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Enhancing Reflective Functioning in a Mindful Way: An online infant parenting program

Thesis submitted by

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In November, 2018

In partial fulfilment of the degree of

Doctor of Psychology (Clinical)

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Statement of the Contribution of Others

Nature of Assistance	Contribution	Names, Titles and Affiliations
Intellectual Support	University supervision of thesis	Assoc Prof Nerina Caltabiano, James Cook University Assoc Prof Marie Caltabiano, James Cook University
	Mentoring and provision of original Minding Your Baby program	Dr Bronwyn Leigh, B.A. (Hons), DPsych., MAPS, CCLIN Director Centre for Perinatal Psychology (Appendix K: Letter of Support from Dr Leigh)

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To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the National Statement on Ethics Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the James Cook University Ethics Review Committee (approval number: H6176)

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Abstract

Research over the past half century has highlighted the critical importance of the early relationship between an infant and its caregiver (Newman, Sivaratnam & Komiti, 2015). This early attachment relationship is understood to impact not only on development during childhood but to continue to influence relationships and functioning both later in adult life and for future generations. Maternal Reflective Functioning has been demonstrated to be an important factor in the intergenerational transmission of attachment security. The Mindfully Parenting Your Baby Program is an online parenting program for parents with infants which aims to enhance reflective functioning through mindfulness activities. A switching replications, quasi-experimental design was used with three waves of measurement to examine the effectiveness of the program. Participants (n=69) were randomly assigned to an intervention or waitlist group. Groups were then compared on a number of outcome measures, including The Diamond Maternal Reflective Functioning Scale, a new measure of maternal reflective functioning. The study is one of the first to use empirical methods to examine the effectiveness of an online parenting program to increase reflective functioning in a non-clinical population. The overall results indicate an increase in mindfulness, reflective functioning and parental satisfaction and a decrease in anxiety for participants completing the program, supporting the primary hypotheses. However due to the small sample size, high attrition rate in the wait list group leading to reduced statistical power and the use of a new self-report measure of reflective functioning the results need to be interpreted with caution.

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Chapter One

Introduction

From the moment, a woman discovers she is pregnant she is bombarded with information about how to be a ‘good mother’; from what she should eat and not eat, what and how she should feed and dress her child, where and how often her infant should sleep, when and how often to cuddle and comfort her child, through to ideas around providing a good start with early education. This is not without good reasoning as there is a well-established link between early childhood experiences and adult well-being (Shonkoff et al, 2012). What is difficult however is to separate the evidence-based advice from the often well-intentioned but less thought through advice.

Early experiences set our potential for relationships, health, resilience and psychological well-being. It is now believed that the impact of early experience has a greater influence on development than biological heredity (Brainwave Trust Aotearoa, 2013; Education Services Australia Ltd., 2010; Shore, 2001; Zero to Three, 2002). Early experiences beginning in utero, determine whether an infant’s developing brain architecture provides a strong or weak foundation for all future learning, behaviour, and health (both physical and mental). This development is considered to be directly linked to the relationship between a child and his/her primary caregiver (Newman, Sivaratnam & Komiti, 2015; The Royal Australian and New Zealand College of Psychiatrists, 2010; Brainwave Trust Aotearoa, 2013; Winston & Chicot, 2016). The strength and quality of the relationship between parents and their children is seen as fundamental to the effective development of children’s brain structure, functions, capacity and emotional regulation (Education Services Australia Ltd., 2010; Newman et al., 2015; The Royal Australian and New Zealand College of Psychiatrists, 2010; Shonkoff et al, 2012; Zero to Three, 2002).

Parenting today is ‘big business’ with a multitude of products, programs, websites, social media pages and the like dedicated to explain, support and teach about it. Many of these are based on individual experiences, so called ‘common sense’ or current populist ideology and have very little empirical evidence, but seem to gain passionate supporters or vocal opposition based more on emotion than an objective evidence base. Winston and Chicot (2016) note that for thousands of years new parents would have grown up surrounded by extended families, observing and learning the skills of parenthood but today few families get the opportunity to be immersed in early family life as extended families. This has led to a greater reliance on other sources such as social media for information or advice on parenting and motherhood (Drentea & Moren-Cross, 2005).

Tucci, Mitchell and Goddard (2005) undertook a comprehensive national attitudinal survey about issues of concern for Australian parents in their efforts to raise their children whilst responding to the pressures and demands of modern living. They found that many parents have a lack of confidence in their parenting and report feeling under constant public scrutiny. A United Kingdom study by the Essential Parent Company found similar concerns with 80% of new parents reporting feeling anxious, unprepared and lacking the skills to care for their new baby (Winston & Chicot, 2016). With the continued increase of social media and the so called ‘keyboard warriors’ it is easy to understand why many parents feel they will be negatively judged for their parenting decisions. These feelings of increased scrutiny and judgement appear to have led to an increased focus on the tasks of parenting – i.e. completing the ‘perfect’ nappy change, having the best routine and the best equipment (and more recently the best post baby body). A cost of focusing on getting the tasks of parenting ‘just right’ can be the developing relationship between the new dyad. As one mother reflected *I was so busy when changing her nappy making sure I cleaned her properly, put on the right amount of cream, hygienically restricted the mess that I failed to notice how hard she was working to get my attention and talk with me.*

It must have been so frustrating for her to have me so close and to be totally focusing on her but not noticing her at all (private correspondence).

Research over the past half century has highlighted the critical importance of this early relationship between an infant and his or her caregiver and has created a paradigm shift in our understanding of development (Newman et al., 2015). The early attachment relationship is understood to impact not only on development during childhood but to continue to influence relationships and functioning both later in adult life and for future generations. We have come to understand that many behavioural or emotional regulation difficulties can be viewed and understood through the lens of attachment theory. Developmental research has shown that development in the different domains (i.e. physical, cognitive, social and emotional) is not evenly distributed across time and that the first year of life encompasses prominent developmental shifts within the social and emotional domains and is now viewed as a critical period for establishing attachment security (Emde & Buschsbaum, 1989).

More recent research in this field has demonstrated that attachment security is transmitted intergenerationally (i.e. the attachment relationship of a child's caregiver with their own parents is predictive of the type of attachment relationship most likely to develop between the child and its caregiver). This has led to an exploration of the factors that enhance or inhibit this transmission.

