

The Impact of Attending a Psycho-educational Antenatal Group
on the Observed Parent – Infant Relationship

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A thesis submitted to the University of Hertfordshire in partial
fulfilment of the requirements of the degree of Doctor
of Clinical Psychology

June 2012

Word Count

(excluding contents, references and appendices):

30, 780

ACKNOWLEDGEMENTS

I would like to thank all of the parents and infants who generously gave up their time and allowed me into their homes. It was a privilege to meet you all and I am extremely grateful to you. Thank you to my supervisors, Dr Tejinder Kondel and Dr Keith Laws for your invaluable guidance, comments and expertise. A special thanks goes to Neil Howlett, who went above and beyond the call of duty!

I am extremely grateful to my parents. Never has it been more evident to me the importance of those early years. Words cannot express how grateful I am for everything you have done for me or how proud I am to have you as my parents. I would also like to thank Grandpa, Nana, Christina, Matthew, Annabella and Jake for your love and always supporting me to follow my dreams.

To Dr Pennington-Twist, despite the geographical distance, you have never felt far away. Thank you for always cheering me on, inspiring me and being on my side. In the words of Shania Twain, “it looks like we made it”!

To Dr Sam Waldron, thank you for honouring your word! Thank you also to Dr Cerith Waters, for always answering the phone even when you must have known it was going to be a question about statistics! Thank you also to Nikki, Josie, Lucy, Jo, Jonty and Suze for your friendship, support and many good times.

Last but no means least I would like to thank Daniel Langasco. Your never-ending patience, support and general domestic duties have not gone unnoticed. I don't dare to think how much more difficult this would have been without you – you have kept me focused, afloat and sane and I could not have done this without you. Thank you for sharing this journey with me.

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ABSTRACT

The important implications of the attachment relationship have led researchers to consider what the precursors to a secure attachment relationship are. Ainsworth, Bell, and Stayton (1971) proposed that maternal sensitivity was the fundamental trait in developing a secure attachment relationship. However, recent research has identified that mind-mindedness; the tendency of a parent to treat their infant as an individual with a mind (Meins, Fernyhough, Fradley & Tuckey, 2001), is a better predictor of parent – infant attachment than maternal sensitivity.

This study explored the impact of a new antenatal intervention called Baby World on the subsequent mind-mindedness of participants as well as its impact on the parent – infant relationship. Participants who had attended the Baby World class and standard NHS antenatal classes (intervention group, N=21) were compared to those who had only attended standard NHS antenatal classes (control group, N=19). The study also explored whether planned pregnancies led to more mind-mindedness than unplanned pregnancies; whether emotional and physical wellbeing in pregnancy predicted mind-mindedness and if there was any concordance between couples' mind-mindedness.

Results showed that participants in the intervention group used significantly more appropriate mind-minded comments than those in the control group. The intervention group also scored significantly higher than the control group on the Absence of Hostility subscale of the Maternal Postnatal Attachment Scale (MPAS, Condon & Corkindale, 1998). There was a non-significant trend of the intervention group scoring higher than the control group on the overall MPAS score as well as the Pleasure in Interaction subscale of the MPAS. The results also illustrated that emotional and physical wellbeing in pregnancy did not predict mind-mindedness and no concordance between couples' mind-mindedness was found. Theoretical explanations of these findings are presented and the clinical implications and future research are discussed.

CHAPTER ONE

1. INTRODUCTION

During clinical psychology training, trainee clinical psychologists work with children and adults across the lifespan all of whom have different needs and have had different experiences. Throughout all of these encounters, the attachment relationship is a core feature of the work. Psychologists are expected to use research and guidelines to inform their practice. There has been a recent push for preventative, early interventions which influence the attachment relationship and thus promote the mental well-being of future generations. Research suggests that these interventions also provide immediate rewards to individuals and local communities and as well as impacting on mental well-being, they also have important health, behaviour, social and economic outcomes. It is for these important reasons that the research described was undertaken as it was felt that enhancing secure attachment relationships is the most crucial task in clinical psychology today.

In the introduction, relevant research will be used to support the following argument: That participants who attended an antenatal attachment based class called Baby World as well as standard NHS antenatal classes will make significantly more appropriate mind minded comments than participants who only attended standard NHS antenatal classes. The rationale being that the Baby World class encouraged participants to gain a greater understanding of their baby's world and indeed promote secure attachment and emotional well-being for both parent and child.

Following on from the introduction the methodological strategies used in the research will be discussed and then the results will be presented. In the discussion section the clinical implications of the results and their relevance to the literature will be put forward and the study's strengths and limitations will also be acknowledged.

1.1. OVERVIEW

According to Bowlby (1969), the most important relationship that a child forms is within its first year of life with its primary care giver, typically, the mother. More recent research has also highlighted the importance of the father - infant relationship (Braungart-Rieker, Garwood, Powers & Wang, 2001). The importance of these relationships (parent - infant) have been well documented (Aoki, Zeanah, Heller & Bakshi, 2002) and research suggests that they have an impact on the cognitive (Stams, Juffer & Van IJzendoorn, 2002), social (Pastor, 1981) and emotional development (Kochanska, 2001) of children. Attachment relationships formed in infancy are also believed to influence the trajectories of individuals across the lifespan (Magai & Cohen, 1998). Ainsworth, Blehar, Waters and Wall (1978) proposed that maternal sensitivity, that is a mother's ability to correctly identify what her infant wants or needs, and to respond accordingly, is the most important factor associated with secure attachment. However, more recent research by Meins et al. (2001) suggests mind-mindedness: a parent's ability to treat their infant as one who has their own mind rather than one with merely physical needs, (Meins, 1997) is a stronger predictor of secure attachment than maternal sensitivity.

1.1.1 Overview of the Current Study

Interventions aimed at improving the attachment relationship are of great importance and should be available for more parents (Pinquart & Teubert, 2010). In recent years, policy makers have started to address the need for preventative, early intervention which focuses on the parent – infant relationship (e.g. Graham Allen, MP, Frank Field, MP, Andrea Leadsom, MP). Fonagy (1998) highlights the limited research in this area and suggest that more research should be carried out on the impact of antenatal interventions due to their potential importance. The current study was interested in the impact of a novel antenatal attachment class, namely the Baby World class, on parent - infant attachment and observed mind-mindedness.

Following an outline of the literature review strategy, an introduction to attachment theory will be presented. The consequence of the attachment relationship will then be considered, after which hypotheses of the determinant factors in attachment will be

discussed. Finally, interventions aimed at influencing the attachment relationship will be reviewed with a particular emphasis on the importance of antenatal interventions.

1.1.2. Literature Search Strategy

An initial search for relevant papers was carried out using the PsycINFO database. The search terms ‘attachment’, ‘consequences of attachment’ and ‘implications of attachment’ were used, and produced over 11, 000 results. This was reduced by including terms such as ‘intervention’, ‘impact’ ‘class’ and ‘classes’. Key papers were read and relevant references for reviews and individual articles were taken.

From the reviews and articles, a list of further key search terms was compiled, including ‘care-giver-infant relationship’, ‘mentalisation’, ‘mind-mindedness’, ‘perinatal intervention’, ‘attachment and mental health’, ‘attachment and brain’, ‘attachment and lifespan’ and ‘care-giver relationship’. These terms were used to search in the following databases: PsycINFO, PubMed and Web of Science in addition to Google Scholar. Studies were only included if they were reported in English.

1.2. ATTACHMENT THEORY

Attachment theory was first developed by the British Psychiatrist and Psychoanalyst John Bowlby (1951). Attachment theory postulates that the most important relationship that a child forms is within its first year of life with its primary care giver “*the young child’s hunger for his mother’s love and presence is as great as his hunger for food*” (Bowlby, 1969, p.xiii).

Bowlby drew on concepts from ethology, cybernetics, information processing, developmental psychology and psychoanalysis to develop the theory of attachment and in doing so, inspire new ways of thinking about the bond between a mother and infant (Bretherton, 1992). Mary Ainsworth, further developed attachment theory by proposing the concept of the attachment figure as a secure base from which the infant

can explore the world. She also introduced the notion of maternal sensitivity (i.e. being aware of an infant's needs and responding accordingly).

Attachment theory (Bowlby, 1969, 1973) suggests that the attachment relationship between care-giver and infant is necessary for survival where infants could develop as a "secure" or "insecure" attachment depending on the behaviour of the care-giver. Bowlby (1973) suggested that through the attachment relationship the infant develops internal working models of the self and others. These internal models allow for the prediction of others' behaviour and planning for a response to this behaviour (Zimmerman, 1999). In what would later be termed maternal sensitivity, Bowlby (1973) suggested that the content of an individual's internal working model is largely determined by the emotional availability and responsiveness to the child from the primary care giver.

An infant's attachment system is activated in times of distress as a means of gaining safety (Bowlby, 1973). When the infant is in a familiar situation, with no threat being perceived and the attachment figure being present, the infant is likely to explore the environment with confidence. In such cases the attachment figure is known as a 'secure base' (Ainsworth et al., 1978). At times of stress and unfamiliarity the infant is likely to experience distress or anxiety. Attachment behaviours (crying, clinging, and calling out) are then used to seek out the attachment figure. Hence, attachment theory is a theory about protection from threat (Crittenden, 2005).

Ainsworth et al. (1978) operationalised Bowlby's (1969, 1973) theory by developing the 'Strange Situation', a laboratory procedure involving separations and reunions between the care-giver and the infant. From this Ainsworth et al. (1978) developed three distinct categories of attachment:

- *Securely Attached Infants* demonstrated some distress when separated from their care-giver and were easily comforted on their return.
- *Avoidant Infants* did not show distress on being separated from their care-giver and ignored them upon their return.
- *Resistant/Ambivalent Infants* were already distressed before their care-givers' departure and did not show comfort on their return.

Main and Solomon (1986) later reviewed a large number of infants who had initially appeared unclassifiable and developed criteria for identifying a fourth attachment pattern:

- *Disorganised Infants* responded to the return of their care-giver with contradictory and confusing behaviours (e.g. freezing, appearing apprehensive, and moving in an undirected manner).

It has been stressed by Bowlby and others that the attachment relationship has important consequences for the development of the child and across the lifespan. Such consequences have been considerably researched and a summary of the findings is discussed below.

1.3. IMPLICATIONS OF ATTACHMENT

1.3.1. Brain Development

Schore (2001) argues that the old debate between nature versus nurture is a false one and that both play a part in the developing brain. He argues that children are born with different temperaments and genetic endowments but that environments make a significant difference. Genes will govern which type of brain cell will be created, however, whether a neuron will develop its potential depends on the environment. While some parts of the brain which play an important role in social relationships are hard wired (i.e. a preference for faces over geometric forms), early bonding and attachment experiences result in a variety of biochemical processes that stimulate and enhance growth and connectivity of neural networks throughout the brain (Schore 2001).

When an infant is born it has more neurons and synapses than it will need (Huttenlocher & Dabholkar, 1997). In the first year of life the infant brain goes through a process of *synaptic pruning* (apoptosis) where it organises, disorganises and reorganises neurons, that is, it gets rid of unused neurons (Perry, 2002). The process of

synaptic pruning is dependent on the infant's experiences of which neurons and neural pathways have been used. For example, if an infant is appropriately stimulated then pathways will develop in effective communication. However, if this does not happen within the first year of life then an infant may not develop these pathways and will lose the neurons that are necessary for the function of effective communication. When looking at computed axial tomography (CAT) scans of the brains of people with nurturing early experiences compared to those with neglectful or under-stimulated experiences, research has found that the brain overall is significantly smaller in the latter group (Perry, 2002, see Figure 1). There are fewer synapses, there is evidence of abnormal development of cortex (cortical atrophy) and both the hippocampus and the limbic systems are smaller.

In a young infant the brain is malleable and the developing brain is experience dependent. *"The exceptionally strong influence of early experience on brain architecture makes the early years of life a period of both great opportunity and great vulnerability for brain development"* (National Scientific Council on the Developing Child, 2007, p. 1). This means that care-givers who do not provide a safe and secure relationship for their infant can impact on their brain structure, nervous system and stress hormone regulatory systems (Stewart-Brown & Schrader-McMillan, 2010). Over time the brain becomes increasingly inflexible and as such the early experiences can become imprinted on the maturing neurobiological structures (Schoore, 2001). Therefore, an infant may continue to behave in particular ways even if the care-giver environment changes (Balbernie, 2001).

Furthermore, when care-givers' interactions with their infants do not lead them to feel safe, they have been found to produce higher levels of the stress hormone, cortisol. These infants will subsequently produce cortisol when there is only a slight trigger relating to threat; the infant will experience a quick increase in cortisol and other related hormones, and will respond impulsively and anxiously, as if under high levels of threat.

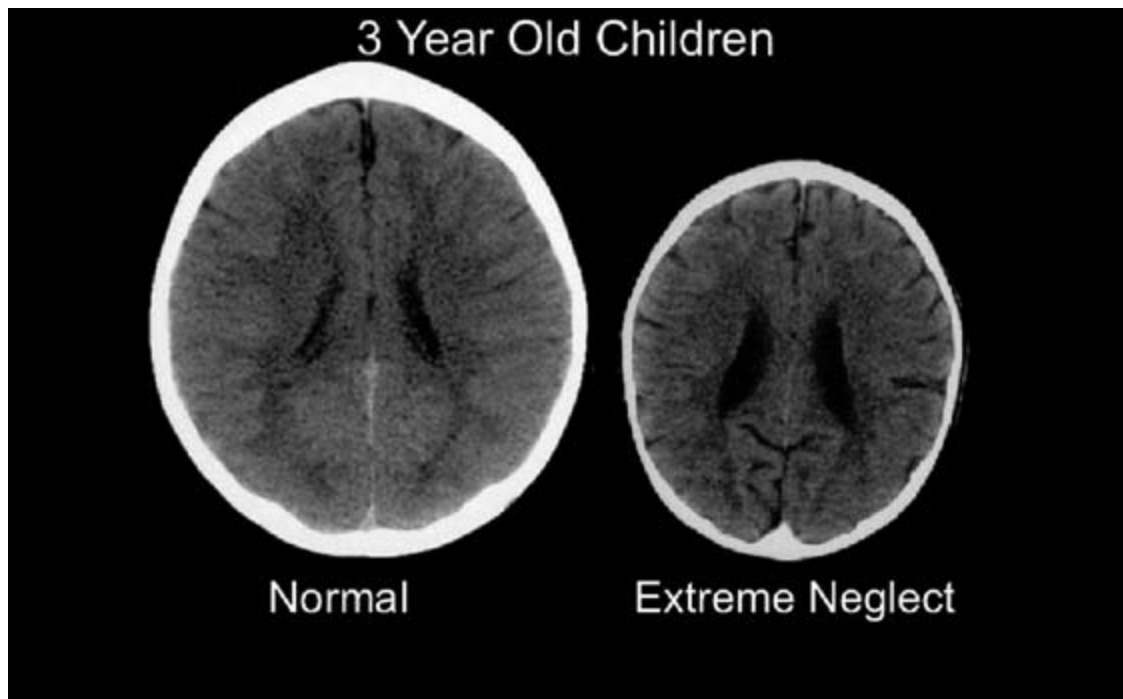


Figure 1: A CAT scan showing differences in brain development between 3 year old children with different care-giver-infant relationships (Perry, 2002).

1.3.2. Emotional and Social Development

In a secure attachment relationship, the infant will reach out to develop bonds and the care-giver will respond in warm, stimulating and consistent ways. This relationship helps the baby to develop trust, empathy and well-being (Allen, 2011).

It is thought that the 'sensitive window' for learning empathy and emotional sensitivity via the attachment relationship is in the first two years of life (Shore, 1997). A lack of empathy for others can lead to future antisocial and violent behaviour (Goleman, 1996; Karr-Morse & Wiley, 1997). Attachment relationships influence a child's ability to form and maintain social relationships. In a longitudinal study of 96 children, Bohlin, Hagekull and Rydell (2000) found that children who had shown secure attachment styles as infants were more socially active, positive and popular and reported less social anxiety than their counterparts. Greenberg and Speltz (1988) note that children with insecure attachment relationships are more likely than those with secure attachment styles to demonstrate aggression and non-compliance in early childhood. As established in longitudinal research, these behaviours portend future

problem behaviour, emotional instability and delinquency in adolescents and adults (e.g. Olwens 1979; Robins, 1966).

The attachment relationships that an infant has with its primary care-giver are thought to influence an individual's ability to make and maintain relationships across the lifespan (Levy, 2000). Indeed, Brennan and Shaver (1995) found that adults with secure attachment styles (as measured by the Adult Attachment Interview, AAI; George, Kaplan, & Main, 1985) reported higher levels of romantic relationship satisfaction than those with insecure attachment styles.

By contrast, some forms of insecure attachment are associated with significantly elevated levels of perpetrating domestic violence (Dutton & Corvo 2006) and higher levels of alcohol and substance misuse (Walsh, 1992).

There is also strong evidence for intergenerational patterns of attachment (Bowlby, 1973; Aviezer, Sagi, Joels, & Ziv, 1999; Dozier, Stovall, Albus, & Bates, 2001; Fonagy, Steele, & Steele, 1991; Main, Kaplan, & Cassidy, 1985; Ward & Carlson, 1995) with research suggesting that children with insecure attachment styles are more likely to have insecure attachment styles with their own children.

1.3.3. Mental Health across the Lifespan

Many researchers argue that attachment theory alone offers a developmental explanation of the course of psychological disorders across the lifespan (Levy, 2005). Indeed, Bowlby (1969) proposed that attachment relationships are the major determinants of personality organisation and pathology. According to Borman and Cole (1993) and Magai and Cohen (1998) individuals with secure attachment styles are cheerful, likeable and characterised by the absence of mental health difficulties whereas individuals with insecure attachment styles have been associated with a number of mental health difficulties. For example, Bowlby (1973) suggested that avoidant attachment styles develop from the child being rebuffed for comfort and love who may later be "*diagnosed a narcissistic*" (Bowlby, 1973, p.124). Borderline Personality Disorder (BPD) has also been associated with insecure attachment. BPD is

characterised by an individual's pattern of chaotic interpersonal relationships, chronic fears of abandonment, emotional lability, poor impulsive control, self-harming behaviour and suicidal behaviour (Levy, 2005). Bowlby connected anxious ambivalent attachment to a "*tendency to make excessive demands on others and to become anxious and clingy when needs are not met*" (Bowlby, 1973, p.14), a behaviour pattern often seen in individuals diagnosed with BPD (Levy, 2005). In reviewing the research into attachment and BPD, Levy (2005) found that the number of securely attached individuals who had received a diagnosis of BPD was "*extremely low*" (Levy, 2005 p. 973) ranging from 0-30% with 6-8% being the mean average. It was also found that there was not a single attachment style amongst people with BPD. In several studies, people with BPD reported their parents as neglectful, uncaring, under involved and as having mental health difficulties (including depression and alcoholism) (Levy, 2005).

Ambivalent attachment styles have been associated with heightened anxiety and depression (Borman & Cole, 1993) Indeed, Haaga et al. (2002) compared 25 individuals who had experienced at least one episode of depression to 25 people who had not experienced depression and found that depressive symptoms are negatively correlated with secure attachment. The authors suggest that insecure attachment styles are a vulnerability factor for depression (Haaga et al., 2002) although Ma (2006) argues that a causal relationship cannot be inferred from these findings.

Bowlby (1973) suggested that anxiety disorders can be explained by anxiety over the availability of an attachment figure. An anxious child may worry about the safety of a care-giver or rejection from the care-giver. The early experiences of separation and/or rejection by the care-giver may lead the child to develop an insecure internal working model (Ma, 2006).

1.3.4. Ageing, Dementia and Loss

Bowlby (1969) suggested that attachment behaviour plays a role into adulthood and older adulthood. Indeed, the attachment relationships formed in early childhood affect the quality of interpersonal relationships across the lifespan (Magai & Cohen, 1998).

Weiss (1991) argues that attachment security is a key concept of relationships in adult life, albeit often with a friend or a partner. Magai and Cohen (1998) suggest that older adults with secure attachment styles were more likely to have large social support networks and to have received and given more help. Besser and Priel (2008) suggest that securely attached older adults report greater life satisfaction and better physical health. Older adults with insecure attachment styles were more likely to be self-reliant (Magai & Cohen, 1998) and had a negative sense of their self-worth (Besser & Priel, 2008).

Although Bowlby did not carry out any research in attachment with older adults, he did emphasise how attachment systems are activated in times of distress (Bowlby, 1980). Ill health, loss and change become more frequent with ageing (Browne & Shlosberg, 2006) and coping with them becomes one of the key developmental tasks that older adults must deal with (McCarthy & Davies, 2003). As such, the need to seek closeness with another person may become more prominent during these times. Indeed Magai and Passman (1997) emphasize that as social networks narrow in later life, attachment relationships become more important.

Attachment styles are also believed to influence how older adults experience certain organic difficulties. For example, Magai and Cohen (1998) found that individuals with dementia who had a premorbid avoidant style of attachment were more likely to experience emotions and behaviour such as anger and contempt. Those with a premorbid ambivalent attachment style were more likely to experience anxiety and stress during dementia.

Bowlby's (1973) original attachment theory suggested that attachment behaviours would be most strongly activated in times of stress. Clearly, bereavement can be considered a time of stress. However, there has not been a great deal of research on attachment styles and bereavement (Wayment & Vierthaler, 2002). Bowlby (1980) hypothesised that when bereaved, individuals who were securely attached would experience an intense period of grief involving searching, pining and attempts to recover the lost object. He also suggested that anxious-ambivalent individuals would experience more chronic grief lasting for longer periods of time that would essentially become a form of depression. Other researchers have described this type of reaction to

bereavement as ‘complicated grief’ (Wayment & Vierthaler, 2002). Individuals with avoidant attachment were predicted to cope with grief through ‘absent’ forms of grief and would disengage with their attachment systems, not experiencing emotional distress (Bowlby, 1980). Indeed, Wayment and Vierthaler (2002) found evidence to support Bowlby’s hypotheses with their study of 91 bereaved adults. They noted that individuals with an anxious ambivalent attachment style reported greater levels of grief and depression whereas individuals with a secure attachment style reported less depression. Furthermore, older adults with secure attachment styles were found to have lower levels of death anxiety (Besser & Priel, 2008).

1.4. ANTECEDENTS TO SECURE ATTACHMENT

The positive outcomes associated with secure attachment in infancy have resulted in researchers trying to find antecedents of secure attachment and gain a fuller understanding of how it is formed (Lundy, 2003; Whipple, Bernier & Mageau, 2011). Attachment theory was initially focused on the actions of the infant in determining the attachment relationship (Bowlby, 1973). More recently, attachment has been seen as an interactional process (Goulet, Bell, St-Cyr Tribble, Paul, & Lang, 1998) in which certain attachment attributes are necessary for the relationship to develop. Karen (1994) notes that both proximity (maintaining contact, physically and emotionally whilst recognising the infant as an individual) and reciprocity, (both parent and infant responding to each other’s cues appropriately) are essential for the growth of the attachment relationship. Ainsworth et al. (1978) highlighted that parents’ contribution to infant attachment was substantial and that parental sensitivity and responsiveness are key determinants to secure attachment (Browne & Shlosberg, 2006).

