The association between therapists' attachment security and mentalizing capacity

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Thesis declaration form

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signature:

Name: Kim Wyatt-Brooks

Date:

This thesis focuses on the association between therapists' attachment security and their mentalizing ability. Volume one comprises three parts.

Part 1, the literature review, examines the evidence that parents' mentalizing predicts infant attachment security. Nine studies show a small but compelling body of research evidencing the role of maternal mentalizing in infant attachment. However, the evidence is limited by the small number of studies, small sample sizes and methodological and conceptual differences between studies. Moreover mentalizing alone appears unlikely to account fully for the intergenerational transmission of attachment.

Part 2, the empirical paper, describes a study investigating the association between therapists' attachment status and their ability to mentalize. Clinical psychology trainees (n = 51) were shown video vignettes designed to activate attachment anxiety and avoidance. Participants' responses to the vignettes were rated using a mentalizing scale, developed specifically for this study. The results suggest that insecure attachment in therapists is associated with low trait, cognitive and affective mentalizing.

Part 3, the critical appraisal, reflects on the process and impact of conducting the research. Issues raised by researching fellow clinical psychology trainees, difficulties with recruitment, and participants' experiences are considered, along with a reflection on the use of language in the literature review and empirical paper.

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Part 1: Literature Review

Parental Mentalizing and Infant Attachment:

Does mentalizing fit the transmission gap?

Abstract

Aims: The review examines the evidence that parents' mentalizing predicts infant attachment security.

Method: Studies were included if they examined primary care-givers' mentalizing, defined as the capacity to understand mental states underlying behaviour, and infants' attachment status.

Results: Nine studies met criteria for review. Mentalizing was conceptualised and measured in different ways, including: reflective function (n = 1), maternal reflective function (n = 2), mind-mindedness (n = 5) and insightfulness (n = 1).

Conclusion: The studies suggest that care-givers' attachment contributes to infants' attachment security. The evidence is limited however by the small number of studies, small sample sizes and methodological and conceptual differences between studies. Moreover mentalizing alone appears unlikely to account fully for the intergenerational transmission of attachment.

Introduction

Introduction to attachment theory

John Bowlby (1969/2005) believed that children are born with an innate predisposition to form and maintain close relationships with parents or primary caregivers, because such attachments are key to their emotional and physical survival, and ultimately the continuation of the species. The attachment system serves to regulate distress within the context of primary relationships. Thus, when children feel safe, their attachment systems are deactivated and they feel free to explore the world around them. When they feel threatened, their attachment system is activated and they seek closeness to and comfort from their caregivers (Slade, 2000; 2004).

Past attachment experiences of care, love, rejection, fear, betrayal, and so on, profoundly influence caregivers' capacity to provide security and comfort for their children. However, no matter what their experience of care, children are biologically predisposed to adapt to their caregivers. These adaptations protect and maintain the primary attachment, and lead to the development of stable patterns of defence and affect regulation.

Patterns of responding become internalised representations, or *internal working models*, which govern future attachment-related thoughts, feelings and behaviours. In this way, attachment patterns become a property of the individual (the child), rather than the attachment relationship. These patterns are considered relatively stable throughout child and adulthood because new experiences are assimilated into existing mental representations, and because attachment representations give rise to self-perpetuating attachment-related behaviour.

The quality of a mother's[1] attachment organisation therefore profoundly influences her child's attachment representations and resultant behaviours, thoughts feelings and interactions (Daniel, 2006; Slade, 2000; 2004). In her famous paper entitled 'Ghosts in the nursery', Fraiberg et al. (1987b) discuss how parents' histories continue to haunt their relationships with their children. In reference to Fraiberg's ghosts, Holmes (1999) writes:

> Whatever is transmitted from generation to generation - a story, a fantasy, a script - acts as a ghostly presence, or an organizing [sic.] principle around which psychological development can take place. It provides a necessary coherence, structure and shape for the emergence of psychological structure. The story may be 'good' (secure) or 'bad' (insecure [attachment]), but at least it is some sort of map which helps its bearer to know who she or he is, where she or he comes from, and where she or he is likely to go (Holmes, 1999; p. 123).

Measures of attachment

The Strange Situation

The concept of distinct patterns of attachment evolved from, and is evidenced by, Ainsworth et al.'s (1978) experimental observations of infant-mother interactions. The Strange Situation (SS[2]) comprises a procedure of separations and reunions of infant and mother, designed to capture the balance of attachment- and exploratory-related behaviour, under conditions of increasing stress. Based on children's ability to use their mothers as a secure base, Ainsworth and colleagues (1978) and Main and Solomon (1990) identified four main attachment styles (Table 1).

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1. Please note, the term 'mother' is used here as short-hand for primary caregiver.
2. Please refer to Appendix I for a full list of abbreviations.

Table 1. Attachment classifications (Hesse, 2008; Solomon & George, 2008)

Strange Situation	Adult Attachment Interview
Secure (labeled B) Child uses mother as a secure base for exploration. They miss mother and show signs of distress when separated, and seek contact and comfort upon reunion. Child is able to be comforted, following which they return to exploration.	*Autonomous* (labelled F) Consistent and coherent narrative, openness to questions and opportunities to reflect on experiences, collaboration with the interviewer, and a balanced view including both favourable and unfavourable past experiences.
Insecure-avoidant (labelled A) Child is avoidant of attachment; explores readily without reference to mother. Little or no visible distress upon separation and does not seek contact when reunited. Child actively avoids mother by focusing on toys, looking away, or stiffening and pulling away when picked-up or cuddled.	*Dismissing* (labelled D) Internal contradictions, lack of coherence and idealisation and/or derogation of parents. Attachment related discussion is avoided or generalised and lacking in detail. Negative experiences are downplayed and there is little articulation of difficult emotions.
Insecure-ambivalent/resistant (labelled C) Child is visibly anxious, avoids exploration and remains focused on mother. Shows distress when separated but fails to be comforted upon reunion. Reunions alternate between contact-seeking and angry rejection, or the child is too passive or overwhelmed to seek contact.	*Preoccupied* (labelled E) Characteristically long, confusing and incoherent. Preoccupation with attachment and experiences of being parented, sometimes featuring current feelings of anger. Answers are often excessively long and confusing, with oscillations suggestive of ambivalence.
Disorganised/disorientated (labelled D) Child displays a lack of organisation in attachment responses. Behaviour may be contradictory, inexplicable, fearful, stereotyped and/or confused; indicating a temporary collapse of behavioural strategy. Examples include freezing and trance-like states.	*Unresolved* (labelled U) Evidence of temporary cognitive disorganisation, lapses in reasoning, magical thinking, or unusual incoherent discourse in relation to incidents of loss, trauma or abuse. Interviews are assigned a secondary *organised* category (F/D/E).

The Adult Attachment Interview

Following Ainsworth's observations of infant attachment *behaviour*, Main and colleagues (George, Kaplan, & Main, 1984; Main & Goldwyn, 1984; Main, Kaplan, & Cassidy, 1985) developed a way of assessing attachment *representations* in parents (Slade, 2000). Using the Adult Attachment Interview (AAI; George, et al., 1984),

Main and Goldwyn (1984) observed distinct patterns in the way parents of children with different attachment styles talked about their own attachment histories; these were subsequently consolidated into the AAI coding system (Daniel, 2006; Hesse, 2008).

The AAI is a semi-structured interview designed to capture *internal working models* or *states of mind* with respect to attachment. The interview assesses participants' capacity to produce and reflect on attachment-related memories, while simultaneously maintaining coherent and collaborative discourse with the interviewer. Attachment security is closely related to narrative coherence, and the coding system emphasises the manner in which participants speak about their childhoods (Daniel, 2006; Fonagy, 2004; Hesse, 1999). Adult classifications relate directly to the Strange Situation infant attachment styles (see Table 1).

The transmission gap

A large body of research supports the view that parents' mental representations of childhood attachments, strongly influence the quality of their children's attachments to them (for a review see Van IJzendoorn, 1995). In his meta-analysis however, Van Ijzendoorn (1995) concluded that the mechanism through which attachment is transmitted from parent to child is still largely unaccounted for. He famously called this phenomenon *the transmission gap*. Since Van Ijzendoorn's review, a small but growing body of research suggests that mentalizing might be the allusive phantom to finally address the gap in the intergenerational transmission of attachment.

Mentalizing

Mentalizing is elaborately defined within the theoretical literature as the meta-cognitive and imaginal process of interpreting the mental states (e.g. beliefs, wishes, thoughts, desires, reasons and feelings) underlying one's own and others' actions. It is a dynamic skill which varies both between individuals, and between situations within an individual (Allen, 2006a; Bateman & Fonagy, 2006; Choi-Kain & Gunderson, 2008; Fonagy & Bateman, 2007; Holmes, 2006; Vrouva, 2010). Mentalizing is 'holding mind in mind' (Allen & Fonagy, 2006a, p. 3), or the ability to see oneself 'from the outside and others from the inside' (Allen, 2006b, p. 3).

Within the empirical literature, a diverse range of overlapping terms are used to refer to this process (see Appendix II). For the purposes of this review, mentalizing is operationalised as the capacity to understand mental states underlying behaviour. This definition is derived from a range of mentalizing literature (for example, Allen, 2006a; Allen, 2006b; Allen, Fonagy, & Bateman, 2008; Choi-Kain & Gunderson, 2008; Fonagy & Bateman, 2008; Holmes, 2005) and incorporates similar concepts such as maternal mind-mindedness (Meins, 1999) and insightfulness (Koren-Karie & Oppenheim, 2001).

The term *mentalizing* is used, rather than the more common *mentalization*, to emphasise that it is a dynamic process, rather than a stable and consistent trait.

Rationale for the review

There is increasing interest in the concept of mentalizing, and much theoretical literature describes the role of parents' mentalizing in the subsequent development of insecure attachment representations (e.g. Fonagy, 2008). In

comparison to the large volume of theoretic writing, there are relatively few empirical studies evidencing these links. Moreover, existing research covers a broad spectrum of terms (see Appendix II) and theoretical approaches (e.g. cognitive developmental psychology, psychoanalytic and child psychotherapy), making it difficult to find, compare and consolidate the empirical evidence. Consequently, this review aimed to consolidate relevant research findings and address the question: what is the evidence that parents' mentalizing predicts childhood attachment security?

Method

Search strategy

A number of literature searches were conducted to identify studies investigating the influence of parents' mentalizing on infant/child attachment status. Preliminary searches produced too many extraneous results, so the final search was limited to the terms used by the primary schools of research investigating the role of parents' mentalizing in predicting children's attachment status (i.e. reflective function/mentalizing and mind-mindedness; please refer to Table 2 for a summary of the search process). All searches were restricted to the English language and peer-reviewed journal articles only.

Table 2. Narrowing of search terms

Search strategy	Search term and restrictions used in PsycINFO electronic database	Results
Preliminary searches:		
All known terms for the capacity to understand mental states underlying behaviour	(mind minded* or theory of mind* or mind relate* or emotional understand* or mental state* reference* or mentali* or reflective function* or reflective self function* or maternal sensitiv* or insightful*) and attachment*) Restricted to English language and peer-reviewed journal articles only	7901 results obtained
Including only those terms thought to be most relevant to parental mentalizing and the transmission of attachment	(mind minded* or mentalis* or mentaliz* or reflective self function* or reflective function* or insightful* or maternal sensitiv*) and attachment* Restricted to English language and peer-reviewed journal articles only	5787 results obtained
Final search:		
Terms limited to the key schools of research: reflective functioning/ mentalizing and maternal mind-mindedness	(mentaliz* or mentalis* or reflective function* or mind-minded*) and attachment* Restricted to English language and peer-reviewed journal articles only	207 results obtained

The following search term was inserted into PsycINFO electronic database to obtain 207 results: (mentaliz* or mentalis* or reflective function* or mind-minded*) and attachment*. A further 32 studies were found via: examining the reference lists of relevant papers, paper-searching key texts (e.g. Allen & Fonagy, 2006a; Allen & Fonagy, 2006b; Bateman & Fonagy, 2011; Fonagy, Gergely, Jurist, & Target, 2002), and consulting with Professor Peter Fonagy and Professor Pasco Fearon, two leading experts in the field.

In order to further narrow the results, the following criteria were used to identify relevant studies for review:

- The study must be empirical using a correlational or experimental design;
- Participants include primary-caregivers and their infants, where infant is defined as less than two years of age;
- The study includes suitable measures of mothers' mentalizing ability and infants' attachment status; and
- Data analysis is quantitative, including some explicit investigation of the relationship between parent mentalizing and child attachment.

Study selection

The titles, abstracts and various sections of 239 papers were carefully reviewed against the eligibility criteria. The majority of these papers were excluded because either they were not empirical studies, they did not fit the operationalised definition of mentalizing (as defined above), or because they did not address the relationship between parents' mentalizing and infant attachment. The remaining 36 studies were examined in full.

Of the 36 studies, seven were excluded because they did not include a relevant measure of mentalizing. Eight were excluded because they did not include a measure of infant attachment. A further six studies were excluded because the child participants were above two years of age. Six studies were excluded because they repeated previously published data (please see Figure 1) for a flowchart of study exclusion and selection).

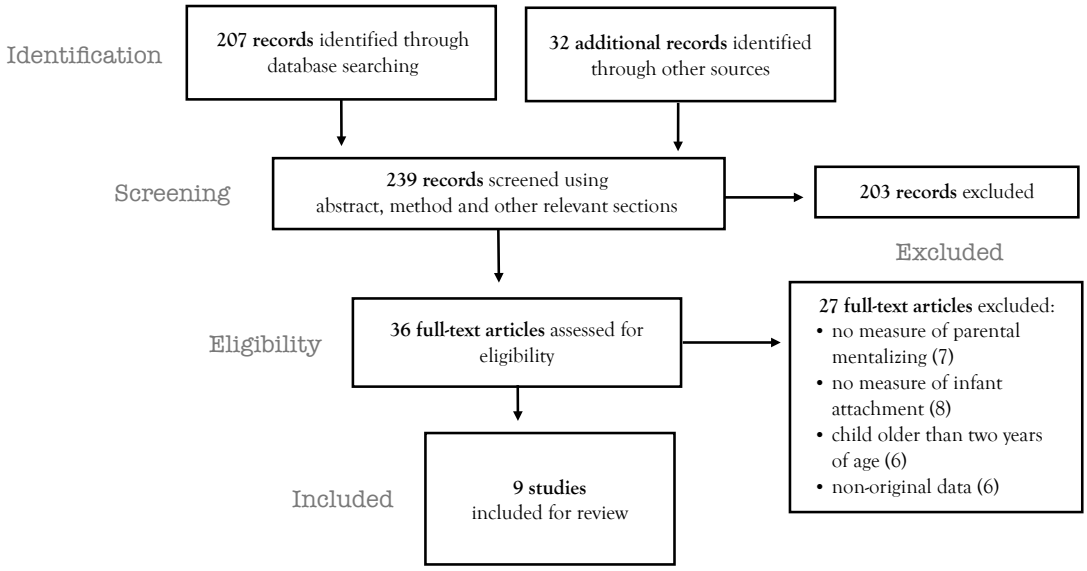

Figure 1. Study selection flowchart

There was one exception made to the above inclusion criteria. Two papers (Fonagy, Steele, & Steele, 1991a; Fonagy, Steele, Steele, Moran, & Higgitt, 1991b) discussed results from a single research project (The London Parent-Child Project); however only one met criteria for inclusion in this review (Fonagy, et al., 1991b). As both papers collectively show the development of 'reflective function', it was felt that they should both be included for review, but considered as one study. Additional information from the same research study published in other (non-eligible) articles are also included where applicable (e.g. Fonagy, Steele, Moran, Steele, & Higgitt, 1993; Fonagy, Steele, Steele, & Higgitt, 1994).

As noted above, the broad range of overlapping terms used within the literature made it difficult both to find relevant studies and distinguish which conceptualisations of 'mentalizing' were relevant to this review. As a result, the current selection of studies should not be considered exhaustive, but rather a review of some of the more pertinent research in the area.

Quality assessment tool

A quality assessment tool was used to provide a standard measure of internal validity, defined as the extent to which design, conduct and analysis minimised error and bias (Kmet, Lee, & Cook, 2004).

Each study was evaluated using the Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields (QualSyst; Kmet, et al., 2004). QualSyst was developed to address the need for quality assessment of a broad range of studies, including non-experimental and non-randomised designs. The scoring system is peer-reviewed (Kmet, et al., 2004) and based upon established quality assessment tools (Cho & Bero, 1994; Timmer, Sutherland, & Hilsden, 2003; for quantitative studies).

Using the QualSyst assessment procedure, each study was scored according to the degree to which they met 14 criteria ('yes' = 2, 'partial' = 1, 'no' = 0). Items not applicable to a particular study design were marked 'n/a' and were excluded from the total summary score. Please refer to Table 4 on page 24, where the 14 assessment criteria are listed along with the scores allocated to each study. For the full QualSyst scoring procedure, please refer to Appendix III.

While useful for providing a standard measure of research quality, the QualSyst assessment tool has a number of limitations. As the authors note, the checklist items represent the authors' perception of research quality and, given the absence of standard operational definitions of internal validity or a 'gold standard' measure with which to compare the QualSyst tool to, it is difficult to accurately assess the validity of the tool itself. Furthermore, QualSyst was developed using a small sample of test studies with limited assessment of inter-rater reliability.

Standard statistical measures have also yet to be established. Finally, the use of summary scores to categorise studies according to quality can, in itself, introduce bias into a review (Kmet, et al., 2004).

Given these limitations, the QualSyst scores are used to aid, rather than replace, qualitative assessment of the studies under review.

Results

Nine studies are presented in four sections relating to how they conceptualise mentalizing (i.e. the capacity to understand mental states underlying behaviour). One study, documented across two published papers, describes the inception of *reflective (self) function* (Fonagy, et al., 1991a; Fonagy, et al., 1991b), two studies investigate *parental reflective function* (Grienenberger, Kelly, & Slade, 2005; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005), five establish and refine *maternal mind-mindedness* (Arnott & Meins, 2007; Demers, Bernier, Tarabulsy, & Provost, 2010; Laranjo, Bernier, & Meins, 2008; Lundy, 2003; Meins, Fernyhough, Fradley, & Tuckey, 2001), and one study investigates the role of *insightfulness* in the transmission of attachment (Koren-Karie, Dolev, Sher, & Etzion-Carasso, 2002).

Relevant information is summarised in the following tables:

- Table 3 (page 21) summarises the key aspects of each study (i.e. the author(s), date, design, participants and sampling procedure, measures and relevant findings)
- Table 4 (page 24) lists the quality assessment criteria and ratings for each study (QualSyst assessment tool, Kmet, et al., 2004).

For additional information, please refer to the following appendices:

- Appendix IV (page 124) provides a detailed summary of each study's findings
- Appendix V (page 134) provides a description of the measures, scales and procedures used in the studies.

Table 3. Summary of studies (ordered by date of publication)
Please note: all studies use a longitudinal design, unless otherwise stated

Participants	Measures	Results
FONAGY, STEELE & STEELE (1991A) & FONAGY ET AL. (1991B)		
Expectant mothers and fathers during the last trimester of their first pregnancy (**n=100** mother and father pairs), followed by their children at 12 and 18 months of age (**n=96**) – Sample recruited from prenatal classes at UCLH – 50% participation rate – UK	**Adult Attachment Interview** (T1) - Mother's and father's attachment style **Strange Situation Procedure** (T2) - Infant's attachment style **Reflective-Self Function** (T1) **rating scale** - Mother's and father's reflective-self function (based on the AAI)	– Maternal attachment security predicted child's attachment security (secure v. insecure) 75% of the time (kappa = . 48, $p \leq .001$) – Parent's RF ratings and attachment classification were strongly associated for both mothers ($F = 6.11$, $df = 2.94$) and fathers ($F = 14.6$, $df = 2.81$) – Parental RF correlates more strongly with infant security than any of the AAI scales ($r = .51$ for mothers, and $r = .36$ for fathers) – a history of lack of love and neglect predicted infant insecurity only in mothers with low RF ratings
MEINS, FERNYHOUGH, FRADLEY & TUCKEY (2001)		
Pairs of mothers and infants, first seen when the infant was aged 6 months and again at 12 months (**n=71**) – Recruited via local health centres and baby clinics – 60% participation rate – UK	**Maternal Sensitivity rating scale** (T1) - Mother's overall sensitivity in relation to their infant, rated from free-play session **Mind-mindedness coding system** (T1) - maternal responsiveness to infants object-directed action; maternal responsiveness to change in infant's gaze; imitation; maternal appropriate mind-related comments; and encouragement of autonomy - coded from free-play session **Strange Situation Procedure** (T2) - Infant's attachment classification	– Security of attachment was significantly related to maternal responsiveness to infant's object-directed action ($t(65) = 1.92$, $p < .025$, effect size medium-large) and mother's appropriate mind-minded comments ($t(65) = 4.34$, $p < .001$, large effect size) – *Appropriate mind-related comments* was found to be the only predictor of attachment security ($x2$ ($n=65$) = 23.56, $p < .001$) – Scores on *appropriate mind-related comments* distinguished between infant's secure, insecure-resistant, and insecure-avoidant attachment classifications (B/A/C)
KOREN-KARIE, DOLEV, SHER & ETZION-CARASSO (2002)		
Cross-sectional design Mothers and infants, aged between 12 and 17 months (**n = 129** dyads) – Recruited through well-baby clinics and various community settings – 85% participation rate – Israel	**Insightfulness Assessment** - mothers' insightfulness regarding their infants' internal experience. **Strange Situation Procedure** - Infants' attachment classification **Maternal Sensitivity scale** - Mothers' sensitivity in relation to their infants	– *Positively insightful* mothers were likely to have children classified as secure; *one-sided* mothers were more likely to have children classified as resistant; *mixed* mothers were more likely to have children classified as disorganised – Insightfulness predicted Strange Situation classifications beyond that of maternal sensitivity ($x2$ ($1,N=126$) = 20.73, $p < .01$)