This study will provide a review of the attachment research that has led to the understanding of the importance of Maternal Reflective Functioning in the intergenerational transmission of attachment security, and then examine the outcomes of a parenting program designed to increase Maternal Reflective Functioning and therefore strengthen the attachment relationship.

Chapter Two

Literature Review

2.1 Attachment and the Transmission Gap

Bowlby (1958), often referred to as *The Father of Attachment theory,* created controversy when he first challenged the dominant behavioural and psychoanalytical theories of infant development with his ethological attachment theory. Bowlby changed forever the way we view a child's relationship with its mother and the impact that separation, deprivation and bereavement has on this relationship (Bretherton, 1992). Bowlby's theory was initially rejected by theoreticians, clinicians, and researchers alike but overtime it has come to be viewed as crucial in our understanding of development and functioning (Ainsworth & Bowlby, 1991).

Contrary to the thoughts of the time, Bowlby proposed that key infant behaviours were more than primary or secondary drives (i.e. more complex than a compulsion to give primacy to needs for food and warmth, or the idea that social interaction develops only secondarily and as a result of instrumental learning). Bowlby viewed the need to bond as far more complex than a basic satisfaction of physiological needs. He identified key behaviours such as sucking, clinging, crying, following and smiling as part of an evolved system of attachment behaviours. Bowlby asserted that social tendencies rather than physiological needs were of primary importance and that infant behaviour patterns served to bind the infant to his/her mother ensuring sufficient parental care for survival (Ainsworth & Bowlby, 1991; Bowlby, 1958; Bretherton, 1992; Schaffer & Emerson, 1964).

To emphasise this paradigm shift Bowlby rejected the term dependence to describe the relationship between an infant and his/her mother, describing instead the dance of interdependent behaviours that attach an infant with its

caregiver and proposed a change in terminology from *emotional dependence* to *attachment* when describing this relationship. His reasoning was that to be dependent on someone and to be attached to them are not the same thing; Bowlby described dependence as a passive behaviour, which he contrasted to the active nature of attachment. He defined attachment as having behaviours that are activated and terminated depending on the relationship and the situation (Ainsworth & Bowlby, 1991; Bowlby, 1958; Schaffer & Emerson, 1964). Bowlby's major conclusion, both from his early observations of maladjusted children and later research, was for a child to develop into an adult with good mental health, "the infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction and enjoyment" (Bowlby, 1958, p 13).

Mary Ainsworth joined Bowlby's team at the Tavistock Clinic in London in 1950, and continued to explore the effect of the early infant/mother relationship on personality development. Ainsworth believed Bowlby's theory of attachment needed to be empirically tested and began by observing babies and their mothers in their village homes in Uganda (Ainsworth & Bowlby, 1991). From these observations, she divided babies into three groups: securely attached, insecurely attached, and non-attached. The infant attachment patterns were associated with a correspondingly different pattern of mother-infant interaction. Ainsworth later went on to devise the Strange Situation as a method of assessing the infant-mother attachment and was the first to document the link between maternal behaviour during infancy and the quality of the child's attachment at one year of age (Ainsworth & Bowlby, 1991). The Strange Situation assessment has gone on to be used worldwide as the most recognised measure of infant attachment (De Wolff & van Ijzendoorn, 1997).

Ainsworth and colleagues continued her exploration of the mother-infant dyad with observations of middle class dyads from Baltimore in the US, examining the relationship between parental behaviour in the home and security of attachment over the period of a year (Ainsworth, Blehar, Waters, & Wall, 1978).

From their observations and assessment with the Strange Situation they concluded that sensitive responsiveness to infant signals and communications was the most important aspect of maternal behaviour associated with infant attachment (Ainsworth et al., 1978). They found that infants who were assessed to have a secure attachment with their mother at 12 months tended to have sensitive mothers; whereas insecure infants had mothers who were less sensitive to their needs.

Lamb, Thompson, Gardner, and Charnov (1984;1985) again created controversy in the attachment field when they criticized the generalizability of the results from the Strange Situation and suggested that the predictive power of maternal sensitivity on attachment behaviours was much smaller than initially asserted. They argued that Ainsworth had overgeneralized her findings from a relatively small sample and that it was still unclear which specific maternal behaviours were of formative importance for attachment security (De Wolff & van Ijzendoorn, 1997).

Mary Main (a graduate student of Ainsworth) further extended and redefined the field of attachment research in a study that examined the link between parental attachment experiences with their own caregivers and their child's attachment status at age one year (Main, 1995). During her work with Ainsworth, Main noted that some Mothers did not seem to quite fit into any of the three proposed attachment types. Main noticed that some Mothers could *also be frightening,* which then led to the proposal of a fourth category to Ainsworth's attachment categories and spurred Main's interest in the caregiver's own attachment history (Main, 2006). Main developed the Adult Attachment Interview (AAI) to explore adult attachment statuses and the relationship between this and infant attachment (Main, 1995; van IJzendoorn, 1995). Van IJzendoorn (1995) describes the introduction of the AAI as a revolutionary shift in attention from the objective description of childhood experiences to the mental representation of these experiences (incorporating the idea that autobiographical memory is the ongoing reconstruction of one's own past, in light of new experiences).

Main had initially hypothesized that parent's life events and experiences would be the greatest influence on their capacity to respond sensitively to their infants, and would therefore be predictive of infant attachment. What she found, however, was that rather than the actual experiences themselves, it was the degree to which parents had integrated and made sense of their own early childhood experiences that was considerably more significant in determining their child's attachment security – (termed parental *state of mind*) (Main, 1995). Main defined metacognitive monitoring as the thinking about cognitive process and the ability to analyse the nature and the source of one's own mental representations and identified this as being crucial to adult attachment security (Main, 2006). Metacognitive monitoring is assessed in the Adult Attachment Interview by examining the coherence or incoherence of the individual's narrative. Main's research (1995) revealed a link between the quality and organization of adult attachment narratives and infant attachment.

Numerous studies have replicated Main's findings showing a direct link between a mother's capacity to regulate and organize her own thoughts and feelings about relationships with her primary caregivers and her capacity to respond sensitively to the attachment needs of her child (Slade, Grienenberger, Bernback, Levy & Locker, 2005). This has become known as the intergenerational transmission of attachment (Slade et al., 2005).