1.4.1. Maternal Sensitivity

Ainsworth et al. (1978) tested Bowlby’s theory and found that sensitivity, acceptance, cooperation and accessibility of the care-giver were all related to attachment security. These findings led Ainsworth et al. (1978) to conclude that maternal sensitivity is the most important factor associated with secure attachment.

Maternal sensitivity has been defined by Ainsworth, Bell, and Stayton (1971) as “*a mother’s ability to recognize her infant’s signals; to accurately interpret her infant’s perceptions; and, to use this information to engage in appropriate and well-coordinated interactions*” (cited by Lundy, 2003; p. 201). They suggested that the ability to correctly identify what infants wanted and to respond accordingly was the fundamental trait in developing a secure attachment base (Ainsworth et al., 1971). Furthermore, this theory suggests that insensitive mothers often misinterpret their infant’s behaviours and respond inappropriately to them. For example, an insensitive mother may attempt to “*socialize with the baby when he is hungry, play with him when he is tired, and feed him when he is trying to initiate social interaction*” (Ainsworth, Bell, & Stayton, 1974; p. 129). This theory suggests that a sensitive mother will foster competent exploration as the child trusts that the mother will be available should a threat occur (Whipple et al., 2011).

Hess and Main (1999) introduced the concept of ‘maternal representations’ which they described as parents’ perceptions of their own childhood attachment experiences and their beliefs about the impact of them on their current psychological functioning. A meta-analytic study by van IJzendoorn, Juffer and Duyvesteyn (1995) found that maternal representations affect how sensitive a mother will be to her infant’s needs. As such, maternal representations could also be an antecedent to attachment which is mediated by maternal sensitivity.

In an attempt to quantify this, De Wolff & van IJzendoorn, (1997) conducted a meta-analysis of studies exploring the link between maternal sensitivity and secure attachment. Although they found that infants with secure attachments were more likely to have sensitive mothers, the effect size was modest (0.24) suggesting that the link between maternal sensitivity and secure attachment may account for only a small variance of secure attachment. Other researchers have found similar findings (e.g. Atkinson et al., 2000a; Goldsmith & Alansky, 1987). This suggests the need to consider other factors in the study of infant attachment.

1.4.2. Mutuality and Synchrony

Due to difficulty in replicating Ainsworth's findings regarding maternal sensitivity, researchers have subsequently attempted to discover other antecedents to secure attachment relationships. De Wolff and van IJzendoorn, (1997) and Lundy (2003) argue against the notion that maternal sensitivity is the primary determinant of secure attachment formation and suggest that other factors must also be involved. In their review, De Wolff and van IJzendoorn, (1997) found that mutuality and synchrony were stronger predictors of infant attachment than maternal sensitivity. Mutuality is defined as when the mother and infant are attending to the same thing (Lundy, 2003). Interactional synchrony is defined as the "*extent to which an interaction appears to be reciprocal and mutually rewarding*" (Isabella, Belsky, & von Eye, 1989, p. 13) and asynchronous interactions are those which are not. Lundy (2003) found that interactional synchrony was a significant predictor of infant - father secure attachment and Isabella et al. (1989) found it to be a significant predictor of infant – mother attachment security.

1.4.3. Mentalisation and Reflective Functioning

In the last ten years there has become a shift of focus in understanding the antecedents to attachment. In particular, a parent's capacity to treat the child as a psychological agent has been seen as an increasingly important trait in the development of the parent – infant relationship (Sharp & Fonagy, 2008). Baron-Cohen, Tager-Flusberg and Cohen, (1993) have defined a psychological agent as an individual who can understand their own and others' intentions, beliefs and goals. One method in which a parent can treat their child as a psychological agent is through the process of mentalisation.

Mentalisation regards an individual's ability to make sense of one's own and others' behaviour. It has been described by Sharp and Fonagy (2008) as "*the capacity to ascribe thoughts, feelings, ideas, and intentions to ourselves as well as to others*" and to use this to "*anticipate and influence our own and others' behaviour*" (p.738). They suggest that a parent's capacity to mentalise with their infant plays a central role in the development of the attachment relationship which in turn influences the child's development of mentalising abilities and subsequent emotional and psychological development. The more accurate and appropriate that a parents' mentalising of their

child is, the more secure the attachment bond will be. Sharp and Fonagy (2008) propose that mentalising is a bidirectional process in that a parents' ability to mentalise with their child could be disrupted by child characteristics, for example, the child's temperament. This can be seen in figure two, in which a parent's own attachment relationship with their care-givers is also seen to influence attachment.

Whilst mentalisation refers to the ability to be aware of one's own and others' feelings, reflective functioning refers to the emotional process experienced with this, for example, the capacity to hold, regulate and fully experience their own and others' feelings without becoming overwhelmed or defensive (Slade, 2005). Slade, Grienenberger, Bernbach, Levy and Locker (2005) propose that reflective functioning allows a mother to create a safe psychological, physical and emotional space for the infant. Reflective functioning can be identified and measured using adult's narratives of their childhood or of their child and has found to be predictive of attachment security (Fonagy, Target, Steele, & Steele, 1998).

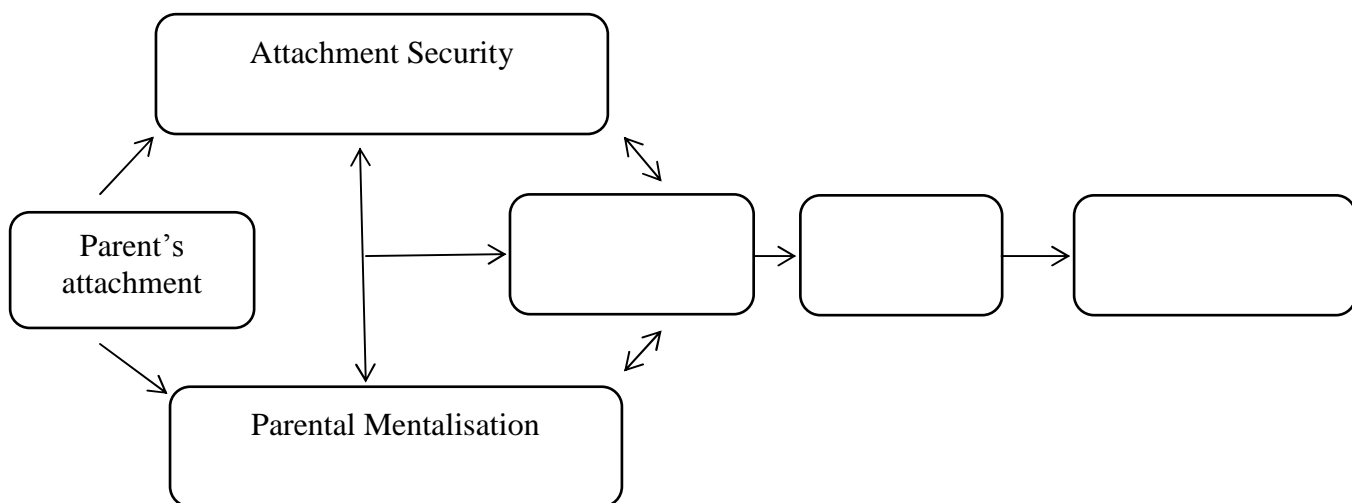


Figure 2: Model of Factors that Relate to Parental and Child Mentalisation and Subsequent Development of Emotional Regulation and Child Psychopathology (Sharp & Fonagy, 2008, p. 750).

1.4.4. Mind Mindedness

Another aspect of a parent's proclivity to treat their child as a psychological agent is known as mind-mindedness (MM). This concept, developed by Meins (1997) refers to

the way a parent thinks about their child and the consequential behaviours rather than the feelings of the parent. It was developed to understand what other aspects of caregiver behaviour were inherent in the development of secure attachment relationships. Furthermore, Meins et al. (2001) suggest that the concept of maternal sensitivity failed to distinguish between a mother's recognition of her infant's needs and her tendency to respond appropriately to them. Recent research has given credence to the importance of MM in both attachment security (Meins et al., 2001) and other facets of child development (Meins & Fernyhough, 1999), as such; this chapter will now focus on this concept.

1.4.2.1. History and Definition of Mind-Mindedness

MM has been defined as the “*proclivity to treat ones' infant as an individual with a mind, rather than merely an entity with needs to be satisfied*” (Meins et al., 2003, p. 1194). It is the propensity to view the child as a psychological agent (McMahon & Meins, 2012). It is important to note that MM is concerned with parents' representations of their children, rather than the child's behaviour in itself (Meins et al., 2011). Furthermore, McMahon and Meins (2012) suggest that parents who are mind-minded consider their child's behaviours to be the consequences of the child's internal mental and emotional processes and thus view the child's behaviours as meaningful. Mind related comments are the remarks that a parent makes about an infant's internal states, feelings or preferences.

The concept of MM was introduced by Meins (1997) in a return to the notion of maternal sensitivity where more emphasis is placed on the cognitive components of this concept (Demers, Bernier, Tarabulsky & Provost, 2010a). Meins (1999) found a significant association between MM and maternal sensitivity.

Vygotsky (1987) suggested that inner thought and inner speech is the result of internalization of social speech. MM theory expands on this notion by suggesting that children develop an understanding of their own and others' mental processing through the exposure to their parents' language based on mental states which they then began to associate with their own mental states and behaviours.

Meins et al. (2003) initially categorised mind related comments as appropriate or inappropriate depending on whether or not the comments were congruent with the infant's behaviour. In 2010, Meins and Fernyhough renamed inappropriate MM comments to non-attuned MM comments as appropriate mind related comments and non-attuned mind related comments have been found to be unrelated to one another (Arnott & Meins, 2007). Furthermore, they considered non-attuned to be a less value laden term than inappropriate.

1.4.2.2. Measures of MM

Several measures of MM have been established by Meins et al. (2001) and each was proposed to be distinctly associated with the 'reading' of infants' mental processes (Lundy, 2003). These include five classes of maternal behaviour that could be classified as MM. These were: a) maternal responsiveness to change in an infant's gaze; b) maternal responsiveness to an infant's object related gaze; c) imitation; d) encouragement of autonomy; and e) appropriate mind related comments. All of these behaviours can be observed in a parent - infant interaction. Although Meins and her colleagues have traditionally focused their research on the mothers of the child, Lundy (2003) has researched MM in fathers. She did not find evidence of any difference in the frequency of MM behaviour between genders. Each of the five maternal behaviours described previously were found to correspond to maternal sensitivity, however, only appropriate mind-related comments have been found to be a significant predictor of attachment security (Lundy, 2003). Meins et al. (2001) reported that the frequency of appropriate mind-related comments was actually a stronger predictor of attachment security than was maternal sensitivity.

Meins and Fernyhough (2010) have developed a coding manual for measuring MM comments for infants up to twelve months. Within this, they define mind related comments as "*any comment that (a) uses an explicit internal state term to comment on what the infant may be thinking, experiencing or feeling; or (b) 'puts words into the infant's mouth' with the care-giver talking on the infant's behalf*" (Meins & Fernyhough, 2010, p. 4-5). Any mind related comments are then coded as either

appropriate mind related comments or non-attuned mind related comments depending on whether the coder agrees with the care-giver's reading of the infant's internal state and whether or not the coder agrees with a comment about the current activity linking to the past or future. Further criteria for the comments being coded as non-attuned are: if the care-giver suggests that the infant play with a new activity when they are already involved and appear to be enjoying one already; if the comment about an internal state seems to be a projection about their own; or, if the comment is not clear (e.g. "you like that" when the infant is not playing or attending to anything).

Meins, Fernyhough, Russell, and Clark-Carter (1998) have also developed a MM interview in which they have asked mothers one question: "Can you describe [child] for me?" The answers are then transcribed verbatim and categorised using Meins et al.'s (1998) scheme in which each attribute mentioned was considered to be Mental, Behavioural, Physical or General. Higher scores on the mental category are indicative of greater MM (Meins et al., 2003) as Meins (1999) considers the use of mind related descriptors as indicative that the parent views the child as having its own mental processes independent of their own. Although the MM interview is useful in gaining potential mental descriptions of the infant by the parent (and thus giving insight into the MM attributes of the care-giver), it has not been found to be a predictor of children's later mentalising abilities (Meins et al. 2003).

1.4.2.3. Benefits of MM

A number of developmental gains have been associated with parents' MM abilities. Meins et al. (1998) found that mothers of securely attached children were more likely than mothers of insecurely attached children to make comments about their children's mental attributes as opposed to physical appearance or behaviour tendencies, suggesting a link between MM and secure attachment. In further research Meins et al. (2001) found that appropriate mind related comments when the infant was six months predicted secure attachment at 12 months using the Strange Situation procedure. They also found that such comments were a better predictor of secure attachment than maternal sensitivity (Ainsworth et al., 1971). In support of this, Lundy (2003) also

found that the frequency of appropriate MM comments were significant predictors of infant - parent secure attachment based scores.

Research has also been conducted to consider whether appropriate MM comments made by fathers also influence the attachment relationship. For example, Arnott and Meins (2007) did not find any difference between male and female parents on the proportional use of appropriate mind related comments, although fathers did use more non-attuned comments. Furthermore, in her study, Lundy (2003) found that there was no difference between fathers and mothers in the frequency of appropriate MM comments; however, the content of the comments was slightly different. For example, fathers rendered more comments related to problem-solving (e.g. “*Are you trying to figure this out?*”) whereas mothers make more comments in which they were speaking on behalf of the child. Lundy (2003) concluded that appropriate MM comments were important predictors of infant - father secure attachment relationships.

The benefits of MM appear to extend beyond secure attachment. For example, Meins, et al. (1998) found a positive correlation between a mother’s MM comments and the child’s later ability at mentalising tasks. Morton, Frith and Leslie, (1991) suggest that mentalising is a synonym for Theory of Mind (ToM) which has been defined as the ability to attribute mental states to oneself and others and understand that people have beliefs, thoughts and intentions that are different from one’s own (Premack & Woodruff, 1978). ToM refers to the ability to be aware of the internal workings of others (Baron-Cohen, 1999) that is an important trait in negotiating many different social interactions. Although not researching the concept of MM specifically, Dunn, Brown, Slomkowski, Tesla and Youngblade (1991) found that children were more likely to pass age appropriate ToM tasks if their families discussed casual mental states and discussed feelings openly. There are other factors which appear to predict whether children were more likely to pass ToM task. Subsequent studies by Jenkins and Astington (1996) also found this to be the case if children had more siblings and Meins et al. (1998) found secure attachment to be a predictor of later ToM.

Research has also shown a direct link between the appropriate use of MM comments in infancy and a child’s performance on later ToM tasks. Meins and Fernyhough (1999) found that if parents attributed meaning to their infants’ apparently

meaningless utterances at 20 months then they were more likely to do well at a ToM task in later childhood. In a longitudinal study, Meins et al. (2002) found that mothers' MM comments at six months predicted children's performance on a battery of ToM tasks at 45 and 48 months. They also found that other social and environmental factors (such as number of siblings, maternal education, attachment security) were not independent predictors of ToM once early maternal MM had been accounted for. Furthermore, exposure to general mental state language that was not related to an infant's state of mind did not predict ToM, rather only comments related to the internal state of the child predicted later ToM. Out of the five classes of maternal behaviour that were classified as MM only appropriate mind related comments were related to development of an infant's ToM. Meins et al. (2002) believe that MM influences the development of ToM in infants through the frequent commentary about their own internal states which later allows infants to make judgments about others' internal states.

Further benefits of the early use of MM have also been found. For example, parents who used more positive descriptions of their child's mental states were more likely to respond to their child's need in a positive and warm manner (McMahon & Meins, 2012). Viewing a child's behaviour as meaningful and as a result of psychological processes may result in a parent being more understanding of any difficult behaviour which is in turn less stressful for the parent (McMahon & Meins, 2012). In essence, viewing the child as a psychological agent is a protective factor against hostility towards the infant (McMahon & Meins, 2012).

Meins et al. (1998) found that the children of parents who scored higher on MM measures were better perspective takers (actively imagining the world from another's vantage point; Galinsky, Wang & Ku, 2008) than their counterparts. Perspective-taking skills play an important role in young children's ability to establish and maintain friendships, which are important for children's social adaptation (Hartup, 1992; Katz & McClellan, 1997) and developing friendships which have important connotations for later academic achievements, self-esteem development and mental health (Hartup, 1992).

As previously mentioned, De Wolff and van IJzendoorn, (1997) found that synchrony (the extent to which an interaction is reciprocal and mutually rewarding, Isabella et al., 1989) was a stronger predictor of secure attachment than maternal sensitivity. Lundy (2003) argues that if a parent is better at taking the perspective of their child (i.e., ‘mind-mindedness’) then they are more adept at interactional synchrony. The frequency of MM comments was found to predict the frequency of parent - infant interactional synchrony. Furthermore, synchrony mediated the relation between parents’ general thought-related comments and infant attachment security (Lundy, 2003).

Bowlby’s (1969, 1973, 1980) hypothesis that secure attachments pass from generation to generation has received considerable support from longitudinal and cross-cultural studies (e.g., Aviezer et al., 1999; Dozier, et al., 2001; Fonagy et al., 1991; Main et al., 1985; Ward & Carlson, 1995). It is possible that MM may also play a role in this intergenerational process. Arnott and Meins (2007) found a link between the level of MM used by parents during an observed parent – infant interaction and parental attachment representations as assessed using the AAI. Although the authors were unable to claim that MM mediates the relation between parental and infant attachment they concluded that “*certain combinations of AAI classification and level of MM appear to be powerful predictors of infant – parent patterns of attachment*” (Arnott & Meins, 2007, pp. 147).

In light of the vast evidence documenting the importance of MM, it was decided that this study would use MM as an outcome measure for Baby World intervention. As much of the intervention focused on the importance of parents being able to read infants’ state of mind it followed logically that parents who had received this intervention may pay more attention to it during interactions and thus make more appropriate MM comments.

1.4.2.4. The Importance of MM at Different Developmental Stages

The research to date has studied MM at different time points including before the infant has been born (in the third trimester of pregnancy), at three, six, seven, 12, 15,

20, 45 and 48 months and in later childhood. One of the benefits of MM appears to be the development of ToM (e.g. Meins & Fernyhough, 1999; Meins et al., 2002). As Dunn et al. (1991) suggests that ToM develops between the ages of three and five years, Meins and her colleagues were interested to find out whether parents' use of appropriate MM comments before the child was this age were also important in developing ToM.

Meins et al. (2003) found that appropriate MM comments at six months were positively correlated with MM at 48 months and non-attuned MM comments were negatively correlated with MM at 48 months. This suggests that parents who use appropriate MM comments when their child is an infant are more likely to continue to do this as the child approaches school years (when ToM is thought to develop). However, only the measure of MM that Meins et al. (2003) took at six months was correlated to later ToM. Maternal sensitivity was not significantly associated with performance on ToM tasks which is in keeping with the finding from the Meins et al.'s (2002) study. The results suggest that it was the early MM (when the infant was six months old), rather than later MM (at 48 months) that were important in developing the child's later mentalising abilities, however, the authors advise interpreting the results with caution as the later MM scores were derived from an interview rather than an observation. The results also suggest that it is only the use of appropriate MM comments that are related to ToM (rather than other measures of MM). Meins et al. (2003) suggest that it is the use of appropriate MM comments in the first year of life that have a crucial influence of the child's understanding of mind by "*providing a linguistic and conceptual scaffold within which infants can begin to understand how mental states determine behaviour*" (Meins et al., 2003 pp. 1208). Meins et al. (2003) suggest that perhaps at a later stage, appropriate MM comments allow the child to integrate internal information on their mental states with external linguistic comments on the behaviour associated with such states.

Further research has also indicated that parents who score highly on MM at one particular time point are more likely to do so at other time points. For example, Arnott and Meins, 2007 adapted the MM interview (Meins et al., 1998) by asking parents who were expecting a child (in the third trimester of pregnancy) to describe what their child might be like at six months old. Unlike the original MM interview in which only

mental characterisations were considered to indicate MM in parents, Arnott and Meins (2007) accepted any description of the unborn child which inferred that the child was a separate entity to the parent to be an example of MM. The authors found that mothers who were more willing or able to talk about what their unborn child might be like used more appropriate MM comments during an observation when the child was six months old. Fathers who described their unborn child as a separate entity were found to use more appropriate and non-attuned MM comments at six months. The authors concluded that parents who engage in MM when their child is in infancy are more likely to consider their unborn child to be a separate entity during pregnancy and that MM is stable across time (Arnott & Meins, 2007). Furthermore, Meins Turner, Arnott, Leekam and Fernyhough (2011) found that both indices of mind-mindedness (appropriate and non-attuned MM comments) were stable over time.

In considering the evidence for the current study it seemed appropriate to observe parent - infant interaction when the infant was between six and 12 months old as Meins et al. (2003) found that only appropriate MM comments at this stage were correlated to later performance on ToM tasks. As the evidence suggests that MM is stable across time (Arnott & Meins, 2007), it was felt that one time point would be sufficient for measuring MM. Furthermore, the evidence suggests that observed appropriate MM comments as opposed to other measures of MM were found to be a significant predictor of attachment security (Lundy, 2003) and as such it was decided that this would be the most appropriate measure.

1.4.2.5. Antecedents to MM

Having found evidence to suggest that MM is more predictive of attachment security than maternal sensitivity, Meins and her colleagues were interested to establish what led some parents to become more MM than others.

Previous research has shown that maternal mental health can impact on the attachment relationship, for example, mothers with chronic depression are more likely to show insecure - disorganised attachment relationships than those without chronic depression (Teit, 1995). Oates and Gervai (2003) note that interpreting an infant's behaviour is

largely influenced by a mother's internal processes. As such, it has been hypothesised that maternal mental health influenced MM. Pawlby et al. (2010) compared mothers with severe mental health difficulties to healthy controls and found that those with mental health difficulties were marginally less likely to comment appropriately on their infants' mental states. They concluded that previous assumptions that mothers with mental health difficulties had deficits in their interactions with their children should be challenged.

Further research that contradicts the assumption that mental health negatively impacts parent - child interactions was put forward by Demers et al. (2010a). They found that maternal depression did not correlate with MM. In a more recent study into the parental factors affecting MM, Meins et al. (2011) found that mind related comments are not affected by psychological well-being, social support, maternal educational level or socioeconomic status.

The notion that maternal age can affect MM has received some support from Demers et al. (2010b) who found that adult mothers used significantly more appropriate MM comments than adolescent mothers. These comments were also more likely to be positive and furthermore, adolescent mothers used more non-attuned MM comments. The authors concluded that the adolescent mothers' level of cognitive development, care-giving difficulties and possible chaotic environments made it more difficult for them to comment on their infants using appropriate MM comments.

Using an interview to assess for MM (Meins et al., 1998), McMahan and Meins (2012) found that parents who used more mental attributes to describe their child (high MM) were more likely to report lower parenting stress and showed less hostility when interacting with them. However, they were unable to determine the direction of this effect. In a similar finding to McMahan and Meins (2012), Demers et al. (2010a) also found a link between positive MM comments and low parenting stress but were unable to infer causality.