Participants	Measures	Results
LUNDY (2003)		
Mothers, fathers and their infants. Seen when the infant was aged 6 and 13 months (**n=16** triads) – Recruited through local paediatricians, day care facilities, newspapers and psychology department subject pool – USA	**Mind-related comments** (T1) - Adapted from Meins et al.'s (2001) - General thought processes, knowledge or desires; mental processes relevant to problem-solving or to the completion of a task; emotional engagement; attempts to manipulate others' thoughts; and speaking from the infants' perspective - Coded from 6 minute interaction **Interactional synchrony** (T1) - At least three contingent steps between parent and infant - Adapted from Belsky, Taylor & Rovine (1984) **Attachment Q-Set, Revision 3** (T2) - Infant's attachment security, rated by parents	– Only comments related to infants' general thought processes, knowledge or desires, significantly predicted higher infant-mother ($R^2 = .33$, $p < .05$) and infant-father ($R^2 = .41$, $p < .01$) attachment scores – For both mothers and fathers, infant attachment was significantly predicted by frequency of interactional synchrony, accounting for 40 and 47% of the variance, respectively – Synchrony mediated the relationship between mothers and fathers' thought-related comments and mother-/father-infant attachment
SLADE, GRIENENBERGER, BERNBACH, LEVY & LOCKER (2005)		
Mothers pregnant with their first child, followed by their children at age 10 and 14 months (**n=40** mother and baby pairs) – Recruited via flyers in relevant stores and centres, and advertisements in Local papers – USA	**Adult Attachment Interview** (T1) - mother's and father's attachment style **Parent Development Interview** (T2) - mother's and father's *parental* reflective function **Strange Situation Procedure** (T3) - infant attachment security	– *Maternal* reflective functioning was highly predicted by the mother's pre-birth attachment status – A mothers' capacity to reflect on her child's internal affective experience predicts the quality of her infant's attachment organisation – adult and infant attachment were weakly positively correlated in the sample ($r = .24$, $p < .065$ n.s.) – RF largely accounts for the modest link between adult and infant attachment security
GRIENENBERGER, KELLY & SLADE (2005)		
Mothers and their 10 - 14 month old infants (**n=45**) – Same sample as Slade et al. (2005) – USA	**Parent Development Interview** (T1) - mother's *parental* reflective function **Strange Situation Procedure** (T2) - infant attachment security **AMBIANCE** (T2) - Mothers' disrupted affective communications during the Strange Situation, including: affective communication errors, role or boundary confusion, fearful/ disorientated/dissociative/ disorganised behaviour, intrusiveness or negativity, and withdrawal	– Negative maternal caregiving behaviour at 14 months is inversely correlated with RF at 10 months – Mothers of insecurely attached infants had higher AMBIANCE scores than mothers of securely attached infants – There were significant differences between the AMBIANCE scores of the secure group and both the insecure-resistant ($p = .043$) and disorganised ($p = .005$) groups – Maternal behaviour played a (partial) mediating role between maternal RF and infant attachment

Participants	Measures	Results
ARNOTT & MEINS (2007)		
Mother-father-infant triads (**n=15**) and mother-infant dyads (**n=3**) recruited in the third trimester of pregnancy and assessed at 6, 12 and 15 months – Recruited through local classes and advertisements in local media – UK	**Adult Attachment Interview** (T1) - Mothers' and fathers' attachment styles **Reflective Functioning Scale** (T1) - Parent's reflective functioning, rated from the AAI transcript **Mind-mindedness coding system** (T2) - Mothers and fathers' appropriate and *inappropriate mind-related comments*, coded from free-play session **Strange Situation Procedure** (T3) - Infant's attachment style	– Mothers' antenatal RF was negatively correlated with *inappropriate mind-related comments* (r = -.41; R2 = .17) – Fathers RF scores were positively correlated with *appropriate mind-related comments* (r = .5; R2 = .25) – Autonomous group mothers attained higher RF scores than non-autonomous group mothers (t(26) = 4.12, p < .001, two-tailed (d = 1.6)) – Autonomous group fathers attained higher RF scores than non-autonomous group fathers (t(23) = 2.15, p < .05, two-tailed (d = .9))
LARANJO, BERNIER & MEINS (2008)		
Mother-infant dyads, first seen when the infants were 12-13 months old, and again at 15-16 months (**n=50**) – Random recruitment through birth lists – Canada	**Maternal Behaviour Q-Sort** (T1) - Maternal sensitivity **Mind-mindedness coding system** (T1) - Mothers' mind-mindedness, including comments on the infants' mental state, comments of mental processes, comments on infants' emotional engagement, comments on infants' attempts to manipulate other people's thoughts, and comments that involved mothers' speaking for the infants - Appropriate/inappropriate **Attachment Q-Sort** (T2) - Infants' attachment security, rated by an observer	– *Comments on infants' mental states* was related to maternal sensitivity (r = .28, p < .05) and infant attachment (r = . 28, p < .05) – Maternal sensitivity was a significant mediator of the common variance between mental state comments (mind-mindedness) and infant attachment
DEMERS, BERNIER, TARABULSY & PROVOST (2010)		
Cross-sectional design Adolescent mothers and their 18 month old infants (**n=72** dyads) Adult mothers and their 18 month old infants (**n=32** dyads) – Recruited via local newspaper adverts, maternity wards and health visitors – Canada	**Maternal Behaviour Q-Sort** - Maternal sensitivity **Mind-mindedness coding system** - Mothers' mind-mindedness, including comments on the infants' mental state, comments of mental processes, comments on infants' emotional engagement, comments on infants' attempts to manipulate other people's thoughts, and comments that involved mothers' speaking for the infants - Appropriate/inappropriate - Positive/negative/neutral valence **Attachment Q-Sort** - Infants' attachment security, rated by an observer	– Among adult mothers, higher maternal sensitivity was related to a greater overall use of mind-related comments and a lesser use of negative comments – Attachment security was positively associated with a greater use of appropriate and neutral mind-related comments, and negatively related to the use of negative comments – No relationship between maternal mind-related comments and child attachment security approached significance for adolescent mothers

T1, T2, etc. indicates different times of test administration in longitudinal studies.
n = stated sample size (not necessarily the number of participants used in the main analysis).

Table 4. Standard Quality Assessment for Quantitative Studies (Kmet, et al., 2004)

Studies listed in order of quality assessment rating

	Item number and corresponding score														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Score
Fonagy et al. (1991a; 1991b)	2	2	2	2	-	-	-	2	2	2	2	2	2	2	1
Meins, et al. (2001)	2	2	2	2	-	-	-	1	2	2	2	2	2	2	.95
Laranjo, Bernier & Meins (2008)	2	2	2	2	-	-	-	1	2	2	2	2	2	2	.95
Koren-Karie, et al. (2002)	2	2	2	2	-	-	-	2	2	2	2	1	1	1	.86
Grienenberger, Kelly & Slade (2005)	2	2	2	2	-	-	-	2	1	2	2	1	2	1	.86
Arnott & Meins (2007)	2	2	2	2	-	-	-	2	0	2	2	2	2	1	.86
Demers, et al. (2010)	2	2	2	2	-	-	-	1	1	2	2	1	2	2	.86
Slade, et al. (2005)	2	2	2	2	-	-	-	2	1	2	1	1	2	1	.82
Lundy (2003)	2	2	2	2	-	-	-	0	0	2	2	0	2	0	.63

Scores indicate the following: 2 = Yes, 1 = Partial, 0 = No, - = Not Applicable
Summary Score, i.e. the sum of the item scores obtained, divided by the total possible score (22).

Reflective function

Two seminal papers by Fonagy, Steele and Steele (1991a) and Fonagy, Steele, Steele, Morgan and Higgitt (1991b) document the inception of *reflective function*. The findings are reviewed collectively, as one research study, with relevant additional data reported in subsequent publications (Fonagy, et al., 1993; Fonagy, et al., 1994).

The London Parent-Child Project set out to investigate the intergenerational transmission of attachment. Fonagy et al. (1991a) administered the AAI to mothers and fathers in the last trimester of pregnancy (n = 100). Mothers' and fathers' attachment classifications were then compared with their child's attachment style, measured using the Strange Situation procedure when the infant was 12 months of age.

Fonagy et al. found that infants have two unrelated attachment relationships: the infant-mother and infant-father attachment. They also found a strong predictive association between expectant mothers' attachment and the subsequent status of infant-mother attachment (75% concordance); and a significant, although weaker, association between fathers' attachment and the subsequent infant-father relationship. Fonagy et al. (1993) liken the transmission of attachment to Fraiberg's ghosts in the nursery. Describing these ghosts, Fraiberg (1987a) explains: 'the parental past may break through... and a parent and his child may find themselves reenacting a moment or a scene from another time with another set of characters' (p. 100). To account for the 'ghost', that is, the vehicle by which attachment is transmitted from parent to child, Fonagy et al. (1991b) suggest that infant attachment security is based on mothers' sensitivity to, and understanding of, the infant's mental world. A mother who is secure in relation to attachment is free to respond to her child's attachment needs, because she is not unduly burdened by her

own unresolved childhood conflicts. She is able to reflect on her child's mental states, attempting to contain otherwise overwhelming emotions, and anticipate psychological needs for reassurance, comfort and support. By reflecting the child's mental states back to them, the mother fosters the child's understanding of themselves and their own mental states. Over time, the child develops a sense of the world around them and through increased social interaction, the child learns to consider others' mentalizing as explanations for their actions and reactions (Fonagy, et al., 1993; Holmes, 2006).

Conversely, insecurely-attached mothers have difficulty interpreting and responding appropriately to their infant's mental states (i.e. mentalizing), due to their own difficulties with acknowledging and understanding their own attachment needs. If infants' are unable to rely on their mothers to respond sufficiently to their negative affective states, they must rely on immature behavioural strategies to diminish their distress. These behavioural strategies are observed in infants categorised as insecure in the Strange Situation procedure (Fonagy, et al., 1993).

To test this hypothesis, Fonagy et al. (1991b) developed a scale for the AAI, measuring mothers' capacities to reflect on their own and others' mental states. They called this capacity, *reflective function* (RF[3]).

The researchers found that mothers who rated high for reflective function demonstrated a willingness and clear ability to contemplate mental states, including both conscious and unconscious motives and conflicting beliefs and desires. They were able to reflect on the differences between a child and adult's mental functioning, and showed an understanding of how relationships affect one another.

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3. Please refer to Appendix V for an overview of the RF rating scale.

Mothers scoring high in reflective function were likely to be classified as autonomous on the AAI; they had infants who were likely to be classified as securely attached and showed less avoidant behaviour and more contact maintenance during the Strange Situation procedure (Fonagy, et al., 1994; Fonagy, et al., 1991b).

When measures of stress and resilience were taken into account, Fonagy et al. (1994) found that mothers who had experienced childhoods classified as 'deprived', were almost twice as likely to have an insecure relationship with their children. However, a history of lack of love and neglect predicted infant insecurity only in mothers with low reflective function ratings, suggesting that the capacity for mentalizing is protective against the psychologically damaging impact of childhood deprivation and harm (Fonagy, Target, Steele, & Steele, 1998a; Holmes, 2006). As Fraiberg et al. (1987a) put it, '...it is the parent who cannot remember his childhood feelings of pain and anxiety who will need to inflict his pain upon his child' (p. 120-121).

As the authors note, however, the study does not control for changes in mothers' capacity to mentalize before and after the birth of a child. The transition to parenthood might, for example, heighten or attenuate the level of activation of particular internal working models, which, in turn, influence attachment-related thoughts and behaviours. This notwithstanding, the combined studies by Fonagy et al. (1991a; 1991b) scored 100% using the QualSyst assessment procedure (Kmet, et al., 2004).

Maternal reflective function

Building on the work of Fonagy et al. (1991a; 1991b); Slade, et al. (2005) and Grienenberger, et al. (2005) investigate maternal reflective functioning; defined as a

mother's capacity to understand the nature and function of her infant's and her own mental states, which in turn facilitates a physical and psychological experience of comfort and safety for her child (Slade, et al., 2005). The studies use the same sample of mothers and fathers (n = 40/45) which, despite general recruitment methods, scored high on indicators of psychopathology, indicating an 'at risk' population.

Both studies assess reflective functioning independently of attachment security and within the specific context of parenthood, using an adapted version of the Reflective Function rating scale (The Addendum to the Reflective Functioning Scoring Manual; Slade, Bernbach, Grienenberger, Levy, & Locker, 2004), which is applied to the Parent Development Interview (PDI; Aber, Slade, Berger, Bresgi, & Kaplan, 1985). The PDI is a semi-structured clinical measure designed to assess a mother's internal representations of her child, herself as a parent, and the parent-child relationship. Consequently, both studies measured maternal reflective function after the infants' births.

Slade, et al. (2005) found a significant association between a mother's prenatal attachment (measured using the AAI) and her capacity to think reflectively about her child at 10 months of age. Unlike the vast majority of studies however (see Van IJzendoorn, 1995 for a review), the correlation between mothers' and infants' attachment classifications was not statistically significant ($p < .065$ n.s.). The authors claim that reflective function accounted for 'the modest link' (p. 292) between the two; however, as the link is statistically non-existent, these results should be interpreted with caution. The authors argue that high levels of maternal psychopathology might have influenced the results, and indeed, research into the intergenerational transmission of attachment in the context of maternal

psychopathology is far from conclusive (e.g. Bernier & Dozier, 2003; Fonagy & Target, 2005; Madigan et al., 2006; Ward et al., 2001).

Higher levels of maternal reflective function were associated with secure infant attachment, and lower levels of reflective function were associated with insecure infant attachment. Despite the size of the sample, the association between infant attachment (classified as secure v. insecure) and maternal reflective function produced a large effect size (Cohen, 1977). Maternal reflective function could not however distinguish between infants classified as secure and insecure-avoidant. Slade, et al. (2005) suggest that these findings are consistent with the general view that avoidance is more adaptive than resistant and disorganised strategies.

The authors propose that attachment classifications might simply offer a description of reflective function. That is, dismissing attachment describes the rejection of mental state reasoning; preoccupied attachment describes being overwhelmed by and unable to think about mental states; and unresolved attachment describes the profound dysregulation of mental states. Thus the classification of secure or insecure attachment describes the presence or absence of a basic psychological capacity to make sense of and regulate powerful experiences.

Grienenberger, et al. (2005) further develop the concept of maternal reflective function, by investigating the role of maternal behaviour during the Strange Situation Procedure. Using the same sample as Slade et al. (2004), the authors administered the PDI to 45 mothers when their infants were 10 months old, and the Strange Situation at 14 months of age. In order to capture the behavioural manifestations of a mother's *failure to understand and respond appropriately to the intentionality of her child*, the Strange Situation was scored using the Atypical Maternal

Behaviour Instrument for Assessment and Classification (AMBIANCE Version 2; Bronfman, Parsons, & Lyons-Ruth, 1999).

As expected, their findings indicate that highly reflective mothers were unlikely to exhibit disruptions in affective communication during the Strange Situation Procedure, and low levels of disrupted affective communications were associated with secure infant attachment. Conversely, maternal behaviours which are aggressive, intrusive, fearful, withdrawn, inappropriate or misattuned, are associated with low maternal reflective function and insecure attachment outcomes in children.

To rephrase Fraiberg: it is the parent who cannot *reflect upon* his childhood feelings of pain and anxiety who will *enact* his pain upon his child (op. cit. p. 27). That is, behaviour is the mechanism through which a mother's understanding of her own and her child's mental states is communicated to the child. Grienenberger, et al.'s (2005) findings suggest that maternal behaviour functions as a partial mediator between maternal reflective function and infant attachment. Due to the sample size and cross-sectional methodology however, these results require replication and further validation.

Due to a number of minor limitations, the studies by Slade et. al (2005) and Grienenberger, et al. (2005) scored 82% and 86% respectively, using the QualSyst assessment procedure (Kmet, et al., 2004).

Maternal mind-mindedness

Maternal sensitivity

Ainsworth and colleagues were the first to explore the relationship between maternal behaviour and infant attachment in the 1960's and 70's (Ainsworth, et al., 1978). They argued that *maternal sensitivity* is the most relevant maternal dimension

for predicting infant attachment (Ainsworth, et al., 1978). In her original scale, Ainsworth (1969) defined sensitivity as a 'mother's ability to perceive and to interpret accurately the signals and communications implicit in her infant's behavior [sic.], and given this understanding, to respond to them appropriately and promptly' (p. 2). Ainsworth et al. (1978) reported a strong predictive relationship between maternal sensitivity and subsequent infant attachment classifications. However, failure to replicate these findings has led to confusion about the validity and measurement of the construct (Meins, et al., 2001; 1997). In their meta-analysis, De Wolff and Van Ijzendoorn (1997) concluded that maternal sensitivity is neither the exclusive nor the most important factor in the transmission of attachment.

Rethinking sensitivity and the beginning of maternal mind-mindedness

In their 2001 study, Meins et al. reconceptualised maternal sensitivity, by focusing specifically on mothers' ability to read accurately the mental states underlying infant behaviour. The authors video-recorded a 20 minute free-play session with mothers and their six month old infants (n = 71), and administered the Strange Situation procedure six months later. The tapes were coded for infant behaviours and maternal sensitivity (using the Ainsworth (1969) maternal sensitivity scale). Six randomly-selected tapes were reviewed in detail to develop a coding system for the ways in which 'a mother could demonstrate that she was treating her infant as a mental agent, capable of intentional action' (Meins, et al., 2001, p. 640). The authors identified five measures of mind-mindedness: (1) *Maternal responsiveness to change in infant's direction of gaze,* (2) *Maternal responsiveness to infant's object-directed action,* (3) *Imitation,* (4) *Encouragement of autonomy* and (5) *Appropriate mind-related comments*. Coding for *appropriate mind-related comments* is summarised in Table 5.

Table 5. Meins et al. (2001) Maternal mind-mindedness coding system

The authors found that both maternal sensitivity and *appropriate mind-related comments* were independent predictors of attachment, accounting for 6.5% and 12.7% of the variance respectively. *Appropriate mind-related comments*[4], however, was able to distinguish between those infants who would later be classified as secure, insecure-resistant and insecure-avoidant in relation to attachment (B/A/C). By comparison, maternal sensitivity was unable to distinguish between the different insecure groups, and resistant group mothers scored higher for sensitivity, than secure group mothers. It is unclear however, how the disorganised group fared in the analysis. Low numbers of infants classified as disorganised (n=3) might have

4. Please note that '*appropriate mind-related comments*' is a variable and is therefore referred to in the singular.

contributed to their omission, although low numbers of infants in all the insecure categories mean that these results should be considered preliminary.

Meins et al. (2001) argue an obvious parallel between a mother's mentalizing comments during the AAI (researched by Fonagy, et al., 1991b) and her mind-related comments during interactions with her infant. That is, a mother's capacity to understand mental states underlying her and her parent's behaviour relates to her tendency to frame her infant's actions in terms of her infant's underlying mental states.

There are however some minor limitations involving measurement procedures resulting in a quality rating of 95% (Kmet, et al., 2004). For example, the maternal mind-mindedness coding system is developed using only six mother-infant pairs. Considering that within the larger sample of 71, only three pairs were classified as disorganised and five as insecure-resistant, it seems unlikely that a sub-sample of six mothers and infants would be sufficient to code a full range of possible mind-minded interactions. Furthermore, both maternal sensitivity and mind-mindedness are assessed using the same video-recorded session, increasing the risk of shared method variance. Maternal sensitivity (and indeed mind-mindedness) is assessed from only 20 minutes of mother-infant interaction. Ainsworth herself observed several hours of interaction before assigning a sensitivity rating (Ainsworth, et al., 1978). The effect of observation duration however is unclear. While Pederson & Moran (1995a) argue that relatively long periods of naturalistic observation in a home-setting offer more reliable assessment of mother-infant interactions, De Wolff and Van Ijzendoorn (1997) found that the length of assessment did not significantly affect maternal sensitivity.

Refining maternal mind-mindedness

Lundy (2003) and Laranjo et al. (2008) investigate possible mediators between maternal mind-mindedness and infant attachment. Both studies use the Attachment Q-Sort/Set (AQS; Waters & Deane, 1985; see Appendix V) to assess infant attachment; however Lundy uses parents to rate attachment behaviour while Laranjo et al. use trained independent raters. The Attachment Q-Sort correlates with the Strange Situation in some studies; however, correlations are significantly higher when attachment is rated by observers as opposed to parents (Solomon & George, 2008). For this and various other reasons detailed by Van Ijzendoorn et al. (2004), rating by parents is not recommended (also see Solomon & George, 2008; Teti & McGourty, 1996).

Interactional synchrony

Lundy (2003) video recorded mothers and fathers with their six month old infants, during a six-minute interaction session. Seven months later, couples were asked to assess their infants using the Attachment Q-Sort, to determine infant-mother and infant-father attachment status (n=16 in the final analysis).

Interactions were coded for frequency of interactional synchrony, defined as an exchange involving three or more contingent steps between parent and child. Mind-mindedness was also assessed using the video-recorded interactions and a modified version of Meins et al.'s (2001) coding system.

Lundy (2003) found that mothers' and fathers' *comments relating to infants' general thought processes, knowledge or desires*, was moderately correlated with interactional synchrony, and predicted higher infant attachment security. A further stepwise regression showed that only interactional synchrony significantly predicted infant

attachment, accounting for 40% and 47% of the variance for mothers and fathers respectively. Using Baron and Kenny's (1986) four step regression, Lundy (2003) concludes that synchrony mediates the relationship between mothers' and fathers' mind-mindedness and infant attachment security. Due to a number of methodological limitations however, these results should be interpreted with caution. For example, the study uses a very small sample (n = 16) for the main analysis. Both mind-mindedness and synchrony are assessed using the same video-recording leading to increased risk of common method variance. Both mind-mindedness and synchrony are assessed based on a very short (six minute) interaction. Furthermore, because Lundy (2003) uses parents to rate the Attachment Q-Sort, the validity of her infant attachment ratings are unclear. Due to these limitations, the study received an overall quality rating of 63% (Kmet, et al., 2004), which is defined as *adequate* by Lee, Packer, Tang and Girdler (2008).

Maternal sensitivity

Laranjo et al. (2008) set out to investigate the relationship between maternal sensitivity, mind-mindedness and infant attachment, assessed in a naturalistic home-setting. The authors recruited mother-infant dyads using random sampling procedure from national birth lists (n = 50). Maternal sensitivity and mind-mindedness were assessed separately (but during the same 90 minute visit), when the infant was 12 months old. Infant attachment security was assessed three months later, using the Attachment Q-Sort, rated by an independent observer.

Maternal sensitivity was assessed using the Maternal Behaviour Q-Sort (MBQS; Pederson et al., 1990; see Appendix V). Maternal mind-mindedness was assessed from 10 minutes of video-recoded interactions, using Meins et al.'s (2001)

coding system (summarised in Table 5, p. 32). Infant attachment and maternal sensitivity were rated based on observations throughout the home visits.