The belief that mothers who were secure in their own attachment would be able to respond sensitively to their child's needs for comfort and proximity and that those who had experienced insecure attachment would reject, overwhelm, or fail to regulate their child's need for proximity became widely accepted. It was understood that this pattern would in turn predict the attachment status of their children at one year (Slade et al., 2005; van Ijzendoorn, 1995). Van IJzendoorn (1995) conducted a meta-analysis to explore this belief using the hypothesis *that parents' mental representation of childhood attachment experiences – as manifested in language – strongly influences the quality of their child's*

attachment to them (p. 387). He found a large effect size indicating considerable predictive validity between the Adult Attachment Interview and classification on the Strange Situation. However, when he further examined how parents transmit their mental representation of attachment to their children he found that the Adult Attachment Interview only accounted for 12% of the variance in parental sensitivity or responsiveness and that parental sensitivity accounted for only 10% of the variance in infant attachment. Van IJzendoorn (1995) concluded that the 'traditional bridge between parents and children – sensitive responsiveness – appears to be insufficient to explain the strong association between parents' and children's attachment' (p. 400) and that the largest part of the influence operates through mechanisms other than responsiveness as rated by the Ainsworth scales.

De Wolff and van ljendoom (1997) completed a meta-analyses integrating 123 studies on parenting and attachment and found that maternal sensitivity could not be considered to be either the exclusive or the most important factor in the development of attachment and only explained a small proportion of the association. De Wolff and van Ijendoorn (1997) asserted that despite the evidence for links between parents' mental representations (as described by Main), sensitivity, and infant attachment, there seemed to be a 'transmission gap'. It was concluded that even though adult state of mind, parental sensitivity and infant attachment were related to one another, sensitivity did not appear to play a true mediating role (Bernier & Dozier, 2003). This has led to the call for attachment researchers to search for other mechanisms that may account for the "transmission gap" in the intergenerational attachment process and to study the mechanisms for the transmission of attachment security from caregiver to infant (van Ijzendoorn, 1995).

2.2 Reflective Functioning

Fonagy and colleagues expanded on the concept of metacognitive monitoring to include not only the capacity to think about one's own mental state but also the ability to reflect on the mental states of one's attachment figures (Fonagy &

Target, 1997). Main's research had focused on the cognitive appraisal processes in the development of metacognition, Fonagy and his colleagues expanded on this to include both the interpersonal and the intersubjective processes in thinking about one's own and others' internal, mental, and explicitly affective experiences (Slade et al., 2005). They brought to the forefront the importance of the capacity to think about *feelings* and their relation to behaviour, pointing out that as attachment relationships revolve and develop around the regulation of affect, this needed to be considered in the intergenerational transmission of attachment. They introduced the terms "mentalization" and "reflective function" to describe the processing of these combined intersubjective and interpersonal experiences – to not only recognize mental states in themselves and others but to link mental states to behaviour in a meaningful way (Fonagy, Gergely, Jurist, & Target, 2002; Slade, 2005; Slade et al., 2005). Individuals with high levels of mentalization have been shown to demonstrate resilience in the face of stressful conditions, the ability to gain beneficial perspective in the face of adverse events and greater capacity to become attached to caring and helpful others (Bateman & Fonagy, 2013).

Fonagy, Steele, Steele, Moran and Higgit (1991) developed a scale to measure reflective functioning using the responses on the Adult Attachment Interview. They found a strong relationship between scores on the Reflective Functioning Scale and the Strange Situation behaviour of infants, with high reflective functioning scores being predictive of secure attachments (Fonagy, Target, Steele & Steele, 1998). The terms mentalization and reflective functioning are often used interchangeably in the literature but broadly speaking when referring to this capacity in terms of a caregiver and infant dyad the term reflective function is more often used.

Reflective function has been defined as an individual's capacity to understand both their own and other's behaviour in terms of underlying mental states and intentions and the ability to engage and make meaning with these without becoming overwhelmed or shutting down. It is seen as a crucial human skill that

is a fundamental part of affect regulation and successful social relationships (Fonagy et al., 2002; Slade, 2005). Parental reflective functioning refers to the capacity of a mother or caregiver to “hold” or experience complex mental states while interacting with her infant. It opens her to being able to keep her child’s internal affective experience in mind (separating it from her own). This in turn allows her to make sense of her child’s behaviour in terms of mental states such as feelings and intentions. Her child then experiences it’s mother being able to hold or reflect his/her affective experience and then represent it in an organised or regulated (or to use Bowlby’s terms contained) manner, in this way giving meaning to the affective experience. A caregiver’s capacity for reflective functioning provides the secure base for a child to develop emotional regulation strategies. Grienenberger, Kelly, and Slade (2005) assert that ‘A core element of maternal reflective functioning involves the mother’s capacity to step back from her own affective experience in order to reflect upon her child’s uniquely subjective intentions during moments of stress or conflict’ (p. 301). Fonagy et al. (2002) go on to suggest that it is this experience that sets the stage for the development of a sense of security, authenticity and safety in the child. Slade et al. (2005) state that it is the capacity for reflective functioning that allows parents to ‘flexibly and coherently access the emotions and memories relevant to their own early attachment experiences’ (p.286) and to then provide a sense of security and safety for their child.

Fonagy’s research in the early 1990s provided evidence that the maternal capacity for reflective functioning was more crucial than the expressed sensitivity of mothers in the attachment relationship (Fonagy et al., 1991; Ramsauer, Lotzin, Muhlhan, Romer, Nolte, Fonagy & Powell, 2014). Fonagy and colleagues proposed that mentalization or parental reflective functioning was the key to the intergenerational transmission of attachment or the “transmission gap” and that “in any individual case a caregiver’s capacity to conceive of and think about relationships in terms of mental processes and functions will determine the infant’s security with that caregiver” (Fonagy et al., 1991, p.208).

Arietta Slade and colleagues expanded on Fonagy's work to apply the construct of reflective functioning to parental narratives about their relationship with their own child (as opposed to reflections about their parents) (Greinenberger et al., 2005). Slade and colleagues adapted Fonagy's system for scoring reflective functioning on the Adult Attachment Interview to the Parent Development Interview (PDI) – (a semi-structured clinical interview used to examine parents' representations of their children, themselves as parents, and their relationships with their children) (Slade, 2005). Their research provided further evidence of the relationship between a parent's capacity for reflective functioning and the security of the attachment relationship and was considered a crucial step in understanding the processes that underlie the intergenerational transmission of attachment.