Research has also been conducted to establish if the use of appropriate MM comments can be modelled from one partner to another. Arnott and Meins (2007) found a non-significant trend of a positive relationship between partners' use of appropriate MM

comments suggesting that to some degree partners do influence each other's MM. However, this should be interpreted with caution as the correlation was not significant. Furthermore, this did not address the question how some parents are more MM in the first instance.

Researchers in this field have also turned to child characteristics to establish whether or not they influence MM. For example, Demers et al. (2010a) found that child inadaptability did not correlate with MM. The authors proposed that low parenting stress in the first few months of a child's life and perceiving the child to be relatively 'easy' lead parents to develop more positive mind-related representations of the child (Demers et al., 2010a). As such, Demers et al. (2010a) concluded that both parent and child factors, or rather the parent's perceptions of them, are relevant in the development of MM. Indeed, Slade and Cohen (1996) note that although a parent's perception of their child are in some ways related to characteristics of the child, they are largely influenced by their own internal dynamics.

Previous research has also shown that MM does not appear to be influenced by the child's characteristics such as general cognitive development (Meins et al., 2001), or, infant behaviour and temperament (Meins et al., 2011). This has led Meins and her colleagues to reject the notion that some mothers are more mind-minded because their infants are somehow 'easier'. Meins and her colleagues were interested to see if mind-mindedness can be explained in part by factors that predate the birth. Arnott and Meins (2007) proposed that MM has its origins in pregnancy, that is, if parents have a tendency to consider their unborn child as a separate entity then they may be more willing to find out about its likes, dislikes, interests and emotional reactions as the child develops, which will in turn, increase metallisation. They proposed that the experiences of pregnancy, birth and early life influence MM. This notion was evidenced by Meins et al. (2011) who found that a mother's perception of her pregnancy can affect whether or not she is mind mindful of her infant, in that those mothers who perceived their pregnancy as 'easy' used more appropriate MM comments than those who perceived it as 'difficult'. They concluded that if a mother reflected on her pregnancy as difficult then she may be preoccupied with concerns and less likely to make representations about the unborn child, whereas those who felt that

they were having an easy pregnancy could impute mental states on their foetuses and then go on to have a clear representation of the infant as a person in its own right.

A link between planned conception and MM was also found by Meins et al. (2011) in that those who had planned to become pregnant used more appropriate MM comments when the infant was eight months old. Meins et al. (2011) concluded that if a pregnancy was planned then a parent is likely to have made a positive evaluation of the impact that pregnancy and a baby will have upon her life. Furthermore, parents who had a planned conception are likely to find out about the pregnancy earlier than those with an unplanned conception (Meins et al., 2011) providing them with a longer time to think about their unborn baby as an individual person than if the pregnancy was not planned. They proposed that an unplanned pregnancy is more likely to be an unwanted pregnancy; therefore it would be counterintuitive to consider an unwanted pregnancy to be an individual person. The link between planned conception and MM comments was mediated by whether or not the mother had perceived her pregnancy to be easy. If she had a planned conception, but a difficult pregnancy, then there was no longer an increase in appropriate MM comments.

Meins et al. (2011) concluded that “*mind-mindedness may stem from the mother’s own specific experiences and appraisals of her relationship with her child*” (p. 139) and that specific factors relating to the parent – infant relationship, as well as stable cognitive behavioural traits in parents, are important in determining mind-mindedness. McMahan and Meins (2012) note that parents can learn to behave differently with well-designed parenting interventions, however, Meins et al. (2011) question whether MM can be taught and suggest further research is needed to establish this (discussed below).

1.4.2.6. Critique of Mind Mindedness

It has been suggested by Dermers (2010a) that there has not been ample research into the antecedents of MM and that further research is needed to establish such factors. Furthermore, Dermers (2010a) argue that the majority of the studies into MM have been based on samples which were not considered to be high risk. As such, further research into MM with high risk groups needs to be completed in order to strengthen

the evidence base for the concept. Although Lundy (2003) has completed research into MM and fathers, the majority of the research is still focused on mothers and therefore, evidence about the implications of father's use of MM needs to be explored further.

Meins et al. (2003) acknowledge that it is possible that the benefits of exposure to MM language (i.e. greater mentalising abilities for the child) can be explained by a genetic predisposition to mentalising abilities rather than environmental exposure to such language. Indeed, Hughes and Cutting (1999) found evidence to support the notion of a strong genetic influence on individual differences in ToM in 42-month-olds. As such, Meins et al. (2003) have suggested that research into MM should be conducted with adoptive parent-infant dyads.

It has also been suggested by Dermers et al. (2010a) that Meins and colleagues failed to include valence of MM comments and their influence on the subsequent benefits of MM. Dermers et al. (2010a) explored the difference between positive, negative and neutral MM comments and found that it was only positive MM comments that were associated with maternal sensitivity. As such, further research into types of MM related comments and the associated outcome should be carried out in an attempt to replicate Dermers et al. (2010a) findings.

1.4.2.7. Relevance to the current Study

McMahon and Meins (2012) suggest that attachment based interventions are of importance as viewing the child as a psychological agent is linked with lower parenting stress and less observed hostility towards the child. Indeed, they suggest that *“Supporting parents’ capacity to mentalise effectively about their child may have positive repercussions for the experience of parenting as well as for the way in which parents interact with their child.”* (McMahon & Meins, 2012, p. 251). They add that interventions should be tailored to support parents to think about their child as an entity with thoughts and feelings and to become more reflective citing *“Minding the Baby”* (Slade, Sadler, & Mayes, 2005), and *“Watch, Wait and Wonder”* (Cohen et al., 1999) as examples. Such interventions will help parents understand behaviour that

they may have previously considered to be irritating. With the intervention reported here, parents were encouraged to think about their baby's world and imagine it from their perspective, to encourage respectful interactions and reduce potential for frustration. Furthermore, Demers et al. (2010a) propose, as this study does, that research imminently needs to examine mind-mindedness among fathers, given their increased involvement in their children's lives compared to previous years.

The precursors to MM have not yet been established, indeed, Demers et al. (2010b) suggest that there is limited research in this area. Meins and Fernyhough (2010) have also questioned whether MM is an innate quality, or whether it can be taught. As such, more research into the antecedents of MM needed to be conducted as understanding whether or not it can be taught has important clinical and theoretical implications.

1.5. INTERVENTION STUDIES

Increasingly, preschool and early school-age children are being referred for intervention for attachment-related problems (Hoffman, Marvin, Cooper, & Powell, 2006). The long term implications of insecure attachment styles are well documented (Olwens 1979; Robins, 1966) indicating a need for interventions aimed at improving the attachment relationship. This notion is supported by many researchers, for example, "*intervention studies aiming at attachment are extremely important*" (van IJzendoorn et al., 1995, p.227).

The birth of a new child can be a positive experience for many. However, there are also many parents who experience more difficult consequences of a new child such as decline in the quality of the couple relationship, physical exhaustion, increase in psychological distress, and difficulties with developing effective parenting behaviours (e.g., Cowan & Cowan, 2000; Petch & Halford, 2008). Furthermore, there is a growing body of evidence which suggests that giving birth can be psychologically traumatic (Davies, Slade, Wright & Stewart, 2008). As such, intervention programmes can have the further benefit of helping parents cope with this transition.

Parenting interventions differ in their timing, length and content. Many intervention programmes intend at modifying maternal representations and hence improving maternal sensitivity (e.g., Madigan, Hawkins, Goldberg, & Benoit, 2006; Oppenheim, Goldsmith, & Koren-Karie, 2004; Slade, 2006). Egeland, Weinfield, Bosquet and Cheng (2000) distinguished four types of interventions with different programme approaches and goals: (a) programmes that seek to enhance parental sensitivity at the behavioural level, (b) programmes designed to alter parents' mental representations, (c) programmes that provide and enhance social support (beyond the establishment of a supportive relationship between intervener and parent), and (d) programmes designed to enhance maternal mental health and well-being.

1.5.1. Meta-Analyses

A number of meta-analyses have provided information about the successfulness of parenting interventions. In their meta-analysis of 70 parenting interventions, Bakermans-Kranenburg, van IJzendoorn and Juffer (2003) found that interventions which focus on maternal sensitivity are more successful at improving insensitive parenting and, indirectly, attachment security. They also found that interventions with fewer sessions were more effective than longer term interventions and that those that happened when the infant was six months old had superior outcomes to those at other times. The success of the intervention did not seem to be reliant on problems reported within the sample or any other demographic criteria. They also found that interventions involving fathers were significantly more effective than those involving mothers only. However, very few of the studies analysed involved fathers (three out of 70) and the effect sizes were largely due to the change in paternal sensitivity. Furthermore, they found that interventions with a behavioural focus were more effective in enhancing maternal sensitivity and attachment security.

In a meta-analysis of 142 interventions Pinquart and Teubert (2010) found that parenting interventions in pregnancy or the first few months of an infant's life had a significant positive effect on parenting quality, parenting stress, health promoting behaviours, child abuse and neglect child development, parental psychological health, and couple adjustment. The authors also found that on the majority of these measures,

long term effects were maintained. Contrary to their hypothesis, Pinquart and Teubert (2010) also found that older studies reported larger effect sizes than newer ones. However, they suggest that earlier unsuccessful intervention programmes may not have been published which could contribute to this result.

1.5.2. Parenting intervention Examples

There are some specific techniques and programmes which are attachment focused and thus relevant to the current study. For example, the “Circle of Security” (COS) intervention programme attempts to change inter-generational patterns of attachment with groups of parents that are considered to be high risk (Hoffman et al., 2006). COS is a group intervention which involves both educational and therapeutic strategies in which attachment theory and the concept of a secure base are taught and discussed and parents are encouraged to: respond appropriately to the child’s cues; reflect on their care-giver - infant interactions through the use of videos and reflect on their own childhood attachment experiences and their effect on their parenting. Hoffman et al. (2006) found in their longitudinal outcome study that the COS protocol had a significant positive impact on the attachment – caregiving patterns of high-risk toddlers, pre-schoolers, and their primary care-givers.

Van den Boom (1988; 1991) looked at the effectiveness of a short intervention on 100 ‘highly irritated’ infants from lower-income families. The intervention consisted of three home visits which aimed to increase maternal sensitivity by changing mothers’ responses to the baby crying and promoting playful interaction. The mother - infant interactions were observed at six months (pre-test) and nine months (post-test) and the attachment relationship was measured using the Strange Situation procedure (Ainsworth et al., 1978) at 12 months. The mothers who participated in this intervention were significantly more responsive at post-test and 68% of infants in the experimental group were securely attached compared to 28% of infants in the control group. Meij (1992) replicated this study but compared the intervention group (N=26) to a group who were given a booklet about parent - infant interactions (N=26) and a control group. No differences in attachment security were found between the groups although Meij (1992) suggested that the high number of infants who were securely

attached prior to the intervention may have been the cause of the result. Juffer (1993) also replicated Van den Boom's study with adoptive families who either received written information or written information and home visits with feedback on parent - infant interaction. They found that the individuals who received written and home visits had significantly increased securely attached infants.

1.5.2.1. Antenatal interventions

In line with the attachment based intervention evaluated in the current study, many interventions aimed at improving the attachment relationship have started in pregnancy. For example, Anisfeld, Casper, Nozyce and Cunningham (1990) hypothesised that increased physical contact would promote more secure attachment between mother and infant in a low maternal sensitivity sample. In the experimental group (N=23) participants were given soft baby carriers which lead to more physical contact and the control group (N=26) were given plastic infant seats. They used the Strange Situation procedure (Ainsworth et al., 1978) to measure attachment when the infants were 13 months old and found that in the experimental group, 83% of infants were securely attached compared to 38% in the control group (a significant difference).

Barnard et al. (1988) compared two support programmes with pregnant women who had low social support. In the experimental group (N=68) expectant mothers were given the Mental Health Model which focused on nurses developing a relationship with the mother, acting as a role model and increasing the mothers' social competence. The control group (N=79) received the Information/Resource Model, a regular support programme for disadvantaged young mothers. The authors did not find a difference with attachment security using the Strange Situation procedure (Ainsworth et al., 1978) although the mothers in the experimental group were rated as more sensitive and competent using the Nursing Child Assessment Teaching Scale (NCATS).

A recent programme called Pregnancy, Birth and Beyond (National Childbirth Trust, 2011) aims to support vulnerable groups of expectant parents through its eight week

intensive programme which starts in the seventh month of pregnancy and continues after the baby has been born. The focus of the intervention is different from the one reported here in that the main focus is on more practical and physical aspects of child care. For example, the programme focuses on the health and well-being of parent and infant, giving birth, meeting the baby and caring for the baby. Frank Field, MP, has suggested that preventative interventions should be part of every child's education. He has argued for a parenting curriculum in school in which they learn about the importance of bonding and nurture on brain development (Mills, 2012).

1.5.3. Short Term versus Long Term interventions

Bakermans-Kranenburg et al. (2003) report that there is still much debate on whether brief short term parenting interventions are more or less effective than intense or long term parenting interventions. In their meta-analytic review, van IJzendoorn et al. (1995) found short term interventions to be more effective than long term interventions on impacting the attachment relationship. In fact they found that long term interventions had no effect on this at all. However, the number of studies they analysed was relatively small (11) so the authors suggest interpreting the results with caution. Bakermans-Kranenburg et al. (2003) found that highly intensive interventions with numerous sessions show small or even negative effect sizes although they question whether this is due to high levels of attrition. Pinquart and Teubert (2010) also found shorter interventions to be more effective than longer ones.

1.5.4. Timing of interventions

In this field there is also considerable debate about the timing of such interventions. There has been a recent shift towards preventative interventions (Bakermans-Kranenburg et al., 2003) supported by policy makers (e.g. Allen, 2011). Prenatal and early interventions are supported by the recent understanding about the impact of the care-giver - infant relationship on neuropsychological growth and the possibly irreversible effects of impaired neurological development during the first three years after birth (Bakermans-Kranenburg et al., 2003).

Pinquart and Teubert (2010) provide further support for preventative interventions that start in pregnancy or before the child is six months old as they suggest that prevention should start before problems develop and that the first few months of an infant's life are crucial in terms of attachment security development (McElwain & Booth-LaForce, 2006). However, their meta-analysis did not reveal results suggesting that interventions in pregnancy are more effective than later ones. Considering the support from researchers in suggesting that effective interventions should start as early as possible (e.g. Heinicke, Beckwith & Thompson, 1988; Röhrle, 2007), Pinquart and Teubert (2010) propose that interventions should start before pregnancy as pregnancy itself is a very busy and challenging period. There are many practical implications of this suggestion (such as unplanned pregnancies) that may not make this possible. Pinquart and Teubert (2010) also found that individual or couple based interventions were more effective compared with group interventions in terms of the social development of the child and that group interventions were superior in developing health promoting behaviours.

1.6. THE ARGUMENT FOR ANTENATAL INTERVENTIONS

There are a number of post-natal parental interventions which aim to improve behaviour and reduce anxiety in parents (e.g. Webster-Stratton, Reid, & Hammond, 2001) which have a good evidence base (e.g. Barlow, Coren & Stewart-Brown, 2003). However, there is also a strong argument for more investment in preventative interventions, for example, Demers et al. (2010a) suggest that interventions should be offered prenatally as they help to prepare prospective parents for parenthood. In his role as a politician, Graham Allen, MP, makes a case for early intervention programmes stressing the social and economic benefits that they can have. He argues that “*an ounce of prevention is better than a pound of cure*” (Allen, 2011, p.5). Furthermore, he suggests that primary prevention that develops social and emotional growth happens primarily before birth and in the first few years of life. Children who grow up in dysfunctional families are more likely to create such families themselves (Allen, 2011). He also argues that the way that people respond to difficulties is often rooted in their early years and interventions and support are seldom offered until there is a major problem (Allen, 2011). Pinquart and Teubert (2010) propose that “*early*

parenting education interventions work and produce practically meaningful effects, even if these are small in a statistical sense. These interventions should be made accessible to more expectant and new parents” (p.325).

The implications of attachment for brain development are now well accepted (see section 1.3.1. above). Researchers have suggested that although the brain is able to adapt and change after early childhood, it becomes much more difficult and the capacity to do so decreases with age (National Scientific Council on the Developing Child, 2007). As such it is important to intervene as early as possible before brain structures have become inflexible to change. There is a lot of support for antenatal interventions as it is felt that evidence-based interventions can make a significant difference when care-givers need assistance (National Scientific Council on the Developing Child, 2010).

1.6.1 Aims of the Current Study

The research reported here attempts to gain empirical support for an antenatal attachment based intervention called Baby World with first time parents held in Spring 2011 as well as contributing to the literature regarding MM.

1.6.1.1. The Previous Study

A previous DclinPsy thesis (LREC number: 10/HO715/52) explored the impact of attending the Baby World class on the care-giver - foetal relationship through the use of self-report questionnaires (Maternal Antenatal Attachment Scale, MAAS, Condon, 1993). Within this study a total of 57 mothers and 19 partners who were expecting their first child were recruited from an NHS midwifery service in London. They were randomly allocated to intervention or control groups with 27 expectant mothers attending the Baby World class as well as standard NHS antenatal classes (intervention condition) and 30 expectant mothers attending standard NHS antenatal classes only (control condition). There were also 13 fathers in the intervention group and nine fathers in the control group; however, they were excluded from analysis due to the small sample size. A between and within subjects design was used, in that the

intervention and control groups were compared to each other (between subjects design) and changes over time within each group were also measured (within subjects design).

The measures used to compare differences between the intervention and control groups were the Maternal Antenatal Attachment Scale (MAAS; Condon, 1993) and Paternal Antenatal Attachment Scale (PAAS; Condon, 1993) as a measure of participant's attachment to their foetus. These measures were also used at three different time points in order to capture changes over in participants' attachment to their foetuses.

Statistical analyses including ANOVA's and t-tests showed that there was no significant difference in antenatal attachment between the intervention and control group on antenatal measures. However, qualitative analysis suggested that the intervention did have an impact on aspects of the relationship between parent and the unborn infant in that it impacted on the parents' representations of care-giving. That is, participants reported that following the group they saw their foetus as more of a person and believed that they had a greater understating of the unborn infant. Therefore, it appeared that the intervention led at least some of the participants to think about their future infants in a more mind-minded manner. The comments also indicated that intervention participants had started to think about their own impact on the baby, thus potentially being more aware of and sensitive to the importance of their relationship with their infant. As such, it is possible that the quantitative measures used in the previous study were not appropriate in establishing the effect of the Baby World class and ones that had focused on parental representations of their foetus may have yielded significant results.

The previous study also found that antenatal attachment increased over time in both groups, suggesting that it was unrelated to the intervention. The study reported here has been designed to build on the qualitative findings of the previous study by observing the parent - infant relationship when the infant was between six and twelve months old. The intention of this was to provide a further insight into the potential benefits of the Baby World intervention, specifically any changes in parental mind-mindedness and post-natal attachment. It was also hoped to gain further insight into

the determinants of MM. By adopting an observational design as well as questionnaire design, it was hoped that the study would counteract any self-report bias that may have influenced the results of the previous study. It was also hoped to provide information about the longer term benefits of attending the Baby World class.

1.6.1.2. The Current Study

The study reported here was interested in whether postnatal attachment was influenced by the intervention. As a significant part of the intervention focused on characteristics of the infant's world and the importance of listening to and observing participants' infants, the study was also interested to see whether parents had become more mind-minded. Specifically, a hypothesis was derived around whether the intervention influenced the use of appropriate MM comments as this measure of MM has been shown to be a significant predictor of attachment security (Meins et al., 2001) as well as being related to the infant's future ToM abilities (Meins et al., 2002). The study was also interested to see if it was possible to replicate the findings of Meins et al. (2011) who found that planned pregnancies, as well as the perception of whether a pregnancy had been easy or difficult impacted on the proportion of appropriate MM comments observed. As the study proposed that MM could be learnt through the Baby World class, it also seemed logical to hypothesise that MM could be modelled from one partner to another. As such four main hypotheses were derived:

1. Participants who attended the Baby World class as well as standard antenatal NHS classes (intervention group) would make significantly more appropriate MM comments during observed parent - infant interactions than participants who attended only their standard NHS antenatal classes (control group).
2. Participants in the intervention group would score significantly higher on attachment based measures (Maternal Postnatal Attachment Scale, MPAS and Paternal Postnatal Attachment Scale, PPAS; Postnatal scores on the Mothers Object Relations Scales – Short Form, MORS-SF), than participants who were in the control group. As well as overall scores, hypotheses regarding the subscales were derived:

- 2a. Mothers in the intervention group would score significantly higher on the Quality of Attachment subscale of the MPAS than mothers in the control group.
 - 2b. Mothers in the intervention group would score significantly higher on the Absence of Hostility subscale of the MPAS than mothers in the control group.
 - 2c. Mothers in the intervention group would score significantly higher on the Pleasure in Interaction subscale of the MPAS than mothers in the control group.
 - 2d. Partners in the intervention group would score significantly higher on the Patience and Tolerance subscale of the PPAS than partners in the control group.
 - 2e. Partners in the intervention group would score significantly higher on the Pleasure in Interaction subscale of the PPAS than partners in the control group.
 - 2f. Partners in the intervention group would score significantly higher on the Affection and Pride subscale of the PPAS than partners in the control group.
 - 2g. Parents in the intervention group would score significantly higher on the Warmth subscale of the MORS-SF than parents in the control group.
 - 2h. Parents in the intervention group would score significantly lower on the Invasion subscale of the MORS-SF than parents in the control group.
3. Factors that pre-date the birth and pregnancy will impact on the use of appropriate MM comments. Specifically:
 - 3a. Parents who had a planned conception will make significantly more appropriate MM comments than parents who had an unplanned conception, as measured by a questionnaire regarding perinatal experiences.
 - 3b. Parents who perceived the pregnancy to have been easy will make significantly more appropriate MM comments than parents who

perceived the pregnancy to be difficult, as measured by a questionnaire regarding perinatal experiences.

4. Mothers' and partners' proportional use of appropriate MM comments will be positively correlated with each other.

CHAPTER TWO

2. METHOD

2.1. THE PREVIOUS STUDY

A previous study (Ethical Approval reference, LREC number: 10/HO715/52, 2011) did not find that the Baby World class significantly increased antenatal attachment on questionnaire measures, although it did find that qualitative comments indicated the class had changed the way parents thought about their foetuses.

2.2. DESIGN

This study employed a Randomised Control Trial (RCT) design where participants were randomly allocated to the intervention group in which they attended the Baby World class as well as standard NHS antenatal classes or the control group, in which they attended standard NHS antenatal classes only. RCT's are often considered the best design for establishing strong evidence for a causal relationship between factors. The participants had been randomly allocated to either group in a previous DCLinPsy doctorate study (Ethical Approval reference number: 10/HO715/52) using the computer programme www.randomizer.org. This programme allocated participants at random to the intervention and control groups, which ensured that these two groups were statistically equivalent. A between subject design was also used in that participants who attended the antenatal group (intervention group) were compared to those who did not (control group).

