether video feedback was used or not, whether there was a male caregiver involved or not, based on the number of sessions or based on the age of the child. These findings should be treated with caution given that studies rarely directly compare those with or without these factors (e.g. with or without video feedback), but it is instructive that different approaches can have positive effects suggesting future research should continue to explore a variety of approaches and parameters.

The survey identified the attachment interventions UK services are currently delivering and the second review scoped the evidence base behind these interventions. Results suggest that there is currently a clear disconnect between research and practice. The interventions which were identified as the most commonly used to improve attachment such as Dyadic Developmental Psychotherapy and Individual Child Psychotherapy have a weak evidence base. They could of course be clinically effective but this work has not yet been carried out in order for us to be able to say this. In contrast, the interventions with a larger evidence base, and a higher number of randomised controlled trials such as Circle of Security, Video-feedback Intervention to Promote Positive Parenting and Attachment Bio-Behavioural Catch Up are not as widely used in practice.

### **Routinely Used Interventions**

Although some interventions have a larger evidence base, very few studies reported effect sizes and many studies reported non-significant results. Therefore, we are unable to draw conclusions on which interventions are the most effective at increasing secure attachment.

For example, of the most commonly used interventions, Circle of Security (COS) had the highest amount of studies identified which included outcomes for secure attachment. This is not to say that COS is the most effective intervention to increase rates of secure attachment, but instead COS has the largest evidence base, including randomised controlled trials (RCTs), non-randomised studies and case studies. When examining the randomised controlled trial outcomes for COS, three of the four studies found no effect on promoting a secure attachment.

When considering all of the evidence (RCTs, non-randomised studies and case studies) behind each of the 10 most commonly used interventions, the outcomes are often inconsistent and so we cannot conclusively identify which interventions are the most effective in promoting a secure attachment. However, we did identify a limited evidence base for the interventions

that were reported as being most commonly used. This highlights the need to conduct more high quality attachment intervention research so services can be informed as to what interventions are appropriate to use in real world clinical practice.

### *Limitations*

It is worth noting that this current review focused on interventions at a parental/caregiver level, and so many studies focusing on adoption based interventions were not included. Given that looked after children and children in care populations can be vulnerable to attachment difficulties, this may be a limitation.

Although the survey results indicated that PIP and CCP are separate interventions, in the literature there was often overlap between the two interventions. There were cases where one study would state that the original sample were receiving PIP and in the follow up it was stated that they were receiving CPP. Therefore, the differences between these two interventions may need further clarification for practitioners.

### *Future Work*

There is a need for further high quality research for interventions that are currently being used in routine practice. This should include randomised controlled trials to investigate the clinical and cost effectiveness of some of the ten routinely used interventions for which this evidence base is currently lacking. Continuingly researching interventions that are currently used in practice will help integrate research and practice.

There is a need to bring research and practice into closer alignment where research informs practice and practice guides the most important research questions that need answering. The training of practitioners should be informed by the evidence base. There is also a need to ensure that appropriate, validated measures are used to assess attachment and other related outcomes. Development of a core outcomes dataset would help to address this need. All of these would lead to improved quality of practice for this important group of vulnerable children and young people.

## **Conclusion and Practice Points (200-300)**

### *Conclusion*

In summary, there is good evidence to suggest that overall, parenting interventions are effective for increasing secure attachment in children at risk of attachment problem ( $d = 0.34$ ).

Most of this work seeks to improve parental attunement, sensitivity and positive responsiveness.

Of the interventions that have been specifically identified as being routinely used in UK practice, there is a wide variation in their evidence base. Generally, the interventions that were most commonly used had a weaker evidence base, and those with a robust evidence base were less commonly used. There is therefore a gap between research and practice. This gap may be for a number of reasons including; the lack of accessibility and training for certain interventions or the cost of certain interventions. There is a need for improved mechanisms for lining up research capability and funding for informative RCT intervention research.

### *Practice Points*

- Parenting interventions are effective in promoting a secure attachment.
- Overall, interventions which were identified as being routinely used by UK services have a limited evidence base
- We should explore mechanisms of dissemination, training and sustainability for incorporating interventions with a positive and strong evidence base into practice.
- Further high quality research is needed on interventions that are commonly used to promote a secure attachment.
- We should consider improved mechanisms for commissioning and training of evidence based attachment assessment and interventions to improve equitable service delivery across the UK.

### **References (up to 4 Key references and 6 further reading)**

Suggestions – not finalised list

Key references (Have to be cited in text)

1. HTA report – in press?
2. National Institute for Health and Clinical Excellence. Children's Attachment. Attachment in children and young people who are adopted from care, in care or at high risk of going into care. [Internet]. Nice.org.uk. 2015 [Accessed 5 February 2021]. Available from: <https://www.nice.org.uk/guidance/NG26/documents/childrens-attachment-full-guideline>
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Further Reading (Shouldn't be cited in text)

1. Bowlby 1969
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