Slade and colleagues were able to clearly demonstrate a link between an adult's capacity to think reflectively about their child and infant attachment status, with high levels of reflective function associated with secure infant attachment and lower levels of maternal reflective functioning associated with insecure infant attachment (Slade et al., 2005). "*Low reflective functioning is evident when parents only rarely acknowledge feelings or mental states, fail to acknowledge the influence of psychological processes on their own or others' behaviour, or generate extremely stereotyped, action-versus-emotion-orientated explanations for behaviour* " (Rosenblum, Dayton & Muzik, 2009, p.96). Slade et al. (2005) noted that the study results showed that negative caregiving behaviour was inversely correlated with maternal reflective functioning and that intrinsic to all insecure attachment categories was the inability to envision mental states (Greinenberger et al., 2005; Slade et al., 2005). The results indicated that maternal reflective functioning and maternal behaviour were closely related with reflective functioning seeming to serve as a buffer against breakdowns in affect regulation during times of infant distress (Greinenberger et al., 2005). The analysis indicated that when reflective functioning was controlled for, the relationship between adult and infant attachment status' disappeared.

Maternal behaviour was also shown to play a mediating role in relation to the link between maternal reflective functioning and infant attachment. This led Slade et al. (2005) to assert that maternal reflective functioning was the crucial element in the process of the intergenerational transmission of attachment, with the mother's behaviour being the mechanism with which her understanding of her child's mental states is communicated back to her child (Greinenberger et al., 2005; Slade et al., 2005).

Slade (2005) distinguished parental reflective functioning from more general mentalizing processes and noted that the child's ultimate capacity to make sense of its internal experience depends upon its parents' reflective capacities. "*It is the mother's observations of the moment to moment changes in the child's mental state, and her representation of these first in gesture and action, and later in words and play, that is at the heart of sensitive caregiving, and is crucial to the child's ultimately developing mentalizing capacities of his own*" (Slade et al., 2005, p.271). In essence, reflective functioning implies understanding, containment and regulation. Slade et al. (2005) conclude that if reflective functioning in a parent is indeed key to a child's socioemotional adaptation, then clinical interventions need to address the development of this capacity.

Maternal reflective functioning has emerged as the front runner in factors that provide a positive influence over the transmission of secure attachment relationships (Ramsauer et al., 2014; Slade et al., 2005). It seems that this skill both protects or buffers the individual from the effects of an earlier insecure attachment and also enhances the chance of a secure attachment with the next generation. If this is the case then it seems clear that our next goal in the attachment and development research should be to develop an understanding of interventions that support the development of maternal reflective functioning and so enhance the security of the early infant attachment relationship. Emerging with the research around the importance of reflective functioning or mentalization to our mental health and wellbeing are a number of targeted

Mentalization-based therapies. Initially these therapies have focused on adult clinical populations but are now being trialled with other populations.

2.3 Reflective functioning / Mentalization programs

Bateman and Fonagy (2010) state that Mentalization-based therapy is a psychodynamic therapy based in attachment and personality theory. The Anna Freud National Centre for Children and Families (http://www.annafreud.org/), leaders in the training of Mentalization-based therapies, state that Mentalization therapy is not a new therapy and that many of the techniques have their base in systemic practices. Many psychological therapies are likely to increase mentalizing indirectly, what is different about Mentalization-based treatment programs is that mentalizing itself is the focus of treatment (Allen, Fonagy & Bateman, 2008). Midgley and Vrouva (2012) describe one of the advantages of mentalization-based interventions is their flexibility and adaptability in different settings.

There is currently very little empirical evidence available around parent-infant mentalization-based programs with many of these developing programs still in the process of gathering and analysing evidence. However, Mentalization-based programs have become widely utilized in the mental health sector. There is a growing body of evidence demonstrating the efficacy of this approach with adults with borderline personality disorder and emerging evidence for the effectiveness of treatment with adolescents who self-harm, and beginning evidence for school communities and family and parental relationships (Bateman & Fonagy, 2013; Fonagy, et al., 2009; Midgley & Vrouva, 2012; Sadler, et al., 2013). Mentalization-based programs seem to be well accepted by the general public and are also demonstrating promising results when implemented with community populations rather than targeted groups.

Mentalization-based therapy (MBT) is a treatment program originally designed for individuals with the diagnosis of Borderline Personality Disorder, with the primary aim to enhance reflective functioning capacities (Nijssens, Luyten &

Bales, 2012). The Anna Freud Centre in the UK have adapted the original Mentalization-based therapy program to now include programs for adolescents, groups and families and are currently undertaking research into Mentalization-based therapy as an intervention for children in foster care with emotional and behavioural difficulties. The Mentalization-based Treatment for Families (MBT-F) program is aimed at parents of children between the ages of seven and 18 years and runs over 12 fortnightly individual sessions. The program has been rated as having formative evidence by the UK Early Intervention Foundation based on pre/post comparisons of parent reports of their children's behaviour and the Strengths and Difficulties Questionnaire (SDQ) (http://www.eif.org.uk/wp-content/uploads/2014/07/MBT-F.pdf).

Nijssens, Luyten and Bales (2012) found that though individuals with borderline personality disorder (BPD) undertaking the original Mentalization-based therapy program show improvements in reflective functioning they only demonstrated slight improvements with regards to parental reflective functioning (i.e. reflective functioning in the attachment relationship with their own child). This led to the recognition that to a large extent mentalization is relationship-specific and as the Mentalization-based therapy program does not focus on the capacity for reflective functioning in the parent/child relationship it may not enhance Parental reflective functioning in the short term. This led to the development of Mentalization-based Therapy for Parents (MBT-P).

The main aim of reflective functioning or mentalizing parenting programs is to engage parents in thinking about their children in terms of their internal experience rather than their behaviour. Mentalization-based Therapy for Parents is a reflective parenting programme specifically designed for parents currently seeking treatment for borderline personality disorder. The program was inspired by the Parents First and Minding the Baby programs and is aimed at both mothers and fathers of children aged zero to four. Participants participate in both group and individual sessions over a two-month period with the focus on parental reflective functioning using video feedback and other

mentalization promoting techniques (Nijssens, Luyten & Bales, 2012). The program is integrated with the standard Mentalization-based therapy program for borderline personality disorder. A study evaluating the effectiveness of the program was underway at the time of this study.