2.2.1. Independent Variable

The independent variable for hypotheses one and two was whether or not participants attended the one session Baby World attachment based antenatal class as well as standard NHS antenatal classes (intervention group) or whether participants only attended standard NHS antenatal classes (control group).

The independent variable for hypothesis three was whether or not participants had planned to conceive. For hypothesis four, the independent variable was the degree to which they had perceived themselves to be well and happy or unwell and unhappy during pregnancy.

2.2.2. Dependent Variables

The dependent variables for hypotheses one, three and four were the proportional use of appropriate and non-attuned mind-minded comments which were observed in a three minute parent – infant interaction. The dependent variable for hypothesis two was post-natal attachment scores on the Maternal Post-natal Attachment Scale and Paternal Post-natal Attachment Scale; Post-natal scores on the Mothers Object Relations Scales – Short Form (MORS - SF).

2.2.3. Points of measurement

These measures were taken at one time point which was approximately between eight and twelve months after attending the Baby World class (or time equivalent for the control group). Participants were contacted between November 2011 and March 2012. If they agreed to take part in the study then a date and time was made that was convenient for them. Infants were between 7 months and 12 months of age (mean average age = 9.4 months, SD = 1.22). There was one point of measurement at which the participants completed questionnaires and were observed for five minutes interacting with their child. To account for any anxiety that participants may have been experiencing due to being observed, only the last three minutes of the interaction were subsequently coded. The coding scheme utilized in this study is explained below in section 2.5.2.

2.3. PARTICIPANTS

The participant dyad sample (N = 40) were originally recruited during a previous DClinPsy doctorate study (Ethical Approval reference, LREC number: 10/HO715/52).

The participants were recruited from a London Borough who were registered patients of a London NHS Trust Midwifery Service and had registered to attend their local NHS antenatal classes between December 2010 and April 2011. The staff working in this service had been informed of the study through two presentations and discussions in their team meetings. They had agreed that the study could recruit their patients subject to ethical approval. All those who met the study criteria (see inclusion and exclusion criteria below) were to be told about the study by their midwife, who gave contact details to the researcher; they were then telephoned by the researcher. Following random allocation to the intervention or control group participants then either attended a one off antenatal group called Baby World as well as their standard antenatal group or only attended the standard antenatal class. Participants from both groups filled out online questionnaires at three time points (upon recruitment; Post 3-hour intervention/equivalent time point for control group; Post one-day/three-evening standard antenatal classes). All participants were informed that there was likely to be a follow up part to this study.

For the current study, the midwifery teams were contacted and informed of this study. All those participants who had taken part in the previous study were contacted via telephone to discuss the current study. If it was not possible to contact participants via telephone then they were contacted via email. In this conversation the study was explained in some depth, including the purpose of the study and what might be involved. The possibility of observing the participant interact with their baby was mentioned at this stage. Participants were told that researchers were interested in the impact of a new antenatal class. Participants were then invited to ask any questions. If participants' partners had been involved in the previous study then they were also invited to take part via their partners. Contact was then made with the partners through email.

Those who expressed an interest or consented to participate were provided electronically with the Information sheet (Appendix 1) and Consent form (Appendix 2). If participants said that they did not want to take part in the video part of this study then they were invited to complete some online questionnaires (MPAS, PPAS, MORS-SF and a demographic questionnaire). Following informed consent, participants were asked to speak to their partners (if their partners had previously

agreed to take part in the study) and provide contact details for them if they were interested in being contacted. When contact details were provided, the partners were given the same information regarding the study and invited to participate in the same way as their partners.

The inclusion and exclusion criteria that had been employed from the previous study were utilized for this study. It had been agreed at the ethical committee that it would not be appropriate to include participants with mental health difficulties in case the intervention was unhelpful and placed them at greater risk. It had also been agreed in the previous study (LREC number: 10/HO715/52) that participants must be able to speak English fluently due to a lack of resources for interpreters from the research team for the study and the midwifery service. Finally it was decided that participants should all be expecting their first child and be at a similar stage of pregnancy to remove these factors as possible confounding variables. Participants of any ethnicity, religion, sexual orientation or cultural background were eligible to participate in the study. As these inclusion and exclusion criteria had been applied to the previous study they automatically applied to this study.

Inclusion criteria for the previous study were:

1. Participants were registered patients with the NHS Trust Midwifery Service.
2. Participants were registered to attend one of the service's antenatal classes.
3. The antenatal class they attended ran between December 2010 and March 2011.
4. Participants were expecting their first child.
5. Participants were between 24 – 29 weeks pregnant at the time of recruitment.
6. Participants must speak English fluently.

Exclusion criteria for the study were:

1. Participants must not have been experiencing more than mild depression. This was screened for using the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983). Those with severe difficulties were then to be excluded from the study.

No other inclusion or exclusion criteria were applied to this study. However, it was agreed that if any participants in this study presented with any mental health difficulties then they should be excluded from the study.

2.3.1. Power Analysis

A decision was made not to complete a power analysis in order to establish the effect size as the maximum number of participants was predetermined from the previous study. That is, the target population from which the current study could recruit from was a maximum of 57 mothers and 19 partners. Using Cohen's *d* (1988) effect sizes, a power analysis on the previous study (LREC number: 10/HO715/52) had shown a small to medium effect size with 50 – 80 participants of 0.20 – 0.25 with a power of 0.95 and an alpha error of 5% (single-tailed). Although every effort was made to recruit as many participants from the target population, it was assumed that a power analysis would reveal a small effect size.

2.3.2. Sample Size

The target population from which the current study was able to recruit from was 57 mothers. Although partners had been excluded from the previous study as the sample size was too small, it was decided to try and recruit them in this study in an attempt to combat the lack of research with fathers. Indeed, the Fatherhood Institute (2008) note that fathers are too often excluded from research. As such, an effort was made to recruit all 19 partners who took part in the previous study. All participants who had taken part in the previous study were contacted and asked to take part in the current study. The sample size is further explained by the flow chart below (figure 3).

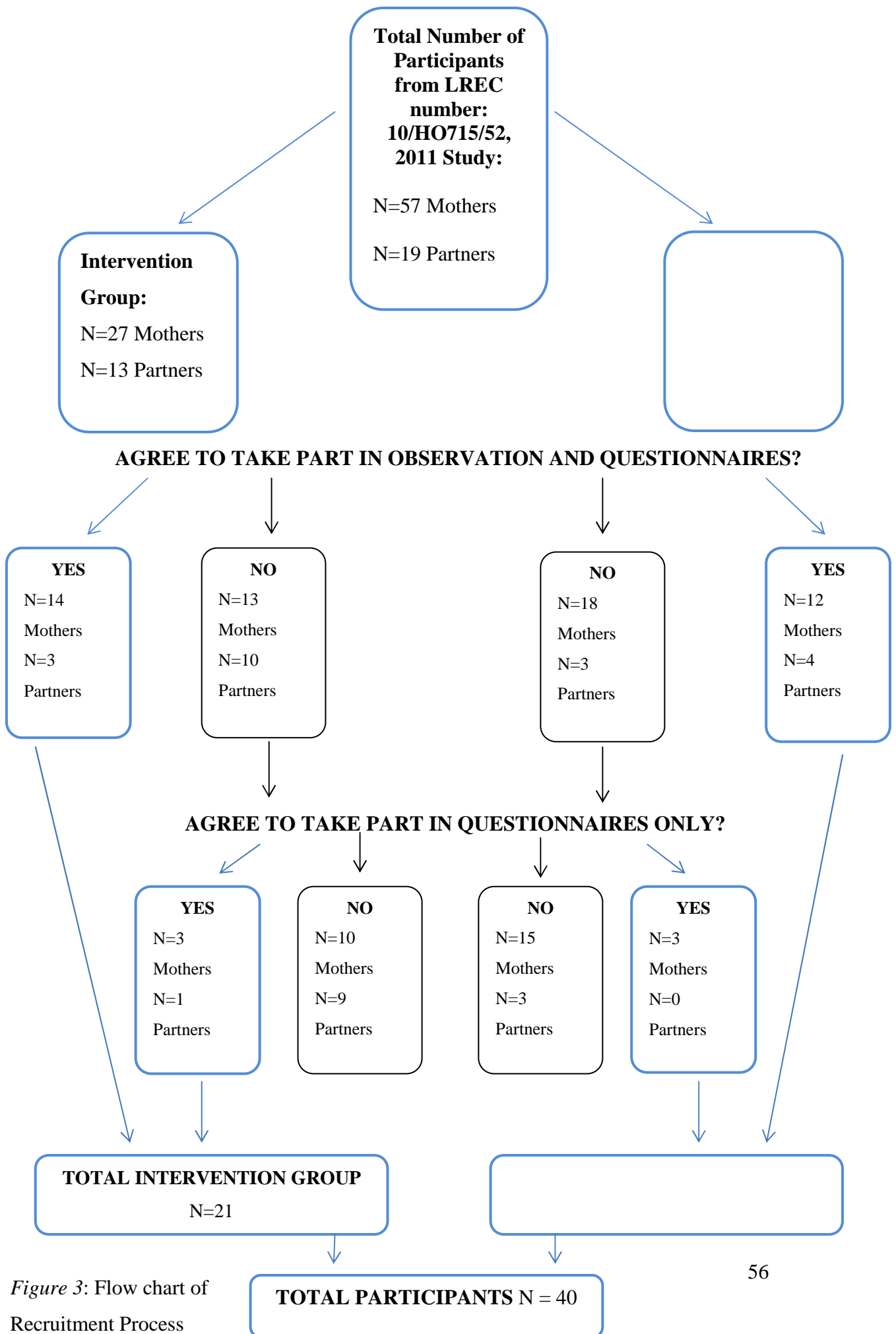


Figure 3: Flow chart of Recruitment Process

2.3.3. Sample Characteristics

The tables below illustrate both mothers and partners' status.

2.3.3.1. Age and Ethnicity

As can be seen in table one below, the majority of participants were aged between 31 and 35 (52.5%). A quarter of participants were aged between 36 and 40 (25%) and a further 7.5% were aged 41 or over. No participants were under 25 years old. The majority of participants described themselves as of white ethnicity (82.5%) with 55% of participants describing themselves as white British; 15% as white European, and 12.5% as white other. 10% of participants described themselves as Asian British; 2.5% of participants as Black British; 2.5% as Black African and 2.5% as Scandinavian-Latino.

Table 1: Frequencies and percentages (in brackets) of the age of the sample.

		Age (years)					Total
		21-25	26-30	31-35	36-40	41+	
Intervention	Frequency	0 (0%)	4 (19.1%)	12 (57.1%)	4 (19.1%)	1 (4.7%)	21
Control	Frequency	0 (0%)	2 (10.5%)	9 (47.4%)	6 (31.6%)	2 (10.5%)	19
Total	Frequency	0 (0%)	6 (15%)	21 (52.5%)	10 (25%)	3 (7.5%)	40

2.3.3.2. Employment, Educational Attainment and Relationship Status

Data regarding the current employment, educational attainment and relationship status of the sample are presented in Tables 2, 3 and 4. All of the participants had finished school with G.C.S.E.s or O' levels as their minimum qualification.

Table 2: Frequencies and percentages (in brackets) of the employment status of the sample.

		Employment					Total
		Full-time homemaker	Full-time (>35 hours/ week)	Part-time/ contract work (<35 hours/ week)	Unemployed/ unable to work	Student	
Intervention	Frequency	7 (33.3%)	10 (47.6%)	3 (14.3%)	1 (4.8%)	0 (0%)	21
Control	Frequency	4 (21.1%)	8 (42.1%)	5 (26.3%)	2 (10.5%)	0 (0%)	19
Total	Frequency	11 (27.5%)	18 (45%)	8 (20%)	3 (7.5%)	0 (0%)	40

As illustrated in table two, the majority of participants were in full time employment (45%) and over a quarter of participants were full time home makers (27.5%). One fifth of the participants worked part time or was in contract work and a small number of participants were either unemployed or unable to work (7.5%).

Table 3: Frequencies and percentages (in brackets) of the education status of the sample

		Education				Total
		O' Levels/ GCSEs	A' Levels	University Degree	Postgraduate Qualification	
Intervention	Frequency	1 (4.8%)	2 (9.5%)	11 (52.4%)	7 (33.3%)	21
Control	Frequency	0 (0%)	3 (15.8%)	7 (36.8%)	9 (47.4%)	19
Total	Frequency	1 (2.5%)	5 (12.5%)	18 (45%)	16 (40%)	40

The sample as a whole could be considered to be highly educated with 45% having a university degree and 40% having a postgraduate qualification. Only one participant left school with G.C.S.E.s or O' Levels as their minimum qualification.

Table 4: Frequencies and percentages of the relationship status of the sample

		Marital Status				Total
		Single	Living with partner or married	Separated or divorced	Other	
Intervention	Frequency	3 (14.3%)	17 (80.9%)	1 (4.8%)	0 (0%)	21
Control	Frequency	2 (10.5%)	17 (89.5%)	0 (0%)	0 (0%)	19
Total	Frequency	5 (12.5%)	34 (85%)	1 (2.5%)	0 (0%)	40

As shown in table four the marital status of the majority of the sample was living with partner or married (85%) with a further 12.5% of participants describing themselves as single and 2.5% describing themselves as separated or divorced.

The intervention and control groups were compared for demographic differences. If group differences for any of these variables were found they would have been included as covariates in analyses comparing the two groups on attachment. There were no significant differences between the groups on any of the demographic variables.

2.4. INTERVENTION

The Baby World class was a one session intervention which ran on five occasions and was held in two different children’s centres in Spring 2011. It was held after standard working hours or on weekends to encourage male and female participants who worked full-time to attend. Each class therefore ran for 3 hours with breaks, with participants arriving up to 30 minutes early and staying for up to 30 minutes for informal conversation afterwards. Participants were invited to attend the class that ran up to four weeks before their standard antenatal classes began. There were between three and 14 participants in each group. The classes were led by Dr Kondel-Laws (study supervisor), who is also the service lead for the NHS Trust’s Parent-Infant Psychology

Service. The facilitators adopted a strength based approach with facilitators being non-judgemental, respectful and genuine as Stewart-Brown and Schrader MacMillan (2010) found these qualities to be important in their review of parenting interventions. Furthermore, the facilitators adopted a collaborative rather than expert led approach as suggested by Balbernie (2001). Furthermore, as Nolan (2009) notes that classes must be tailored to the needs of all those in the class particular consideration was given to gender-based needs it was emphasised from the start that the information was for all care-givers and that gender-specific questions were welcomed within the class. The facilitators attempted to make the class relevant to a culturally diverse group of participants through the use videos and pictures that represented different cultures and ethnicities. Furthermore, theories were not described as being ‘correct’, rather currently popular and accepted but with the appreciation that ideas have changed and been challenged over time and between cultures.

2.4.1. Outline of the intervention

The content for the intervention was developed from a variety of sources including clinical work with parents and relevant literature, including literature included in this study (e.g. Parr, 1998; Barnes & Freude-Lagevardi, 2003). The focus was on how to develop the attachment relationship between care-givers and their infants. Topics of teaching included:

1. What building the attachment relationship involves, including ideas about responsiveness, closeness or proximity, consistency and reliability, visual and skin contact.
2. Ideas around creating a secure base and improving the quality of attachment.
3. Characteristics of the infant’s world – sensation and expression.
4. Emotional development, emotional regulation, how to encourage this and the implications of doing so, attunement to the infant.

The intervention is described in more detail in Appendix 9 and includes both content and teaching method (in italics). Key themes which were referred to throughout were:

1. ‘Good enough’ is enough; you do not have to be perfect.
2. The importance of repairing the parent – infant relationship when ruptures/misattunement occurs.
3. Listen to and observe your baby; they will often tell you what they need – mentalisation and reflexivity.
4. Sharing struggles and seeking support is a strength rather than a sign of weakness or being a ‘bad parent’.

2.5. MEASURES

This study used the MPAS and PPAS as a measure of each participant’s attachment to their infant. The MORS-SF was also used to gather further information about participants’ feelings towards their infant. Demographic data were collected in order to identify any mediating variables. Within the demographic questionnaire, details regarding the perinatal, birth and aftercare experiences were also gathered. A coding scheme was developed which coded for utterances of maternal and paternal appropriate and non-attuned MM comments (Meins et al., 2001; Meins & Fernyhough, 2010).

2.5.1. Maternal Mind-Mindedness

Mind-mindedness (MM) measures how much mothers and fathers are inclined to treat their infants as an entity with thoughts, wants and desires rather than an infant with merely physical needs (Meins 1997). Appropriate and non-attuned MM comments were found to be a significant predictor of infant attachment and the infant’s later ToM abilities and perspective taking skills.

2.5.2. The Coding Scheme used in this Study

The observations of the parent - infant interactions were recorded for 5 minutes. Participants were asked to “*interact with your child as you normally would if you had some free time together*”. Meins and Fernyhough (2010) recommend instructing participants to “*play with your baby as you would if you had some free time together at home*” (p. 3). However, it was felt that asking parents to play with their babies may have resulted in parents who didn’t usually play with their babies in doing so. As such the word ‘play’ was substituted for ‘interact’ as it was felt that this influenced parents on how to use the time to a lesser extent. The interactions were then transferred in the Observer System XT, a computer software system which allows for coding and describing behaviour in an accurate and quantitative way. To account for any anxiety that the parent may have initially felt about being recorded, only the last three minutes of the interaction was coded using the observer XT.

The coding scheme was based on the work of Meins and colleagues who developed the concept of Maternal mind-mindedness (Meins et al. 2001, Meins & Farnyhough, 2006). The mind-mindedness coding scheme has been reported to have good reliability in a number of independent samples (e.g. Laranjo, Bernier & Meins, 2008; Lundy, 2003; Meins et al., 2001). Initially Meins developed six variables to measure MM, however, in later research she has focused exclusively on mind related comments as an indicator of MM. This was due to the findings that appropriate mind related comments were the only significant predictor of infant attachment and ToM. In keeping with the Mind-Mindedness Coding Manual (Meins & Farnyhough, 2010) the Observer System was used to identify all comments which focus on an infant’s internal state. Meins and Farnyhough (2010) define mind related comments as any comments that:

“(a) Use an explicit internal state term to comments on what the infant may be thinking, experiencing, or feeling; or (b) puts words in the infant’s mouth with the care-giver talking on the infant’s behalf”

Meins & Farnyhough, 2010, (pp. 4-5)

Each parent has to infer their infants' state of mind. As such, it is possible that they may make a mind related comment which incorrectly infers the infant's state of mind. Such mind related comments would have been coded as non-attuned.

A reason for choosing a relatively short amount of time for the observation was to try and minimise the impact that the study was having on participants. Furthermore, the CARE-index (Crittenden, 2005) recommends that observations should be approximately three minutes long. Crittenden (2005) argues that it is not necessary for the observation to be a precise length; however, it should exceed two minutes in length and should not be longer than a natural parent-infant interaction.

It has been noted by Roper and Shapira (2000) that participants taking part in an observational study can often be anxious about the process. As such, Burns (2000) suggest an initial period of time before analysis of the observation begins. Emerson, Fretz and Shaw (2001) found that participants soon become accustomed to and tolerate the process of the observation. Taking all of this into account, it was decided that that the observation of parent-infant interaction would be five minutes long with only the last three minutes being used for analysis.

2.5.3. Observer XT

The Observer XT version 8 computer based coding scheme was used to design and implement the coding scheme. The Observer System allows for state events to be coded. State events are those which have a measureable duration, such as talking. State events are on-going and need to have a beginning and end for each utterance. This provides a measure of total duration, mean utterance length, rate per minute and frequency. Within state events, modifiers can be specified, which categorise which type of variable is occurring. For the current coding scheme a parent talking was coded as a state event. If the parent made a vocalisation that was not talking but was deemed to be communicating with the infant then this was also coded as a state event. The modifiers used were appropriate mind related comments, non-attuned mind related comments and other. An extended version of how and why each variable was coded is included in the appendices (Appendix 7).

The videos were coded in a random order and the observational data from the coding scheme was exported from the observer in the form of an Excel spreadsheet. This was then entered into SPSS for final analysis which is described below (in section 2.8)

2.5.4. Inter-rater reliability

A second coder who was familiar with the Observer System and MM coded 12% of the observations to account for inter-rater reliability (4 out of 33). The subsample was selected to be as representative as possible of the sample and included an equal number of participants from the control group and experimental and an equal number of mothers and partners. This coder was not aware of which participants were in the control or intervention group and as such was a blind coder.

The inter-rater reliability was based on the agreement between the two coders on one variable, whether a comments was a mind related comment (appropriate or non-attuned). There was 100% agreement between the two coders on MM comments giving a mean Kappa score for all 4 interactions of $\kappa = 1$. This is considered to be a perfect agreement.

2.5.5. Maternal Postnatal Attachment Scale (MPAS)

The MPAS was administered to gather further information about mother – infant attachment. It was developed by Condon and Corkindale (1998) as a tool to measure mother - infant attachment either as a pre-intervention assessment for programs in which attachment is an intended outcome, or as a post-intervention assessment for programmes in which attachment is an intended outcome. The MPAS has 19 items that ask questions about behaviours, attitudes and feelings towards the infant. Each item is scored on a five point Likert scale and is given equal weighting and range between one (low attachment) and five (high attachment). The items are then computed as a complete score and are also grouped into three subscales. The first subscale measures Quality of Attachment (questions focus on feelings such as enjoyment, pride and competence experienced when with the infant) in which the

minimum score obtainable is nine and the maximum score is 45. The second subscale is Absence of Hostility (questions focus on feelings of irritation, annoyance and resentment) in which the minimum score is five and maximum 25. The third subscale is Pleasure in Interaction (playing with the infant, thinking about the infant leaving and being reunited with the infant) in which the minimum score is five and maximum 25. Overall, the minimum score on the MPAS is 19 and the maximum is 95.

The MPAS was developed on a sample of Australian mothers who had given birth either four weeks previously (N=212); four months previously (N = 210) or eight months previously (N = 202). The authors report internal consistency reliabilities (alphas) of 0.78-0.79, a test-retest reliability of 0.86, and temporal stability coefficients of 0.48-0.67 and exemplary convergent validity (Condon & Corkindale, 1998). The MPAS factor scores have been shown to be significantly associated with an observer-rated scale of attachment, the Attachment Q-Set (Feldstein, Hane, Morrison, & Huang, 2004). The MPAS can be seen in Appendix 4.

Although the MPAS has not been validated on a UK population, several studies support the reliability and validity of the MPAS in different populations (van Bussel, Spitz & Demyttenaere, 2009). For example, the construct validity of the MPAS has been further supported by van Bussel et al. (2009) who found strong negative correlations between the total MPAS score and total Postpartum Bonding Questionnaire (PBQ, Brockington et al. 2001). They also found moderately strong negative correlations between the subscales of these measures. Van Bussel et al. (2009) conclude that the MPAS provides a reliable and valid measure of attachment on their sample of 263 Dutch mothers. Furthermore, Scopesi, Viterbori, Sponza and Zucchinetti (2004) validated the MPAS on an Italian population and found similar psychometric properties to Condon and Corkindale (1998).