All assessments were conducted using Pederson and Moran's (1995a) procedure to create situations where the mother's attention was solicited by different research tasks as well as her infant's demands; thereby reproducing the natural conditions of every-day parental life. By placing both infants and mothers in a challenging situation, the researchers also hoped to activate infants' attachment and mothers' caregiving systems.

Laranjo et al. (2008) found that, of the mind-mindedness variables, only *comments on infants' mental states* (item 1, Table 5) was related to maternal sensitivity and infants' attachment status. Using Baron and Kenny's (1986) procedure for establishing mediation, the authors found that maternal sensitivity is a significant mediator of the common variance between mind-mindedness and infant attachment. Therefore, when maternal sensitivity was accounted for, mind-mindedness was no longer related to infant attachment security. These findings are consistent with Lundy (2003) and Grienenberger et al. (2005), suggesting that mind-mindedness is a prerequisite for maternal behaviour which in turn fosters secure attachment.

These results however are inconsistent with Meins et al (2001), who found that mind-mindedness and maternal sensitivity were both independent predictors of attachment security. Conflicting results might relate to methodological differences between the studies. For example, Laranjo et al. (2008) use the Attachment Q-Sort to assess infant attachment, which correlates only moderately with the Strange Situation, used by Meins et al. (2001; Van IJzendoorn, et al., 2004). Meins et al.

(2001) use Ainsworth's (1969) original Sensitivity Scale, while Laranjo et al. (2008) use the Maternal Behaviour Q-Sort to assess maternal sensitivity. Moreover, Meins et al. (2001) assessed maternal sensitivity and mind-mindedness using a 20 minute laboratory-based interaction, while Laranjo et al. (2008) use a 10 minute home-based interaction to assess mind-mindedness and over an hour to assess sensitivity. Both Lundy (2003) and Laranjo et al. (2008) report a relative low frequency of mind-minded comments, suggesting that longer observations would provide a more thorough assessment of mind-mindedness. However, more research is needed to clarify the manifestations of mind-mindedness during unstructured daily interactions (Meins, et al., 2001; cited in Laranjo et al. 2008).

Laranjo et al. (2008) produce a high quality study using methodological precautions to avoid sampling and measurement bias, a reasonable sample size, and thorough reporting; resulting in a quality rating of 95% (Kmet, et al., 2004). One limitation of the study is the methodological differences between the assessment of mind-mindedness and maternal sensitivity; which may have led to an underestimation of mothers' mind-mindedness, and lower predictive validity with regard to infant attachment (Atkinson et al., 2000).

Valence and appropriateness

Demers et al. (2010) used a cross-sectional design to examine the differences between adolescent (n = 72) and adult (n = 32) mothers. The researchers conducted home visits using Pederson and Moran's (1995a) procedure for simulating everyday parental life. Like Laranjo et al. (2008), maternal sensitivity was assessed using the Maternal Behaviour Q-Sort (Pederson & Moran, 1995a), based on observations throughout a 90 minute visit. Mind-mindedness was assessed using Meins et al.'s (2001) mind-mindedness coding system, based on a 10 minute video-recorded

interaction. In addition to coding the type and appropriateness of mind-minded comments (see Table 5, p. 32), each comment was further classified as positive, negative or neutral valence, based on the content, context and mother's tone of voice. Like Laranjo et al. (2008), scoring of sensitivity and mind-mindedness was conducted by different researchers in order to reduce the possibility of shared method variance. Infant attachment security was assessed two weeks later in a laboratory setting, using the Strange Situation procedure.

When comparing adolescent and adult mothers, Demers et al. (2010) found that adult mothers used significantly more appropriate, positive and neutral mind-minded comments; fewer negative comments; and were more likely to have infants who were classified as securely attached to them. Both adolescent and adult mothers had a high proportion of infants who were classified as disorganised with regard to attachment (51% and 34% respectively). These findings were unexpected within the adult group in particular, and are suggestive of a high-risk population.

Within the adolescent mother group, no association was found between maternal mind-mindedness or sensitivity and infant attachment. Thus, it appears that the capacity and inclination to treat one's child as an individual with a mind is less relevant for adolescent mothers, who may face a range of challenges which take precedence over and limit opportunities for mind-minded and sensitive interactions with their infants (Demers, et al., 2010).

Within the adult mother group, *total* use of mind-minded comments, regardless of appropriateness, was positively related to maternal sensitivity. However, only *appropriate mind-related comments* was related to infant attachment security. The authors hypothesise that, perhaps, sensitive mothers show a greater interest in their

infant's mental activities; although their interpretations of their infant's mental states are not necessarily accurate. Secure attachment, however, is fostered when the infant is able to feel confident that their caregiver is not only available but is also able to understand them.

Analysis of adult mothers' valence indicates that *positive comments* was unrelated to sensitivity or attachment; *neutral comments* was related to both sensitivity and attachment; and *negative comments* was related negatively to sensitivity and attachment. Thus it appears that a balanced consideration of the child's mental life and a capacity to perceive and sensitively respond to a broad range of signals (not just positive or negative actions), fosters a secure infant-mother relationship. On the other hand, a propensity to attribute negative intentions towards a child interferes with a mother's ability to understand and attend to their child's needs, fostering an insecure infant-mother attachment.

The findings regarding positive valence might relate to the low frequency of positive comments used by mothers during the 10 minute interaction (2.8%). Negative comments however were also used infrequently by adult mothers (5.1%), but were still significantly associated with sensitivity and infant attachment. As Demers et al. (2010) note, the use of negative comments, even infrequently, appears significantly detrimental to infant attachment security. It is impossible however to determine causality given the cross-sectional methodology.

The study by Demers et al. (2010) is the first to highlight the importance of appropriateness (including inappropriate comments) and valence when assessing maternal mind-mindedness. The majority of findings are from the adult mothers group, and given the small adult sample size (n = 32), these results should be

considered preliminary and interpreted with caution. The small sample and methodological differences between the assessment of mind-mindedness and maternal sensitivity, result in a quality rating of 86% (Kmet, et al., 2004).

Mind-mindedness and reflective function

Sixteen years after Fonagy et al.'s (1991b) original research, Arnott and Meins (2007) set out to investigate the relationship between mothers' and fathers' prenatal reflective functioning and postnatal mind-mindedness. The authors assessed the attachment status (AAI) and reflective functioning (RF rating scale) of mothers and fathers expecting their first child (n = 28). When the infants were six months old, mind-mindedness was assessed using the Meins et al. (2001) coding system to score a 30 minute free-play laboratory session. Both appropriate and inappropriate comments were used for data analysis. Six months later, when the infants were 12 months old, the Strange Situation was used to assess infant-mother (n=18) and infant-father (n = 15) attachment security.

The authors found that mothers' and fathers' attachment security was significantly related to reflective functioning, which is consistent with findings reported by Fonagy et al. (1991b). However, mothers' mind-mindedness was unrelated to AAI attachment classifications. Mothers' reflective functioning was also unrelated to *appropriate mind-minded comments*, but negatively correlated with *inappropriate comments* (accounting for 17% of the variance). The relationship between maternal mind-mindedness and infant attachment was also non-significant.

Fathers' reflective functioning was related to *appropriate mind-minded comments* (accounting for 25% of the variance), but not to *inappropriate comments*. Fathers were more likely than mothers to comment inappropriately on their infants' mental states;

and fathers who made more *appropriate mind-minded comments* also made more *inappropriate comments*. Autonomous fathers however made proportionally more *appropriate* and less *inappropriate comments*, and were more likely to have children who were securely attached to them, in comparison to non-autonomous fathers.

As Arnott and Meins (2007) note, the difference between mothers and fathers may relate to mothers getting more advice and information about parenting, which might mitigate the influence of early attachment relationships (Fraiberg's ghosts?). Mothers also traditionally spend more time with their infants, providing greater opportunity to learn about their child and their internal states.

Due to the small sample and number of non-significant results, the authors use effect size as an estimate of clinical significance. The effect sizes are generally consistent with those reported by Meins et al. (2001) and Lundy (2003), however non-significant results should be interpreted with extreme caution.

Although Arnott and Meins' (2007) stated intention was to replicate the original reflective functioning study (Fonagy, et al., 1991b), they do not report any investigation of the relationship between reflective function and infant attachment. The omission is unfortunate, as the results have yet to be replicated.

The small sample size and non-significant results provide limited scope to interpret and generalise the findings. As a result, the study by Arnott and Meins (2007) scored a quality rating of 86% (Kmet, et al., 2004; Lee, et al., 2008).

Insightfulness

In their research into the intergenerational transmission of attachment, Koren-Karie et al. (2002) use a cross-sectional design to investigate maternal *insightfulness*, defined as: a 'parents' capacity to consider the motives underlying their children's

behaviors [sic.] and emotional experiences in a complete, positive, and child-focused manner while taking into consideration their children's perspective' (p. 534). The researchers visited the homes of mothers and their 12 month old infants (n = 129), and video recorded three observations: structured play, nappy-changing, and maternal distraction where mothers were asked to complete a questionnaire in their children's presence.

Koren-Karie et al. (2002) assessed insightfulness using a measure developed by Oppenheim, Koren-Karie and Sagi (2001). Mothers were asked to watch each of their three video-recorded interactions and reflect on their own and their infants' mental states. Interviews were coded using the Insightfulness Assessment (Table 6), following which each mother was classified as *positively insightful, one-sided, disengaged* or *mixed*. Maternal sensitivity was assessed using the three video segments, as well as an additional 10 minute free-play session. Sensitivity was coded using an adapted version of Ainsworth's (1969) scale, which assesses a mother's responsiveness to her child, in relation to *appropriateness*, *timing*, and *flexibility*; the *quality and appropriateness of her affect*; and her *negotiation of conflictual situations* (Biringen, Robinson, & Emde, 1993). Infant attachment was assessed using the Strange Situation procedure (Ainsworth, et al., 1978).

Table 6. Insightfulness Assessment (Oppenheim, et al., 2001; in Koren-Karie et al. 2002)

Koren-Karie et al. (2002) found that mothers classified as positively insightful were more sensitive than mothers classified as one-sided or disengaged. Positively insightful mothers were more likely to have children who were securely attached to them; while mothers classified as one-sided were likely to have children classified as resistant. There was no association between infant attachment and disengaged insightfulness, which, the authors note, may relate to the low proportion of insecure-avoidant infants in the sample (n = 5), which is consistent with the general Israeli population (Koren-Karie, et al., 2002).

Mothers classified as mixed in relation to insightfulness, although not less sensitive than positively insightful mothers, were more likely to have children with a

disorganised attachment style. In explanation, the authors suggest that competing and/or contradictory caregiving behaviours, characterised by the lack of a single coherent way of thinking about the child's mental states, are disorganising to children who consequently exhibit similar contradictory attachment strategies. Alternatively, children may be stressed by their mothers' incoherent discourse and inconsistent insightfulness, leading to the continuous activation of the attachment system.

Maternal sensitivity was unable to distinguish between the different infant insecure-attachment groups. However, only three of the 129 mothers were classified as insensitive on the Maternal Sensitivity scale (Biringen, et al., 1993), which, the authors propose, is due to the low-risk nature of the sample. It is unclear whether other factors, such cultural differences between Israeli and European/American samples might have also contributed to these findings.

A regression analysis showed that insightfulness predicted infant attachment classifications beyond the predictive value of maternal sensitivity. It is important to note however that as the assessments were conducted concurrently, it is impossible to determine causality. It is therefore equally possible that mothers of securely attachment infants find it easier to talk about their children in a positively insightful way.

Minor limitations relating to the concurrent data collection and detail of reporting result in a quality assessment rating of 86% (Kmet, et al., 2004).

Discussion

A review of the evidence suggests that mentalizing does play a part in the intergenerational transmission of attachment (summarised in Table 7). There is more evidence for the relationship between infant attachment and maternal mind-mindedness, in comparison to reflective function and insightfulness. The evidence is substantially stronger with regard to mothers, as only two studies included fathers in the main analysis. All nine studies found some relationship between maternal mentalizing and infant attachment and, in the seven studies where effect size was reported, five found a large effect. One study found a non-significant result, although the effect size was still large (Arnott & Meins, 2007), and one study found no significant results for adolescent mothers. Three studies found that maternal behaviour mediated the relationship between mentalizing and infant attachment (Grienenberger, et al., 2005; Laranjo, et al., 2008; Lundy, 2003). There was some variation in the way infant attachment was defined for analysis (e.g. secure/insecure; secure/avoidant/resistant; etc.), which is likely to affect the strength of association between the two variables. The majority of studies however did not report this level of detail. Overall, the quality of research and reporting was high, with eight studies receiving a rating defined as strong (>80%) and only one study achieved an adequate rating (50-70%; Lee, et al., 2008).

Eight of the nine studies use middle-class Western samples, while only one study takes place outside the United Kingdom and North America (Koren-Karie, et al., 2002). Findings by Koren-Karie et al. (2002) and other studies (for a review, see Van Ijzendoorn & Sagi-Schwartz, 2008) provide some support for the universality of attachment. However, there are significant contextual and cultural factors which appear to have an affect on attachment style and the influence of parents'

attachment representations (e.g. Sagi et al., 1997). More culturally representative research is needed to understand better the role of mentalizing and attachment within a diverse population.

Table 7. Evidence that maternal mentalizing predicts infant attachment

	Sample size	Independent variable (mentalizing)	Dependent variable (attachment)	Effect size*	Quality rating
Fonagy et al. (1991a; 1991b)	n = 100	RF	Not reported	**Large**	Strong (100%)
Meins, et al. (2001)	n = 71	MM	B/AC B/A B/C A/C	**Large** Large Large Medium	Strong (95%)
Koren-Karie, et al. (2002)	n = 129	Insightfulness	A/B/C/D	Not reported	Strong (91%)
Lundy (2003)	n = 16	MM	Not reported	**Large**	Adequate (63%)
Slade, et al. (2005)	n = 40	Maternal RF	B/CD	**Large**	Strong (82%)
Grienenberger, Kelly & Slade (2005)	n = 45	Maternal behaviour	B/ACD	Large	Strong (86%)
Arnott & Meins (2007)	n = 18	MM	Not reported	**Large**; n.s.	Strong (86%)
Laranjo, Bernier & Meins (2008)	n = 50	MM	Not reported	**Medium**	Strong (95%)
Demers, et al. (2010)	n = 32 n = 72	Adult MM Adol. MM	Not reported Not reported	**Medium** n.s.	Strong (86%)

RF = reflective functioning, MM = mind-mindedness, n.s. = non-significant, adol. = adolescent
B/AC = two category analysis: secure vs. insecure (including resistant & avoidant)
B/ACD = two category analysis: secure vs. insecure (including resistant, avoidant & disorganised)
A/B/C/D = four category analysis: secure, resistant, avoidant vs. disorganised
Where multiple effect sizes are reported, the main effect is highlighted in bold.
*Please refer to Cohen (1992a) for a summary of conventional effect size values and descriptions.

In summary, there is a small but compelling body of research evidencing the link between a mother's capacity to mentalize and the security of her infant's attachment to her. However, the evidence is limited by the relatively small number of studies and small sample sizes within those studies, particularly numbers of participants within the insecure attachment groups. Furthermore, the evidence is

difficult to consolidate due to methodological and conceptual differences between studies.

Mentalizing is defined here as the meta-cognitive and imaginal process of interpreting the mental states underlying one's own and others' actions. It is unclear however, how this relates to and overlaps with other similar concepts such as mind-mindedness (i.e. the disposition to treat one's child as an individual with a mind). While reflective function, mind-mindedness and insightfulness appear conceptually similar, they are measured and defined in very different ways. There is limited research into the relationship between mentalizing terms, and where it exists, the results are inconclusive. For example, one study reviewed here (Arnott & Meins, 2007), suggests that reflective functioning and mind-mindedness interact in unexpected ways, and are related but distinct phenomena. Further research is needed to clarify the relationship between these measures, and how they map onto the theoretical conceptualisation of *mentalizing*.

So, can we put the ghosts to rest and finally bridge Van Ijzendoorn's (1995) transmission gap? In short, probably not - yet. The studies reviewed here suggest that mentalizing alone is unlikely to account fully for the intergenerational transmission of attachment. However, findings by Grienenberger et al. (2005), Laranjo et al. (2008) and Lundy (2003) suggest that further research involving mentalizing *and* the manifestations of mentalizing in the mother-infant relationship (i.e. maternal behaviour) might, one day, fill the gap.

As Fonagy and Target (2005) note, a mother's secure attachment history enables her to explore her own mind and promotes a similar enquiring stance towards her infant. Her position of open and respectful enquiry draws on her

understanding of her own mental states in order to comprehend the mental states of her infant, whilst simultaneously maintaining a genuine awareness of her child's independence. This awareness of her infant manifests itself in her behaviour towards her infant. She is more likely to respond in ways which are attuned and sensitive to the infant's mental states, and less likely to undermine the infant's natural progression towards evolving an awareness of mental states and self. The findings suggest that maternal attachment is translated through mentalizing into behaviour which directly affects the child's attachment security.

Limitations

The findings of this review need to be considered in the context of the limitations and sources of bias. Firstly, the evidence reviewed here is limited to studies which were found using narrow search terms and subsequently fulfilled strict inclusion criteria. Both the search terms and eligibility criteria are sources of bias which are likely to have had an impact on the results. For example, given the panoply of terms used to refer to mentalizing-like phenomena, it is likely that relevant studies were missed as a result of the search strategy. The search strategy was necessarily narrow due to the spectrum of mentalizing terms and the related volume of extraneous results. Criteria, such as limiting the age of infants, excluded potentially relevant studies. However it was felt important to impose such age limits because research suggests that developmental age is a potential confounding factor in the intergenerational transmission of attachment (see Fonagy, 2004; Slade, 2000). An additional source of bias was the researcher's operationalised definition of mentalizing, which determined whether concepts, such as maternal sensitivity, were relevant for review. These decisions are inevitably imperfect and will affect the review. Finally, an emphasis was placed on statistical significance as opposed to

effect size. However, there is some controversy about the validity of statistical significance, and some authors suggest the use of other indicators such as effect size (e.g. Carver, 1978; Schmidt, 1996).

While parental mentalizing may foster mentalizing capacity, autonomy and self-regulation in children, it clearly is not the only signifiant variable affecting childhood attachment security (Demers, et al., 2010; Sharp & Fonagy, 2008). For example, the roles of child temperament and developmental age on the infant-parent relationship and infant attachment security have not been addressed throughout the review.

Clinical and research implications

Fonagy (2004) argues that the evidence suggests that attachment history has discernible effects on the mental processes underlying personality and psychopathology. Infantile attachment security is related to the development of 'representational capacities concerning the self, other, and self-other relationships' (p. 31). The early attachment environment is crucial therefore, not because it determines the quality of subsequent relationships, but because it equips the individual with a mental processing system able to generate mental representations, including representations of relationships (Fonagy, 2004).

Further research with large sample sizes is needed to replicate, clarify and validate these findings. Research investigating the manifestations of mentalizing in naturalistic settings, as well as the manifestations of mentalizing in maternal behaviour would supplement the findings of Grienenberger, et al. (2005), Laranjo et al. (2008) and Lundy (2003). In addition, approaches using multiple measures of attachment would help elucidate the relationship between these phenomena.

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Part 2: Empirical Paper

The association between therapists' attachment security and mentalizing capacity

Abstract

Aims: This study investigated the relationship between therapists' attachment and mentalizing capacity.

Method: Clinical psychology trainees (n = 51) were shown video vignettes designed to activate attachment anxiety and avoidance. Trainees' responses were qualitatively analysed to derive a mentalizing response rating scale. All responses were rated using the scale, and compared with trainees' attachment and trait mentalizing capacity.

Results: Principal component analysis of the mentalizing ratings suggested a two-factor solution comprising cognitive and affective mentalizing. Further analysis showed a number of significant interactions, suggesting that trainees' attachment security is associated with trait, cognitive and affective mentalizing.

Conclusion: More research is indicated to understand the clinical implications of therapists' mentalizing on therapeutic processes and outcomes.

Introduction

Attachment theory provides a framework for understanding the development of close relationships (attachments) from infancy through adulthood. Individual attachment style can be conceptualised in terms of two dimensions: anxiety and avoidance. Anxiety relates to the degree to which individuals are sensitive to potential abandonment, resulting in a hyper-activation of the attachment system. Avoidance relates to the degree to which individuals experience discomfort with intimacy and dependency, resulting in deactivation of the attachment system. Combinations of high and low scores on the anxiety and avoidance dimensions can be conceptualised in terms of the four prototypical attachment styles (Figure 1; see Bartholomew & Horowitz, 1991). There is, however, increasing consensus amongst researchers and clinicians that self-report measured attachment style is more appropriately conceptualised dimensionally, rather than categorically (Daniel, 2006).

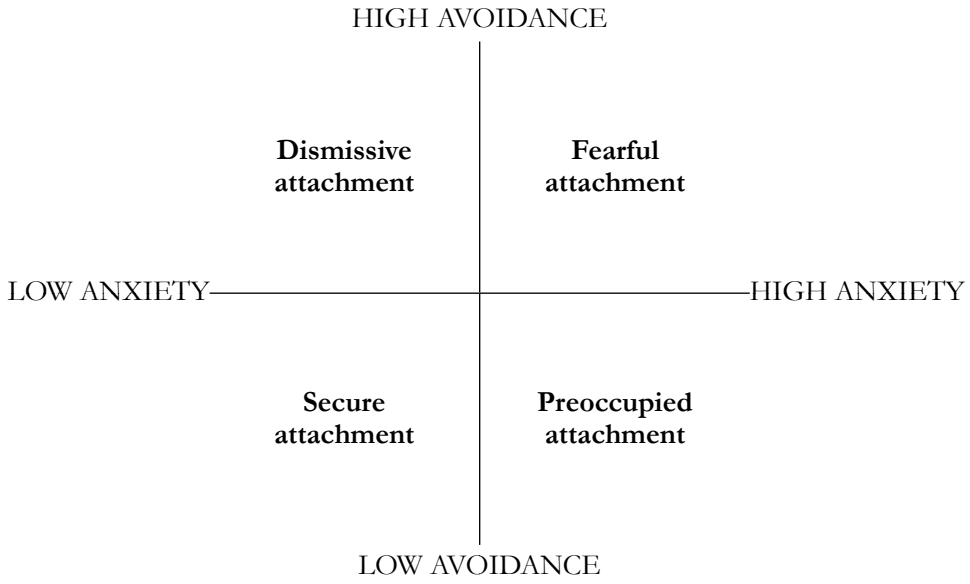


Figure 1. Dimensions of attachment (based on Bartholomew & Horowitz, 1991)

Therapist attachment

Increasingly, the therapeutic relationship is conceptualised as an attachment relationship which, according to Bowlby (1969/2005), functions as a secure base analogous to the caregiver-child attachment. While the majority of research has focused on the attachment characteristics of patients, there is growing evidence suggesting that therapist attachment plays a significant role in therapeutic alliance, process and outcome (e.g. Daniel, 2006; Dozier, Cue, & Barnett, 1994; Holmes, 1997; Mallinckrodt, 2000; Martin, Buchheim, Berger, & Strauss, 2007; Romano, Janzen, & Fitzpatrick, 2009; Rubino, Barker, Roth, & Fearon, 2000; Slade, 2008).