The Parents First program (Kalland, Fagerlund, von Koskull & Pajulo, 2016) is a preventive group intervention program for parents of infants, toddlers and pre-schoolers. The program is run fortnightly for 12 sessions and was developed to be delivered within the context of normal educational and childcare settings (Slade, 2006). The aim of the program is to support parents and enhance the parent-infant relationship by promoting parental capacity for reflective functioning. Each session a set of progressive reflective exercises are presented along with developmental education. Families First Mentalization-Based Groups, based on the Parents first format, have been integrated in Finnish public child and family health care with multiple groups held since 2010. The intervention is currently being evaluated through a matched control-group design with data collection taking place in the form of web-based questionnaires over four time points. The questionnaires will measure parental stress, reflective functioning and mood as well as measures of the child's emotional development. No data was available at the time of this study.

The Minding the Baby program (MTB) is an interdisciplinary, mentalization-based home visiting intervention program carried out over a two year period (Sadler et al., 2013). It was developed as a preventive program for high risk parents with similar guiding principles to the Parents First program and developed from evidence based early intervention models such as Nurse-Family Partnership and infant-parent psychotherapy (Sadler, et al, 2013; Slade, 2006). An evaluation of the pilot study comparing families receiving the Minding the Baby program to families receiving usual care was undertaken focusing on two domains – 1) health and public health outcomes and 2) attachment and the parent/child relationship. A two group nested experimental design with random assignment to groups was utilized. One hundred and five families began the

program with seventy five remaining at the end of the twenty-four months. The researchers noted that not all data collection or intervention sessions were completed by all families due to scheduling difficulties, conflicting demands and time constraints reported by the families. The results showed no significant difference between groups on measures of maternal mood. The Strange Situation procedure (Ainsworth et al., 1978) was used to assess attachment and showed a significantly higher percentage of secure infants in the Minding the Baby program group compared to the control group (64.4% vs 48.4%) as well as a significantly lower percentage of disorganised infants in the Minding the Baby program group compared to the control group (27% vs 43%).

Interestingly the results from the Minding the Baby program study showed no significant difference between the groups on reflective functioning as measured by the Parent Development Interview (PDI) (Slade et al., 2005) with both groups showing significant improvement in reflective functioning over the 24-month time period. The researchers hypothesised that the difficulty in discerning intervention effects on maternal reflective functioning could be due to the fact that maternal reflective functioning appears to develop as the parent becomes more experienced with the baby, making it difficult to detect changes in reflective functioning in the intervention group over the control group. They also noted that the range on the reflective functioning measures were extremely restricted in both groups (most responses fell between 2.5 and 4.5 on the nine-point scale) making it difficult to detect differences between the groups using this measure. The authors conclude that the Parent Development Interview may not be the best way to assess outcomes in reflective functioning in this study (Sadler, et al., 2013).

The Circle of Security (COS) intervention (Hoffman, Marvin, Cooper & Powell, 2006) was developed with the intent to translate attachment research into clinical practice and was one of the first empirically-based programs to focus on enhancing reflective function in parents. Results from three studies using the Circle of Security 20-session group model demonstrated significant results in

reducing attachment disorganisation and insecurity with disadvantaged populations (Powell, Cooper, Hoffman & Marvin, 2014). Despite the success of the program in addressing attachment issues there are significant limitations in who can access the program due to resource constraints on cost and time. The program is considered intensive and time-consuming with sessions lasting two hours or more running over 20 weeks. Facilitators also require extensive training and video equipment to run the program. These resource constraints make the program less likely to be made available to lower risk populations.

Concerns around accessibility, attrition, time and cost led to a modification of the original 20 week Circle of Security program into an eight-session DVD program by the program developers (Cooper, Hoffman & Powell, 2009). The eight-week Circle of Security program consists of sessions guided by a DVD and one or more trained group facilitators. Each week participants watch video clips of interactions between parents and their children, with facilitators then leading a planned discussion around these clips. This version of Circle of Security is being used increasingly in early intervention programs around the world.

Rostad (2014) conducted a study into the effectiveness of the Circle of Security DVD eight-week program using a quasi-randomised crossover design. The study was one of the first to use a self-report measure of reflective functioning trialling the *Parental Reflective Functioning Questionnarie-1* which Rostad (2014) noted was still 'in the early phases of establishment' (p.43). The results from this study were mixed in regards to the effectiveness of the program enhancing reflective functioning. A number of factors complicated the interpretation of the results including the use of a new measure, high attrition rates and a small sample size.

Rostad (2014) reported that a substantial portion of the Control-Treatment group dropped out before participating in the intervention. On first interpretation results seem to suggest the program reduced reflective functioning (when

comparing the Control-Treatment group to the Treatment-Control group at the second round of assessment), with the Control-Treatment group (who had not yet completed the intervention) reporting a higher degree of confidence in their knowledge about their children's thoughts, feeling and intentions. Both the groups had a decrease in their certainty of their children's mental states after participating in the intervention, however the Treatment-Control group appeared to recover at the final assessment, potentially indicating that the intervention may have a delayed effect on reflective functioning. Rostad (2014) made recommendations around reviewing the measure of reflective functioning and including additional waves of data collection to clarify findings.

Preliminary results from the Circle of Security DVD groups run in a Child Health setting in Townsville, Australia showed significant improvements in reflective functioning using the Diamond Maternal Reflective Functioning Scale to assess reflective functioning pre and post the program (Newman, Leehy & Giles, 2015). The results indicate a significant difference in the Cue Recognition subscale of the Diamond Maternal Reflective Functioning Scale as driving the overall difference in the scale.

The Peaceful Schools and Thoughts in Minds projects are two larger scale community-based programs that target the wider community rather than identified individuals. The preliminary evidence from these projects indicates that enhancing the reflective functioning capacity of the adults around children has positive effects on both the adults and children's reflective functioning as well as their mental wellbeing (Fonagy et al., 2009; Lundgaard Bak, 2012).

The Peaceful Schools project uses a mentalization approach to address school bullying and violence. A randomized-controlled trial involving several schools and over 3000 students examined whether a mentalizing approach could be more effective than traditional prevention strategies. One of the major conclusions from the study was that mentalizing strategies and a mentalizing standpoint are effective in reducing aggression and improved classroom

behaviour. One of the important factors was that this intervention did not focus on identified problem children but had a school wide approach (Fonagy et al., 2009).