2.5.6. Paternal Postnatal Attachment Scale (PPAS)

The PPAQ was developed by Condon, Corkindale and Boyce (2008) to assess paternal - infant attachment. It also has 19 items which are scored on a five item Likert scale and grouped into three subscales. For the Patience and Tolerance subscale

(which asks about patience, feelings of annoyance and resentment) the minimum score obtainable is eight and maximum 40, for the Pleasure in Interaction subscale (which asks about childcare, time spent with the infant and leaving the infant) the minimum possible score is seven, maximum 35, and for the Affection and Pride subscale (focusing on feelings of affection, pride and thinking about the infant) the minimum is four and maximum 20. Overall, the minimum score on the PPAS is 19 and the maximum is 95.

The PPAS was developed on a sample of first time fathers in Australia and was administered to them at six months (N=241) and 12 months (N=220) after the birth of their first child. The authors report internal consistency reliabilities (alphas) of 0.62-0.81, and temporal continuity correlation coefficients of 0.65-0.70 and exemplary convergent validity (Condon et al., 2008). The PPAS can be seen in Appendix 5.

Both the Maternal Antenatal Attachment Scale (MAAS, Condon, 1993) and the Paternal Antenatal Attachment Scale (PAAS, Condon, 1985) were used in the previous study (Ethical Approval reference, LREC number: 10/HO715/52, 2011). The MPAS and the PPAS are the postpartum counterparts of these scales, therefore, it was hoped that using the postnatal scales would allow for continuity between the two studies. Furthermore, the MPAS and PPAS are based on Condon's Hierarchical Model of Prenatal Attachment (Condon, 1993) which is one of the most commonly used measures in the field (Laxton-Kane & Slade, 2002).

2.5.7. Mothers Object Relations Scales – Short Form (MORS-SF)

The Mothers Object Relations Scale (MORS) was developed by Oates and Gervai (2003) to assess mothers' models of their infants. The MORS-SF is a 14-item self-report questionnaire which was developed from the MORS as a screening tool for identifying potential areas of difficulty in the early mother – infant relationship and is hence seen as a risk screening tool. The authors developed the scale following narrative research into mothers' accounts of their babies' emotional, cognitive and behavioural traits (Oates & Gervai, 2003). It is grouped into two subscales, Warmth

and Invasion. The Warmth items ask the parent how true statements such as ‘my baby smiles at me’ are and as such, measures the parents’ perception of the infant’s emotional warmth. The Invasion items ask parents how true statements such as ‘my baby annoys me’ are thus gathering information on each parent’s perceptions of the infant’s invasiveness. The minimum score obtainable for both scales is seven and the maximum is 35. Oates, Gervai, Danis, Lakatos & Tsaroucha (2005) argue that as the questionnaire focuses on perceived aspects of infants’ behaviour rather than parents’ feelings, social desirability response bias is minimized.

The MORS-SF was validated on a sample of 97 Hungarian first time mothers and 100 British first time mothers (Oates & Gervai, 2003). Cronbach’s alpha values for both the Invasion and Warmth scales were .90, indicating high internal consistency. For the MORS-SF Invasion scale, the test-retest reliability coefficient was $r = .77$, and for the Warmth scale it was $r = .70$. The MORS-SF can be seen in Appendix 6.

2.5.8. Demographic and Perinatal Questionnaire

Participants were also asked to complete a demographic questionnaire. The first section included a personal background questionnaire requiring participants to give demographic information including sex, age, ethnicity, marital status, level of education and occupation. In the perinatal section of this questionnaire, participants were asked questions about the pregnancy and birth including how they felt physically and emotionally during the birth, whether they found out the sex of the child before the birth and whether they were pleased with the sex. Information around the birth was also gathered, such as how long the labour was, what type of labour it was and whether pain relief was taken. Participants were asked how they felt upon first seeing their child and when they first held the baby. Questions were also asked about the post birth experience such as maternity/paternity leave, what they do when the baby cries and how they spend time with their baby. Participants were asked to name one thing that they would change about their post birth experience and make any other comments in the format of qualitative questions. The demographic questionnaire can be seen in Appendix 3.

2.6. PROCEDURE

Once participants had agreed to take part in the research an email was sent to them with electronic copies of the consent form and information sheet as well as a message confirming the date and time of the observation. Participants were invited to send back any questions or queries they had and reminded that they were free to withdraw from the study at any time. As previously mentioned, data gathering took place within the participants own home. Following introductions between the researcher, parent and infant, the process of the study was explained again. Participants were asked whether they would like to complete the questionnaires or observation first. In cases where both parents were taking part in the research it was suggested the one parent fill out the questionnaires while the other complete the observation and then swap round. After the data had been gathered, participants were again asked if they had any questions. Information detailing support for parents (local Parenting intervention Psychology Services) was given to all participants as standard. Each visit lasted for approximately one hour. The observations were later coded using the coding scheme described above (section 2.5.2.).

2.7. ETHICAL ISSUES

Ethical approval for the study was granted by the Central London 4 Research Ethics Committee. Relevant documentation is provided in Appendix 8.

2.6.1. Informed consent

As discussed in section 2.6, participants were told about the study and any questions that they had were also answered. At this point it was clearly stated that participants were under no obligation to take part and that they could withdraw from the study at any time without any consequences in relation to their care. All interested participants were then sent the information sheet and consent form via e-mail.

2.6.2. Confidentiality

Participants were informed that any identifying data collected would be kept confidential unless there was risk of harm to themselves or others. The researcher did not have access to records and only names, due dates and telephone numbers were available from the midwife office. Potential participant's telephone numbers were accessed when contacting the potential participant to discuss their involvement in the research. If consent was given, their telephone number was kept securely for further contact. Each participant was given a code which was kept in a secure password-protected database. Any demographic or other data was kept in a separate anonymous password-protected database until completion of the research project. Video recordings of parent - child interaction were stored securely in a secure password protected database where each participant was given a number rather than a name to keep the data anonymous. Video recordings will be destroyed on conferment of degree.

2.6.3 Potential distress for Participants

Consideration was given to the possibility of participants feeling anxious that their parenting style was being observed which may have led them to feel concerned about their parenting. Information was provided verbally and through an information sheet to help minimise this concern. Furthermore, after the observation, participants were offered a time to debrief and discuss any concerns that they had. As a matter of protocol participants were informed of relevant organisations that provide support for parents and given written information about their local Parent Infant Psychology service. It was explained that this information was given to all participants.

2.8. DATA ANALYSIS

2.8.1. Data Screening

For each participant, questionnaire responses were considered valid if they had less than 10% missing data. No participant had more than 10% missing data. Seven out of the eight partners who took part in this study missed out some data on the demographic questionnaire. Typically they did not answer questions regarding the length of labour or breast feeding. These participants may have felt that the questions were not relevant to them. Two mothers in the study had some missing data on the demographic questionnaire; it was assumed that they had missed out these questions by accident. There were no substitutes made for missing data, these fields were left blank in SPSS. There were no missing data on the MPAS, PPAS or MORS-SF so it was not necessary to remove any data from the analysis.

2.8.2. Statistical Significance

For the demographic and descriptive data, between group differences on ordinal data were examined with separate Multivariate Analysis of Variances (MANOVA). The impact of the intervention was assessed with an Analysis of Variance (ANOVA) that tested for the effects of group and gender. Significance was judged at the $p < .05$ level, but trends up to $p < .10$ were also identified. However, where possible, the exact p -values (*rounded up or down*) are reported in order to facilitate a critical evaluation of the data.

CHAPTER THREE

3. RESULTS

The results from this study are divided into five sections. Initially the process of examining the distributions of the data is described. Following on from this, the results of the study are presented corresponding with the four hypotheses as detailed in chapter one. Within each section, descriptive statistics are provided followed by the results of the statistical tests conducted. The results of further analysis that was carried out are also discussed and a selection of qualitative comments is also presented. Analyses were carried out using the statistical package SPSS 19 for Windows.

3.1. ASSUMPTIONS FOR PARAMETRIC STATISTICS

In order for the parametric analyses to be conducted, the assumptions of the statistical tests presented in this section of the study were examined according to the guidelines set forth by Field (2005). The skewness and kurtosis values for the data were calculated. With the exception of the planned versus unplanned variable all other variables met the assumption of normality, with the z-scores for the skewness and kurtosis values for the outcome measures falling below the value of 2.58 which is the recommended cut-off for smaller samples (Field, 2005). A visual examination of the histograms with the normal distribution curve fitted and the non-significant results and the Kolmogorov-Smirnov test confirmed this conclusion. For the ANOVA and MANOVA analyses, Levene's test of equal variances (homogeneity of variance) was non-significant, indicating that the assumption of the equality of error variances was met.

3.2. DESCRIPTIVE STATISTICS AND HYPOTHESIS TESTING

3.2.1. Hypothesis One

A total of 33 participants took part in the observation part of the study in which interactions between parent and infant were coded and analysed using the Observer XT software programme. Each incident of parental talk was coded as a single talking event. These events were categorised into one of three categories: Appropriate Mind Related comments; Non-Attuned Mind Related comments or Talking Other. There were no non-attuned comments made by any of the participants and as such they are not reported on in the results section. Appropriate mind related comments are a proportional score, which were calculated by dividing the number of parental vocalisations categorised as appropriate mind related comments by the total number of parental vocalisations. Scores were calculated as a proportion rather than frequency in order to control for verbosity in some participants. As shown in table five, the mean scores show that the intervention group produced a higher proportion of appropriate mind related comments than the control group.

Table 5: Descriptive statistics for Mind Related Comments for control and intervention groups - Means and standard deviations (SD) of appropriate mind related comments as a proportionate score.

Parental Mind Mindedness Variable	Control (N= 16)		Intervention (N = 17)	
	Mean	S.D	Mean	S.D
Proportion of Appropriate Mind Related Comments	0.07	0.04	0.10	0.05

As previously explained in section 2.5.2, appropriate MM comments are those which focus upon an infant’s internal state, or, if the care-giver is deemed to be talking on the infant’s behalf. Comments were coded as appropriate if the coder agreed with each parent’s interpretation of the infant’s psychological state. Table six shows examples of participants’ speech that were coded as appropriate MM comments with the corresponding behaviour which was used to validate whether or not the comment was in fact an accurate explanation of the infant’s internal state. Close behavioural observation was therefore necessary. The examples below are not an exhaustive list of the appropriate MM comments recorded in the study; however, they reflect the comments that were observed during the study. Many of the comments made reference to a child’s internal state, for example the child’s desires and preferences,

emotions that the infant was experiencing, the infant’s intentions and their cognitions. The examples also include a comment in which the mother was talking on the infant’s behalf, which is also considered to be an appropriate MM comment.

Table 6: Examples of Appropriate MM comments

Participant	Comment	Type of MM comment	Behaviour
Intervention Group, Father	<i>“You’d rather play with the ball”</i>	Explicit Internal State - <i>Desire</i>	The infant reaching for the ball while ignoring another toy.
Control Group, Mother	<i>“You’ve gone all shy”</i>	Explicit Internal State - <i>Emotion</i>	The infant burying their head in the mother’s lap.
Intervention Group, Mother	<i>“Are you trying to get the phone?”</i>	Explicit Internal State - <i>Intention</i>	The infant reaching up to a toy phone and then playing with it.
Control Group, Father	<i>“You are fascinated by the rain stick”</i>	Explicit Internal State - <i>Cognition</i>	The infant reaching for and smiling as they take the rain stick.
Intervention Group, Mother	<i>“I prefer the crocodile”</i>	Explicit Internal State - <i>Desire</i> . Talking on the Infant’s behalf	The infant choosing a crocodile toy over another toy.

The first hypothesis of the study was that attendance at the intervention class would lead to parents making more appropriate MM comments than those who attended standard antenatal classes only. In order to test for this, an Analysis of Variance (ANOVA) was conducted to identify if there was a difference between groups. There was a significant difference between the scores of the intervention group (Mean = 0.10; SD = 0.05) and the control group (Mean = 0.07; SD = 0.04) showing that the effect of the intervention on appropriate MM comments was significant, $F(1, 29) =$

4.96, $p = < 0.05$, $\eta_p^2 = 0.146$. The group intervention still had a significant effect when gender was excluded from the analysis. These results are summarised in table seven below.

Table 7: Summary of the ANOVA result for appropriate mind related comments proportionate scores.

Appropriate Mind Related Comments	ANOVA Results
Condition	F (1, 31) = 4.958, p = 0.034, $\eta_p^2 = 0.146$
Gender	F (1, 31) = 0.858, p = 0.361, $\eta_p^2 = 0.027$
Condition*Gender	F (1, 31) = 0.503, p = 0.484, $\eta_p^2 = 0.017$

The analysis, therefore, showed that attendance at the Baby World class had a significant effect on the proportion of appropriate MM comments made by parents. Furthermore, there was not an effect of gender. The effect size was measured by partial eta-squared which is an estimate of the proportion of variability in the dependent variable accounted for by the independent variable (Trusty, Thompson & Petrocelli, 2004). The effect size was calculated as $\eta_p^2 = 0.146$ which is considered to be a large effect size (Cohen, 1988).

3.2.2. Hypothesis Two

The second hypothesis was that the intervention group would score significantly higher on attachment based measures than the control group. In this section the descriptive statistics and results of the statistical tests for the MPAS and PPAS are presented first, after which the descriptive statistics and results of the statistical tests for the MORS-SF are displayed.

3.2.2.1. The Maternal Postnatal Attachment Scale

The mothers in the study (N= 32) were asked to complete the MPAS which is made up of three subscales: Quality of Attachment; Absence of Hostility and Pleasure in Interaction. As illustrated in table eight the mean overall score was higher for mothers in the intervention group. Furthermore, mothers in the intervention group scored higher on both the Absence of Hostility and Pleasure in Interaction subscales. There was a very small difference between groups on the Quality of Attachment subscale.

Table 8: Descriptive statistics for the MPAS subscales - Means and standard deviations (S.D) of the MPAS subscales.

Subscale	Control (N=15)		Intervention (N = 17)	
	Mean	S.D	Mean	S.D
Overall Score	78.06	9.28	83.85	7.56
Quality of Attachment	41.29	2.80	41.62	2.82
Absence of Hostility	17.38	3.81	19.94	2.81
Pleasure in Interaction	19.39	4.86	22.29	3.51

As there were several dependent variables for hypothesis two (each of the subcategories within the attachment based measures) a Multivariate Analysis of Variance (MANOVA) was deemed to be the most appropriate statistical test (Field, 2005). The results of the MANOVAs are summarised in table nine.

Table 9: Summary of the MANOVA result for the MPAS subscales.

MPAS Subcategories	MANOVA Results
Overall Score	$F(1, 30) = 3.78, p = 0.061, \eta_p^2 = 0.112$
Quality of Attachment	$F(1, 30) = 0.110, p = 0.743, \eta_p^2 = 0.004$
Absence of Hostility	$F(1, 30) = 4.74, p = 0.038, \eta_p^2 = 0.136$
Pleasure in Interaction	$F(1, 30) = 3.83, p = 0.060, \eta_p^2 = 0.113$

The effect of the group on the overall score of the MPAS revealed a non-significant trend, $F(1, 30) = 3.78, p = 0.061, \eta_p^2 = 0.112$ indicating that the intervention may have led participants to have more secure attachment to their infants. It is possible that this would have reached significance if the sample size was larger. As can be seen in table nine there was a significant difference on the Absence of Hostility subscale of the MPAS between the scores of the intervention group (Mean = 19.94; SD = 2.81) and the control group (Mean = 17.38; SD = 3.81) showing that the effect of the intervention on the Absence of Hostility scale of the MPAS was significant, $F(1, 30) = 4.74, p = < 0.05$. As with hypothesis one, effect sizes were calculated using partial eta squared which revealed a large effect size, $\eta_p^2 = 0.136$ (Cohen, 1988). The box plot displayed in figure 4 illustrates the range of values on this subscale. On the Pleasure in Interaction subscale a non-significant difference between the two groups was found, $F(1, 30) = 3.83, p = 0.060, \eta_p^2 = 0.113$ suggesting a trend of an intervention effect which was approaching significant levels. This may have been a significant result if the sample size was larger. There was no effect between groups on the Quality of Attachment subscale.

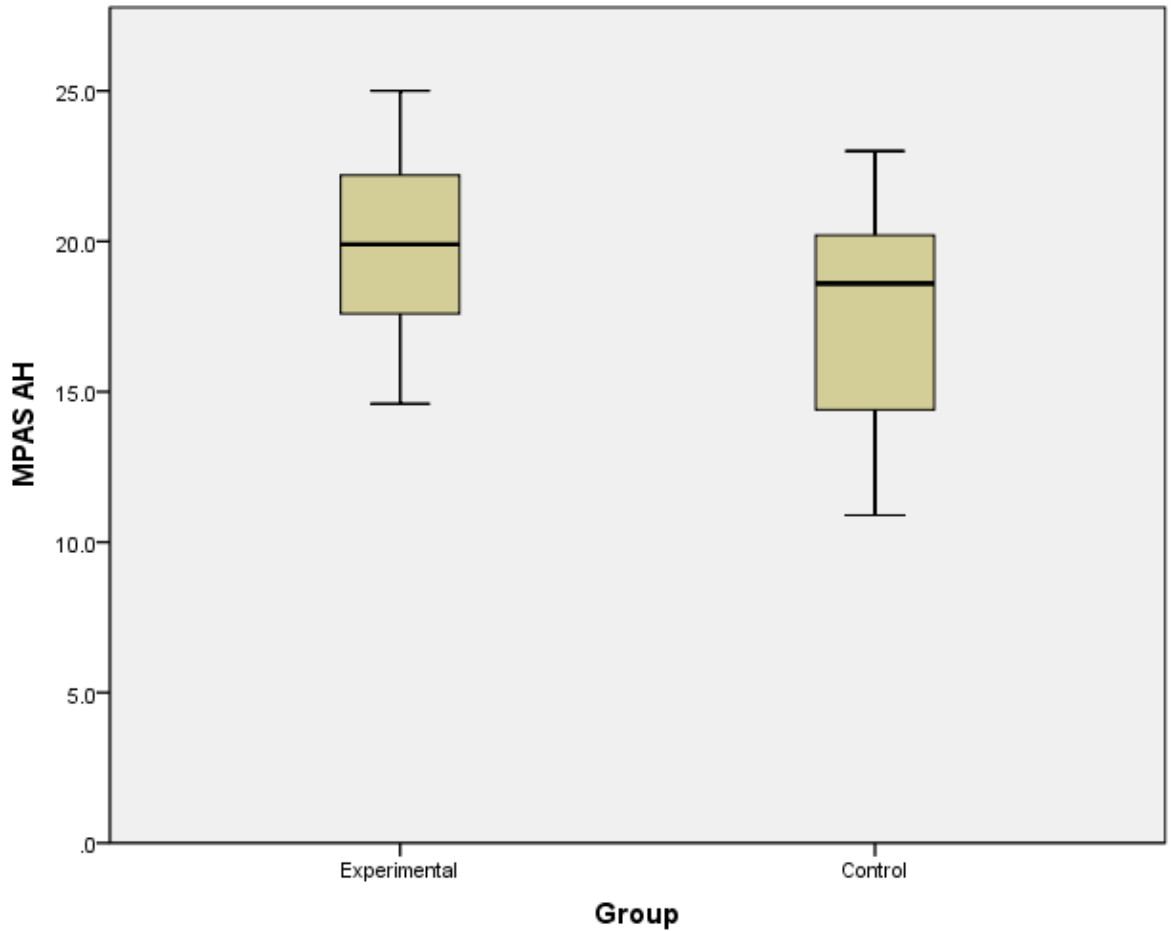


Figure 4: Boxplot showing Mean Scores on the Absence of Hostility subscale of the MPAS

The partners were asked to complete the PPAS which is also made up of three subscales. As shown in table 10, the mean overall score was higher for the fathers in the intervention group than those in the control group. The intervention group also scored higher than the control group on the Patience and Tolerance and Pleasure in Interaction subscales. There was a very small difference between groups on the Affection and Pride subscale.

Table 10: Descriptive statistics for the PPAS subscales - Means and standard deviations (S.D) of the PPAS subscales.

Subscale	Control (N= 4)		Intervention (N = 4)	
	Mean	S.D	Mean	S.D
Overall Score	76.62	2.59	80.35	4.24
Patience & Tolerance	31.20	3.34	32.68	1.73
Pleasure in Interaction	26.13	2.19	28.43	2.36
Affection & Pride	19.40	0.71	19.25	0.96

A MANOVA was conducted on the data which revealed the following results:

Table 11: Summary of the MANOVA result for the PPAS subscales.

PPAS Subcategories	MANOVA Results
Overall Score	F (1, 6) = 2.246, p = 0.185, $\eta_p^2 = 0.272$
Patience and Tolerance	F (1, 6) = 0.616, p = 0.462, $\eta_p^2 = 0.093$
Pleasure in Interaction	F (1, 6) = 2.040, p = 0.203, $\eta_p^2 = 0.254$
Affection and Pride	F (1, 6) = 0.063, p = 0.810, $\eta_p^2 = 0.010$

Results from the MANOVA reveal that there was no effect of the intervention group on the overall score or any of the PPAS subscales (see table 11). There were only 8 participants who completed this measure (all partners) which may account for the non-significant result.

3.2.2.3. Mothers Object Relations Scales – Short Form (MORS-SF)

Both mothers and partners were asked to complete the MORS-SF (N = 40). The overall score for this measure was calculated by subtracting the Invasion subscale score from the Warmth subscale. Table 12 illustrates the descriptive statistics for this measure. The results show that overall, the control group scored higher than the intervention group on this measure. The mean scores for the Warmth subscale show that the control group scored slightly higher than the intervention group. There was very little difference in the mean scores of the Invasion subscale between groups.

Table 12: Descriptive statistics for the MORS-SF subscales - Means and standard deviations (S.D) of the MORS-SF subscales.

Subscale	control (N= 19)		intervention (N = 21)	
	Mean	S.D	Mean	S.D
Overall Score	19.95	4.98	17.86	5.93
Warmth	28.63	3.48	26.71	4.01
Invasion	8.68	3.06	8.95	3.94

The results of the MORS-SF were subject to a MANOVA. This yielded the following results:

Table 13: Summary of the MANOVA result for the MORS-SF subscales.

MORS-SF Subcategories	MANOVA Results
Overall Score	$F(1, 38) = 1.44, p = 0.237, \eta_p^2 = 0.037$
Warmth	$F(1, 38) = 2.587, p = 0.116, \eta_p^2 = 0.064$
Invasion	$F(1, 38) = 0.057, p = 0.813, \eta_p^2 = 0.001$

As illustrated in table 13, the MANOVA on the results of the MORS-SF showed that there was not a significant effect of the group on scores on the overall score or both subscales of this measure.

3.2.3. Hypotheses Three

This study was also interested in whether physical and emotional feelings during pregnancy played a role in the number of appropriate MM comments made by participants. As the hypothesis was concerned with the impact on these factors on MM, only participants who completed the observation part of the study are reported here (N = 33).