Dozier, Cue and Barnett (1994) assessed the attachment styles of clinical case managers and their patients. They found that, compared with insecure case managers, secure clinicians were more able to manage and respond to the dependency needs of dismissing and preoccupied patients. On the other hand, insecure case managers were more likely to perceive greater dependency and respond with more intensive interventions with preoccupied patients, than they were with dismissing patients. Dozier et al. (1994) conclude that insecure clinicians are more likely to 'feel the pull of the client's attachment strategies and to react accordingly' (Dozier, et al., 1994p. 798), responding in ways that are consistent with patients' unhelpful internal working models. These findings were supported by Romano, Janzen and Fitzpatrick (2009) and Tyrrell, Dozier, Teague and Fallot (1999) who propose that interactions with clinicians who utilise different interpersonal strategies may serve to disconfirm patients' working models.

Rubino et al. (2000) used video vignettes to relate therapists' attachment style to empathy and depth of interpretation in response to therapeutic ruptures. They found that more anxious therapists responded less empathically, particularly with

fearful and securely attached patients. The authors suggest that therapists who are anxious about abandonment may interpret ruptures as an intention to leave therapy, and their sensitivity towards abandonment might diminish their ability to be empathic. Moreover, Rubino et al. (2000) hypothesise that lower levels of empathy might affect the quality of therapeutic alliance, which is known to affect therapy outcomes (Horvath & Symonds, 1991; in Rubino, et al., 2000).

A number of studies have investigated the relationship between therapist attachment, alliance and outcome. Hilliard, Henry and Strupp (2000) found that therapists' early parental relations had a direct effect on therapeutic interpersonal processes, and an indirect effect on outcomes (mediated by process). Similarly, Dunkle and Friedlander (1996) found that comfort with closeness on the part of the therapist was positively related to patient ratings of alliance. Schauenburg et al. (2010) found a similar association between therapist attachment security, and alliance and outcomes with severely impaired inpatients. Conversely, therapist attachment anxiety is associated with poorer alliance ratings and greater numbers of therapist-reported problems (Black, Hardy, Turpin, & Parry, 2005; Sauer, Lopez, & Gormley, 2003).

In contrast to these findings, Ligiero and Gelso (2002) and Romano, Fitzpatrick and Janzen (2008) found no significant association between therapists' attachment style and alliance quality. They argue that therapists are unlikely to view patients as attachment figures, and subsequently, therapist attachment is less influential than patient attachment in establishing a working alliance. In accordance with this, Diamond, Stovall-McClough, Clarkin and Levy (2003) investigated patients' and therapists' internal working models. They found that patients were

generally insecure in their therapist representations, whereas all therapists were secure in their representations of their patients.

Romano et al. (2008) found that therapist attachment moderates the relationship between patient attachment and session depth, however Rubino et al. (2000) found no association between therapist attachment and depth of interpretation. In a study by Mohr, Gelso and Hill (2005), therapist attachment was found to moderate the relationship between patient attachment and negative countertransference reactions.

In summary, there is a small but growing body of evidence suggesting that therapist attachment plays a role in therapeutic processes. However the research is still inconclusive (e.g. Daniel, 2006; Romano, et al., 2009; Slade, 2008), and little is known about the factors moderating and mediating this relationship. Consequently, Schauenburg et al. (2010) suggest investigating therapists' interventions at a microanalytic level in order to gain a deeper understanding of the manifestation of therapist attachment in the therapeutic process.

Mentalizing

Rubino et al. (2000) suggest that, like the parent, the therapist's ability to attune to the needs of the patient depends upon their own positive attachment history, and capacity to reflect on their expectations of relationships and the emotional states of the patient - in other words, mentalizing.

The term refers to the meta-cognitive and imaginal process of interpreting the mental states (e.g. beliefs, wishes, thoughts, desires, reasons and feelings) underlying one's own and others' actions. It is a dynamic skill which varies both between individuals, and between situations within an individual (Allen, 2006a; Bateman &

Fonagy, 2006; Choi-Kain & Gunderson, 2008; Fonagy & Bateman, 2007; Holmes, 2006; Vrouva, 2010). Mentalizing is 'holding mind in mind' (Allen & Fonagy, 2006a, p. 3), or the ability to see oneself 'from the outside and others from the inside' (Allen, 2006b, p. 3).

The relationship between attachment and mentalizing is complex, although broadly speaking, threat-related activation of the attachment system inhibits mentalizing. According to Fonagy and Luyten (2009) different attachment histories are associated with attachment styles which differ in terms of the associated threshold of attachment system activation, and the point at which reflective, conscious mentalizing is inhibited. Studies suggest that preoccupied attachment is associated with a lowered activation of the attachment system and deactivation of explicit mentalizing. Both dismissive and secure attachment styles are associated with an elevated threshold of attachment system activation. However, under increasing levels of stress, dismissive attachment strategies fail, leading to deactivation of explicit mentalizing, while securely attached individuals are able to retain their capacity to mentalize (Allen, 2006a; Fonagy & Luyten, 2009).

Allen (2006a) proposes that therapists' attachment style and associated attachment system activation affect their capacity to form secure therapeutic attachments with patients and the ability to mentalize effectively in therapy. Therefore, 'to play mentalizing duets effectively' (p. 19) both patient and therapist rely on the attachment security of the therapeutic alliance and an optimal level of arousal (see Figure 2).

Figure 2. Reproduced from Allen (2006a, p. 20)

The current study investigated this relationship, that is, the association between therapists' attachment and their ability to mentalize. Mentalizing was measured in two ways: 1) trait mentalizing, and 2) mentalizing in response to a pseudo patient. Therapists' attachment security was expected to correlate with trait and response mentalizing. Specifically, it was hypothesised that:

1. Securely-attached participants would demonstrate higher trait mentalizing scores than insecurely-attached participants.
2. Insecurely-attached participants would perform relatively better in the control, as opposed to research vignettes. No such variation was expected for securely-attached participants.

3. Trait mentalizing would explain some of the variance in participants' mentalizing ratings over and above attachment security.

Method

The study comprised two phases:

In phase one, clinical psychology trainees were shown three video vignettes simulating therapeutic encounters with a 'patient'. Participants were asked to imagine they were in a real clinical session and respond as they would to a real patient. The first vignette was designed to stimulate attachment-anxiety, the second was intended to stimulate attachment-avoidance and the third vignette was a control condition. Participants' responses to the three vignettes were qualitatively analysed in order to derive a *Mentalizing Response Scale*.

In phase two, participants' responses were rated using the Mentalizing Response Scale. Mentalizing response scores were then compared with participants' attachment security and trait mentalizing capacity.

Participants

Participants were recruited from the UCL clinical psychology course. Eighty-seven trainees in their first and second years of training were invited, and 51 (59%) agreed to participate (12 men and 39 women). Of the 51 participants, 21 (41%) were interviewed in their first year of training, and 30 (59%) were interviewed in their second year of training.

Ethics. Ethical approval was granted by the University College London (UCL) ethics committee (see Appendix VI) and written informed consent was obtained

from all participants (see Appendix VII and VIII for sample information sheet and consent form).

Power analysis. At the time of recruitment, there were limited reported data on the impact of therapists' attachment on therapeutic processes. In one study, Black et al. (2005) used the Attachment Style Questionnaire (Feeney, Noller, & Hanrahan, 1994) and Agnew Relationship Measure (Agnew-Davies, Stiles, Hardy, Barkham, & Shapiro, 1998) to assess the impact of therapist attachment on therapeutic alliance; achieving a large effect size ($r = 0.441$). Given however that mentalizing and alliance cannot be assumed to achieve equal affect sizes, power was calculated for both large and a more conservative medium effect size.

Power calculation was carried out using G*Power 3 computer program (Faul, Erdfelder, Lang, & Burchner, 2007), specifying alpha = 5% and desired power = 80%. Results indicated that 26 participants were required for a large effect size, and 82 for a medium effect size. Using the mean of the two predicted sample sizes identified a target sample of 54 participants.

Vignettes

Four video vignettes (one practice, two research and one control condition) were developed showing a full-face close-up of a patient, played by a professional actor, looking directly into the camera. In each vignette, the 'patient' delivered a monologue ended in a challenging statement or question which required a response from their 'therapist', the participant.

Participants were asked to imagine they were in a real clinical session and to respond immediately as though they were responding to a real patient. Responses

were audio recorded and transcribed by an independent service, to ensure that participants could not be identified by their voices.

The two research vignettes were classified as 1) dismissing - designed to activate anxious attachment systems, and 2) preoccupied - designed to activate avoidant attachment systems. In both vignettes, the 'patient' makes challenging statements relating to the therapeutic relationship (e.g. 'I don't need you!' (dismissing); or 'I think I've fallen in love with you' (preoccupied)).

In the practice and control vignettes the patient makes a challenging but non-attachment related statement (e.g. they ask if the therapist would speak to a friend who would like to see a psychologist (practice); or demand 'You have to tell me what to do!', regarding whether or not to resign from their job (control; see Appendix IX for vignette scripts)).

Confidentiality. In order to maintain confidentiality all data were collected anonymously. During the process of watching and responding to vignettes, the researcher was present in the room (to manage any technical or other issues) but listened to music so as not to 'listen in' to trainees' responses. Audio recordings were sent straight to an independent transcriber. The first time the researcher came into contact with trainees' responses was when reading the anonymised transcripts.

Validation checks. Vignettes were validated by two researchers and clinicians with extensive expertise in the field of attachment and mentalizing: Professor Peter Fonagy and Professor Pasco Fearon. They confirmed that the research vignettes were realistic, indicative of attachment-related avoidance and anxiety, and likely to activate participants' attachment systems.

As an additional validation check, participants were asked to reflect on and rate the videos in terms of realism and how stressful they found them. Participants were also asked if they could guess the aim of the study in order to assess the degree to which participants were 'blind' to the research aims.

Pilot. The study was piloted with six clinical psychology trainees not involved in the study. Minor adjustments, such as the inclusion of a practice video, were made on the basis of their feedback.

Self-report measures

Revised Experiences in Close Relationships questionnaire (ECR-R; Fraley, Waller, & Brennan, 2000; Appendix X) is a 36-item self-report measure of adult attachment. Items are rated on a 7-point Likert scale, ranging from 1 = 'disagree strongly' to 7 = 'agree strongly'. The ECR-R measures attachment along two dimensions. The anxiety sub-scale assesses fears of abandonment and rejection (e.g. 'I worry about being abandoned'). The avoidance sub-scale assesses discomfort with dependence and intimate self-disclosure (e.g. 'I prefer not to show a partner how I feel deep down'). The ECR-R has good reliability, construct and predictive validity (Brennan, Clark, & Shaver, 1998; Collins & Freeney, 2004; Fraley, et al., 2000; Mikulincer & Shaver, 2007).

Reflective Function Questionnaire (RFQ; Fonagy & Ghinai, n.d.; Appendix XI) is a newly-developed 54-item self-report questionnaire used to assess global mentalizing capacity. Items include statements such as 'I always know what I feel', which are rated on a 7-point Likert scale ranging from 1 = 'disagree strongly' to 7 = 'agree strongly'. As well as a total mentalizing trait score, the RFQ also provides two subscale scores: mentalizing with respect to self (Internal-Self) and mentalizing

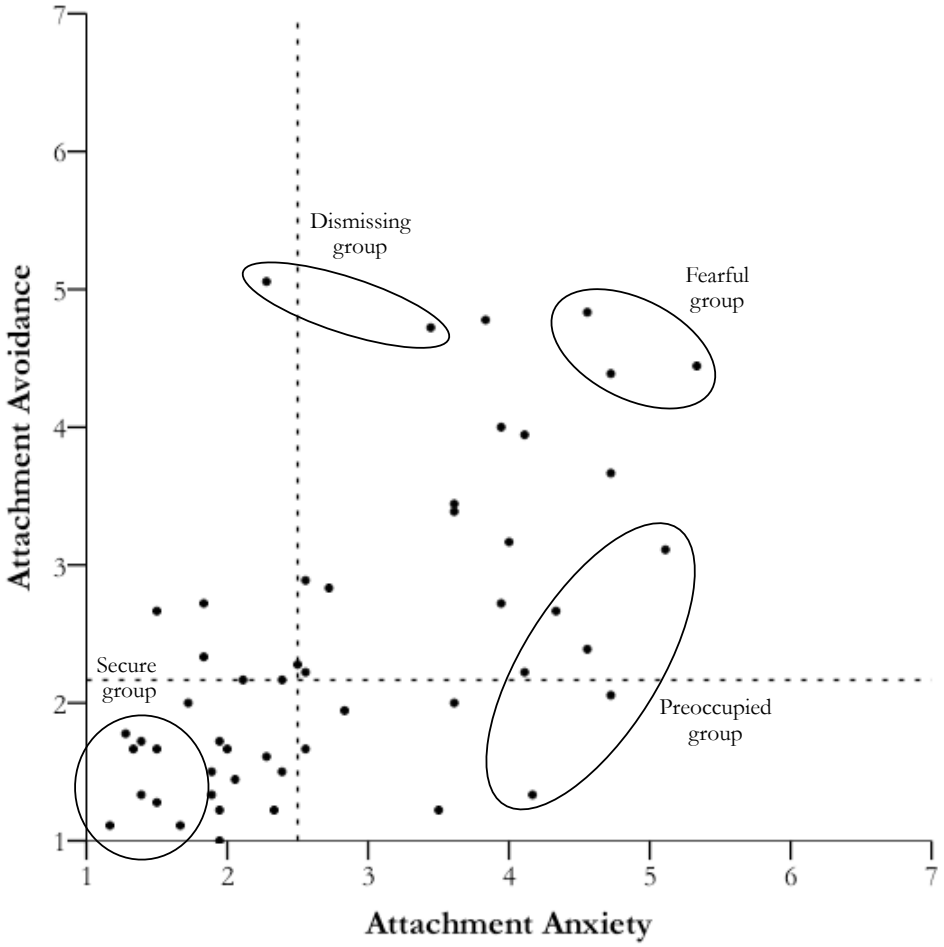
others (Internal-Other). The RFQ has not been validated, but preliminary studies by Fonagy and Ghinai (n.d.) and Perkins (2009) indicate acceptable internal consistency and strong construct validity.

Demographic and other data were collected for all participants, including response latency, participants' preferred therapeutic modality and year of training.

Results

Phase 1: qualitative measure development

All transcripts were reviewed by and discussed with Professor Peter Fonagy to access the quality of the material and relevance with regard to assessing mentalizing. ECR-R data were used to plot participants' attachment using Bartholomew and Horowitz's (1991) anxiety and avoidance dimensions (referred to in Figure 1, p. 57). Participants were compared to one another in order to identify and cluster those participants whose scores exemplified each of the four attachment styles, in relation to the sample as a whole (see Figure 3). Due to the distribution of the data, the four groups contain unequal numbers of participants and, in the case of the three insecure groups, do not contain particularly high avoidance and/or anxiety ratings.



Attachment and avoidance are median split along the dotted lines

Figure 3. Attachment clusters

A total of 19 transcripts (8 secure, 6 preoccupied, 2 dismissing and 3 fearful) were analysed using thematic analysis to identify common themes and patterns in the way participants mentalize in relation to themselves and others. Diametrically opposite attachment groups were compared to identify differences in the way secure versus fearful and preoccupied versus dismissing therapists respond to their patients.

Analysis

Initially transcripts were read and considered as a whole, to get a sense of what had been said, what the participant's intentions may have been, and what the likely impact of the statement would be. The transcript was then reviewed on a line-by-

line basis to identify key words and processes. Transcripts were sorted into the four attachment groups, and preliminary themes were identified within each group (Appendix XII). Preliminary themes that were present in the majority of transcripts within a group were consolidated into response-type categories. Table 1 provides a summary of categories with examples from the original transcripts.

Table 1. Response types

		Examples of response types
Secure attachment		
S1	Response is relatively balanced (not over-involved/dismissing/ rejecting/etc.)	*It sounds like you're feeling maybe a little bit angry. I mean…you're not quite sure how it is that we can help so maybe that's something we can discuss now* (Participant 587).
S2	Clear sense of the therapist as a separate individual with a capacity to think and reflect on what the patient has said	*Well, I think it sounds like you had a really difficult time with this relationship recently. It's hard when a relationship ends and I think that what I'm hearing is that that's making you question the…working relationship that we have and starting to make you think…is this going to work out? Is this therapy going to be helpful too?* (Participant 620).
S3	Therapist tries to make sense of what the patient has said by situating feelings/making links	*...it sounds like you're really lonely at the moment, and that's something a lot of people experience and it is my job to be here and listen to you. And so it can be scary for people to think about what that's like or when that stops* (Participant 587).
Fearful attachment		
F1	Response is unhelpful/does not add to what the patient has said - may include rejection or disavowal of mentalizing	*Okay. So, it sounds like you're a bit angry um and…and that you're directing that towards ah our time in therapy um, so I think that we possibly need to look at that <u>later</u>* (Participant 582, emphasis added).

F2	Ambivalent, contradictory and/or confusing ideas, unusual focus (including inappropriate focus on self)	*I can see that you're very upset and angry. I'm just wondering, um, you're right. You're right, I do get paid to sit here and, you know, listen to you, but [pause] you know, I am a human being, and when I, um, [pause] listen to you, I do feel that, um [pause] I do feel your pain and I want to help you. But as we spoke about in [pause] these sessions, it's not, er, for me to just sit here and listen to you. It's for us to work together, um, [pause] you know, to help you with your problems, and, really, um, you're the…as you rightly said, um, you're the expert with your problems and I'm here more as a guide to help you. But I'm wondering, um, it's just, um, maybe we could explore. I mean, you know, where is this coming from? Because you sound very angry at me, and I just want to [pause] understand this a bit better. Yeah?* (Participant 551).
F3	The therapist appears to have difficulty thinking and communicating their thoughts	*I think that's a really interesting point that you've raised with me. And, yeah, it has made me think actually about the way you put that but maybe the relationship that we have, there's something in it for both parties and it sounds right now it's feeling like a relationship which was for you doesn't feel like there's much in it. I'm really struck by the sense that everything for you seems to be coming to an end and I want… you're thinking about ending your relationship with me. Your relationship with Alex seems to be coming to an…to an end as well. And there's a part of you that's saying, 'That's okay. I can take that. I'm going to be happy being on my own…happy being on my own or at least I can cope on my own.' Maybe we could spend a bit of time thinking about it and actually what it would be like for you to be on your own if you don't decide to finish with me which is entirely right if you want to do so and things to Alex…with Alex do come to head and that ends as well. Why don't we think together about what your life would be like; how it might be different from…is it well... and what might be the positives for you on being alone again; what might be some of the difficult things and maybe that will help you come to the decision. Well, it seems to me like you're really sort of struggling in thinking about it at the moment* (Participant 739).
F4	Narrative appears more reactive/rambling and less thoughtful, processed and coherent	*You know, I just want to thank you for your honesty, and it must have been really hard for you just to, you know, um,... tell me your feelings and, you know, I just want to, you know, thank you for being very honest with me. I'm just wondering, you said that you're…you need me and you…you know, you're afraid... that one day, that I will not be there for you. I'm just wondering if we go back to, um, you know, what we've discussed about your past. Is this, um,... you know, ring any [pause] bell for you, or…. ...Because I just want to understand, um, how that this come about.... if we…if they just look back…. ...Yeah, but, you know, thanks for, you know, taking the courage to tell me and you just… ...maybe we could explore that a bit more* (Participant 551).

Preoccupied attachment

P1	Emotional attunement whereby the patient's difficulties impact on and resonate with the therapist	*Gosh!, it sounds like you're in a very vulnerable place right now and you're feeling quite alone and these sessions mean a lot to you...* (Participant 884).
P2	Therapist positions themselves alongside the patient, taking on responsibility to understand and help the patient with their problems	*Hmm, it seems that you're feeling very upset at the moment and having lots of mixed feelings and that's understandably quite difficult to understand and think about, um, and maybe we can have a think about t-together how to think about what these thoughts and feelings mean to you and, um, how they relate to things in your life and, um, spend some time working through it together* (Participant 741).
P3	Response increases emotional intimacy	*...It's knowing that I'm always here - and I am here…I am here. I'm someone that you can speak to, that you can confide in, that is here to try and understand your feelings with you...* (Participant 884).
P4	Confusing incoherent narrative, difficulty thinking about the patient	*I'm interested that, um..…that given that your…you seem so kind of unhappy… Um, given that you're sort of…kind of unhappy about coming, and-and you feel like it's not been useful…um…what kind of caused you to come here, come here today, um…? Um…I wonder whether in coming here today, maybe there is something…that means that you do find, uh, helpful* (Participant 539).
P5	Interpreting patients' feelings	*Well obviously, the, um, ...the decision of whether we are going to end therapy is entirely yours but it sounds like y-you're feeling quite angry about having to open up to people and that there's a fear that you'll be hurt and I'm wondering how much of what has happened with your boyfriend is influencing your decision that maybe you want to end therapy. I think you're…...you're frustrated that you try to open up to people and it's not being rewarding and that's what's playing out here as well* (Participant 884).

Dismissing attachment

D1	Passive avoidance/active rejection of the patient and the therapists' role in their difficulties (even when directly implied), includes blaming of the patient	*Well, I suppose I…it's up to you whether or not you want to continue or not. Listening to what you're saying, it sounds as if... you know, when you can't…when things start to get a bit much then you kind of just…you want to pull away and it sounds like…when you talk about your boyfriend and now you kind of put the final focus on me then maybe it's easier to... ...to push what you're saying over on to me er…or how you're feeling over on to me. I… I don't know how you feel about that* (Participant 59).