The Thoughts in Mind (TiM) program developed in Denmark is a community-based psychoeducational program which aims to educate parents and teachers in how to use 'mentalizing ideas' in their day-to-day interactions with children, as an integral part of daily life and regular activities. It was inspired by the results of the Peaceful Schools research with the aim to go further in making mentalizing ideas as widely available as possible for people involved in the care of children (Lundgaard Bak, 2012). The program is designed for large scale implementation in community settings and began with the hypothesis that even minor changes in the adult mentalizing community can have significant impact on the children around them. The preliminary research results indicate that the program is well accepted and participants in the program find knowledge about mentalization relevant to their understanding of their role in relationships with children (Lundgaard Bak, 2012).

To date, most of the empirical evidence for Mentalization-based programs has been with clinical populations with a particular emphasis on personality disorder diagnoses considered to be an attachment-based disorder (Nijssens, Luyten & Bales, 2012). Early research into larger community projects indicates that mentalizing strategies that engage adults in thinking about children in terms of their internal experience rather than their behaviour has positive consequences for children's development and wellbeing (Fonagy et al., 2009; Lundgaard Bak, 2012).

2.4 Parenting interventions in Australia

The Parenting Research Centre for the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) in Australia conducted an analysis of parenting programs (Wade et al., 2012). For their analysis, they defined parenting programs as interventions that aim to influence child

outcomes by enhancing parenting knowledge, behaviour or cognition. Of the 151 parenting programs identified (based on information collated from international clearinghouses) only 34 parenting programs were found to be Well Supported or Supported by international evidence. Following the initial analysis, the Parenting Research Centre then conducted a Rapid Evidence Assessment of Australian evaluations of parenting programs with the aim to identify the evidence for parenting programs undertaken in Australia. Of the 109 programs identified in the Rapid Evidence Assessment, 25 were evaluated as Well supported or Supported. It is interesting to note that of the 25 parenting programs identified nearly half were variations of the Triple P parenting program which is a behavioural-based program. The authors noted that most of the programs they identified as having a Well Supported or Supported evidence base targeted children (preschool age or older) with behavioural problems or families with an identified malfunction such as substance abuse or involved with the justice system. Very few of the programs targeted child development, family relationships or infants (Wade, Macvean, Falkiner, Devine, & Mildon, 2012).

Coyne (2013) suggests that Australia is undergoing a paradigm shift in the approach and treatment of child behaviour difficulties and parenting interventions. Coyne (2013) notes that this shift is reflected both in the application of attachment theory and research into clinical problems, and in the parent advice literature with the focus moving from child behaviour to focus instead on the parent-child relationship. To date evidence is beginning to emerge about the effectiveness of parenting programs based on this approach with programs such as Circle of Security (COS) (Cooper, Hoffman, Powell, & Marvin, 2005) and Bringing up Great Kids (Australian Childhood Foundation, 2012) gaining wide acceptance and being offered by multiple service providers.

One of the approaches to parenting that seems to have a growing following and acceptance is the idea of mindful parenting both as a therapeutic strategy for managing strong emotions in the caregiver as well as enhancing family

relationships. The idea of being able to remain calm and in control while managing parenting challenges has appeal for a wide range of families.

2.5 Mindfulness

Mindfulness of other minds is considered one of the best indicators of high levels of Mentalization and is associated with the ability to internally explore thoughts, feelings, desires, and experiences in both ourselves and others (Bateman & Fonagy, 2013). While Mindfulness by definition focuses on the here and now, Mentalization extends this focus to include reflections on past thoughts, feelings, desires and experiences and how they might influence current and future experiences.

Mindfulness has evolved from its Buddhist meditative origins to be widely embraced in the Western world as a useful, therapeutic tool. Definitions of Mindfulness can vary slightly, but there is a general agreement that Mindfulness involves deliberately paying attention, in the present moment, without judgement. Five key skills are regularly identified in most mindful practices. Duncan, Coatsworth and Greenberg (2009) describe them as: ‘acting with awareness’, ‘observing,’ ‘describing,’ ‘non-reactivity to inner experience,’ and ‘non-judging of inner experience’. Mindfulness is distinguished from day-to-day ‘observing’ by the conscious effort to reduce evaluations and preconceptions, in order to observe things as they are in that moment, with an air of curiosity (Australian Childhood Foundation, 2013; Falkenstrom et al., 2014; Kabat-Zinn & Kabat-Zinn, 1997). Falkenstrom et al. (2014) describe the importance of this observation being practised with a sense of friendly acceptance towards whatever is being observed.

A growing body of research has shown consistent empirical support for mindfulness-based interventions with both clinical and non-clinical populations. Mindfulness-based interventions have shown to have positive influences on stress reactivity, mental and physical health (in particular, depression, anxiety and pain management), behavioural self-regulation, relationship satisfaction,

and academic outcomes (Australian Childhood Foundation, 2013; Sawyer Cohen & Semple, 2010; Hempel et al., 2014; Hofmann, Sawyer, Witt & Oh, 2010; Shahmoon-Shanok & Stevenson, 2015; Shaver, Lavy, Saron & Miulincer, 2007; Singh et al., 2010). Baer's (2003) meta-analysis of mindfulness as a clinical intervention for anxiety and depression found that 74% of individuals participating in mindful training had better outcomes than those receiving another or no treatment. Hofmann, Sawyer, Witt and Oh's (2010) meta-analysis supported Baer's findings, with a wider sample of studies demonstrating mindful-based treatment was an effective intervention for treating anxiety and mood problems in clinical populations. They found a slightly larger effect for anxiety than other mood symptoms. Hempel et al.'s (2014) 'Evidence Map of Mindfulness' found that the most consistent effect for mindfulness interventions was for depression, but that mindfulness effects were also consistently demonstrated for overall health, chronic illness, mental health and somatization disorders. Research into the therapeutic benefits of mindfulness practice has also documented physical changes in brain structure such as thicker cortical regions which are related to attention and sensory processing (Australian Childhood Foundation, 2013; Shahmoon-Shanok & Stevenson, 2015).

While most research into the clinical applications of mindfulness has focused on adult participants there are an increasing number of studies with children and adolescents and more recently research into mindful parenting interventions (Australian Childhood Foundation, 2012; Sawyer Cohen & Semple, 2010). Singh et al. (2010) showed that by incorporating mindfulness exercises for both the child and parents in a program (as opposed to only providing mindfulness exercises for the parent) improved the outcome treatment overall. Wallin (2007) notes that though mindfulness is not part of the vocabulary traditionally associated with attachment the construct of mindfulness itself 'seems a natural outgrowth of attachment theory and research' (p2).