3.2.3.1. Planned versus Unplanned Conception

Hypothesis 3a proposed that participants who had planned to conceive would make significantly more MM comments than those who had an unplanned pregnancy. Unfortunately it was not possible to conduct a statistical test on this measure as the assumptions for parametric tests were not met, for example, z scores revealed that the data was not normally distributed (29 out of 33 pregnancies were planned) and the Levene's test of equal variances (homogeneity of variance) was significant, indicating that the assumption of the equality of error variances was not met. It was, therefore, decided the sample size between the participants who had planned to conceive and those who had not was too great to conduct any meaningful analysis on.

3.2.3.2. Parents' Perception of Experience of Pregnancy

The study was interested to establish if how parents recalled how they had physically and emotionally felt during pregnancy predicted the proportion of appropriate MM comments made. Data collected in the perinatal section of the demographic questionnaire was used to establish this. Within this, participants were asked how they had felt physically throughout the pregnancy and how they had felt emotionally during the pregnancy. Participants then rated how they felt on a Likert scale of 1-5 with one

being unwell/unhappy much of the time and five being well/happy much of the time. These scores were then added together to make a ‘feeling during pregnancy’ score with a higher score indicating a more positive experience during pregnancy. As such, hypothesis 3a stipulated that participants who reflected that they had felt well and happy during the pregnancy would make significantly more appropriate MM comments than parents who recalled feeling unhappy and unwell during the pregnancy. Out of the 33 participants who completed the observational part of this study, 31 of them answered the questions relating to this variable (control group, N = 15; intervention group, N = 16). That left two participants who did not complete the two questions. Both of these participants were partners and as such it may have been that they did not feel these questions were relevant to them (although five out of seven did complete this measure). It is also possible that participants could not remember how they had felt during pregnancy when they came to complete the questionnaire. As illustrated in table 14, it was found that on average, the control group had a more positive pregnancy experience.

Table 14: Descriptive Statistics for Participants Perceptions of Overall Physical and Emotional Feeling during Pregnancy.

	Control (N=15)		Intervention (N = 16)	
	Mean	S.D	Mean	S.D
Overall				
Pregnancy	9.33	1.35	7.69	2.27
Experience				

To establish whether participants’ perception of their pregnancy affected the proportion of MM comments made a regression analysis was completed with the feeling during pregnancy variable predicting the proportion of appropriate MM comments. It was found that the physical and emotional feelings during pregnancy did not predict the proportion of appropriate MM comments made $F(1, 29) = 0.036$, $p = 0.555$, adjusted $R^2 = 0.012$.

3.2.4. Hypothesis Four

The study was also interested to see if there was concordance between partners' use of appropriate MM comments as previous research had shown a non-significant trend indicating a relationship between parents' use of appropriate MM comments. Hence, hypothesis four predicted that the mothers' and partners' proportional use of appropriate MM comments would be positively correlated with each other.

A correlation analysis showed that there was no relationship between partners' use of MM comments, Pearson's $r(5) = 0.068$, $p = 0.885$. The size of the correlation (0.068) suggests that it would not be significant even in a larger sample. As previously discussed in section 3.1.1, there was no significant difference between gender in the use of appropriate MM comments, $F(1, 31) = 0.858$, $P = 0.361$.

3.2.5. Summary of Hypothesis Testing

3.2.5.1. Hypothesis One:

Participants in the intervention group made significantly more appropriate MM comments than participants in the control group. Therefore, the null hypothesis was rejected.

3.2.5.2. Hypothesis Two:

Overall, no significant differences were found between the groups on any of the attachment based measures although a non-significant trend of the effect of the intervention was found on the overall MPAS scores. As such the null hypothesis was accepted. The results of the sub hypotheses were as follows:

- 2a. There was no significant difference between groups on the Quality of Attachment subscale of the MPAS. Therefore, the null hypothesis was accepted.

2b. There was a main effect of intervention group condition on the Absence of Hostility subscale of the MPAS. Therefore, the null hypothesis was rejected.

2c. The intervention group also showed a trend towards scoring more on the Pleasure in Interaction subscale of the MPAS. However, this did not reach significance. As such the null hypothesis was accepted.

No other significant differences were found between the groups on the subscales of both the PPAS and the MORS-SF. All of the null hypotheses were accepted for hypotheses 2d to 2h.

3.2.5.3. Hypothesis Three

It was not possible to conduct statistical analysis on hypothesis 3a due to the variance in group sample size. Therefore the null hypothesis could not be accepted or rejected. The perception of the experience of pregnancy did not predict the proportion of appropriate MM comments; as such, the null hypothesis for hypothesis 3b was accepted.

3.2.5.4. Hypothesis Four

No relationship between partners' use of appropriate MM comments was found. As such, the null hypothesis was accepted.

3.3. FURTHER ANALYSIS

The study was also interested in establishing whether the age of the infant affected the proportion of appropriate MM comments made. The infants were aged between 7.3 months and 11.7 months old (mean average age = 9.4 months, SD = 1.22). The

median age was 9.3 months old. Using the median, infants were split into two groups (younger infants and older infants). The descriptive statistics can be seen in table 15.

Table 15: Descriptive statistics for Mind Related Comments - Means and standard deviations (S.D) of appropriate mind related comments of younger infants and older infants.

	Younger Infants (N=15)		Older Infants (N = 18)	
	Mean	S.D	Mean	S.D
Proportion of Appropriate Mind Related Comments	0.09	0.06	0.08	0.04

An ANOVA was completed to establish if the age of the infant affected MM comments. The results were non-significant, $F(1, 31) = 0.97$, $p = 0.76$ indicating that the age of the infant did not influence the proportion of appropriate MM comments that participants made.

3.4. QUALITATIVE COMMENTS

In the demographic questionnaire, participants were asked the following open ended qualitative questions:

1. Any other comments about the birth experience?
2. If you could change one thing about your post birth experience, what would it be?
3. Any other comments?

Regarding question one and question two, most of the comments made were in relation to breast feeding; care in the hospital when giving birth and after care. The second question also generated comments about social issues, for example wanting the partner to be around more, not wanting to go back to work as early as they did and wanting to live in a different area. For question three, there were four comments made

about the Baby World class. All of the comments made were by mothers who attended the Baby World class. As these comments felt particularly relevant to the current study, it was decided to report them.

It should be noted that the Baby World class was held approximately a year prior to this information being gathered which may account for the low number of comments about the class. Further, more detailed comments made at the time of the class can be found in the previous study (LREC number: 10/HO715/52). The four comments were as follows:

1. *“I got a lot out of the class. The information felt really obvious but I am thankful that I was told it as it stuck in my head”.*
2. *“The Baby World class was brilliant, really helpful common sense advice that wasn't obvious to me”.*
3. *“The Baby World class really helped to me see things through the baby's eyes as prior this this all the focus had been on us”.*
4. *“[The] Baby World class was really useful and should be available for all. It helped me understand my baby”.*

The first two comments make reference to the overall experience of the class. Both were positive with one participant describing the class as *“brilliant”*. The comments also made reference to the information in the class; with both of them suggesting that it was obvious and common sense advice which was very useful. One comment also makes reference to the longevity of the class in saying that they have retained the information.

Comments three and four made reference to the psychological impact of the class and suggest that it made them consider the baby more and increase their understanding of them. It was felt that these comments related to the concept of MM as through seeing the world through the infants' eyes could have helped parents to treat their infant as an individual with a mind. The first comment suggested that before the classes they had

been thinking about themselves as an impending parent and that the class had facilitated a shift in this thinking style. The second comment also included a recommendation that the class be available for all prospective parents.

3.5. SUMMARY OF THE RESULTS

The results of the analyses reveal the participants who attended the Baby World class made significantly more appropriate MM comments than those who only attended standard NHS antenatal classes. No participants made any comments that were considered to be non-attuned MM comments. Overall, the intervention did not result in significant differences between groups on the attachment based measures (MPAS, PPAS and MORS-SF). However, there was a non-significant trend of intervention participants scoring higher on the MPAS. Furthermore, the intervention group scored significantly higher on the Absence of Hostility subscale of the MPAS than the control group. A regression analysis revealed that parents' recollections of the emotional and physical aspects of their pregnancy did not impact on appropriate MM comments. There was no concordance between partners' use of appropriate MM comments and the age of the infant did not have an effect on MM comments. The qualitative comments support the results of hypothesis one (attendance at Baby World will increase MM) as they indicate that the intervention changed the way participants thought about their infants.

CHAPTER FOUR

4. DISCUSSION

In 1951, John Bowlby called for society to provide support for parents: “*If a community values its children it must cherish their parents*” (Bowlby, 1951, p.84). Many researchers have suggested that this message is not heeded to today (e.g. Bretherton, 1992; Barlow, Coe, Underdown & Redshaw, 2009) and that there is still a need for antenatal interventions which support the transition to parenthood and the developing relationship between parent and infant (Barlow et al., 2009). Indeed, both psychologists (e.g. Pinquart & Teubert, 2010) and policy makers such as Iain Duncan Smith (cited in Wintour, 2012), Frank Field (cited in Mills, 2012) and Graham Allen (Allen, 2011) have stressed the importance of preventative, early interventions.

Current antenatal provision in the NHS aims to support prospective parents to be aware of their own physical, emotional and psychological needs during pregnancy, childbirth and beyond whilst fostering parental confidence (Gagnon & Sandall, 2009). However, Barlow et al. (2009) argue that the reality is often very different and that these classes can promote dependency on services rather than empower prospective parents to be confident decision makers (Nolan, 1997). Graham and Oakley (1981) suggest that they can also result in pregnant women passively accepting the medicalization of childbirth. In the best case scenario there is little emphasis on helping parents to understand their baby and develop a secure attachment relationship. As such, it was the aim of this research to evidence the effectiveness of an attachment based antenatal class.

In this chapter the findings presented in the results section will be discussed and placed in context. The clinical implications of the study will be presented and finally, the strengths and limitations of the study will also be considered.

4.1. SUMMARY OF MAIN FINDINGS IN RELATION TO THE HYPOTHESES

4.1.1 Hypothesis One

The first hypothesis of the study was that attendance at the Baby World class would lead to significantly higher proportions of appropriate MM comments than attending standard NHS antenatal classes only. This hypothesis was tested by observing parent – infant interactions for 3 minutes and analysing the interactions to establish the number of appropriate MM comments as a proportion of total parental talk. The analyses that were conducted showed that attendance at the intervention class did lead to a significant increase in the proportion of appropriate MM comments. The results also indicate a large effect size. Effect sizes are useful for establishing what the magnitude of the effect was, relatively independently from the sample size (Levine & Hullett, 2002). This was particularly useful in the study reported here as the sample size was small. The effect size reported suggests that the Baby World class had a large impact on the proportion of appropriate MM comments made. The results also indicate the MM is something that can be taught and learnt.

There are several possible contributing factors which may have led to the results. Many of the topics covered in the Baby World class may have led participants to become more mind-mindful of their infants. As outlined in section 2.4.1 participants were encouraged to see the world ‘through the baby’s eyes’ and it was explained what babies can see and understand and how the world might be experienced given this. This may have resulted in participants being more able to mentalise with their infants and realise that their infants are individuals with minds, rather than merely entities with needs to be satisfied (Meins et al., 2003). The class also framed crying as communication which may have helped parents to accurately interpret the infant’s likely internal state. Participants were also shown a video of a mother and baby interacting and were then asked to identify how the baby communicated and how the mother responded. This may have led participants to see the infant as psychological agent (McMahon & Meins, 2012) and understand that behaviours are the consequences of the infant’s internal mental and emotional processes, hence becoming

more mind-mindful. The class also discussed the importance of interacting with babies and being responsive to their needs. While, the previous topics discussed may have influenced participants in becoming more mind-mindful, this may also have led to parents communicating this information more to the infants, hence the increased proportion of appropriate MM comments observed.

The qualitative comments may help explain why the intervention had an effect on participants' MM. One participant said that the Baby World class had allowed her to start viewing the world through her baby's eyes rather than her own, implying that the intervention increased her insight into her baby's thoughts, feelings and intentions. The other comment which referred to the psychological impact of the Baby World class stated that it had increased their understanding of their infant. These comments suggest that the intervention led participants to think about their infants in a more mind-minded manner.

Other factors may have also led to the significant result. It may have been the timing and intensity of the class contributed to participants being able to take more information on board. There is considerable evidence that short interventions are more effective (in terms of the attachment relationship) than longer ones (van IJzendoorn et al., 1995, Bakermans-Kranenburg et al., 2003 and Pinquart & Teubert, 2010) and as the intervention reported here took part over one session this may have contributed to the significant effect. A longer intervention may overload prospective parents with information which in turn could contribute to an increase in anxiety and lead to a high attrition rate.

There were no comments made by participants in either group that could have been classified as non-attuned comments. The Baby World class discussed inappropriate responses and participants were asked to consider what it feels like to be misunderstood. This may have helped participants in the intervention group to be more careful and hence, accurate when commenting on their infant's internal processes (thus resulting in no non-attuned comments), however, it does not explain why the control group did not make any non-attuned comments. Meins et al. (2003) found that non-attuned MM comments occur around five times less frequently during infant – mother interactions than do appropriate MM comments and although the

figure reported here is lower than this, it is still not very surprising. Meins et al. (2011) found that non-attuned MM comments independently predicted disorganised attachment. The results of the MPAS, PPAS and MORS-SF point towards a level of security for all the participants in this study which could explain the lack of non-attuned MM comments. Furthermore, Arnott and Meins (2007) found that non-attuned and appropriate MM comments were not related.

It was also found that there was no difference between mothers and partners in the amount of appropriate MM comments made. This is in keeping with the findings of Arnott and Meins (2007) and Lundy (2003), who also found no significant differences between genders in the amount of appropriate MM comments made. This supports the notion that MM is not a gender specific ability.

The results also indicate that the Baby World class had long term effects (of approximately one year). In keeping with this finding, Pinquart and Teubert (2010) found that changes in parenting as a result of parenting interventions had long term effects. Perhaps this is because many parents and prospective parents consider such an intervention to be of great importance and therefore information is easily accessible. The Baby World class also provided participants with a booklet and slides detailing what had been covered in the class. It is, therefore, possible that participants were able to return to this information, and thus consolidate it.

4.1.2. Hypothesis Two

While the first hypothesis gathered information in how the parents thought about their child (i.e. MM), the second hypothesis focused on the feelings that parents had about their child. Indeed, the MPAS and PPAS are said to measure the emotional component of attachment (Feldstein et al., 2004). Condon and Corkindale (1998) acknowledge that while parental subjective accounts of the attachment relationship are not sufficient to define the complexity of parent – infant attachment, they are sufficient indicators of the “*probable presence of attachment*” (Condon & Corkindale, 1998, p. 7).

A non-significant trend was found on the overall scores of the MPAS suggesting that the effect of the intervention may have increased the secure attachment relationship for participants and their infants in the intervention group. It is possible that a larger sample would have led to a significant result. There was no significant group difference on the Quality of Attachment subscale of the MPAS. This subscale elicits information regarding the experiences of closeness, tenderness and overall attachment. This finding is not surprising as the results of the MPAS, PPAS and MORS-SF point to the possibility that the entire parent - infant dyads in this study had a secure attachment relationship. However, it is also possible that the Baby World class did not have an impact on this facet of the parent – infant relationship, perhaps because of the content of the intervention in that the effects of the intervention were limited to the way participants thought about their infants rather than influencing how they felt about them. The other results of the MPAS do not support this idea and suggest that the class did impact how parents felt about their infants to some extent (discussed below). Furthermore, the timing of the class may have influenced the result and perhaps a post natal class would have influenced this subscale as participants would have been able to apply the class to their current situation instead of doing so in the future. Another explanation for the non-significant result could be that the sample size was too small to yield any significant results. It is also important to note that both groups scored highly on this measure and approached the maximum score possible. The minimum score for this subscale was nine and the maximum 45; the control group scored a mean of 41.29 and the intervention group 41.62 indicating that both groups had a high level of attachment. All the participants in the study appeared to have secure attachment relationship regardless of which group they were in. It is possible that there may have been an effect on this subscale if the sample did not have secure attachment relationships as Barnes and Freude-Lagevardi (2003) note that parenting interventions can have larger effect sizes if the samples are of more ‘at risk’ communities, such as those with high rates of poverty, adolescent parents or those with insecure attachment relationships.

As presented in the results section, there was a significant difference between groups on the Absence of Hostility Subscale of the MPAS indicating that those participants who had attended the Baby World class felt significantly less hostile towards their infants than their counterparts. The class covered attunement to the infant which may

have led participants in the intervention group to react to their babies' moods and emotions more sensitively. Having a greater understanding of the infant's emotions may have led to participants experiencing less hostility when faced with them and while recalling them when filling out relevant questions on the MPAS. It is also possible that other topics discussed in the Baby World class facilitated parents' understanding of their infants, which in turn, resulted in parents feeling less frustrated by their behaviour. Indeed, McMahon and Meins (2012) found that parents who used more appropriate MM comments were less likely to become frustrated with their infants' behaviour as they suggest MM allows a parent to understand behaviour and attach meaning to it. Furthermore, the effects of prolonged stress on a baby's brain development (see section 1.3.1.) were explained to parents who attended the Baby World class. As such, understanding the longer term implications of infant stress on brain development and future behaviour may have led participants in the intervention group to have a more empathic response to crying and other behaviours.

Previous research has suggested that the Absence of Hostility subscale has a relationship with the infant's behaviour (Feldstein et al., 2004). However, Demers et al. (2010a) found that the parent's perception of the infant's behaviour, rather than the actual behaviour was related to their use of appropriate MM comments. Further support from this comes from Meins et al. (2001) who found that MM was not related to various indices of concurrent infant behaviour or children's abilities aged four. It can be suggested that the parents who attended the Baby World class had greater insights into their infants' world and hence understood their behaviour in a meaningful context. It is, therefore, suggested that this increased understanding resulted in the significant result on the Absence of Hostility subscale.

The Pleasure in Interaction subscale on both the MPAS and PPAS are concerned with different aspects of the pleasure of being with and thinking about the infant (Condon & Corkindale, 1998). Although not significant, the results indicated a trend of the intervention group scoring higher on this subscale of the MPAS than the control group and it is possible that a larger sample would have yielded a significant result. Perhaps viewing the child as a psychological agent is more interesting and thus leads to more pleasure in interaction. It may also be that if an infant is being responded to in a reliable and warm fashion then they feel more secure and consider the world to be a

less frightening place. As a result of this, the infant may be relaxed and able to enjoy the environment more, which in turn leads to the parent also feeling more relaxed, therefore, less fractiousness from misunderstandings or misattuned interactions and henceforth more pleasure in interactions. The Baby World class emphasised the notion that 'good enough parenting is good enough'. It is, therefore, possible that the parents who attended this class were less concerned about their parenting and therefore, able to enjoy it more. Indeed, Crnic and Low (2002) found an association between higher reported parenting stress and less pleasure when interacting with their infants. However, this idea can only be inferred as data regarding parenting stress was not gathered.

Slade, Belsky, Aber, and Phelps (1999) found that mothers who reported more joy in their interactions with their infants were also less negative in these interactions. Therefore, it could be argued that the results of the Absence of Hostility and Pleasure in Interaction subscales are not mutually exclusive of one another. Indeed, it is possible that participants who felt less hostile towards their infants also found more pleasure when interacting with them and/or those who had more pleasure when interacting with the infants also felt less hostile towards them.

There was no significant difference between groups on the overall score of the PPAS or any of the subscales. On two of the subscales (Patience and Tolerance; Pleasure in Interaction) the mean scores were slightly higher in the intervention group than the control group and it is possible that with a larger sample size this difference may have reached significance (only eight male participants completed the PPAS). Bakermans-Kranenburg et al. (2003) found that interventions involving fathers were significantly more effective than those involving mothers only; however, these significant differences were largely due to changes in the father's parenting rather than changes in both parents. If the results of the PPAS were taken alone, then these results would contradict the findings of Bakermans-Kranenburg et al. (2003) as it could be suggested that the Baby World class had no effect on the fathers. However, the results of the MM imply that this was not the case as the significant difference in appropriate MM comments was independent of gender. It is, therefore, possible that the intervention impacted on the way partners thought about their baby and saw it more as an entity with its own emotions and desires but did not impact on the way that they

felt about their babies (as measured by the PPAS). However, this does still not answer the question of why the class would impact on mothers and fathers differently. There is limited research into the effect of antenatal interventions into fathers which could be drawn on to help understand this difference as most research has focused on the failure of services to include fathers (McElligott, 2001; Pollock, 2001). Men often feel marginalized during pregnancy (Fatherhood Institute, 2008) and although the Baby World class attempted to involve fathers as much as possible, it may have been that one session was not enough to counteract feeling side-lined during such an important time. As such, perhaps further attempts to involve fathers at all stages of the pregnancy would have an impact on their postnatal feelings.

The MORS-SF was designed as a screening tool for risk (Oates et al., 2005). There was not a significant difference between the groups in the parents' perceptions of their infants' emotional warmth and invasiveness, although the mean scores show that the control group scored slightly higher on the Warmth subscale than the intervention group. However, for both groups the scores were high on the Warmth subscale and low on the Invasion subscale suggesting that all participants in the study perceived their infants as emotionally warm and did not view them as emotionally demanding or draining. This finding fits with the idea that the sample reported here were a low risk group who had secure attachment relationships with their infants. As with the previous non-significant results, it may be that the intervention did not impact on the warmth and invasion feelings of participants and that the change was limited to how parents thought about their infants. However, the results of the MPAS suggest that the intervention did impact upon participants' feelings, albeit in subtle and specific ways. As such, it is possible that this was an inappropriate measure to use for this study and it could be inferred that if the MORS-SF is a risk screening tool it indicated that there was low risk in the entire sample.

It is proposed that the findings of the hypothesis one and two are not mutually exclusive. Demers et al. (2010a) suggest that mothers who have high MM are more likely to read the child's signals accurately because they are able to see the world from the child's view. As such they are likely to respond to these signals in a warm manner, hence the significant difference on the Absence of Hostility subscale and non-significant trend on the Pleasure in Interaction subscale and overall score of the

MPAS. Other researchers have also stressed the importance of parents' perceptions of the infants, for example, Bateman and Fonagy (2004) suggest that mothers' representations of their infants are a crucial in the development of secure attachment.

4.1.3. Hypothesis Three

The third hypothesis of this study was concerned with whether planned or unplanned pregnancies and emotional and physical well-being during pregnancy affected MM. Arnott and Meins (2007) suggest that further research needs to be conducted on the possible influence of factors such as planned/unplanned pregnancy, pregnancy and birth complications and the parent's perceptions on the ease or difficulty of the pregnancy on later MM.

Meins et al. (2011) found that planned pregnancies were related to higher utterances of appropriate MM comments if the mother had perceived the pregnancy to be easy. However, the effect of planned pregnancy was no longer found if the mothers had perceived the pregnancy to be difficult. Unfortunately, it was not possible to contribute to the research on this as it was decided that the difference in group sample size was too large (four and 29) and therefore a statistical test would not be valid.