D2	Reference to mental states is superficial, lacking complexity and emotional understanding	*...things are really, really difficult... breaking up hasn't made it any easier - not forgetting all of that, from your emotions* (Participant 801). *I can appreciate, you know, that you don't want to be abandoned... ...and I suppose what might be interesting for us to think about and discuss is, you know, ...what these feelings really are and if they really are…if they really are love or… or maybe if there's something else* (Participant 59).

The 14 categories were then consolidated into five themes, representing the five items on the *Mentalizing Response Scale*: thinking, emotional closeness, helpfulness, acceptance and coherence (see Table 2). The response categories were reviewed with reference to the literature, in order to maintain a focus on mentalizing in the final scale.

Table 2. The Mentalizing Response Scale

1. **The capacity to separate from and think about the patient**
   Response types: S1, S2, F3, P4

   (1) The therapist is unable to think about the patient.
   They may be in the 'same boat'; struggling with the patient's difficulties, submerged and confused by the intensity of the patient's experience and are unable to separate enough to think about what the patient is saying.
   Includes rejection of mentalizing and the refusal or inability to think about the patient and the patient's position.

   (3) The therapist has difficulties in thinking about the patient fully and in a helpful way. They may alternate between thinking and avoiding thinking about the patient, or the therapist's thinking is not particularly sophisticated or developed.
   The therapist might, at times, mix their own experience with that of the patient, but they are not completely submerged by the patient's experience.

   (5) The therapist is able to consider and think about the patient fully and in a helpful way. They are not 'caught up' with the patient and appear to have the capacity to think about and reflect on what the patient is saying.

2. **Emotional closeness and empathy**
   Response types: P1, P2, P3, D2

   (1) The therapist is distant and unable to get close enough to the patient to understand their difficulties. The effect of the response is to increase emotional distance and/or to avoid emotional intimacy. References to emotional experiences are lacking in complexity and may be superficial or glib.

(3) The therapist is able at moments to get close to the patient and appears to partially understand their difficulties.

(5) The therapist is fully able to allow themselves sufficiently close to the patient's perspective to appreciate their difficulties and understand the implications that arise. The therapist positions themselves alongside the patient, focusing on empathy, understanding and helping the patient through their difficult experiences. Responses maintain or increase emotional intimacy.

3. Helping the patient by promoting reflection and insight
Response types: S3, F1, P5

(1) The response is unhelpful. It does not add to what the patient has said, and/or does not facilitate potentially helpful discussion/reflection.

(3) The response is not particularly helpful, but it is also not unhelpful. For example, the therapist might just reflect back what the patient has said without inviting further discussion, making links, etc.

(5) The therapist tries to make sense of the patient's experiences by contextualising difficult thoughts and feelings. The therapist not only empathises, but encourages the patient to reflect on their difficulties, making helpful links, and/or facilitating understanding.

4. Acceptance of the patient and their difficult feelings
Response types: S1, D1

(1) The therapist is actively or passively rejecting or blaming of the patient.

(3) Neither accepting nor rejecting.

(5) The therapist is understanding and accepting of the patient and their difficult thoughts and feelings.

5. Coherent, thoughtful and considered communication
Response types: F2, F3, F4, P4

(1) The therapist's response is unconsidered and reactive, and/or long and unprocessed. The therapist may express ideas which are confusing and or contradictory, or the response is simply unintelligible.

(3) The therapist's response is neither particularly thoughtful/considered nor reactive/ unprocessed.

(5) The response is clear, considered and thoughtful.

<u>Phase 2</u>: Quantitative data analysis

All participants' transcripts were rated using the newly-developed Mentalizing Response Scale. Mentalizing response ratings, attachment data and trait mentalizing scores were then quantitively analysed. Results are presented in four sections: 1) data

preparation, 2) descriptive statistics and preliminary analysis, 3) validity and reliability and 4) data analysis.

Data preparation

Prior to analysis, the distributions of all variables were evaluated against parametric test assumptions. Frequency histograms indicated that the data were not markedly skewed or bimodal, and the Kolmogorov-Smirnov test indicated that the dependent variables used in the main analysis did not deviate significantly from normality. There were no missing data.

Descriptive statistics and preliminary analysis

Self-report data

Descriptive statistics for the ECR-R and RFQ are included in Table 3. Table 4 shows the intercorrelations between the two self-report measures. The correlation between attachment anxiety and avoidance suggests that participants are likely to fall along a trend line between secure (low anxiety and avoidance) and fearful (high anxiety and avoidance) attachment (see Figure 1 p. 57).

Table 3. Descriptive statistics for the ECR-R and RFQ

Measure	Scale	Mean	Std. dev.	Median	Min.		Max.
ECR-R	Anxiety	2.85	(1.20)	2.5	1.17	-	5.33
	Avoidance	2.24	(1.13)	2.17	1.0	-	5.06
RFQ	Internal Other	51.61	(8.06)	52	34	-	68
	Internal Self	47	(7.67)	48	29	-	68
	Total score	259.8	(17.69)	206	227	-	299

Table 4. Correlations between attachment and mentalizing self-report measures

	ECR-R Avoidance	RFQ Internal Other	RFQ Internal Self	RFQ total score
ECR-R Anxiety	.609**	.450**	.15 n.s.	.287*
ECR-R Avoidance		.301*	.15 n.s.	.18 n.s.
RFQ Internal Other			.490**	.855**
RFQ Internal Self				.655**
RFQ total score				1

* correlation is significant at the .05 level (2-tailed).
** correlation is significant at the .01 level (2-tailed).

Where possible, attachment data were entered as a continuous variable. When categorical data were required, attachment anxiety and avoidance were median split and categorised as follows: participants whose scores fell below the median on both dimensions were defined as *secure* (n = 21), participants who scored above the median for either or both dimensions were defined as *insecure* (n = 30; Fraley, 2005).

Using categorical attachment data, securely attached participants achieved significantly higher mentalizing scores on the Total and Internalising Other RFQ scales (independent samples t-test: Total, $t(49) = 2.91$, $p = .005$; Internal Other, $t(49) = 3.32$, $p = .002$; Internal Self, $t(49) = 1.78$, $p = .08$ n.s.).

The Mentalizing Response Scale

Descriptive statistics for the Mentalizing Response Scale are reported in Table 5. Participants' scores ranged from 1 to 5 on all items within each vignette condition.

Table 5. Mentalizing scale descriptive statistics

	Mean (Std. dev.)		
Item	Dismissing vignette	Preoccupied vignette	Control vignette
1. Thinking	3.04 (1.26)	2.47 (1.27)	3.75 (1.10)
2. Emotional closeness	3.24 (1.23)	3.33 (1.38)	3.71 (1.10)
3. Helpfulness	3.14 (1.30)	2.73 (1.30)	3.90 (0.99)
4. Acceptance	3.41 (1.22)	3.39 (1.37)	3.70 (0.97)
5. Coherence	3.35 (1.34)	2.55 (1.25)	3.78 (1.00)

Validity and reliability

Validity checks

Participants were asked to comment on and rate the realism of the vignettes. The mean rating was 7.3 out of 10. The majority of participants found the actress and vignettes very authentic, but commented that realism was negatively affected by the context of watching and responding to an on-screen patient.

After responding to all the vignettes, participants were asked to rate the vignettes in terms of how difficult or stressful they found them. Thirty-four participants (67%) found the preoccupied vignette the most challenging, compared with eight (16%) who found the dismissing video the most stressful, and eight (16%) who felt that the vignettes were equally anxiety-provoking. The results suggest that the vignettes were not equally balanced which may have influenced the results. All but one participant were unable to guess the aims of the study, suggesting that they were very unlikely to have given intentionally high mentalizing responses.

Inter-rater reliability

The primary researcher rated all participants' responses using the 5-item Mentalizing Response Scale. An independent research assistant scored 16 (30%) randomly selected responses for each condition in order to assess the inter-rater reliability of the measure.

Inter-rater reliability was calculated using intraclass correlation coefficients (ICC), rather than Cohen's kappa, to account for variability in the degree of disagreement within ordinal data. ICC values indicate good inter-rater reliability for the majority of items, however, the confidence intervals for some of the items are large (see Table 6).

Table 6. Inter-rater reliability

	Intra-class coefficient	C.I.
Dismissing vignette		
1. Thinking	.96	.90 - .99
2. Emotional closeness	.76	.44 - .91
3. Helpfulness	.95	.87 - .98
4. Acceptance	.53	.06 - .81
5. Coherence	.89	.65 - .95
Preoccupied vignette		
1. Thinking	.75	.42 - .91
2. Emotional closeness	.89	.72 - .96
3. Helpfulness	.97	.91 - .99
4. Acceptance	.92	.79 - .97
5. Coherence	.88	.68 - .95
Control vignette		
1. Thinking	.79	.50 - .92
2. Emotional closeness	.82	.58 - .94
3. Helpfulness	.82	.55 - .93
4. Acceptance	.84	.61 - .94
5. Coherence	.89	.70 - .96

Two-way mixed effects model, $p < .001$, C.I. = 95% confidence interval

Data analysis

Mentalizing and attachment data were analysed in four ways. First, an analysis of variance was used to examine the differences between mentalizing scores across the three vignette conditions. Second, dimension reduction procedure was used to determine the principal components (or factors) underlying the Mentalizing Response Scale. Third, the new component scores were compared with trait mentalizing and attachment data using a repeated measures analysis of covariance. Finally, a multiple regression was used to simplify the results and identify the main effects.

Analysis of variance

A repeated measures analysis of variance (RMANOVA) was used to examine the differences between mentalizing scores across the three vignette conditions. It was hypothesised that participants would score higher in the control condition, than in the two research conditions.

As expected, participants' mentalizing ratings were significantly higher in the control condition, in comparison to the dismissing, $F(1,50) = 16.1$, $p < .001$, and preoccupied, $F(1,50) = 33.35$, $p < .001$, conditions.

Dimension reduction analysis

Preliminary analysis showed that the five mentalizing items were highly inter-correlated. Therefore, dimension reduction procedure was conducted to extract the core factors underlying the items. As multicollinearity was suspected, Haitovsky chi square (Haitovsky, 1969) was calculated for the three vignettes; dismissing $\chi^2_H (10) = 1.3$, n.s., preoccupied $\chi^2_H (10) = 0.57$, n.s., control $\chi^2_H (10) = 0.43$, n.s. Due to the non-significant results, Anderson-Rubin's principal component analysis (PCA)[5] was selected to control for problems with singularity.

PCA was conducted for each vignette, using the five mentalizing items with orthogonal rotations (varimax). The Kaiser-Meyer-Olkin (KMO; Kaiser, 1970) measure verified the sampling adequacy for analysis (KMO = .72, .82 and .75) and all KMO values for individual items were above the acceptable limit of .5 (Field, 2009). Bartlett's test of sphericity indicated that correlations between items were

[5] PCA is commonly referred to as 'factor analysis'.

sufficiently large for principal component analysis (dismissing: χ^2 (10) = 172.16, p < .001, preoccupied: χ^2 (10) = 209.82 p < .001, control: χ^2 (10) = 222.62, p < .001).

An initial analysis was run to obtain eigenvalues for each component in the data. The dismissing vignette had two components with eigenvalues over Kaiser's (1960) criterion of 1, and in combination, explained 87% of the variance. Cattell's (1966) scree test confirmed that two components should be retained.

The preoccupied and control vignettes both had one component with an eigenvalue over Kaiser's (1960) criterion of 1, however the second components were well above Jolliffe's (1986; in Field, 2009) recommendation of .7 (preoccupied = .95 and control = .97). Moreover the scree plots, which are considered a more reliable indicator, justified retaining two components (Cattell, 1966; Costello & Osborne, 2011). The analysis was consequently rerun specifying two extraction components. The two components in combination explained 89.5% of the variance in the preoccupied vignette, and 91.2% in the control vignette.

Table 7 shows the factor loadings after rotation. The items which cluster on the same components suggest that component 1 represents cognitive mentalizing and component 2 represents affective mentalizing. Both mentalizing components had high reliability using Cronbach's alpha for each of the three vignettes.

Table 7. Rotated factor loadings

	Preoccupied vignette		Dismissing Vignette		Control Vignette	
	1	2	1	2	1	2
1. The capacity to separate from and think about the patient	**0.93**	0.14	**0.91**	0.28	**0.93**	0.23
3. Helping the patient by promoting reflection and insight	**0.87**	0.40	**0.81**	0.50	**0.86**	0.35
5. Coherent, thoughtful and considered communication	**0.89**	0.15	**0.90**	0.30	**0.90**	0.27
2. Emotional closeness and empathy	0.27	**0.89**	0.38	**0.85**	0.27	**0.94**
4. Acceptance of the patient and their difficult feelings	0.14	**0.93**	0.27	**0.90**	0.30	**0.92**
Eigenvalues	2.50	1.85	2.50	1.90	2.60	2.00
% of variance	49.94	37.04	50.47	39.00	51.70	39.50
Cronbach's α	.94	.85	.94	.85	.94	.94

According to Bateman, Fonagy and Luyten (2012), 'full mentalization entails the integration of cognition and affect' (p. 29), however some people show considerable cognitive understanding of mental states, but are disconnected from the affective core of mental state experiences. Conversely, some people are overwhelmed by affective experiences, but lack the ability to integrate these experiences with reflective and cognitive knowledge (Fonagy, et al., 2012). The relationship between cognitive and affective mentalizing therefore seemed meaningful and relevant for further analysis.

Table 8 shows the descriptive statistics for the new component variables, divided into secure versus insecure participants. Securely attached participants scored significantly higher cognitive ratings for all three vignettes (control $t(49) = -3.06$, $p = .004$); dismissing $t(49) = -6.16$, $p < .001$; preoccupied $t(49) = -2.55$, $p = .14$), in

comparison to insecurely attached participants. Securely attached participants also achieved higher affective mentalizing ratings in the dismissing condition ($t(49) = -3.85$, $p < .001$), than did their insecure colleagues.

Table 8. Mentalizing scores by attachment security (median split)

		Secure		Insecure	
		Mean	(Std. Dev)	Mean	(Std. Dev)
Control	Cognitive mentalizing	0.47	(0.86)	-0.33	(0.97)
	Affective mentalizing	-0.06	(1.06)	0.04	(0.98)
Dismissing	Cognitive mentalizing	0.78	(0.58)	-0.55	(0.86)
	Affective mentalizing	0.57	(0.79)	-0.40	(0.94)
Preoccupied	Cognitive mentalizing	0.41	(1.07)	-0.28	(0.85)
	Affective mentalizing	0.21	(0.96)	-0.15	(1.02)

A correlation matrix was re-calculated with the new PCA components in order to determine which variables should be included in the main analysis. Significant correlations between cognitive and affective mentalizing, attachment anxiety and avoidance and RFQ Internal-Other scores, indicated that these variables should be retained. All other variables were nonsignificant, including year of training, preferred therapeutic model and response latency.

Interaction effects

A repeated measures analysis of covariance (RMANCOVA) was used to examine the interaction effects of attachment and trait mentalizing (measured using the RFQ) on participants' mentalizing responses across the three vignettes. Vignette and mentalizing response ratings (cognitive and affective) were added as repeated measures. Attachment anxiety and avoidance were input as covariates, so that they could be analysed simultaneously in a way that is conceptually similar to Bartholomew's four attachment prototypes (Fraley, 2005). RFQ Internal-Other

scores were added as an additional covariate to measure the variance in mentalizing response scores which result from trait mentalizing.

Mauchly's test indicated that the assumption of sphericity was violated for the main interaction effect of vignette and mentalizing response ratings, χ^2 (2) = 7.88, p = .02). Therefore, the degrees of freedom were corrected using the Greenhouse-Geisser estimate of sphericity, ε = .86.

There was a significant interaction effect between attachment avoidance and vignette condition, F(2, 94) = 4.65, p = .01. This indicates that attachment-related avoidance had different effects on participants' mentalizing ratings depending on which vignette they were responding to. Planned contrasts showed that avoidance was associated with reduced mentalizing scores between the control and dismissing conditions, F(1, 47) = 9.87, p = .003, r = .40 and the dismissing and preoccupied conditions, F(1, 47) = 5.03, p = .03 r = .31. To better understand these relationships, an interaction graph was plotted using attachment scores which were median split and categorised as secure or insecure in relation to both dimensions (see Figure 3). The graph indicated that participants who fell within the insecure-avoidant group achieved lower mentalizing scores overall than the secure (in relation to avoidant) group. Secure participants achieved similar scores in the control and preoccupied conditions, and scored substantially *higher* for the dismissing condition. Insecure-avoidant participants also scored similarly for the control and preoccupied conditions, but their mentalizing ratings for the dismissing vignette were substantially *lower* than the other two vignettes.

The interaction between attachment anxiety and mentalizing was also significant, F(1, 47) = 7.971, p = .007, r = .38. An interaction graph showed that

participants who are secure in relation to attachment anxiety, tended to score higher on both cognitive and affective mentalizing, then their insecure counterparts. Anxiously-insecure participants are also more likely to have affective mentalizing scores which are higher than their cognitive mentalizing scores (see Figure 3).

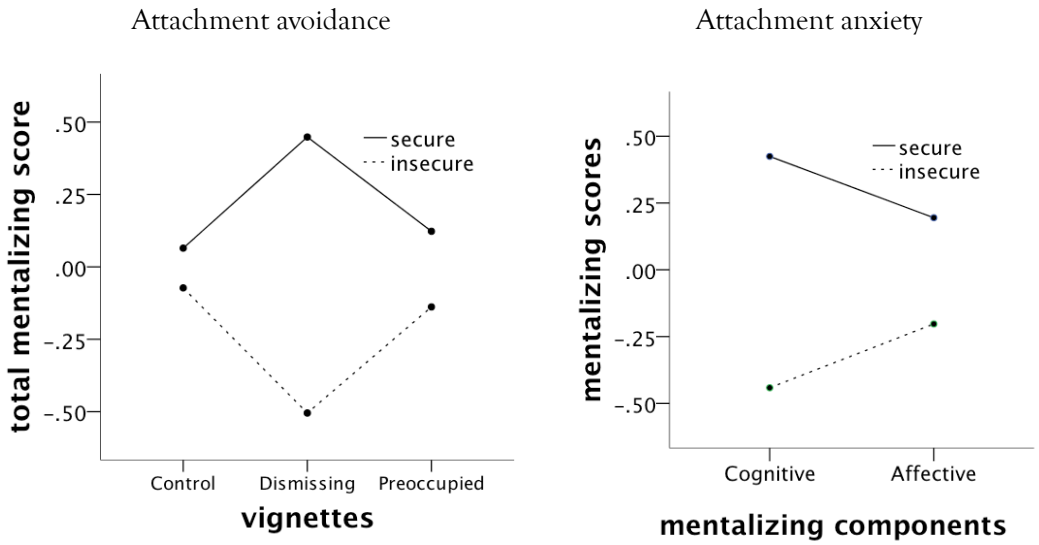


Figure 4. Interaction graphs

All significant interactions yielded a medium effect size (Cohen, 1992b). All other interactions were non-significant.

Regression analysis

Multiple regressions were conducted for cognitive and affective mentalizing in each of the three conditions. Attachment anxiety and avoidance were entered as step one of the regression, and RFQ Internal-Self scores were entered as step two. In order to control for the increased risk of type I errors resulting from running multiple tests, the level of probability was changed to a more conservative $p < .001$.

Of the six multiple regressions, only two were significant at the $p < .001$ level: the effect of attachment anxiety on participants' cognitive mentalizing responses in the dismissing condition, and the effect of avoidant attachment on affective mentalizing in the same condition. Attachment anxiety and avoidance together explained 54% of the variance in cognitive mentalizing and 40% in affective mentalizing ratings (both within the dismissing condition). The effect of the RFQ was nonsignificant and did not add to the variance explained by the model.

Table 9 shows regression analysis for the dismissing condition. The effect of attachment anxiety on cognitive mentalizing in the preoccupied vignette was significant only at $p < .05$ level, ($B = -0.3$, $t(2) = -2.19$, $p = .03$).

Table 9. Regression analysis for the dismissing vignette condition

	R	R^2	*B*	SE *B*	β	t	p
Cognitive mentalizing							
Step 1	.75	.56					
Constant			1.85	0.26		7.15	< .001
Attachment anxiety			-0.56	0.10	-.68	-5.63	< .001
Attachment avoidance			-0.10	0.11	-.11	-0.95	.35
Step 2	.75	.57					
Constant			2.23	0.63		3.54	.001
Attachment anxiety			-0.54	0.11	-.65	-5.00	< .001
Attachment avoidance			-0.10	0.11	-.11	-0.92	.36
RFQ Internal-Other			-0.01	0.01	-.07	-0.65	.52
Affective mentalizing							
Step 1	.63	.40					
Constant			1.33	0.30		4.40	<.001
Attachment anxiety			0.02	0.12	.02	0.14	.89
Attachment avoidance			-0.57	0.12	-.65	-4.58	< .001
Step 2	.63	.40					
Constant			1.25	0.74		1.69	.10
Attachment anxiety			0.01	0.13	.01	0.08	.94
Attachment avoidance			-0.57	0.13	-.65	-4.54	< .001
RFQ Internal-Other			0.002	0.02	.02	0.13	.10

R = correlation coefficient, R^2 = coefficient of determination, *B* = beta value, SE *B* = standard error, β = standardised error, t = t score, p = significance.

Discussion

This study investigated the association between psychologists' attachment security and their ability to mentalize in an analogue therapeutic encounter.

Qualitative analysis of participants' responses showed distinct attachment-related response patterns. Securely attached participants were more likely to situate and make sense of the patient's feelings, than participants with other attachment styles. Participants who were classified as fearful were more likely to give responses coded as 'unhelpful'. Their responses were often confusing and at times contradictory, indicating difficulties in thinking about the patient. Therapists classified as preoccupied were more likely to give responses indicating high levels of emotional attunement. They were also more likely to appear overwhelmed by the patient's difficulties. Therapists classified as dismissing were more likely to respond in ways which were passively or actively rejecting of the patient. In addition, references to mental states were more likely to be superficial and lacking in empathic understanding.