Mary Ainsworth's (Ainsworth, Blehar, Waters, & Wall, 1978) research showed the importance of nonverbal communication in determining an infant's security

or insecurity in attachment relationships. Wallin (2007) goes on to highlight the evolving narrative of the non-verbal realm and the relation of the self to experience in the research of attachment theory from Bowlby to Fonagy. It is these non-verbal, observational skills – paying attention with curiosity to the present moment that are being developed in mindful parenting programs.

2.6 Mindful Parenting

Duncan, Coatsworth, and Greenberg, (2009) attribute the first significant discussion around mindful parenting to Myla and Jon Kabat-Zinn (Kabat-Zinn & Kabat-Zinn, 1997). In their 1997 book on mindful parenting Kabat-Zinn and Kabat-Zinn discuss the importance of keeping in mind the changing developmental needs of the child in daily mindfulness practice, signifying a shift in mindfulness practice from primarily internal and individually focused to consider the other in a more relationship-based focus. Kabat-Zinn and Kabat-Zinn (1997) propose that empathy and acceptance are the foundations of mindful parenting.

The rise in mindful parenting programs marks a substantial shift from earlier operant behavioural models and allows for the development of parenting styles that promote the healthy psychosocial development of the child (Duncan, Coatsworth & Greenberg, 2009). Dumas' (2005) paper on Mindfulness-Based Parent Training describes how parent-child interactions can become 'automatized' and how mindfulness strategies can offer caregivers an alternative way of viewing these interactions. By paying mindful attention to present experiences parents raise awareness about both their own and their child's habitual, automatic responses. This mindful pause enables parents to choose to respond in ways that are less automatic and reactive.

In their 2003 book *Parenting from the Inside Out* Siegel and Hartzell (considered pioneers in the field of interpersonal neurobiology) support a mindful approach to parenting as an avenue for promoting secure attachment relationships. To date however, most mindfulness-based interventions for

parents continue to have an individual rather than dyadic focus with the idea being that the positive benefits of mindfulness training for the individual will lead to enhanced parenting capacity.

While there are a number of programs that claim to incorporate mindful parenting in their interventions, there is no clear definition around what entails mindful parenting. Studies in this area cover a vast array from interventions for expectant parents, programs targeting recently separated families, interventions for carers of children with special needs, to interventions for parents on methadone maintenance (Dawe & Harnett, 2007; Duncan & Bardacke, 2010; Goodman, Guarino et al., 2014; Placone-Willey, 2002; Shaver, Lavy, Saron & MIkulincer, 2007; van der Oord, Boels & Peijnenburg, 2012; Vieten & Astin, 2008). The results from these studies are consistent with other mindfulness research showing benefits for maternal mood as well as increased satisfaction with parenting skills and interactions with their children (Singh et al., 2010).

For the purpose of this study focus was on studies that included a mindfulness-based intervention and were aimed at participants either during pregnancy or in the first 12 months after birth. There are several mindful-based interventions designed for new parents in the perinatal period which have shown beneficial effects for pregnant women. Studies have shown mindful-based interventions can be effective in reducing stress, anxiety, depressive symptoms and emotional distress in non-clinical participants during pregnancy (Duncan & Bardacke, 2010; Dunn, Hanieh, Roberts & Powrie, 2012; Goodman, Guarino et al., 2014; Vieten & Astin, 2008;). Most of these studies have relatively small participant numbers and only a few have incorporated a control group in their design.

Duncan and Bardacke (2010) conducted a 10 sessions Mindfulness-Based Childbirth and Parenting (MBCP) program with 27 pregnant women. They found small but statistically significant increases in mindfulness and positive affect, and decreases in pregnancy anxiety and depression pre to post test. They

suggested that when comparing their results against a meta-analysis of 21 studies of Mindful based stress reduction programs (MBSR) and MBSR-related interventions, the possibility of larger effects may result when mindfulness-based interventions are carried out under more tightly controlled conditions. What the results of Duncan and Bardacke's (2010) study does demonstrate is that mindful-based interventions can be delivered effectively to a non-clinical population even without tightly controlled conditions.

Perez-Blasco and Viguer's, (2013) pilot study was one of the first that aimed to test a mindfulness-based intervention in the early parenting period. They ran an eight-week program using a randomized controlled between groups design with 26 participants. Their results were consistent with earlier findings in pilot studies with pregnant women, finding significantly higher self-efficacy, lower anxiety and stress and significant increases in some of the subscales of their mindfulness measure but not on all subscales. Their results showed no significant change in depression scores as measured by the Depression Anxiety Stress Scale short form (DASS21).

Reynolds (2003) created a therapeutic parent-infant group that she called Mindful Parenting. The Mindful Parenting group intervention aimed to create conditions that allowed parents to practice the 'art of wonder-wonder' – to wonder about what goes on in one's own affective mind-and-body experience as well as in that of their babies (Reynolds, 2003). Participants were primarily low to moderate risk families and they initially met for eight-weekly meetings of one and a half hours each but were able to continue on afterwards for as long as they found the group beneficial. The group time was organised around observation, reflection and live interaction, with parents encouraged to slow down internally to the pace of infant life, so that they could notice the tiniest details of their babies' experience. In her 2013 paper describing the program, Reynolds provides clinical vignettes, however no quantitative research was conducted.

Reynolds describes how the group focus is foremost on enhancing reflective capacity and empathy. This is facilitated through supporting the parents to develop an active observational stance, by directing quiet, patient, curious attention to both the child and self and through learning to follow the child's lead in contact-seeking and exploratory behaviours. The process of simply slowing down and noticing is believed to serve as an empathic function (Reynolds, 2003).

The Australian Childhood Foundation also associates the skills of mindfulness with developing secure parenting relationships and have developed a series of programs under the umbrella of 'Bringing up Great Kids'. Mindfulness skills play a key part in their 'Bringing up Great Kids' programs with many parents indicating the mindful strategies are the most useful and long lasting (Hunter & Meredith, 2015). In their Mindful Parenting Resource the Australian Childhood Foundation (2012) present scenarios and prompt readers to use *Mindful Reflection.* The Foundation describes mindful parenting as giving parents the opportunity and skills to slow down and notice what is going on in the here and now with their child. It states that it is 'a pause that allows you to know what you are feeling. And it lets you recognise how your children are feeling and what they might need from you then and there' (Australian Childhood Foundation, 2012, p. 5). They describe how Mindfulness doesn't need to become yet another "add-on" to busy routines but can be easily integrated into what you are already doing (Australian Childhood Foundation, 2013).