Previous research has found that a mother's perception of her pregnancy can affect whether or not she is mind mindful of her infant, in that those mothers who perceived their pregnancy as 'easy' used more appropriate MM comments than those who perceived it as 'difficult' (Meins et al., 2011). The data gathered in the study reported here gauged the recollection of emotional and physical well-being of participants during pregnancy rather than the ease or difficulty of the pregnancy. The regression analysis showed that the way in which participants had felt during pregnancy did not predict later appropriate MM comments, which is different from Meins et al.'s (2011) findings. The failure to replicate their findings may have due to the fact that this study was measuring a slightly different facet of pregnancy (ease/difficulty versus physical and emotional well-being) although it could be argued that both constructs are similar. The size of the sample may also have been responsible for the failure to replicate the findings as Meins et al. (2011) had 208 mother – infant dyads. However, it is also

possible that the results reflect the idea that the perception or actual experience of physical and emotional well-being during pregnancy is not related to MM. Perhaps parents who are unwell and unhappy during pregnancy are just as able to consider the foetus as a person in its own right as those who are well and happy during pregnancy.

It is interesting to note that overall, the control group appeared to have had a more positive pregnancy experience than the intervention group (or they perceived this to be the case). In spite of this, the intervention group still used more appropriate MM comments, reported less hostility and more pleasure in interacting with their infants. This adds further support to the effectiveness of the Baby World class as it appeared to counteract any implications of a negative pregnancy experience on the subsequent parent – infant relationship. Previous research has indicated that MM is unrelated to mental health (Pawlby et al., 2010), psychological well-being, social support, educational level (Meins et al., 2011) or socioeconomic status (Meins et al., 1998). This finding adds to this research in suggesting that MM is also unrelated to physical and emotional well-being during pregnancy. However, this result must be interpreted with caution as it is based on questions asked in the demographic questionnaire rather than one which had been checked for reliability and validity. In the Meins et al. (2011) study, data was gathered about actual complications in the pregnancy as well as parents' perceptions of the pregnancy. Unfortunately, in this study data was only gathered about the perception of pregnancy and as such, it can only be inferred that perceptions of pregnancy rather than actual pregnancy experiences are unrelated to MM. Furthermore, it is acknowledged that although the control group reported a more positive pregnancy experience, the intervention group still reported a relatively positive experience with a mean score of 7.69 out of ten.

4.1.4. Hypothesis Four

The fourth hypothesis investigated concordance in MM between partners as previous research by Arnott and Meins (2007) had found a non-significant trend of a positive relationship between partners' use of appropriate MM comments. However, this study did not find any significant concordance of appropriate MM comments between partners. The small size of the correlation suggests that it would not be significant

even in a larger sample. Although this finding fits with the suggestion of Meins, Fernyhough, Arnott and Wilson (2006) that MM is a relationship-specific construct in that it is concerned only with a parent – infant dyad, it does not fit with the findings of hypothesis one in this study which suggest that MM can be taught. It would follow logically that if MM can be taught in a class, it can also be modelled from one parent to another. However, different factors are involved in a class based learning experience than when modelling behaviour and perhaps participants are more likely to retain information presented to them in a formal class which is backed up with evidence and examples. It is also possible that the nature of caring for an infant means that the opportunity for modelling is not possible in that, when one parent takes over interacting with the baby, the other parent attends to other chores or daily demands.

4.1.5. Other Findings

Further analyses was also conducted to establish if the age of the infant affected the proportion of appropriate MM comments as it has been found that interactions with infants differ depending on the developmental stage of the infant (Crawley & Sherrod, 1984). Furthermore it was considered that as an infant grows, it develops more adaptive communication skills, thus giving the parent more opportunity to consider the infant as having thoughts, desires and intentions, hence making the parent more mind-mindful. However, an ANOVA revealed that there was no effect of infant age on parents' use of MM comments. This finding fits with Arnott and Meins (2007) and Meins et al. (2011) who found that parents use of appropriate MM comments were stable across time. They concluded that "*regardless of age-related changes in the infants... mothers who tended to comment appropriately on their infants' internal states at 3 months continued to do so at 7 months*" (Meins et al., 2011, p. 159). The finding in this study, therefore, gives further support to the notion that MM is a stable trait in parents that is independent of infant age.

This study also reported a selection of qualitative comments. It is not suggested that they represent the feelings and experiences of the sample as they are only based on the responses of four participants. However, they support the findings of hypothesis one; that the Baby World class led to changes in the way participants thought about their

infants, in that they started to see them as individuals and were more able to interpret their babies' behaviour in terms of their mental states. Furthermore, one participant wrote about viewing the world through their baby's eyes rather than their own, implying that the intervention increased the participant's mentalising abilities.

4.2. CLINICAL IMPLICATIONS AND FUTURE RESEARCH

Meins and Fernyhough (1999) have previously questioned whether MM is a natural trait or a conscious strategy, the implications of this being that if the latter is true, MM can be learnt. The results of this study suggest that MM can be learnt and that doing so does not need to be a resource intensive procedure. Indeed, the one-off, three hour Baby World class appears to have been sufficient in encouraging parents to become more MM of their infants. Although unable to quantify in this study alone, the long term benefits of this increased MM may be significant. As previously discussed, Meins et al. (2002) found that appropriate MM comments were linked to the future development of a child's mentalising abilities such as perspective taking skills and ToM. As such, it could be inferred that the Baby World class will have long term effects on the child's social trajectories. Future research may be able to establish this as well as gaining an understanding if other outcomes (for example emotional intelligence) are associated with MM.

It can be tentatively suggested that the increased use of appropriate MM comments seen in the intervention group will continue as the child develops as Arnott and Meins (2007) and Meins et al. (2011) found that that a parent's use of appropriate MM comments is stable over time. The results in this study which imply that MM is independent of infant age add further support to their findings. Future research on the participants and infants in the intervention group will be able to establish the long term benefits of attending the group.

Attendance at the Baby World class impacted to a certain degree the way in which the parents felt towards their infants in that they appeared to have less feelings of hostility and had more pleasure when interacting with them. It is likely that such feelings will have impacted on the care-giver – infant relationship which is known to have a

significant effect on development and well-being across the lifespan (Shonkoff & Phillips, 2000), as well as having societal and economic implications. As discussed in chapter one, both antenatal and post-birth parenting interventions have a good evidence base and on the whole can positively affect the attachment relationship (e.g. Klein Velderman, Bakermans-Kranenburg, Juffer & van IJzendoorn, 2006; Jacobson & Frye, 1991; Juffer, 1993; Barnard et al., 1988; Anisfeld et al., 1990). The majority of previous studies use changes in attachment as measured through the Strange Situation procedure or self-report measures as outcome data. However, this study is unique in that the proportional use of appropriate MM comments, (as well as attachment based measures) was used to evaluate the class's effectiveness. It may be beneficial for future outcome studies to consider using variables which measure changes in parents' cognitions as an indication of an interventions effectiveness.

Furthermore, many of the studies reported were parenting interventions for high risk groups (e.g. insecure attachment, adolescent parents, parents with drug and alcohol difficulties) whereas the sample reported in this study were not considered to be high risk (as measured by the MORS-SF). This research has provided evidence that antenatal attachment based classes can have a positive impact on people who are not considered to be high risk and who already have a secure attachment relationship. As such, the findings of this study provide strong support that an intervention such as the Baby World class should be available for all expectant parents as part of the standard NHS antenatal experience. It would also be useful to evaluate the effectiveness of a Baby World class on a high risk group.

The main focus of this study was on MM, in essence whether the Baby World class could impact on the way parents thought about their infants. Previous parenting intervention outcome studies have focused more on changes in the feelings of participants in relation to their children. It could be argued that the implications for MM being a stronger predictor of secure attachment than other factors (such as maternal sensitivity) imply that cognitions rather than feelings are key to attachment. Indeed, Bowlby (1969) himself questioned the assumption that the care-givers' feelings underpin their reactions to their infants and suggested that they may merely correlate to them. For example, a mother may respond to a crying baby because of sympathy (feelings); an internal reaction signalling that the baby needs to be fed

(physical sensations); or, because she does not want other people to be woken by the baby (cognitive) (Feldstein et al., 2004). Bowlby (1969) concluded that “*the [cognitive] appraising processes of which feeling may be a phase undoubtedly plays a causal role [in the formation of a secure attachment]*” (p.118). It is, therefore, proposed that as well as focusing on feelings and the attachment relationship, future parenting intervention outcome studies should consider changes in the way that parents think about their children, indeed whether or not they are able to see them as individual with a mind.

Although many researchers and policy makers agree that preventative early interventions are favourable, there is still some debate about the timing of such interventions. Concerns about parenting interventions being held before the baby is born generally propose that parents will not be able to relate to the information and apply it to their lives before having a child. This research has given support to the notion that interventions should take place in pregnancy alongside standard NHS antenatal classes. Furthermore, this study has shown that parents are able to retain information and apply what has been learnt long after the intervention, possibly due to the very nature of the intervention which may have been supported by the practical distribution of written information about the content of the class.

The previous study (LREC number: 10/HO715/52) did not yield any significant results in terms of changes in care-giver - foetus attachment. It may be that the class did not impact on the feelings of prospective parents about their infants before he or she was born. However, it would have been interesting to see if the class had impacted on the way that prospective parents thought about their unborn infants, as measured by adapting the MM interview as in Arnott and Meins (2007) study. It may have been the case that immediately after the Baby World class prospective parents started to view their unborn infants as being individuals with their own mental states and that this MM remained stable over time. Alternatively, it may have been that the impact of the class took time to take effect which would be in keeping with MacLeod and Nelson’s (2000) finding that antenatal interventions showed larger effect sizes at follow-up than soon after the intervention. Future research could investigate whether the Baby World class impacted on MM immediately after the intervention, or whether it takes time to have such an effect.

It is important to acknowledge that although the Baby World class may impact on the care-giver – infant relationship, there are many other difficulties that families face which will not be addressed by this intervention. For example, Balbernie (2001) argues that poverty is an important risk factor which must be addressed as it impacts on all other risk factors associated with the care-giver – infant relationship and Mills (2012) suggests that socioeconomic circumstances are the biggest factor in an infant's life trajectory. Bowlby (1951) argued that parents are dependent on greater society for economic provision and a recent programme set up by MP Frank Field aims to tackle family poverty and social mobility problems. As such, interventions such as the Baby World class should be part of a holistic approach to supporting parents which also include relevant policies, positive economic strategies and strong links between services (Doctors, Gebhard, Jones & Wat, 2008). As one participant in the control group commented "*having a baby really makes you realise the importance of community*" and as such it is proposed that as well as interventions such as the Baby World class, resources should focus on strengthening communities.

4.3. STUDY STRENGTHS AND LIMITATIONS

There were a number of strengths and limitations in this study which may have impacted on the validity of the results.

4.3.1. Contributing to Existing Theory and Research

This research has added to the pool of literature concerning parenting interventions, specifically antenatal parenting interventions. As discussed in the chapter one, researchers have recommended that further intervention studies should be conducted due to their limited quality and number of studies and the potential impact of antenatal interventions (Fonagy, 1998).

This study has gone some way in evidencing the effectiveness of the Baby World antenatal attachment based intervention and shown that attendance at that class increased the amount of appropriate MM comments that parents made, hence they

became more mindful of their infant. Understanding an infant and developing the ability to see the world through the infant's eyes are important characteristics for the parent to have and this study has also contributed to the MM literature in showing that parents can become more mind-mindful. Importantly, this study has shown that rather than being a natural trait, MM can be taught in a way that does not have to be resource intensive. Furthermore, this study has helped address the limitations of MM research to date, in that Demers et al. (2010b) argue that there has been little research into the precursors of MM.

A key limitation of the study is that data was only collected at one time point. Drawing on the work of Meins and colleagues allows for inferring that parents MM comments will be consistent over time (Arnott & Meins, 1998; Meins et al., 2011) and that they will impact on the developing child's ToM and mentalising abilities. However, without further observations and research with the participants, these proposals can only be inferred.

4.3.2. Study Design

This study increased its internal validity by incorporating a RCT design, thus reducing the likelihood of selection bias and allocation bias (Barker, Pistrang & Elliott, 2002). By randomly allocating participants to groups, they were kept as similar as possible before the intervention, meaning that any changes in scores would have a higher likelihood of being due to the independent variables.

Only incorporating a between subjects design was a major limitation of this study as it meant that baseline measures of MM and scores on the MPAS, PPAS and MORS-SF were not gathered. As such, it is possible that the results reflect participants' baseline scores and those individuals in the intervention group possessed MM traits before attending the Baby World class. However, due to the significance of the results and the small standard deviation between scores, as well as the fact that participants were randomly assigned to each group, it is postulated that this is not the case and that the results reflect the effect of the intervention. Never-the-less, it is still accepted that only incorporating a between subjects design is a study limitation.

It may have also been interesting to look take these measures at different time points, for example, after the Baby World class (or equivalent time for the control group) shortly after the birth, when the baby was six months old, 12 months old and then again as a toddler. This within-subjects method would have added richness to the data and given more concrete information about the longevity of the Baby World class. However, due to time constraints this was not possible for this research. It is hoped that future research will gather such information with this sample.

Unfortunately, it was not possible to employ a blind or double blind design as the observational data was collected and analysed by the same researcher. However, involving a second coder who was able to blind code 12% of the observations ensured for inter-rater reliability. Furthermore, the outcomes of many parenting interventions are measured by the person who was involved in the planning and implementation of the study who, therefore, have a vested interest in finding evidence to support an intervention's effectiveness. This was not the case in the research reported here, as different researchers and clinicians were involved in different stages.

The multi-method design (incorporating both questionnaire data and observational data) is a further strength of the study. Incorporating a multi-method design decreases the likelihood that the findings might be due to methodological artefacts such as shared method variance, social desirability and self-report bias. The observational data can help to counter act any self-report bias that may have influenced the data. Condon and Corkindale (1998) argue that video observations and questionnaire data should complement each other in attachment based research. The study also incorporated a qualitative element to it in the form of open ended questions. It would have been useful to have more qualitative data about the class and perhaps a direct question would have increased the responses about it. However, this would have resulted in the intervention group and control group having slightly different questionnaires which may have impacted on validity. Furthermore, it is testament to the class that participants still commented on it even though a year had passed since they attended it and they were not asked directly about it.

4.3.3. The Sample and Gender

The sample was relatively small; however, this was inevitable as the target population from which this study was able to recruit from was 57 mothers and 19 partners. There were only 27 mothers who attended the Baby World class. A small sample size can often be the consequence of incorporating a parenting intervention which has led many researchers to feel frustrated. As Klein Velderman et al. (2006) puts it “*Despite the fact that a brief home-based intervention in a sample of 81 families entails considerable effort to implement, the power of some statistical analyses may be inadequate*” (p.272). The small sample size may also have been responsible for some of the non-significant results reported in this study, for example, the trend towards significance on the Pleasure in Interaction subscale of the MPAS and the non-significant difference between groups on the PPAS.

Although the age of first time mothers is increasing (Bradshaw, 2011), the sample in this study was still older than the UK population. The mean age range of mothers in the sample was 31 to 35. This is older than the national average first time mother in the UK which was 29.5 in 2011 (Bradshaw, 2011). Furthermore, older motherhood is associated with higher economic status as many women have chosen to have a career first before having a child (Geronimus, Korenman & Hillemeier, 1994). Findings can only be generalised with caution to those mothers who are in a younger age range such as adolescent parents.

The majority of participants described themselves as white; however, just over half of participants described themselves as white British. As such, this study had more participants from diverse cultural backgrounds. The majority of the sample was either living with their partners or married, and were educated to degree level or above. Although the educational level of the sample may not have been representative of the population, Meins et al. (2011) found that MM was unrelated to maternal educational level, as such, it could be inferred that a similar finding would have occurred with a group educated to a lower educational level.

Furthermore, previous research has indicated that the type of people that agree to attend a class on the relationship with their baby may have been the people who

already had thought about such issues (Demers et al., 2010b). As such, the very people that the group may have been most suitable for may have been the people that chose not to attend the group.

A further strength of this study is that it incorporated a control group. Bakermans-Kranenburg et al. (2003) found in their meta-analysis of parenting interventions that very few of them had a control group to compare the effectiveness of an intervention. This is because of the ethical issues in denying a treatment to parents who are in need of support. In using parents without any obvious needs or those not considered to be high risk, this study was able to compare parents who had received an intervention to those who hadn't.

This study only had 8 partners in it (which were all fathers). The Fatherhood Institute (2008) has stressed how fathers are often left out of antenatal and parenting research and it was disappointing that this study was not able to help address this issue. The small number of fathers involved in the study may also have been responsible for the non-significant findings on the PPAS measure. As previously discussed the target population from which this study was able to recruit from limited the amount of participants in the study and this was especially true of the partners as there were only 19 partners in the population sample. There may have been other factors which contributed to the low number of partners recruited. For example, during the recruitment process only the mothers were contacted via telephone or email. If their partners had taken part in the first part of the study (i.e. completed the antenatal attachment based measures) then the mothers were asked if the partners would be interested in taking part in the next stage. Not talking to the partners directly may have decreased the likelihood of them wanting to take part as they may have not felt as valued or important to the study as if they had been contacted directly. Although the midwife team only provided contact information for the mothers in the study, it is worth considering how this could be overcome in future research. Perhaps, the fathers' contact details could be gathered through the mothers and then contact made directly.

Although this sample was not representative of the population, Meins et al. (2011) found that mind related comments are not affected by psychological well-being or socioeconomic status (Meins et al., 1998). Therefore, it can be tentatively suggested

that similar results would have been found in a population with different demographics to this one.

4.3.4. Measures

There are a number of criticisms which apply to self-report measures which are applicable to the study reported here. For example, the issue of social desirability can often influence the results of attachment based questionnaires, in that parents may feel that they are unable to report low attachment or feelings of hostility and invasion with their infants. However, Condon and Corkindale (1998) found in their validation of the MPAS study that a proportion of mothers did produce lower attachment scores indicating that the MPAS is capable of discriminating a low attachment subgroup.

As previously mentioned, the MORS-SF may have been an inappropriate measure to use considering it is a risk screening tool and the sample appeared to be low risk. However, this information was not available prior to the study being conducted.

There are also limitations of adopting an observational design. Condon (2012) points out that observations are resource intensive which can limit the assessments to one off and result in relatively small samples which is true of the study reported here. Furthermore, such a procedure involves a commitment from the participants involved which may result in sample bias (Condon, 2012). It is also possible that parents with insecure attachment to their infants chose not to participate in this study, hence the high scores on the attachment measures. During the observations the parent's behaviour may have been influenced by extraneous factors such as her awareness of being observed and filmed (Condon & Corkindale, 1998). Furthermore, the infants' state during recording (such as tiredness, hunger or minor illness) can also impact on the observation.

A further study strength is that the observations took place within the participants own home rather than in a laboratory. It has been suggested that naturalistic settings would offer the most robust contexts in which to assess parent – infant dyads (Crnic and Greenberg, 1990).

There are other measures which could have been utilized in this study. For example, the MM interview (Meins, 1999) could have provided further insight on participants' MM. However, Meins et al. (2003) suggest that the interview is not as robust as observations as interviews are more reflective and retrospective. It also would have been useful to establish whether attending the Baby World class affected reported levels of parenting stress. Observing the interactions for other behaviours, such as those proposed by the CARE-index (Crittenden, 2005) could have provided further insight into the potential benefits of the group.

In order to increase the reliability of the observational data, it would have been useful to carry out repeated observations with each parent-infant dyad or to have incorporated a blind condition in which the observer did not know which group the participant belonged to. However, due to time constraints and limited resources this was not possible.

Regarding the question of whether factors during pregnancy can predict MM, it is possible that this study did not gather enough information to address this idea. Meins et al. (2011) asked participants to reflect on their pregnancy experience and rate whether or not it had been easy or difficult. In a similar way, this study asked participants to recall how they had physically and emotionally felt during pregnancy. For both studies, this provided information on the subjective perception of pregnancy; however, the Meins study went a step further by asking for detail of pregnancy complications. In this sense they were able to distinguish whether or not the perception of pregnancy and/or the experience of pregnancy were related to MM. It is unfortunate that the study reported here only gathered information on the perception of pregnancy as it is very subjective and in hindsight it would have been useful to also gather information on pregnancy complications and life events experienced during pregnancy.

4.3.5. Excluded Cohorts

By not having interpreters available, an entire cohort of potential participants was excluded from this study. As such, the sample was not representative of the local population. Furthermore, it resulted in not being able to fully explore the impact of different cultural backgrounds on MM.

4.3.6. Impact on Validity

The impact of the aforementioned strengths and limitations of the sample relates to the internal and external validity of the study. External validity is the extent to which research findings can be generalised from a sample in order to make predictions about the population, and relates to the sample, the setting and the procedure. This study recruited participants from a local NHS setting and had a wide inclusion criterion. Furthermore, the participants were from diverse ethnic and cultural backgrounds. This increases the external validity of the study and thus suggests that the findings could be applied to another group of parents in a London borough. However, as this sample was considered to be low risk (as measured by the MORS-SF) as well as highly educated the external validity is reduced. Furthermore, all parent - infant dyads in both groups appeared to have secure attachment relationship (as measured by the MPAS and PPAS) which further reduces the external validity.

Internal validity is the extent to which findings can reflect a relationship between the independent and dependent variables. This study increased its internal validity by incorporating a RCT design, which is often considered the best design for establishing strong evidence for a causal relationship between factors. A second coder who was able to blind code 12% of the observations ensured inter-rater reliability thus increasing the internal validity. However, by not also adopting a within-subjects design, this study was unable to obtain baseline scores and therefore was unable to determine whether the intervention group were more MM before the intervention. This limits the internal validity of the study.

4.3.7. Criticisms of MM

It is important to note that the dependent variable in hypotheses one and three (proportion of appropriate MM comments) is also open to criticism. As previously stated in the introduction, MM appears to be a very important attribute in parents which predicts secure attachment (Meins et al., 2001) and mentalising abilities of the child (Meins et al., 1998; Meins & Fernyhough, 1999). However, some could argue that by only looking at appropriate MM comments in a parent-infant observation, there is a lot of data and information that is not gathered, for example, pacing of turns, facial expression, control and choice over activities. Further research could examine whether there is a relationship between MM and these other factors that have been commonly assessed in parent – infant interactions. It may also be useful to assess the observations in this study using the CARE-index (Crittenden, 2005).

The concept of MM is also open to criticism. It is largely assumed in the literature regarding MM that the benefits associated with it are due to environmental exposure to mind related comments. However, it is possible that the benefits of MM, for example, perspective taking, mentalising abilities and increased ToM are due to a genetic predisposition of greater mentalising abilities which is passed down genetically from the parents to the child rather than due to environmental exposure of MM comments. However, the significant differences between groups in this study support the notion that MM can be learnt and is therefore not a genetic predisposition. Further research comparing the use of MM and subsequent child mentalising abilities of biological versus adoptive parents may be useful.

Demers et al. (2010a) have suggested that research into MM has failed to include valence of MM comments such as whether or not the comments are positive, negative or neutral. They found that it was only positive appropriate MM comments that were significant predictors of maternal sensitivity. As such, it may have been useful to divide the appropriate MM comments into positive, negative and other comments and completed some analysis. However, Demers et al. (2010b) also note that in low risk samples the frequency of negative MM comments may be low; hence they have not been measured in the sample reported here.