Dimension reduction procedures suggested a two factor solution which appeared to have good face validity. Cognitive and affective mentalizing are well established in the literature, where both are thought to contribute to true mentalizing. Choi-Kain & Gunderson (2008) explain:

> Mentalization requires a panoply of intact cognitive skills that enable individuals to imagine mental states with plausibility, flexibility, and complexity, but it optimally integrates this cognitive realm concerning reason and insight with emotion. The integration of cognitive and affective aspects of both the process and content of understanding mental states allows individuals to 'feel clearly' and enhances 'emotional knowing' (p. 1128).

In relation to therapists, Bateman (2008) argues that clinical work chiefly entails thinking about feelings in oneself and others. He adds however that, 'We do not think unemotionally about feelings; *we feel about feelings*' (emphasis added, p. 8). Thus mentalizing, and perhaps therapeutic work, relies on the integration of both cognitive and affective mentalizing.

Hypothesis 1: Securely attached participants were expected to demonstrate higher trait mentalizing ratings than insecurely-attached participants.

Therapists' attachment was associated with their ability to mentalize. The more secure therapists were in their adult attachment relationships, the greater their capacity to consider and interpret the mental states of others. The implications of this finding are currently unknown. However, Allen (2006a) suggests that therapeutic effectiveness is reliant upon therapists' mentalizing skills in order to foster a safe and secure environment. Moreover, individuals who are able to mentalize in relationships are hypothesised to manage those relationships better (Fonagy, 2008).

The association between attachment and mentalizing is consistent with research in other populations, including clinical and non-clinical samples (e.g. Bouchard et al., 2008), borderline personality disorder (e.g. see Bateman & Fonagy, 2006), offenders (e.g. Levinson & Fonagy, 2004), psychosis (e.g. MacBeth, Gumley, Schwannauer, & Fisher, 2011), children (e.g. Meins et al., 2002) and parents (e.g. Arnott & Meins, 2007; Fonagy, et al., 1991a; Fonagy, et al., 1991b).

Hypothesis 2: Insecurely attached participants were expected to perform relatively better in the control, as apposed to research vignettes. No such variation was expected for securely attached participants.

The findings relating to the second hypothesis were unexpected. Attachment anxiety was associated with lowered mentalizing ratings, irrespective of condition. Attachment avoidance was not associated with variations in participants' mentalizing ratings between the control and preoccupied conditions. However, participants who were secure in relation to attachment avoidance found it easier to mentalize in the dismissing condition (in comparison to the control and preoccupied vignettes), while insecure participants found it more difficult to mentalize in the same condition. Some possible explanations for these findings are discussed below.

Fearful-avoidance

The findings relating to avoidant attachment interactions were unexpected and might relate to the correlation between attachment anxiety and avoidance. The majority of participants who had elevated scores in one attachment dimension, also had elevated scores in the other - which is indicative of a fearful attachment style.

Bartholomew (1990) defines fearful attachment as an avoidant strategy. Characteristically fearful individuals have a negative model of self and others: they view themselves as unloveable and others as uncaring and unavailable. They desire intimacy, but experience pervasive distrust of others and overwhelming fear of rejection. Subsequently, fearful individuals actively avoid situations and relationships in which they perceive they are vulnerable to rejection. It follows therefore that the fearful-avoidant group would experience heightened arousal in response to the rejecting patient, leading to activation of the attachment system and deactivation of mentalizing. It also follows that in the preoccupied condition, where the patient

expressed needing and loving the therapist, fearful participants may have felt reassured that rejection is unlikely, leading to deactivation of the attachment system (Feeney, 2008; Luyten, Fonagy, Lowyck, & Vermote, 2012).

Allen et al. (2001) found that self-reported attachment data mapped onto a single secure versus fearful dimension. They argued that conceptually, closeness corresponds with low anxiety, as does distance with high anxiety. It is therefore unsurprising that participants endorsed both anxiety and avoidance simultaneously.

Attachment system activation

The three vignettes were intended to be equally stressful, but only the dismissing and preoccupied vignettes were intended to activate insecure attachment processes. However, in a study by Mikulincer et al. (2000), participants' attachment systems were activated using threat- (but not attachment-) related words, such as 'death' or 'failure' (Mikulincer & Shaver, 2008). It is possible therefore that both the research *and* control conditions might have activated participants' attachment systems.

Participants who rated themselves as insecure in relation to attachment anxiety found it difficult to mentalize in all three conditions. One possible explanation for this is the use of attachment activation strategies. Luyten et al. (2012) suggest that anxiously attached individuals are more likely to use hyperactivating strategies, which are associated with a low threshold for deactivation of neurological systems involved in controlled mentalizing. Therefore, anxious participants may have been more likely to interpret all three conditions as stressful, leading to the activation of the attachment system and deactivation of mentalizing processes.

Therapists who are uncomfortable with intimacy were able to mentalize equally in the control and preoccupied conditions. This finding was unexpected and might also relate to attachment system arousal. Avoidant and fearful individuals are more likely to rely on attachment deactivating strategies to regulate stress. Deactivating strategies are associated with a high threshold of attachment system activation, allowing individuals to retain controlled mentalizing under stress. Under increasing levels of stress however deactivating strategies fail leading to strong feelings of insecurity (Luyten, et al., 2012). This is consistent with avoidant/fearful participants' reaction to the dismissing condition.

Psychological training

A possible explanation for the lack of variation between the control and preoccupied conditions might be that cognitive knowledge helps moderate the effects of attachment system activation. For example, many of the participants interpreted the patient's declaration of love as a common therapeutic process or manifestation of transference-love. Such responses included, 'Maybe that's part of what needs to happen in order for me to help you' (Participant 274), 'it happens to many, many clients' (Participant 141), 'it's perfectly natural' (Participant 59), and it is 'common during therapy that people might start to have feelings towards their therapist' (participant 582). Training therefore, might have helped participants to frame and understand the patient's actions, and not feel overwhelmed or threatened by them.

Response style and patient attachment

It is unclear why participants who were secure in relation to attachment avoidance performed better in the dismissing, in comparison to the other two, conditions. One possibility is that secure participants were able to reflect on their

own mental states including potentially unhelpful reactions, such as feeling defensive towards the patient. Being unburdened by their own attachment processes, they were subsequently free to respond to their patients' needs by drawing on cognitive and affective skills to mentalize rather than react to them (Allen, 2006a; Dozier, et al., 1994; Slade, 2008).

A number of studies have found that secure therapists are better equipped to respond in ways which are inconsistent with patients' unhelpful internal working models (Dozier, et al., 1994; Romano, et al., 2009; Tyrrell, et al., 1999). Thus secure participants may have found it easier to mentalize rather than react to patients who presented a challenge to mentalizing, for example, by offering empathy in response to the dismissing patient, and cognitive perspective taking in response to the preoccupied patient. It follows then that security of attachment was associated with the capacity to empathise when the patient was rejecting the therapist and therefore presenting a challenge to empathy. In contrast, the qualitative findings showed that insecure participants were more likely to react to, rather than mentalize, the patient.

Cognitive and affective mentalizing

Securely attached participants obtained higher cognitive mentalizing ratings, in comparison to insecure participants. Frith and Frith (2006) argue that there is a neurological mechanism through which people mirror and experience the emotions of others. However experiencing emotions is not sufficient to infer the underlying cause, and additional cognitive processes are therefore required to comprehend the mental states of others. The results suggest that in stressful situations insecure therapists might have the capacity to empathise with their patients, but lack the ability to make sense of their patients' experiences. This is consistent with the qualitative analysis which showed that insecure participants (preoccupied/

dismissing/fearful) were more likely to give responses which indicated difficulty thinking about and making sense of what the patient had said (Fonagy, et al., 2012). Anxiously attached participants had particular difficulties using cognitive mentalizing skills with the dismissing patient. This is consistent with Fonagy et al.'s (2012) view that oversensitivity to certain emotional cues (e.g. rejection) result in 'emotional contagion' (p. 30) which overcompensates for impairments in cognitive perspective taking.

Hypothesis 3: Trait mentalizing was expected to explain some of the variance in participants' mentalizing response ratings, over-and-above the variance explained by attachment

Contrary to the final hypothesis, trait mentalizing, measured using the RFQ, did not explain any of the variance in mentalizing response ratings. Indeed, the effect of the RFQ was nonsignificant in all the main analyses. It is unclear why the RFQ and mentalizing response ratings were unrelated. Further research is clearly needed to understand better the manifestations of therapists' mentalizing in relation to their patients, and the validity of the Mentalizing Response Scale.

Limitations

The current findings need to be evaluated in the light of several limitations. Firstly, participants indicated that the preoccupied vignette was more anxiety-provoking than the control and dismissing vignettes. However, participants performed equally well in the control and preoccupied conditions, making it unlikely that these variations significantly affected the results.

Both attachment and trait mentalizing were assessed using similar self-report measures which were completed in a single session. It is possible therefore that

common method variance inflated the association between these two measures (Kline, Sulsky, & Rever-Moriyama, 2000).

Further research is needed to determine the reliability of the Mentalizing Response Scale. Preliminary analysis suggests good inter-rater reliability, however, there were large confidence intervals for some items and a low reliability statistic for one item (Shrout & Fleiss, 1979).

The final limitation relates to the measurement of attachment. The ECR-R is conceptualised as a measure of romantic attachment, despite its widespread use in other areas of research (see Crowell, Fraley, & Shaver, 2008). Crowell, Fraley and Shaver (2008) suggest that the measure of attachment should relate to the relationship or processes of interest. Therefore, a measure such as the Adult Attachment Interview (AAI; George, et al., 1984) may have been more appropriate in this context. It is unclear how different measures would have affected the results. Further research using the AAI and Reflective Functioning scale (Fonagy, Target, Steele, & Steele, 1998b) would help to elucidate the role of therapists' attachment and the validity of the Mentalizing Response Scale.

Clinical and research implications

This research joins a growing number of studies suggesting that therapists are not necessarily secure in their attachment styles, and that attachment security may have implications for therapeutic practice (see Slade, 2008). We do not know how therapists' mentalizing relates to clinical practice; however, studies suggest that attachment is associated with therapeutic alliance (Black, et al., 2005), processes and outcome (Hilliard, et al., 2000; Mohr, et al., 2005; Romano, et al., 2008). Given the prevalence of attachment insecurity and the potential for these therapists to give

responses which are unhelpful, it may be beneficial for training courses to consider screening potential trainees in order to exclude those individuals who are most likely to struggle in situations when they feel rejected by others. Moreover, training and supporting trainee therapists to help them understand and manage rejection may also be of benefit.

The findings suggest that insecurely attached therapists might have difficulties drawing on cognitive and affective skills to comprehend the mental states of others. Moreover, therapists who are classified as insecure, may have particular difficulties managing situations when they feel rejected by their patients. These findings confirm the importance of training and supervision to help therapists manage challenging therapeutic processes and patients.

The finding that insecure therapists are more likely to give responses classified as 'unhelpful' is of concern. Although we do not yet know the clinical implications, the results imply that insecurely attached therapists might be more likely to provide therapeutic interventions which are unhelpful or even harmful.

Further research is clearly indicated in a number of areas. Due to the correlational design it is not possible to determine causality. Further research may therefore benefit from longitudinal methodology to assess the predictive power of therapists' attachment on their ability to mentalize. Research involving therapeutic processes and outcomes will elucidate the clinical implications of therapists capacity to mentalize. Moreover, research focusing on the subjective experiences of therapists would broaden our understanding of the effects of attachment insecurity, and help training courses and clinical supervisors support therapists both during and after training. Finally research into the effects of psychological training would

confirm and clarify the observed effect on participants' ability to make sense of patients' difficulties.

In conclusion, this study aimed to explore the association between therapists' attachment security and mentalizing ability. The evidence suggests that therapists are affected by their own attachment processes which are associated with the capacity to comprehend their own and others' mental states.

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Part 3: Critical Appraisal

> We are 'held together' both as individuals and as a society by our relationships and by our language (Holmes, 1999p. 116).

Introduction

This critical appraisal reflects on the literature review and empirical paper. The background to the study is discussed, followed by a reflection on the experiences of researching fellow clinical psychology trainees. Difficulties with recruitment and trainees' experiences and feedback are addressed, with a focus on providing suggestions for future researchers. The appraisal concludes with a reflection on the use of language in parts one and two of this volume.

Background

I have a long-standing interest in attachment theory and how relationship processes are 'transmitted' from generation to generation (Bowlby, 1969/2005; Fonagy, 2004). Fraiberg eloquently describes this process in her famous paper:

> In every nursery there are ghosts. They are the visitors from the unremembered past of the parents, the uninvited guests at the christening. Under all favourable circumstances the unfriendly and unbidden spirits are banished from the nursery and return to their subterranean dwelling place... but how shall we explain another group of families who appear to be possessed by their ghosts? While no one has issued an invitation, the ghosts take up residence and conduct the rehearsal of the family tragedy from a tattered script (Fraiberg, Adelson, & Shapiro, 1975, p. 387-388; cited in Holmes, 1999).

Research shows that therapists' attachment affects therapeutic processes and outcomes (e.g. Rubino, et al., 2000; for a review see Slade, 2008). However, like Van Ijzendoorn's (1995) famous *transmission gap*, we do not know the mechanisms through which therapists' attachment influences therapeutic processes.

As a psychologist, I wondered about the impact of our own 'ghosts' and whether our own attachment histories influence our ability to mentalize with patients. Following Fraiberg's analogy, it seems plausible that therapist and client find themselves 'reenacting a moment or a scene from another time with another set of characters' (p. 100).

The research project, presented in Part 2 of this volume, gave me the opportunity to explore our 'ghosts', that is, our attachment processes and associated mentalizing ability. In addition, the literature review, presented in Part 1, provided the opportunity to investigate the history of these 'hauntings'.

Researching fellow trainees

Researching fellow clinical psychology trainees presented a number of challenges. To begin with, it is likely that I will come into contact with and even work alongside my 'participants' at some point in the future. Therefore knowledge of their attachment styles and mentalizing capacity presented ethical dilemmas. In order to manage these challenges, it was important to maintain rigorous confidentiality procedures and professionalism. In addition, trainees from my own cohort were not recruited due to my preexisting social relationships with them.

I found it difficult to position myself in relation to my 'participants'. I felt guilty subjecting fellow trainees to evaluation and anxiety-provoking situations. Moreover, I felt ill qualified to evaluate their responses. Conversely, it was easy at times to feel critical of responses which seemed particularly unhelpful. At these moments I found it helpful to take a step back and reflect on the aims of the study, rather than getting caught up with my position within it. It was also important to draw on my therapeutic mentalizing skills to empathise with and consider the mental

states underlying participants' responses. In addition, I found it helpful to remember that mentalizing is a dynamic skill that varies between situations, and even skilled therapists experience moments of 'mindblindedness' (Allen, 2006a; Munich, 2006).

Recruitment

Future researchers might find it helpful to know that recruitment presented more of a challenge than expected. Only 47% of those trainees invited to participate in the study agreed to take part. This was considerably lower than the estimated rates based on an earlier similar study (87%; Rubino, 1999). One possible explanation might relate to our decision not to recruit trainees from my own cohort.

Future researchers could benefit by enlisting the help of tutors and teaching staff to recruit trainees. Incentivising participation could also boost recruitment. However, if a substantially larger sample size is required, future researchers might wish to consider the possibility (and implications) of recruiting participants from their own training cohort.

Trainees' experiences and feedback

Trainees' experiences were varied although the vast majority reported finding the exercise useful. As one participant explained 'it's great... it gives you the opportunity to practice stuff we've learnt about... and see how you actually do react in these situations' (Participant 868).

A small number of trainees appeared to find the process unduly challenging and responded with irritation or criticism. For example, when asked to rate the credibility of the actress and vignettes, one participant said, 'She was so irritating! I wanted to hit her!... where did you find such an awful actress?' (Participant 614).

These responses were particularly interesting both because they stood in such contrast to the majority of trainees, and because they appear to show the continuation of mentalizing deactivation. In retrospect it would have been interesting to explore these reactions further and capture 'live' mentalizing between the trainee and researcher. I also wonder about the potential for future research where therapists' mentalizing is captured 'off-guard', for example, by rating interpersonal reactions to the researcher. This would need to be thought through carefully in order to capture implicit or automatic mentalizing.

Fonagy, Bateman and Luyten (2012) describe 'the most fundamental polarity underlying mentalizing' (p. 20) as being the distinction between automatic/implicit and controlled/explicit mentalizing. They explain that explicit mentalizing is a relatively slow process involving reflection, attention and awareness. It is typically verbal and requires conscious intention and effort. Implicit mentalizing, in contrast, is a parallel reflexive process requiring little or no attention, intention, effort or awareness. Implicit mentalizing is used in daily interactions, allowing us to make automatic assumptions about ourselves and others. The authors argue that in most (secure attachment) interactions, explicit reflection is unnecessary and may hinder relations.

This distinction was something which became apparent in my research. After the trainees responded to all three vignettes, I reminded them of each vignette and asked them to reflect on what might have been going on for the patient. On the whole, the trainees showed an exceptional capacity to formulate and make reflective hypotheses about all three patients, even when their vignette responses indicated low mentalizing.

As psychologists we continually practice hypothesising about the mental states underlying our patients' actions. Thus it appears that we have specific skills in explicit, controlled mentalizing - particularly in relation to others. Automatic mentalizing, in contrast, appears more variable and open to influence by our attachment processes. Further research investigating the specific roles of implicit and explicit mentalizing would help us to understand more about this complex phenomenon.

The trainees who participated in the study provided valuable feedback which could benefit future researchers. The majority of trainees commented about how anxiety-provoking and challenging they found the research task. As mentioned in the empirical paper, it was commonly felt that responding to an on-screen 'patient' limited the realism, but it did not appear to hinder the stressful and challenging nature of the task. In hindsight, I mistakingly assumed that trainees are well-equipped to manage difficult emotions and I did not anticipate negative reactions to the research procedures. Given trainees comments and the reactions of some trainees to the research process, future researchers should consider allocating time for 'debriefing' and talking about participants' experiences in detail.

A number of trainees commented about the Revised Experience in Close Relationships (ECR-R; Fraley, 2005) questionnaire. Feedback from trainees indicated that those not currently in a romantic attachment, felt their relationships with 'close friends' did not accurately represented their relationship style. A number of trainees commented that they would have answered the questions differently in relation to a romantic partner or close friend, and one participant commented on how his recent break-up with a romantic partner appeared to significantly affect his responses.

Allen et al. (2001) argue that attachment security varies within individuals, between their relationships with different attachment figures. Thus, self-report attachment data may be confounded by participants' reporting their 'most secure' attachment, varying between attachments or attempting to summarise across diverse relationship experiences. If future researchers use a similar self-report measure, they may benefit from first helping participants identify their primary attachment relationship and then encouraging them to answer the questions in relation to that person.

The impact of this research

For me, this research emphasised the importance of providing a secure base for our patients and the potential for attachment patterns to get in the way. Rubino, Barker, Roth and Fearon (2000) and Hardy et al. (1999) found that therapists are significantly more likely to respond to their patients *in style*, that is, in ways which are consistent with the patients' attachment patterns. Therefore, therapists are more empathic and feeling-focused with preoccupied patients, and are more distant and cognitive with dismissing patients. Daniel (2006) and Slade (2008) argue that *in style* responses facilitate rapport, while *out of style* responses challenge patients' insecure attachment patterns. They suggest that varying response modes between different phases of therapy might be the most beneficial approach.

This research highlighted the importance of clinical supervision and honest self reflection. I am more mindful of how I respond to patients, and in particular, if and when I respond *in* and *out of style*. At times it can be difficult to respond *out of style*. For example, offering empathy, emotional intimacy, acceptance, and focusing on feelings and vulnerability, can be extremely challenging with patients who are

dismissing, rejecting and even attacking. The times when I was able to do this, were marked by the availability of supervision where I was able to explore difficult interpersonal processes and reflect on my own and others' mental states.

Concluding remarks - a note on language

Coming from a social constructionist background, I am conscious of the language I used throughout the thesis, which for the most part served as a short-hand for more meaningful but periphrastic terms. In the literature review, for example, I use the words *parent* and *mother*, in place of *(primary) caregiver*. In the empirical paper, I refer to *patients* rather than *clients* or *service users*. Similarly, I label participants as *secure* or *insecure*, or, *preoccupied*, *dismissing* or *fearful*.

I chose the various terms for different reasons. *Mother*, for example, is both more concise and conveys a greater sense of emotional connection than does *primary caregiver*. I chose *patient* because studies suggest that the individuals who make use of our services prefer this term (Richards & Whyte, 2009; Simmons, Hawley, Gale, & Sivakumaran, 2010). Preferences however are not universal and some authors suggest using multiple labels to highlight that these are social constructions which emphasise different aspects of a relationship at the expense of others (e.g. McLaughlin, 2009).

The labelling of participants' attachment security was similarly problematic. Self-reported attachment data do not lend themselves to simple classifications (Fraley, 2005; Slade, 2000). Moreover, terms such as 'insecure attachment' cannot begin to convey the wide variety of individual experiences which lead to the classification. Like all diagnostic labels, the terms are useful in research; however, it is important to recognise that labels oversimplify complex ideas and experiences.

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Appendix

Appendix I. List of abbreviations used in the text

List of abbreviations used in the text

A (attachment)	*Anxious-avoidant* attachment, measured using the *Strange Situation Procedure*
AAI	*Adult Attachment Interview*
AMBIANCE	*Atypical Maternal Behavioural Instrument for Assessment and Classification*
AQS	*Attachment Q-Set/Sort*
B (attachment)	Securely attached, measured using the *Strange Situation Procedure*
C (attachment)	*Anxious-ambivalent/resistant* attachment, measured using the *Strange Situation Procedure*
D (attachment)	*Dismissing* attachment, measured using the *Adult Attachment Interview* *Disorganised/Disorientated* attachment, measured using the *Strange Situation Procedure*
E (attachment)	*Preoccupied* attachment, measured using the *Adult Attachment Interview*
ECR-R	*Experience in Close Relationships (Revised)* questionnaire
F (attachment)	*Autonomous* attachment, measured using the *Adult Attachment Interview*
ICC	Intraclass correlation coefficient
KMO	Kaiser-Meyer-Olkin statistical measure
MM	Mind-mindedness
PCA	Principal component analysis
PDI	*Parent Development Interview*
RF	*Reflective (self) function*
RFQ	*Reflective Function Questionnaire*
RMANCOVA	Repeated measures analysis of covariance
RMANOVA	Repeated measures analysis of variance
SS(P)	*Strange Situation (Procedure)*
U (attachment)	*Unresolved* attachment, measured using the *Adult Attachment Interview*

Please note: names of tests, scales and classifications appear in italics.

Appendix II. Mentalizing terms

Mentalizing terms

Mentalizing-related terms include: reflective function (e.g. Fonagy, et al., 1991b), maternal mentalizing/reflective function (Slade, et al., 2005), mind-mindedness (e.g. Meins, Fernyhough, Russell, & Clark, A. & Carter, 1998), theory of mind (e.g. Symons & Clark, 2000), insightfulness (e.g. Koren-Karie, et al., 2002), mind-relatedness (Lundy, 2003), emotional understanding (e.g. Ontai & Thompson, 2002), interactional synchrony (Lundy, 2003), maternal sensitivity (e.g. Meins, et al., 1998), and mental states references (Dunn, Brown, & Beardsall, 1991).

Concepts involving the capacity to understand mental states underlying behaviour

Mentalization

> '...the mental process by which an individual *implicitly* and *explicitly* interprets the actions of *himself* or *herself* and *others* as meaningful on the basis of intentional mental states such as personal desires, needs, feelings, beliefs, and reasons.' (Bateman & Fonagy, 2004; Choi-Kain & Gunderson, 2008, p. 1128)

Reflective (self) function

> '...the ability to take account of one's own and others' mental states and, thus, to understand why people behave in specific ways.' (Fonagy, et al., 1991b, p. 203)
>
> '...parent's quality of understanding of another's intentionality.' (p. 210)

Parental reflective function

> '...a parent's capacity to comprehend the developing mind of the child' (Grienenberger, et al., 2005, p. 299)

Insightfulness

> '...parents' capacity to consider the motives underlying their children's behaviour and emotional experiences in a complete, positive, and child-focused manner while taking into consideration their children's perspectives.' (Koren-Karie, et al., 2002, p. 534)

(Maternal) Mind-mindedness

> '…the proclivity to treat one's infant as an individual with a mind, capable of intentional behaviour...' (Meins, et al., 2002, p.1716)
>
> '...rather than a creature with needs that must be satisfied.' (Meins, et al., 2001, p. 638)
>
> Mothers show mind-mindedness when they treat their children as individuals with minds, who are capable of having representations of the world and different perspectives toward reality (Meins, 1997)

Maternal sensitivity (in some studies)

> 'Ainsworth et al. (1971) described the mother of a securely attached child as being 'capable of perceiving things from [the child's] point of view." (in Meins, et al., 2001, p. 638)
>
> '...mothers' specific proclivity to focus on and respond to their infants' mental states, as manifest in their ongoing behaviour' (Meins, et al., 2001, p. 639)

Divergent concepts

Maternal sensitivity (in some studies)

> At times, maternal sensitivity has been defined exclusively in terms of maternal behaviour, without any assessment of whether the behaviours are appropriate to the child's mental state. (Meins, et al., 2001)

Interactional synchrony

> Mothers' ability to 'engage in appropriate and well-coordinated interactions', and '...the extent to which an interaction appears to be reciprocal and mutually rewarding' (Lundy, 2003, p. 201)

Appendix III. Quality assessment procedure

Standard Quality Assessment Criteria for Quantitative Studies Procedure (Kmet, et al., 2004)

Appendix IV. Research study findings

Research study findings

Fonagy, P., Steele, H., and Steele, M. (1991a)

- Maternal attachment security predicted child's attachment security (secure v. insecure) 75% of the time (kappa = .48, $p \leq .001$)
- Autonomous and dismissing interview classifications were powerfully predictive of secure and avoidant infant classifications, respectively
- maternal preoccupied classification was not singularly predictive of resistant infant classification
- Anxious-resistant and secure children had mothers who recalled their own relationship with their mothers as significantly more loving and less rejecting
- Idealisation was highest among mothers of avoidant and resistant children
- Inability to recall was particularly marked among mothers of avoidant children
- Coherence was highest among mothers of securely attached infants

… continued in Fonagy, P., Steele, M., Steele, H., Moran, G. and Higgitt, A. (1991b)

- Child's attachment relationship with each parent was independently determined by the respective parent's attachment to his/her own parents

- Parent's reflective-self function ratings and attachment classification were strongly associated for both mothers ($F = 6.11$, $df = 2.94$) and fathers ($F = 14.6$, $df = 2.81$)
  - RF ratings were independent of demographics, personality classification, psychiatric symptoms, self-esteem, education or verbal intelligence

- Parental RF correlates more strongly with infant security than any of the AAI scales ($r = .51$ for mothers, and $r = .36$ for fathers)
  - 52% of mothers of secure infants fell into the top two RF categories
  - 10% of mothers of avoidant infants fell in the top two RF categories
  - the distribution of resistant infant's mother's RF was comparable to mothers of secure infants
  - when RF is controlled for, AAI scale Coherence no longer related significantly to infant security
- Parental RF related strongly to observer ratings of the infant's behaviour in the Strange Situation
  - infants of mothers with high RF showed less avoidance and more contact maintenance ($r = -.37$ and $-.30$ respectively)

… continued in Fonagy, P., Steele, M., Steele, H., Higgitt, A. and Taget, M. (1994)

- parents who had experienced childhoods classified as deprived, were almost twice as likely to have an insecure relationship with their child ($x2(2, n=97) = 5.2$, $p < .05$)

- a history of lack of love and neglect predicted infant insecurity only in mothers with low RF ratings
  - 10 out of 10 mothers in the deprived group with high RF had children who were securely attached to them, whereas only 1 out of 17 of these mothers with low RF did so.

Meins, E., Fernyhough, C., Fradley, E. and Tuckey, M. (2001)

- Maternal sensitivity and mind-mindedness were related but distinct aspects of infant-mother interaction
- The five categories of mind-mindedness were related, but measured distinct aspects of a mother's proclivity to treat her infant as an individual with a mind.

- Secure and insecurely attached infants did not differ in their general cognitive ability, or in the frequency of vocalisation, change in gaze, and object-directed activity during the 20 minute session
- Mother's of securely and insecurely attached children did not differ in the level to which they had been educated or in how frequently they spoke during the testing session
- More highly educated mothers were more likely to respond to changes in their infants' direction of gaze

Mothers who scored more highly in the mind-mindedness categories were more likely to have securely attached children

- Security of attachment was significantly related to maternal responsiveness to infant's object-directed action ($t(65) = 1.92$, $p < .025$, effect size medium-large) and mother's appropriate mind-minded comments ($t(65) = 4.34$, $p < .001$, large effect size)
- Appropriate mind-related comments was found to be the only predictor of attachment security ($x2$ ($n=65$) $= 23.56$, $p < .001$)
- When maternal sensitivity was accounted for, maternal appropriate mind-related comments was still a significant predictor of infant-mother security of attachment ($x2$ ($n=65$) $= 17.62$, $p < .001$), accounting for 12.7% of its variance, making it a better predictor than maternal sensitivity which only accounted for 6.5% of the variance
- The relationship between security of attachment and maternal responsiveness to change in infant's direction of gaze, imitation and encouragement of autonomy were not statistically significant

Maternal scores on appropriate mind-related comments distinguished between infant's secure, insecure-resistant, and insecure-avoidant attachment classifications

- there was a large effect size between secure and insecure-avoidant groups ($d = 1.15$-1.82) and secure and insecure-resistant groups ($d = .82$-1.36)
- there was a medium effect size between insecure-avoidant and -resistant groups ($d = .53$-$.55$)

Koren-Karie, N., Oppenheim, D., Dolev, S., Sher, E. and Etzion-Carasso, A. (2002)

- Mothers classified as positively insightful were more sensitive than mothers classified as disengaged ($t(126) = 2.58$, $p = .01$) and one-sided ($t(126) = 1,94$, $p = .05$)
- There was no difference between positively insightful mothers and those classified as mixed ($t(126) = .44$, n.s.)

- Mothers classified as positively insightful were likely to have children classified as secure, and unlikely to have children classified as resistant or disorganised
- Mothers classified as one-sided were more likely to have children classified as resistant, and unlikely to have children classified as secure
- Mothers classified as mixed were more likely to have children classified as disorganised, and unlikely to have children classified as secure
- The disengaged classification was unrelated to infant attachment

- Insightfulness predicted Strange Situation classifications beyond the prediction offered by maternal sensitivity ($x2\ (1,N=126) = 20.73$, $p < .01$)
- Mothers classified as mixed, although not less sensitive than mothers classified as positively insightful, were likely to have children classified as disorganised ($n = 6$)

Lundy (2003)

- Fathers exhibited significantly more comments related to problem-solving compared to mothers ($F(1,44) = 7.22$, $p < .01$)
- Mothers exhibited more comments in which they were speaking for their infants ($F(1,44) = 5.22$, $p < .05$)

- Only comments related to infants' general thought processes, knowledge or desires, significantly predicted higher infant-mother attachment scores ($R2 = .33$, $p < .05$)
- Only comments related to infants' general thought processes significantly predicted higher infant-father attachment scores ($R2 = .41$, $p < .01$)

- For both mothers and fathers, infant attachment was significantly predicted by the frequency of interactional synchrony, accounting for 40 and 47% of the variance, respectively
- Synchrony mediated the relationship between mothers and fathers' thought-related comments and mother-/father-infant attachment

- Mothers with more depressive symptoms and lower marital satisfaction commented less frequently on infants' general thought processes ($r = -.41$, $p = .057$; $r = .44$, $p < .05$, respectively)
- Depressive symptoms and marital satisfaction was unrelated to frequency of fathers' mind-related comments

Slade, A., Grienenberger, J., Bernbach, E., Levy, D. and Locker, A. (2005)

- maternal reflective functioning was highly predicted by the mother's pre-birth attachment status
  - free/autonomous mothers had significantly higher RF scores than dismissing ($p < .000$), preoccupied ($p < .043$) and unresolved ($p < .000$) mothers
  - dismissing ($p < .077$) and preoccupied ($p < .032$) mums had higher RF scores than unresolved mothers

- A mothers capacity to reflect on her child's internal affective experience predicts the quality of her infant's attachment organisation
  - mothers of secure infants had significantly higher RF scores than those of resistant ($p < .003$) or disorganised ($p < .014$) children
  - the RF scores of mothers of secure children could not be distinguished from those of avoidant children

- adult and infant attachment were weakly positively correlated in the sample ($r = .24$, $p < .065$)
- RF largely accounts for the modest link between adult and infant attachment security (LISREL analysis effect .22, $p < .05$)

Grienenberger, J., Kelly, K. and Slade, A. (2005)

- Negative maternal caregiving behaviour at 14 months is inversely correlated with maternal reflective functioning assessed at 10 months ($r = -.481$, $p = .000$), giving a large effect size of 1.1
- Mothers of insecurely attached infants had higher AMBIANCE scores than mothers of securely attached infants ($F = 5.70$, $df = 1.43$, $p = .21$; $d = 72$)
- There were significant differences between the AMBIANCE scores of the secure group and both the insecure-resistant ($p = .043$) and disorganised ($p = .005$) groups

Maternal behaviour played a (partial) mediating role between maternal RF and infant attachment

- The role of maternal RF ($r = -.345$, $df = 43$, $p = .009$) is reduced after accounting for the influence of the AMBIANCE measure (partial $r = -.217$, $df = 42$, $p = .087$)
- The AMBIANCE measure continued to significantly correlate with infant attachment, even after accounting for maternal RF (partial $r = 3.03$, $df = 42$, $p = .03$)
- It is likely that RF accounts for a unique amount of the variance not accounted for my maternal behaviour alone

Arnott, B and Meins, E (2007)

AAI classification and mind-mindedness

– Autonomous and non-autonomous group mothers did not differ in their proportional use of appropriate (t(19) = .03, n.s. (d=.01)) nor inappropriate (t(19) = 1.37, n.s. (d = 0.6)) mind-related comments
– Autonomous fathers made proportionately more appropriate mind-related comments than did non-autonomous fathers (t(15) = 2.35, p < .05, two-tailed (d = 1.19)), but did not differ in their use of inappropriate mind-related comments (t(15) = ..43, n.s. (d = .21)

RF and mind-mindedness
– Mothers' antenatal RF was not related to the proportional use of appropriate mind-related comments, and was negatively correlated (stated as r = .41) with the use of inappropriate mind-related comments during free-play with their 6 month olds
– Mothers' antenatal RF accounted for 17% (R2 = .17) of the variance in mothers' inappropriate mind-related comments scores at 6 months.

– Fathers RF scores were positively correlated with their proportional use of appropriate mind-related comments (r = .5)
– Fathers antenatal RF accounted for 25% (R2 = .25) of the variance in appropriate mind-related comments
– Fathers who made proportionately more appropriate mind-related comments also made proportionately more inappropriate mind-related comments (r = . 55)

Mind-mindedness within couples
– Mothers' and fathers' scores for appropriate mind-related comments were positively correlated (r(15) = .44, p = .08, two-tailed (medium effect))
– Partners' proportionate scores for inappropriate comments were not correlated (r(15) = .06, n.s.)
– Mothers and fathers did not differ in their appropriate mind-related comments scores (t(36) = .59, n.s. (d = .09)), but fathers were more likely than mothers to comment inappropriately on their infants' mental states (t(36) = 2.35, p <. 025, two-tailed (d = .77))

AAI and RF
– Autonomous group mothers attained higher RF scores than non-autonomous group mothers (t(26) = 4.12, p < .001, two-tailed (d = 1.6))
– Autonomous group fathers attained higher RF scores than non-autonomous group fathers (t(23) = 2.15, p < .05, two-tailed (d = .9))

Infant attachment security and mind-mindedness
– Mothers of securely attached infants produced proportionately more appropriate mind-related comments (t(15) = 1.84, p = .08, two-tailed (d = . 55)), and proportionately fewer inappropriate mind-related comments (t(15) = .95, n.s., (d = 1.02)) when interacting with their infants at 6 months
– Fathers of securely attached infants produced proportionately more appropriate mind-related comments (t(13) = 2.14, p < .05, two-tailed (d =

1.15)). There were no attachment-related differences with respect to fathers' scores for inappropriate mind-related comments (t(13) = .01, n.s., (d = .01))

Laranjo, J., Bernier, A. and Meins, E. (2008)

- Preliminary analysis showed little variability in scores for mental processes, emotional engagement and attempts to manipulate beliefs - these scores are therefore omitted from the analysis

Maternal sensitivity was more strongly related to infant attachment than mind-mindedness

- There was a positive correlation between maternal sensitivity and security of infant attachment ($r = .41$, $p < .01$)
- Comments on infants' mental states were related to maternal sensitivity ($r = .28$, $p < .05$) and infant attachment ($r = .28$, $p < .05$)

- Maternal sensitivity was a significant mediator of the common variance between mental state comments (mind-mindedness) and infant attachment

Demers, I., Bernier, A. Tarabulsy, G. and Provost, M. (2010)

Differences between adult and adolescent mothers

- Adult mothers used more mental state comments ($F(1,102) = 13.75$, $p < .001$, $\eta 2 = .12$) and total mind-related comments ($F(1,102) = 11.39$, $p < .001$, $\eta 2 = .10$) than adolescent mothers
- Adult mothers used proportionately more positive comments ($F(1,96) = 4.68$, $p < .05$, $\eta 2 = .05$)
- Adolescent mothers used twice as many negative mind-related comments as adult mothers (10.4% vs. 5.1%) but this did not reach statistical significance $F(1,196) = 2.71$, $p < .11$, $\eta 2 = .03$)
- Adult mothers made a proportionately greater use of appropriate comments than adolescent mothers ($t(96) = 2.12$, $p < .05$, $\eta 2 = .04$)
- Adult mothers were more sensitive than adolescent mothers ($t(102) = 3.28$, $p < .001$)
- Infants of adult mothers were more likely to be classified as securely attached than those of adolescent mothers ($x2(1, n = 98) = 6.03$, $p < .05$)

Mind-mindedness, maternal sensitivity and infant attachment

- Among adult mothers, higher maternal sensitivity was related to a greater overall use of mind-related comments and a lesser use of negative comments
- Attachment security was positively associated with a greater use of appropriate and neutral mind-related comments, and negatively related to the use of negative comments
- In adolescent mothers, more sensitive mothers commented to a lesser degree on infants' attempts to manipulate others' minds (which were often negative valence)
- No relationship between maternal mind-related comments and child attachment security approached significance for adolescent mothers

– The relationship between attachment security and the use of overall mind-related comments was greater in adult than adolescent mothers ($Z = 1.81$, $p < .05$)

Appendix V. Measures, scales and procedures

Measures, scales and procedures

Adult Attachment Interview - AAI (Main & Goldwyn, 1994)

The AAI is a semi-structured interview designed to capture internal working models or states of mind with respect to attachment. The interview assesses participants' capacity to produce and reflect on attachment-related memories, while simultaneously maintaining coherent and collaborative discourse with the interviewer. Attachment security is closely related to narrative coherence, and the coding system emphasises the manner in which participants speak about their childhoods, rather than the content of what was said (Daniel, 2006; Fonagy, 2004; Hesse, 1999).

The AAI yields three main organised classifications: autonomous (F), corresponding to secure infant attachment; dismissing (D), corresponding to avoidant infant attachment; and preoccupied (E), corresponding to ambivalent/resistant infant attachment. Interviews can also be categorised as unresolved (U) in relation to loss or trauma, which corresponds to the disorganised infant attachment style.

Autonomous AAI interviews are characterised by consistent and coherent narrative, openness to questions and opportunities to reflect on experiences, collaboration with the interviewer, and a balanced view including both favourable and unfavourable past experiences. Dismissing interviews are marked by internal contradictions, lack of coherence and idealisation and/or derogation of parents. There may be an insistence on the inability to recall childhood events, and attachment related discussion is avoided or generalised and lacking in detail. Negative experiences are downplayed and there is little articulation of difficult emotions. Preoccupied interviews are characteristically long, confusing and incoherent. There is a preoccupation with attachment and experiences of being parented, sometimes featuring current feelings of anger. Answers are often excessively long and confusing, with oscillations suggestive of ambivalence. Participants may be unusually psychologically orientated, offering authoritative 'insights' into self and others. Unresolved interviews are characterised by temporary cognitive disorganisation, lapses in reasoning, magical thinking, or unusual incoherent discourse in relation to incidents of loss, trauma or abuse. There are no other distinct features. Interviews are further assigned a secondary organised category (i.e. autonomous, dismissing or preoccupied; Hesse, 2008).

Attachment Q-Set/Q-Sort - AQS (Vaughn & Waters, 1990; Waters, 1987; Waters & Deane, 1985)

Attachment Q methodology consists of a large number of cards (usually between 70 and 100). On each card a specific behavioural characteristic of children between the ages of 12 and 48 months is described. The items are intended to provide a comprehensive list of secure-base behaviour.

After several hours of observation, the observer ranks the cards into several piles ranging from 'most descriptive' to 'least descriptive'. This is usually accomplished in several steps, for example, by sorting the items into three piles, and then subdividing these into a total of nine piles.

By comparing the resulting description with the behavioural profile of a 'prototypical secure child', a score for attachment security is derived (Van IJzendoorn, et al., 2004). Rating by parents is not recommended (Teti & McGourty, 1996).

Atypical Maternal Behavioural Instrument for Assessment and Classification - AMBIANCE, Version 2 (Bronfman, et al., 1999)

AMBIANCE is a tool for coding a caregiver's behaviour during the Strange Situation Procedure. Behaviours are coded along five dimensions: (1) Affective Communication Errors, (2) Role or Boundary Confusion, (3) Fearful, Disoriented, Dissociative, or Disorganised Behaviour, (4) Intrusiveness or Negativity, and (5) Withdrawal. Scores are obtained for the total number of atypical behaviours observed; the Overall Level of Disrupted Communications (ranging from 1-'High normal' to 7-'Disrupted communication with few or no ameliorating behaviours); and a classification of 'Disrupted' or 'Not Disrupted' affective communication.

Insightfulness Assessment - AI (Koren-Karie & Oppenheim, 2001; Oppenheim, et al., 2001) The AI is a measure of mothers' insightfulness regarding their infants' internal experience. Insightfulness is defined as the ability to see various experiences through their children's eyes, to update their views when necessary, and to try to understand the motives underlying their children's behaviour .

The procedure involves video-recording mother-infant interactions for each participant and then showing the vignettes to the mother. After watching the vignettes, mothers are encouraged to reflect on their own and their infants' mental states. Mothers' responses are then assigned 1 of 4 possible categories:

- *Positively insightful*: indicating the capacity to see various experiences through their child's eyes and to try to understand the motives underlying their child's behaviour
- *One-sided:* where a mother seems to have a pre-set conception of the child that they impose onto the vignettes. This conception does not appear open to challenge.
- *Disengaged:* characterised by a lack of emotional involvement, short and limited answers, and with a focus on the child's behaviour (rather than motives).
- *Mixed*: this category was assigned when a mother responded in a way consistent with more than one of the above categories (Koren-Karie, et al., 2002).

Maternal Behaviour Q-Sort - MBQS (Pederson, et al., 1990)

The MBQS is a 90-item assessment for measuring the quality of maternal behaviour during observed mother-infant interactions. Each item describes potential maternal behaviours. Items are sorted into three piles, relating to whether they are *most-like*, *neutral*, or *unlike* the mother under observation. Each group is then subdivided into a further three piles, yielding a total of nine clusters of items. By comparing the resulting description with the behavioural profile of a 'prototypical sensitive mother', a score of maternal sensitivity, between -1 (least sensitive) and 1 (prototypically sensitive), is derived (Pederson & Moran, 1995a, 1995b).

Maternal Sensitivity rating scale (Ainsworth, et al., 1971)

Sensitivity was originally assessed by assigning a global sensitivity score (ranging from 1- highly sensitive to 9-highly insensitive) based on several hours observation of mother-infant interaction (Ainsworth, Bell, & Stayton, 1971). No specific guidance is given regarding which behaviours should be considered for assessment, nor the length and structure of the observation setting (Ainsworth, 1969).

Maternal Sensitivity scale (Biringen, et al., 1993)

This scale is based on the original Ainsworth et al.'s (1971) scale and assesses mother's responsiveness to the child, in terms of *appropriateness*, *timing*, and *flexibility*; the *quality and appropriateness of her affect*; and her *negotiation of conflictual situations*. Maternal sensitivity is rated from observed mother-child interactions, using a 9-point scale, where 1 indicates a lack of sensitivity, and 9 optimal sensitivity (Koren-Karie, et al., 2002).