Despite these criticisms, the concept and associated outcomes of MM have been well evidenced. Furthermore, the results which link appropriate MM comments and secure attachment have been replicated elsewhere (Laranjo et al., 2008; Lundy, 2003).

4.5. CONCLUSION

This research has shown that the Baby World class had an impact on the way that parents *thought* about their baby's in that they saw them as individuals with their own minds rather than merely an entity with needs to be satisfied. To a lesser extent the class impacted on the way parents *felt* about their infants (as measured by the Absence of Hostility subscale of the MPAS). Thinking and feeling are not mutually exclusive. Indeed, viewing one's infant as an entity with its own thoughts may have led to a better understanding of their baby's behaviour and allowed for it to be placed in context. As such, understanding behaviour may have led parents to become less frustrated by it, hence a change in the amount of frustration experienced by parents.

The results of the study have demonstrated the effectiveness of the Baby World class and have shown that it can impact parents considered to be low risk. Further implications of the include evidencing the notion that MM can be taught. The study also found that physical and emotional well-being during pregnancy did not affect MM. The idea that MM is a relationship – specific construct has been supported by this research through the finding of a lack of concordance of MM between partners.

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APPENDICES

APPENDIX 1 – INFORMATION SHEET

Information Sheet

14/07/11

Title of Research Study: The Impact of the Antenatal Class “Baby World” on the Parent-Infant Relationship

Name of Researchers: Dr Tejinder Kondel and Andrew Parkinson

You recently took part in the above named study in which we asked you to complete some questionnaires which asked about your feelings regarding your baby. We would now like to ask you to take part in a further part of this research study. This information sheet will tell you about the study so please read it carefully. Take as much time as you need to decide whether or not you wish to take part. Please feel free to ask questions.

What is the purpose of the study?

Research suggests that the relationship between parents and their babies has an impact on the baby’s psychological well-being, social skills and academic abilities. Studies that have been carried out so far suggest that interventions aimed at supporting parents with this relationship have a positive impact both in the short and long-term. These interventions can even take place during the antenatal stage.

However, there is a lack of research into the impact of antenatal group interventions in the UK. As a result of this, it has been recommended that further intervention studies should be conducted in order to examine the impact of antenatal groups that focus on this relationship.

The aim of this study is to explore how attending a particular antenatal group which focuses on this relationship in addition to routine antenatal classes affects the parent-infant relationship.

Why have I been chosen?

You were involved in the initial part of this study in which you completed questionnaires and either attended an antenatal group on one occasion in addition to your routine antenatal classes or you simply attended the antenatal class. We are asking people in your region to take part in the study, as it is supported by your midwives and their teams.

Do I have to take part?

You do not have to take part in this study. If you would prefer not to take part, you do not have to give a reason. Your care from the NHS will not be affected in any way at all.

If you do decide to take part we will ask you to read and keep this information sheet. You will also be asked to read and sign a consent form to show that

you understand what is involved in this study. You are free to stop taking part at any time and you do not have to give a reason.

What will happen if I take part?

If you decide to take part we would like to observe you interacting with your baby for 5 minutes. This will take place within your own home and the observation will be videotaped, at a time that is convenient for you. We would ask that you just interact as you normally would with your baby. There will be opportunities to ask questions and discuss your thoughts with the observer. If your partner took part in the first part of the study then we would also like to invite them to take part in this part of the study. This will involve observing your partner and infant interacting for 5 minutes which will again be videotaped. We will use the videos of your interaction and the questionnaires that you filled out when you took part in an earlier stage of this study to look at the quality of your attachment relationship. You will be welcome to receive feedback about this.

The researcher observing your interaction will be Andrew Parkinson, a Trainee Clinical Psychologist from the University of Hertfordshire who is employed by the NHS. He has experience working with children and families as well as undertaking research within participants' homes. He has a recent Enhanced Criminal Records Bureau (CRB) check. Andrew will bring a copy of his CRB as well as NHS identification with him when visiting you. Please feel free to have a relative or friend present throughout the observation.

To thank you for taking part in this study we would like to offer you a £10 mothercare voucher as well as a DVD copy of your interaction.

Will my information be kept confidential?

Your information will be fully confidential and will only be seen by the research team. The only exception to this is if there is a cause for concern about the well-being of yourself or others. At this time relevant information will be shared with appropriate services in order to address this. You will be informed if this occurs.

Any Questions?

If you have any questions please do not hesitate to ask one of the researchers using the contact details below:

Andrew Parkinson
Department of Clinical Psychology
Psychology
University of Hertfordshire
College Lane
Hatfield
Herts
AL10 9AB

Tejinder Kondel
Department of Clinical
Psychology
University of Hertfordshire
College Lane
Hatfield
Herts
AL10 9AB

e-mail: a.parkinson@herts.ac.uk

e-mail: t.kondel@herts.ac.uk

Further Support

If at any time during this study you need any additional emotional support with parenting a baby, you can contact:

Dr Tejinder Kondel
Parent Infant Psychological Therapies Service (PIPS)
Haringey TPCT
St Ann's Hospital
St Ann's Road
London N15 3TH

Tel: 0208 442 6413

If you would like additional emotional support at any time you can also contact:

Family Lives Parentline
Tel: 0808 800 2222

Parentline is a confidential service and is available 24 hours a day, seven days a week which offers advice, information and support on any aspect of parenting and family life. It is free from landlines and most mobiles.

Thank you for reading this information sheet.

APPENDIX 2 – CONSENT FORM

Participant Consent Form

Title of Research Study: The Impact of the Antenatal Class “Baby World” on the Parent-Infant Relationship

Name of Researchers: Dr Tejinder Kondel and Andrew Parkinson

Please put your initials in each box when you have read and agreed with the statement:

1) I confirm that I have read and understood the information sheet dated 14/07/11 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2) I understand that my participation is voluntary and that I am free to leave the study at any time without giving any reason.

3) I agree to take part in the above study

Name of participant

Date

Signature

Name of researcher taking consent

Date

Signature

APPENDIX 3 – DEMOGRAPHIC AND PERINATAL QUESTIONNAIRE

1. What is your sex:

Female Male

2. Age:

15 - 20 21 - 25 26 - 30 31 - 35 36 - 40 40 +

3. Is English your first language?

Yes No

If you answered NO, are you a fluent English speaker?

Yes No

4. How would you describe your ethnicity (e.g. mixed - White and Black African, White British, Indian)?

5. Religion - Do you consider yourself to be part of a faith-based community or organisation?

Yes No

6. Please choose your highest level of education:

Left school before any qualifications

O-Levels/GCSE's

A-Levels

University Degree

Postgraduate Qualification

Other (please specify):

7. Please choose the answer which best describes your current employment:

Full time homemaker

Full time (at least 35 hours per week)

Part time (less than 35 hours per week)

Contract work/variable hours

Unable to work due to injury/disability

Currently unemployed

Student

Other (please specify):

8. If you are employed, what is your occupation?

9. Have you taken maternity/paternity leave?

If you answered YES, how long have you taken on maternity/paternity leave?

10. What is your current status:

Single

Living with partner/married

Separated/divorced

Widowed

Other (please specify):

11. Have you ever been diagnosed with any mental health difficulties (such as depression, addictions, self-harm or anxiety):

None

Minor Difficulties (please specify below)

Major Difficulties (please specify below)

Other (please specify):

12. Was this a planned pregnancy?

Yes

No

13. How did you feel physically during this pregnancy (please choose the number that best describes how you have felt): 1 = Sick much of the time, 5 = Well much of the time)

1

2

3

4

5

14. How did you feel emotionally during this pregnancy (please choose the number that best describes how you have felt): 1 = unhappy much of the time, 5 = happy much of the time)

1

2

3

4

5

15. Have you experienced any miscarriages in the past?

Yes

No

16. How would you describe the birth?

Normal birth at home

Normal birth at hospital

Water/pool birth at home

Water/pool birth at hospital

Vacuum extraction (Ventouse/suction or Kiwi delivery)

Forceps delivery

Planned Caesarean Section

Emergency Caesarean Section

17. Did you have any pain relief for the birth?

Yes No

If YES, what type of pain relief?

18. How long was the labour?

19. Any other comments about the birth?

20. When I first saw my baby after the birth I felt:

Intense affection

Mostly affection

Dislike about one or two aspects of the baby

Dislike about quite a few aspects of the baby

Mostly dislike

21. Did you know the sex of the baby prior to the birth?

YES

NO

22. Were you pleased to have your boy/ girl?

YES

NO

23. When my baby was born I held the baby:

Immediately

After it had been wrapped in a blanket

After it had been washed

After a few hours for things to settle down

The next day

24. Did you breast feed your baby or use formula?

Breast fed

Formula

Both

If YES or BOTH, how long did you breast feed for?

25. During the day, I usually spend my time with my baby

At home on my own

Out and about on our own

At play centres

With friends and their babies

With grandparents

26. When your baby cries do you respond by

Cuddling the baby

Give the baby a soother

Let the baby cry itself out

27. If you could change one thing about your post birth experience, what would it be?

28. Any other comments?

APPENDIX 4 – MATERNAL POSTNATAL ATTACHMENT SCALE

MATERNAL POSTNATAL ATTACHMENT SCALE

These statements concern the different sorts of emotional reactions parents have when caring for young babies. Please select the response which is closest to your own feelings.

1. When I am caring for the baby, I get the feeling of annoyance or irritation:

- very frequently
- frequently
- occasionally
- very rarely
- never

2. When I am caring for the baby I get the feeling that the child is deliberately being difficult or trying to upset me:

- very frequently
- frequently
- occasionally
- very rarely
- never

3. Over the last two weeks I would describe my feelings for the baby as:

- dislike
- no strong feelings towards the baby
- slight affection
- moderate affection
- intense affection

4. Regarding my overall level of interaction with the baby, I:

- Feel very guilty that I am not more involved
- Feel moderately guilty that I am not more involved
- Feel slightly guilty that I am not more involved
- I don't have any guilty feelings regarding this.

5. When I interact with the baby I feel:

- Very incompetent and lacking in confidence
- Moderately incompetent and lacking in confidence
- Moderately confident and competent
- Very confident and competent

6. When I am with the baby I feel tense and anxious:

- very frequently
- frequently
- occasionally
- Almost never

7. When I am with the baby and other people are present I feel proud of the baby:

- very frequently
- frequently
- occasionally
- almost never

8. I try to involve myself as much as possible in PLAYING with after the baby:

- this is true
- this is untrue

9. When I have to leave the baby:

- I usually feel rather sad (or it's difficult to leave)
- I often feel rather sad (or it's difficult to leave)
- I have mixed feelings of both sadness and relief
- I often feel rather relieved (and it's easy to leave)
- I usually feel rather relieved (and it's easy to leave)

10. When I am with the baby:

- I always get a lot of enjoyment/satisfaction
- I frequently get a lot of enjoyment/satisfaction
- I occasionally get a lot of enjoyment/satisfaction

I rarely get a lot of enjoyment/satisfaction

11. When I am not with the baby, I find myself thinking about the baby:

almost all the time

very frequently

frequently

occasionally

not at all

12. When I am with the baby:

I usually try to prolong the time I spend with him/her

I usually try to shorten the time I spend with him/her

13. When I have been away from the baby for a while and I am about to be with him/her again, I usually feel:

intense pleasure at the idea

moderate pleasure at the idea

mild pleasure at the idea

no feelings at all about the idea

negative feelings about the idea

14. I now think of the baby as:

very much my own baby

a bit like my own baby

not yet really my own baby

15. Regarding the things that I/we have had to give up because of this baby:

I find that I resent it quite a lot

I find that I resent it a moderate amount

I find that I resent it a bit

I don't resent it at all

16. Over the past three months, I have felt that I do not have enough time for myself to pursue my own interests:

almost all the time

frequently

a few times

not at all

17. Taking care of this baby is a heavy burden of responsibility. I believe this is:

Very much so

Somewhat so

Slightly so

Not at all

18. I trust my own judgement in deciding what the baby needs:

Very much so

Somewhat so

Slightly so

Not at all

19. Usually when I am with the baby:

I am very impatient

I am a bit impatient

I am moderately patient

I am extremely patient

APPENDIX 5 – PATERNAL POSTNATAL ATTACHMENT SCALE

PATERNAL POSTNATAL ATTACHMENT SCALE

These statements concern the different sorts of emotional reactions parents have when caring for young babies. Please select the response which is closest to your own feelings.

1. When I am caring for the baby, I get the feeling of annoyance or irritation:

- very frequently
- frequently
- occasionally
- very rarely
- never

2. When I am caring for the baby I get the feeling that the child is deliberately being difficult or trying to upset me:

- very frequently
- frequently
- occasionally
- very rarely
- never

3. Over the last two weeks I would describe my feelings for the baby as:

- dislike
- no strong feelings towards the baby
- slight affection
- moderate affection
- intense affection

4. I can understand what my baby needs or wants:

- almost always
- usually
- sometimes
- rarely

almost never

5. Regarding my overall level of interaction with the baby, I believe I am:

much more involved than most parents in my position

somewhat more involved than most parents in my position

involved to the same extent as most parents in my position

somewhat less involved than most parents in my position

much less involved than most parents in my position

6. When I am with the baby I feel bored:

very frequently

frequently

occasionally

very rarely

never 206

7. When I am with the baby and other people are present I feel proud of the baby:

very frequently

frequently

occasionally

very rarely

never

8. I try to involve myself as much as possible in child care and looking after the baby:

this is true

this is untrue

9. I find myself talking to people (other than my partner) about the baby:

many times each day

a few times each day

once or twice a day

rarely on any one day

10. When I have to leave the baby:

- I usually feel rather sad (or it's difficult to leave)
- I often feel rather sad (or it's difficult to leave)
- I have mixed feelings of both sadness and relief
- I usually feel rather relieved

11. When I am with the baby:

- I always get a lot of enjoyment/satisfaction
- I frequently get a lot of enjoyment/satisfaction
- I occasionally get a lot of enjoyment/satisfaction
- I rarely get a lot of enjoyment/satisfaction

12. When I am not with the baby, I find myself thinking about the baby:

- almost all the time
- very frequently
- frequently
- occasionally
- not at all

13. When I am with the baby:

- I usually try to prolong the time I spend with him/her
- Neither
- I usually try to shorten the time I spend with him/her

14. When I have been away from the baby for a while and I am about to be with him/her again, I usually feel:

- intense pleasure at the idea
- moderate pleasure at the idea
- mild pleasure at the idea
- no feelings at all about the idea
- negative feelings about the idea

15. Over the past two weeks I have found myself just sitting looking at the sleeping baby for periods of five minutes or more:

- very frequently

- frequently
- a few times
- not at all

16. I now think of the baby as:

- very much my own baby
- a bit like my own baby
- not yet really my own baby

17. Regarding the things that I/we have had to give up because of this baby:

- I find that I resent it quite a lot
- I find that I resent it a moderate amount
- I find that I resent it a bit
- I don't resent it at all

18. Over the past two weeks, I have felt that I do not have enough time for myself to pursue my own interests:

- almost all the time
- frequently
- a few times
- not at all

19. Usually when I am with the baby:

- I am very impatient
- I am a bit impatient
- I am moderately patient
- I am extremely patient

**APPENDIX 6 – MOTHERS OBJECT RELATIONS SCALES – SHORT FORM
(MORS–SF)**

My Baby

Please put a cross next to one of the choices for each of the questions below. There are no right or wrong answers; many of these are true of all babies at times.

1. My baby smiles at me:

- 5. Always
- 4. Very often
- 3. Quite often
- 2. Sometimes
- 1. Rarely
- 0. Never

2. My baby annoys me:

- 5. Always
- 4. Very often
- 3. Quite often
- 2. Sometimes
- 1. Rarely
- 0. Never

3. My baby likes doing things with me:

- 5. Always
- 4. Very often
- 3. Quite often
- 2. Sometimes
- 1. Rarely
- 0. Never

4. My baby ‘talks’ to me:

- 5. Always
- 4. Very often
- 3. Quite often
- 2. Sometimes
- 1. Rarely

0. Never

5. My baby irritates me:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

0. Never

6. My baby likes me:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

7. My baby wants too much attention:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

8. My baby laughs:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

9. My baby gets moody:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

10. My baby dominates me:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

11. My baby likes to please me:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

12. My baby cries for no obvious reason:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

13. My baby is affectionate towards me:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

14. My baby winds me up:

5. Always

4. Very often

3. Quite often

2. Sometimes

1. Rarely

0. Never

APPENDIX 7 – RULES FOR CODING

Rules for Coding

During the observations, participants were asked to “*interact with your child as you normally would if you had some free time together*”. This interaction was then coded recorded for five minutes. The interactions were then transferred in the Observer System XT, a computer software system which allows for coding and describing behaviour in an accurate and quantitative way. The last three minutes of the recorded interactions were then coded.

Mind-mindedness Coding Scheme

The coding scheme utilized in this study was based on the Mind-Mindedness Coding Scheme developed by Meins and Fernyhough (2010). Within this, they define mind related comments as “*any comment that (a) uses an explicit internal state term to comment on what the infant may be thinking, experiencing or feeling; or (b) ‘puts words into the infant’s mouth’ with the care-giver talking on the infant’s behalf*” (Meins & Fernyhough, 2010, p. 4-5).

Comments are coded as either appropriate mind related comments or non-attuned mind related comments depending on whether the coder agrees with the care-giver’s reading of the infant’s internal state and whether or not the coder agrees with a comment about the current activity linking to the past or future. Further criteria for the comments being coded as non-attuned are:

- if the care-giver suggests that the infant play with a new activity when they are already involved and appear to be enjoying one already;
- if the comment about an internal state seems to be a projection about their own; or,
- if the comment is not clear (e.g. “*you like that*” when the infant is not playing or attending to anything).

Once the coding scheme had been created, observational data was then coded using the Observer System XT. State events and modifiers were recorded by assigning a letter on a keyboard which corresponded to that variable. Events were activated by pressing the key which then leads the observer system to log the event. All parent vocalisation were coded as a state event which produced a record of frequency and duration and each vocalisation was assigned a modifier (appropriate mind related comments, non-attuned mind related comments and other). A new parent vocalisation would start when there had been a distinct gap (over one second). Vocalisations such as laughing were not coded as a state event and if the parent made a noise that was not felt to be communicating to the infant then it was not coded as a state event. Any sound that was judged to be communicative in nature was therefore coded as a vocalisation.

Comments were coded as 'Appropriate' if the coder agreed with the parent's interpretation of the infant's psychological state, the comment linked to similar events in the infant's past or future or if the comment was the parent speaking on behalf of the infant.

No comments were coded as 'Non-attuned', however, the criteria for this was if the coder believed that the parent was misinterpreting the infant's psychological state; the parent made a comment about the past or future that had no relevance to the infant's current activity or if the parent commented that the infant wanted or preferred another activity or object when the infant was already actively engaged in an activity or showing a preference for an object.

Comments were coded as 'Other' if they were not deemed to be Appropriate or Non-attuned, that is, any word or comment that could not be assigned to the Mind-Mindedness Coding Category.

APPENDIX 8 – ETHICAL APPROVAL LETTER



NRES Committee London - Bentham
Research Ethics Committee Offices
Room 4W/12, 4th Floor
Charing Cross Hospital
Fulham Palace Road
London
W6 8RF
Tel: 020 331 10100

07 September 2011

Miss Laura Casale
Trainee Clinical Psychologist
Cambridgeshire and Peterborough NHS Mental Health Trust
DClinPsy Prog, School of Psychology
University of Hertfordshire
Hatfield, Herts
AL10 9AB

Dear Miss Casale

**Study title: An Exploratory Study Examining the Impact of a
Psychoeducational Group about Attachment on the
Care-giver-Infant Relationship**
REC reference: 10/H0715/52
Amendment number: 2
Amendment date:

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:
Document Version Date
Participant Consent Form 2 14 July 2011
Participant Information Sheet 2 14 July 2011
Protocol 2 05 September 2011
Notice of Substantial Amendment (non-CTIMPs) 2

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

10/H0715/52: Please quote this number on all correspondence

Yours sincerely

Professor David Katz

Chair

E-mail: laura.keegan@nhs.net

Enclosures: List of names and professions of members who took part in the review

Copy to: Miss Laura Casale

Ms Natércia Godinho, Cambridgeshire and Peterborough Mental Health NHS Foundation Trust

NRES Committee London - Bentham**Attendance at Sub-Committee of the REC meeting**

Name Profession Capacity

Professor David Katz Professor of Immunopathology Expert

Mrs Michelle McPhail Lay member Lay

Also in attendance:

Name Position (or reason for attending)

Miss Laura Keegan REC Co-ordinator

APPENDIX 9 – OUTLINE OF BABY WORLD CLASS

Casale, 2011:

intervention

Introduction

1) Participants were introduced to the facilitators and the class, and ground rules were established.

2) Participants were asked to introduce themselves and share something that they were looking forward to about having their baby.

Section 1

1) An explanation of attachment; what it is, what elements are involved.

PowerPoint slide, the use of a metaphor to explain attachment and a paired exercise to think about the participant's attachments.

2) 'Through the Baby's Eyes' – what babies can see and understand, how the world might be experienced given this. Crying as communication.

A slide showing photos of what a baby might be able to see, a group discussion about how they would feel if this was them and then how a baby might feel.

3) How we might react to a baby crying (normalising) and what to do

A slide of photos showing different people's reactions to a baby crying, explanation that different reactions are normal, discussion about how to helpfully respond to these reactions.

Break

Informal conversations

Section 2

1) Interacting and being responsive

Showed a video of a mother and baby interacting. The group identified how the baby communicated and how the mother responded. Watched the video again to consolidate these ideas.

2) Emotion regulation

Slide and explanation of emotion regulation. Showed video of care-givers interacting with infant to identify regulation. Pair exercise to experience different interactions and how it feels when another person reacts congruently.

3) Neglect or inappropriate responses

Paired exercise to think about how it feels when people respond inappropriately or ignore us. Video showing the 'Still Face' experiment followed by discussion about what was seen.

4) A baby's brain and the short and long term impact of stress and secure attachment on the brain

Basic picture of the brain, didactic explanation of structure, explanation of hormonal response to stress and secure attachment using relevant examples. Pictures to emphasize the impact.

5) The short and long term impact of the attachment relationships.

Two slides listing a variety of impacts and the different contexts that these might apply to.

Break

Informal conversations and questions

Section 3

1) Barriers to attachment

Small groups, think of what might leave them stressed or struggling to attach to their infants.

2) How to cope

Small group thoughts shared as a large group. Participants and facilitators responded with ideas and suggestions for managing these barriers, as well as noting that many people share the same stresses.

3) Being with your baby

Introduced ideas around play, having fun and the use of music with infants. Pair work with toys, one person being the baby and the other the care-giver. Returned to large group to feedback the experience for the “infants” and the care-givers.

Conclusion

1) Summary

Slide of key ideas covered

2) Where from here

Outline of relevant services, handouts of the day's activities and booklet of ideas called 'playing with your baby'.