Mind-mindedness coding system (Meins, et al., 2001)

The Mind-mindedness coding system is used to rate mothers' mothers' ability to read accurately the mental states underlying infant behaviour, during a period of video-recorded parent-infant interaction. Mind related comments are coded as:

1. Appropriate mind-related comments
2. Comments relating to the infant's mental state, including knowledge, thoughts, desires and interests (e.g. 'You know what that it, it is a ball', 'Which toy do you prefer?', 'I think that you think it's a drum')
3. Comments on mental processes (e.g. 'Are you thinking?', 'Do you recognise that?', 'You're finding this game difficult')
4. Comments about the infant's level of emotional engagement, including assertions that the infant is bored, worried, self-conscious, etc. (e.g. 'You've had enough')
5. Comments on the infant's attempts to manipulate other people's thoughts or beliefs (e.g. 'You're just teasing me', 'Are you playing games with me?', 'You're making fun of me', 'You're joking')
6. Comments that involve the mother speaking for the infant (e.g. 'She says, 'I'm not interested in that'', 'See mum, this is much better', 'Say, 'Mum, I want to play with something else'', 'I think I've got the hang of this now')

Comments are classified as appropriate if: the coder agrees with the mother's interpretation of her infant's mental state; the comment links current activities with similar events in the past; or the comment clarifies how to proceed when there was a lull in the interaction.

Comments are classified as inappropriate if: the coder believes the mother is misinterpreting her infant's mental state; the comments include references to unrelated past or future events; the mother asks what the infant wants to do, or comments that they want to do something else, when the infant is already activity engaged; or the mother's reference is not clear.

Parent Development Interview - PDI (Aber, et al., 1985; Slade, Bernbach, Grienenberger, Levy, & Locker, 2002)

The PDI is a 45-item semi-structured clinical interview, assessing parents' representations of their children, themselves as parents, and their relationships with their children. The PDI also provides a measure of how well parents understand their child's behaviour, thoughts and feelings.

The PDI-RF is a system for coding the Parent Development Interview, using an adapted version of the Reflective Function Rating Scale. RF is assessed under four broad categories: (1) awareness of the nature of mental states, (2) the explicit effort to tease out mental states underlying behaviour, (3) the capacity to recognise developmental aspects of mental states, and (4) recognition of mental states in relation to the interviewer.

The scale provides 3 levels of parental reflective function:

Low RF: the parent seems oblivious to their child's independent thoughts and feelings, as well as a denial of the parent's experience of parenting

Moderate RF: the parent recognises that the child has mental states, but responses lack a refection on their own mental state and the recognition of how mental states relate to behaviour

High RF: the parent recognises and is able to reflect on their own and their child's mental state, and understand how mental states underlie behaviour (Sharp & Fonagy, 2008).

Reflective Function Rating Scale, Version 5 (Fonagy, et al., 1998a)
Reflective Self Function Rating Scale (Fonagy, et al., 1991b)

The RF rating scale is applied to AAI narratives to assess an individual's capacity to think of their own and other's actions in terms of mental states, within the context of attachment relationships. The scale measures the individual's ability to invoke mental state contacts (feelings, beliefs, intentions, conflicts and other psychological states) in their account of past and current attachment experience.

Using a coding manual, narratives are assigned a score from -1 to 9 (version 5). Scores are assigned as follows:

(-1) Negative RF

Narrative is anti-reflective (e.g. participant expresses hostility or active evasion) or is bizarre or inappropriate.

(1) Absent RF

The participant does not mention mental states despite a clear opportunity to do so. Narrative may be excessively generalised, concrete or overwhelmingly egocentric.

(3) Questionable/low RF

Narrative may include references to mental states, but there is no evidence to suggest genuine RF. Such responses may be cliched, banal or superficial.

(5) Definite/ordinary RF

Mental states are described and reflected upon. References to mental states must be explicit, although they do not need to be sophisticated.

(7) Marked RF

References to mental states are sophisticated, unusual/surprising, complex/ elaborate, or involving causal sequences.

(9) Full/exceptional RF

The participant demonstrates an unusual, exceptional level of sophistication when reflecting on the mental states of self and others.

Strange Situation (Procedure) - SS(P) (Ainsworth, et al., 1978)

The Strange Situation comprises a procedure of separations and reunions of infant and mother designed to capture the balance of attachment- and exploratory-related behaviour under conditions of increasing stress. Based on children's ability to use their mother as a secure base, Ainsworth and colleagues (1978) identified three main patterns of attachment: secure (labeled B), insecure-avoidant (labelled A) and insecure-ambivalent/resistant (labelled C). A fourth category of disorganised/ disorientated attachment (labelled D) was later added by Main and Solomon (1990; Daniel, 2006; Solomon & George, 2008).

Ainsworth et al. (1978) found that children classified as secure, used their mothers as a secure base for exploration. They miss their parents and show signs of distress when separated from them, and seek contact and comfort from parents upon reunion. Securely-attached children are able to be comforted by their parents, following which they return to exploration. Children who are classified as insecure-avoidant in relation to attachment, explore readily without reference to their parents. There is little or no visible distress upon separation and they do not seek contact when reunited with their parents. Avoidantly-attached children actively avoid their parents by focusing on toys, looking away, or stiffening and pulling away when picked-up or cuddled. Children classified as anxious-ambivalent/resistant are visibly anxious upon entering the room, avoid exploration and remain focused on their parents. They show distress when separated but fail to be comforted by their parents upon reunion. Reunions are characterised by alternating contact-seeking and angry rejection, or children may be too passive and overwhelmed by their distress to seek contact. Finally, children classified as disorganised/disorientated attachment display a lack of organisation in their attachment responses. Behaviour may be contradictory, inexplicable, fearful, stereotyped and/or confused; indicating a temporary collapse of behavioural strategy. Examples of disorganised behaviour include freezing and trance-like states or contradictory behaviours such as crying inconsolably and clinging to the parent while leaning and looking away (Hesse, 2008; Solomon & George, 2008).

Vocabulary, MILTA - A set of intelligence tests (Otar & Morialy, 1966)

The MILTA vocabulary questionnaire includes 25 items of increasing difficulty. For each item the the participant is presented with a word and is asked to choose a the most appropriate synonym out of 5 possible alternatives.

Appendix VI. Notification of Ethical Approval

Notification of Ethical Approval

Essi Viding > 11 August 2011 16:19
To:
Ethical Approval

Dear Tony and Kim,

I have approved the research in principle (see below), but will need a copy of risk assessment form in my file. These can be downloaded form intranet and I would be grateful if you could pop one into internal post for me.

All the best,
Essi

The CEHP RD Ethics Chair has approved your application.

Researchers:Tony Roth and Kim Wyatt-Brooks

Number: CEHP/2011/009
Title:The influence of attachment and arousal on therapists' mentalizing ability

Please do make sure that the data you gather are stored anonymously.

Please remember, in general to observe the Code of ethics and conduct. Leicester: The British Psychological Society, March 2006, and in particular to follow the 'Guidelines for minimum standards of ethical approval in psychological research'. Leicester: The British Psychological Society, July 2004 when conducting your research.

Yours sincerely,

Essi Viding

CEHP RD Ethics Chair

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Essi Viding, PhD
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Co-Director of Developmental Risk and Resilience Unit
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http://www.ucl.ac.uk/psychlangsci/staff/cehp-staff/e_viding
http://www.ucl.ac.uk/clinical-psychology/Research-Groups/DVR/index.htm

Appendix VII. Participant information sheet

Participant information sheet

Research Department of Clinical, Health and Educational Psychology

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Individual differences in response style to clinical videos

I would like you to participate in my research project.

You should only participate if you want to; choosing not to take part will not disadVantage you in any way. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the research about?

The study is investigating the influence of individual differences on peoples' response to clinical videos depicting a 'client' in therapy.

What is Involved?

Participation in the study will involve meeting with me (Kim Wyatt-Brooks) at the Clinical Psychology Department at UCL. The meeting will last for approximately 30-45 minutes and will involve completing two self-report questionnaires, and then watching three short video recordings of 'clients' (played by actors). After each video you will be asked to respond as though you are the client's therapist. You will then be invited to comment on your own response and add anything further, should you wish to do so.

Responses will be recorded so that they can be anonymously coded afterwards. Identifying details and information gathered as a result of participation in this study will be kept entirely confidential.

Do I have to take part?

Taking part is voluntary. If you do not want to take part, you do not have to give a reason and no pressure will be put on you to change your mind. You can withdraw from the project at any time. If you choose not to participate, or to discontinue participation, this will not lead to any penalty of any kind.

What are the risks and benefits of taking part?

The kind of material that will be covered will be similar to that of clinical work. It is unlikely that this will be upsetting although it is possible that you may feel uncomfortable with the clinical material. Having said this, we think that talking part is likely to be enjoyable and provide an interesting opportunity to think about your individual responses in relation to clients.

What happens to my information?

All the information we gather during the study will be confidential, anonymous and used for the purposes of this study only. The recordings will be anonymously coded and the digital files will be deleted at the end of the study. All reports or publications

resulting from the study will not reveal the identity of anyone who took part. In accordance with the Data Protection Act 1998 all data will be stored securely.

What do I do now?
If you would like more information about this study or if you think you would like to participate, please contact me using the contact details below. Prior to taking part in the research you will be given a copy of this information sheet to keep, and a consent form to sign. If at any point you have any concerns about the study, please feel free to discuss these with me (contact details below).

Thank you very much for considering taking part in this study.

Kim Wyatt-Brooks
Trainee Clinical Psychologist

Telephone:
Email:
Address: Research Department of Clinical, Educational and Health Psychology
University College London
Gower Street
London WC1E 6BT

Appendix VIII. Participant consent form

Participant consent form

Research Department of Clinical, Health and Educational Psychology

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Individual differences in response style to clinical videos
This study has been approved by the UCL Research Ethics Committee.

Participant's Statement

I _____ agree that I have:

- read the information sheet and/or the project has been explained to me orally;
- had the opportunity to ask questions and discuss the study;
- received satisfactory answers to all my questions or have been advised of an individual to contact for answers to pertinent questions about the research and my rights as a participant and whom to contact in the event of a research-related injury.
- I understand that my participation will be recorded and the recording will be coded for subsequent data analysis.

I understand that I am free to withdraw from the study without penalty if I so wish. I consent to the processing of my personal information for the purposes of this study only and that it will not be used for any other purpose. I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.

Signed _____

Date _____

Investigator's Statement

I Kim Wyatt-Brooks confirm that I have carefully explained the purpose of the study to the participant and outlined any reasonably foreseeable risks or benefits (where applicable).

Signed _____

Date _____

Telephone:
Email:
Address: Research Department of Clinical, Educational and Health Psychology
University College London
Gower Street
London WC1E 6BT

Appendix IX. Video Vignette Scrips

Introductory practice script

I was telling this guy at work about you. He's got lots of issues and he said he'd like to talk to someone too. I told him to speak to his GP but he doesn't want to let him know he's got problems. it would be great if you could have a talk with him – would you be able to do that do you think?

Control script

Character description

The patient is motivated, conscientious and ambitious. She is a perfectionist and has high standards for herself and others. She places a considerable degree of importance on her career, sometimes believing that her self-worth depends on her success at work. Although she is inclined to be anxious and doubt her own abilities, she generally has a positive view of herself and others. In relationships, she is generally comfortable with intimacy and independence - striking a healthy balance between the two.

Additional information about the abstract

The patient has reached crisis point. Although she is usually a reasonable individual, she now feels as though her career is falling apart which, to her, means she is worthless and a complete failure.

Script

[Agitated, distraught] I just… I don't know what to do. Everything's falling apart at work… You know I told you about my new boss? Alex? He started last month.

You know how important my job is to me. I've told you before – it's my life … I've worked so hard to get where I am. It means everything to me!

But…. I just can't take it. Alex hates me. I don't know why, I don't know what it is, what I've done - but he's just got it in for me. Everything I do is wrong. Everything. And then to cap it all he humiliated me in front of my biggest patient. Made me look like an idiot.

I've typed up my resignation. All I need to do is press 'send' and it's done. I know it's crazy but I don't care right now!… I just feel I've got to out of there. I can't take this any longer ……. but my job is everything. Everything!!!

I don't know what to do - you have to tell me what to do! [pleading/ demanding]

Dismissing patient (Anxious-attachment activating script)

Character description

The patient places a great deal of important on independence, to the exclusion of close relationships with others. She sees herself as self-sufficient, invulnerable to feelings of attachment to others, and not needing close relationships. She tends to suppress her feelings, dealing with potential rejection by distancing herself from partners and other close relationships. She feels very uncomfortable with closeness and dependence, and worries that others want to get 'too close' to her. She generally views herself positively and others negatively.

Additional information about the abstract

In this abstract, she is generally dismissive – she doesn't need Sam or the therapist. She is uncomfortable with intimacy and therefore feels safer rejecting Sam and the therapist, before they get too close to her. It is important to note that she is not aggressive or attacking.

Script

Sam and I broke up… Of course we did! I couldn't stand the clinginess anymore. He was suffocating me…. Just when I thought things were going alright… I was stupid. I should never have opened up… But then Sam became insufferable. I had to get out!

I couldn't stand it……..… I can't stand this! I don't need this now! I don't need to sit in this room and talk about feelings. As though I need help. As though you can help me. You're the only one who thinks this is working, not me.

This is pointless. I'm sick of coming here and talking while you sit there with your 'sympathetic' nods and really, you don't give a shit about me; this is just a job to you. You're paid to sit there and listen and pretend to care. [Humourless laugh/snigger] Maybe that's not it. Maybe it's you that needs me? Maybe you need me to cry every week and tell you how I can't live without you? Well I hate to disillusion you – but I don't need you. I've survived for years without you, just like I will once I walk out that door….

Are you going to say something? Shall we just call it a day?

Preoccupied patient (Avoidant-attachment activating script)

Character description

In relationships, the patient desires high levels of intimacy, approval and responsiveness from others, often becoming overly dependent. The patient is very frightened of abandonment and tends to be suspicious and mistrustful of others, fearing that they will leave her. She is liable to become very emotional and worried, and act impulsively in close relationships.

Additional information about the abstract

In this abstract, the patient is driven by two emotions: the overwhelming need for intimacy and the terrifying fear of rejection. She desperately wants

to declare love for the therapist in the hopes that the feelings are mutual, however she is terrified of declaring her love, because she fears she will get rejected - like she has been so many times in the past.

Script

Last night I felt so alone again. I couldn't stop crying... I just couldn't stop thinking about how bad my life is. I just can't seem to find the right person, no one cares about me, no one ever has ….

Except for you I guess… you're always here for me. You're always so calm, so caring... and all I do is moan about my pathetic life....

I know it's stupid, but every week I… worry that this week I'll come along and you won't be here. Or you'll tell me to stop coming...

I just realised how much I.... well... I need you and I… well I worry that if I say it out loud…

I don't know how to say this… I should be honest right? …It's like I've kind of fallen in love with you. And well... I hope you care for me too. [increasingly intense anxiety] No… I shouldn't have said that! [frightened].. I couldn't bear it if you didn't feel something for me…

How do you feel? Please… say something [pleading].

Appendix X. The Experiences in Close Relationships-Revised (ECR-R)

The Experiences in Close Relationships-Revised (ECR-R) Questionnaire

Fraley, Waller, and Brennan (2000)

Appendix XI. Reflective Function Questionnaire

Reflective Function Questionnaire

Please work through the next 54 statements. Choose the one response that you feel describes you most clearly. Choose any number between 1 and 7 to say how much you disagree or agree with the statement. Strongly disagree is 1. Strongly agree is 7. Neither agree nor disagree is 4.

Do not think too much about it - your initial responses are usually the best. Thank you.

	Strongly DISAGREE						Strongly AGREE
1. People's thoughts are a mystery to me.	1	2	3	4	5	6	7
2. It's easy for me to figure out what someone else is thinking or feeling.	1	2	3	4	5	6	7
3. My picture of my parents changes as I change.	1	2	3	4	5	6	7
4. I worry a great deal about what people are thinking and feeling.	1	2	3	4	5	6	7
5. I pay attention to the impact of my actions on others' feelings.	1	2	3	4	5	6	7
6. It takes me a long time to understand other people's thoughts and feelings.	1	2	3	4	5	6	7
7. I know exactly what my close friends are thinking.	1	2	3	4	5	6	7
8. I always know what I feel.	1	2	3	4	5	6	7
9. How I feel can easily affect how I understand someone else's behaviour.	1	2	3	4	5	6	7
10. I can tell how someone is feeling by looking at their eyes.	1	2	3	4	5	6	7
11. I realise that I can sometimes misunderstand my best friends' reactions.	1	2	3	4	5	6	7
12. I often get confused about what I am feeling.	1	2	3	4	5	6	7
13. I wonder what my dreams mean.	1	2	3	4	5	6	7
14. Understanding what's on someone else's mind is never difficult for me.	1	2	3	4	5	6	7
15. I believe that my parents' behaviour towards me should not be explained by how they were brought up.	1	2	3	4	5	6	7

16. I don't always know why I do what I do.	1	2	3	4	5	6	7
17. I have noticed that people often give advice to others that they actually wish to follow themselves.	1	2	3	4	5	6	7
18. It's really hard for me to figure out what goes on in other people's heads.	1	2	3	4	5	6	7
19. Other people tell me I'm a good listener.	1	2	3	4	5	6	7
20. When I get angry I say things without really knowing why I am saying them.	1	2	3	4	5	6	7
21. I'm often curious about the meaning behind others' actions.	1	2	3	4	5	6	7
22. I really struggle to make sense of other people's feelings.	1	2	3	4	5	6	7
23. I often have to force people to do what I want them to do.	1	2	3	4	5	6	7
24. Those close to me often seem to find it difficult to understand why I do things.	1	2	3	4	5	6	7
25. I feel that, if I am not careful, I could intrude into another person's life.	1	2	3	4	5	6	7
26. Other people's thoughts and feelings are confusing to me.	1	2	3	4	5	6	7
27. I can mostly predict what someone else will do.	1	2	3	4	5	6	7
28. Strong feelings often cloud my thinking.	1	2	3	4	5	6	7
29. In order to know exactly how someone is feeling, I have found that I need to ask them.	1	2	3	4	5	6	7
30. My intuition about a person is hardly ever wrong.	1	2	3	4	5	6	7
31. I believe that people can see a situation very differently based on their own beliefs and experiences.	1	2	3	4	5	6	7
32. Sometimes I find myself saying things and I have no idea why I said them.	1	2	3	4	5	6	7
33. I like to think about the reasons behind my actions.	1	2	3	4	5	6	7
34. I normally have a good idea of what is on other people's minds.	1	2	3	4	5	6	7
35. I trust my feelings.	1	2	3	4	5	6	7

36. When I get angry I say things that I later regret.	1	2	3	4	5	6	7
37. I get confused when people talk about their feelings.	1	2	3	4	5	6	7
38. I am a good mind reader.	1	2	3	4	5	6	7
39. I frequently feel that my mind is empty.	1	2	3	4	5	6	7
40. If I feel insecure I can behave in ways that put others' backs up.	1	2	3	4	5	6	7
41. I find it difficult to see other people's points of view.	1	2	3	4	5	6	7
42. I usually know exactly what other people are thinking.	1	2	3	4	5	6	7
43. I anticipate that my feelings might change even about something I feel strongly about.	1	2	3	4	5	6	7
44. Sometimes I do things without really knowing why.	1	2	3	4	5	6	7
45. I pay attention to my feelings.	1	2	3	4	5	6	7
46. In an argument, I keep the other person's point of view in mind.	1	2	3	4	5	6	7
47. My gut feeling about what someone else is thinking is usually very accurate.	1	2	3	4	5	6	7
48. Understanding the reasons for people's actions helps me to forgive them.	1	2	3	4	5	6	7
49. I believe that there is no RIGHT way of seeing any situation.	1	2	3	4	5	6	7
50. I am better guided by reason than by my gut.	1	2	3	4	5	6	7
51. I can't remember much about when I was a child.	1	2	3	4	5	6	7
52. I believe there's no point trying to guess what's on someone else's mind.	1	2	3	4	5	6	7
53. For me actions speak louder than words.	1	2	3	4	5	6	7
54. I believe other people are too confusing to bother figuring out.	1	2	3	4	5	6	7

Appendix XII. Preliminary themes

Preliminary themes

	Dismissing Patient (Video A)	Preoccupied Patient (Video B)
Secure attachment	• clear and concise • clearly and non-reactively reflects patient's feelings about therapist and therapy • lots of reflecting back what the patient has said • inviting the patient to think/talk more about the issue, without actually addressing the issue or taking responsibility for it • clear about leaving the decision with the patient • making links in the patient's narrative • acknowledging that the patient may want to leave and it is their decision • responses appear reflective and balanced, not reactive or emotional	• normalizing feelings • praising honesty and courage • clear narrative • making links • invitation to think/talk about the issue • emphasis on situating where the patient's feelings might be coming from • professional boundaries • generally non-rejecting
Dismissing attachment	• dismissing feelings • superficial reflection • no comment on the impact on the therapist/self • avoidance of responsibility • blaming of patient • some incoherence and long pauses • avoid addressing the question/issue	• avoiding addressing the issue • glib • some incoherence and long pauses • no detailed/sophisticated account of feelings • avoidance of intimacy

	Dismissing Patient (Video A)	Preoccupied Patient (Video B)
Fearful attachment	• confusing • contradictory • ambivalent • not a thoughtful/processed narrative, more like the participant says whatever comes into their head • strange/unusual focus, e.g. what it's like to be alone • responses are not helpful/do not add anything to what the patient has already said • difficulty thinking and communicating thoughts effectively • reference to/focus on self, e.g. I am a human being... • boundary and therapist's role seems unclear • rejection of mentalizing/ patient's mental state e.g. we possibly need to look at that *later* • reactive response, e.g. participants sound as though they are hurt/taken aback, but don't articulate these feelings	• incoherence • rambling • emphasis on thanking the patient for their honesty • avoiding addressing the issue/ answering the question • response doesn't add anything to the patient's narrative • dismissing e.g. we could talk about it more *later* in the session
Preoccupied attachment	• loosing train of thought/ difficulty thinking, or • detailed discussion of feelings • taking on personal responsibility • reference to/focus on self • waffling • focus on resolving the problem	• loosing train of thought/ difficulty thinking/disengaging from the task • talk about and emphasis on professional boundaries • interpreting patient's feelings • verbose and detailed responses/going off the point • anxiety about rejecting the patient, but can sometimes come across as rejecting none-the-less • reference to/focus on self • personal emotional investment in relationship