Reynolds (2003) ties the skills of mindfulness and observation with attachment theory reflecting that her program started from three assumptions based on the work of Allan Shore, Arietta Slade and Peter Fonagy:
(1) that a secure attachment bond is the foundation for adaptive infant mental health
(2) that the security of a child's attachment is strongly predicted by mother's capacity to reflect on her child's affective experience; and

(3) that the core of prevention of psychopathology in early childhood should be the enhancement of mentalizing.

2.7 Measuring Reflective Functioning

As reflective functioning has emerged as a key component in establishing secure attachment relationships, instruments have been developed to try and measure the function. Reflective functioning is considered a multidimensional concept that can vary across domains and fluctuate in relation to emotional arousal and different relationships. These complexities have led to many challenges in developing a valid and reliable measure. Until recently the only well-validated, direct measures of reflective functioning have been interview based (Fonagy et al., 2016).

Fonagy, Steele, Steele, Moran and Higgit (1991) developed the Reflective Functioning Scale scored from responses on the Adult Attachment Interview (AAI) as part of the London Parent-Child Project. The Reflective Functioning Scale is coded by assigning ratings on the level of reflection demonstrated by subjects on the different passages in the Adult Attachment Interview (Katznelson, 2014). Slade and colleagues later adapted Fonagy's system for scoring reflective functioning on the Adult Attachment Interview for the Parent Development Interview (PDI) to assess parent's representations of their children, themselves as parents and their relationships with their children (Slade, 2005). Later Meehan, Levy, Reynoso, Hill and Clarkin (2009) developed the Reflective Functioning Rating Scale which is an observer-based measure of reflective functioning applicable to a wider variety of data sources (interviews) not just the Adult Attachment Interview. One of the main limitations of these measures is that they all require extensive training and protracted amounts of time to administer, transcribe and code.

More recently Fonagy and colleagues have developed a self-report questionnaire, the Reflective Functioning Questionnaire (RFQ) which was designed to provide an easy to administer self-report measure of mentalizing

(Fonagy et al., 2016). Preliminary findings show the measure is correlated with measures of empathy, mindfulness and perspective taking and provide support for the Reflective Functioning Questionnaire as a screening measure of reflective functioning with a clinical population. The Reflective Functioning Questionnaire assesses reflective functioning using two subscales – Certainty about Mental States and Uncertainty about Mental States. Fonagy et al. (2016) noted the oxymoron of trying to asses reflective functioning through self-report stating 'the very capacity that we aim to assess is needed to complete a measure of the capacity: individuals need to rely on their capacity for mentalizing in responding to questions about mentalizing' (p2). They also reflected on the complexity of scoring a self-report measure with a simple continuous scoring system potentially not accurately capturing an individual's capacity for mentalizing – 'Indeed, from a mentalizing perspective, extreme responses on both ends of a Likert-type scale may indicate qualitatively different impairments in mentalizing' (p4). They initially developed a polar-scoring and median scoring method but after failing to find evidence for construct validity they developed the two subscales based on theoretical assumptions around mentalization and still reflecting the opaqueness of mental states (Fonagy et al., 2016).

The Reflective Functioning Questionnaire is designed to assess a general capacity for mentalizing. Fonagy et al. (2016) provided a distinction between general reflective functioning capacity and parental reflective functioning stating that although general reflective functioning and parental reflective functioning can be expected to be correlated both capacities need not be identical. They distinguish parental reflective functioning from reflective functioning as the capacity of a parent to reflect on the mental states of their infant in particular, rather than their general capacity for mentalizing (Fonagy et al., 2016). This idea has been supported by findings by Steele and colleagues who found good but not perfect correlation (r = 0.50) between general reflective functioning as scored on the Adult Attachment Interview and parental reflective functioning as

scored on the Parental Development Interview (Steele, Kniuk, Hodges, Asquith, Hillman, & Steele, 2008).

The Parental Reflective Functioning Questionnaire (PFRQ) is a parental reflective functioning self-report measure developed by Luyten and colleagues for parents with children 0-5 years. It was designed to assess caregiver's capacity to attribute internal affective states to themselves and their child using a seven-point Likert scale ranging from Strongly disagree to Strongly Agree (Rostad, 2014). The Questionnaire has 29 items across three subscales aimed to capture three key features of Parental Reflective Functioning: 1) non-mentalizing modes characteristic of parents with impairments in parental reflective functioning 2) the ability to recognise the opacity of mental states, and 3) interest and curiosity in mental states, (Luyten, Mayes, Nijssens & Fonagy, 2017). The subscales are named as follows: Pre-Mentalizing Modes (assessing a caregiver's struggle to understand and interpret the child's mental experience), Certainty of Mental States (assessing the extent to which the caregiver feels confident in their knowledge about their child's feelings, thoughts and intentions), and Interest and Curiosity in Mental States (assessing the level of interest a caregiver has in thinking about their child's internal experience and perspective (Diamond, 2014; Rostad, 2014). Luyten et al., (2017) found the Parental Reflective Functioning Questionnaire predicted infant attachment status as assessed by the Strange Situation protocol and parental distress tolerance giving support to the constructs of the questionnaire. They also report that initial studies have provided preliminary evidence that the questionnaire is sensitive to change but caution that further research is needed to investigate the potential of the questionnaire to measure change following psychosocial interventions (Luyten et al., 2017). The Parental Reflective Functioning Questionnaire-1 was also used by Rostad (2014) to evaluate the effectiveness of the Circle of Security Parenting DVD program as discussed earlier in this chapter.

The Diamond Reflective Functioning Scale was developed by Caroline Diamond in 2014 as a self-report scale to screen for parental reflective functioning with mothers of infants under the age of 12 months (Diamond, 2014). The scale was designed as a simpler alternative to previous reflective functioning measures that take more than an hour to administer and require equal amounts of time for a trained scorer to transcribe and code (such as Fonagy's Reflective Functioning scale designed to be used in conjunction with the Adult Attachment Interview or the Parent Development Interview). The Diamond Maternal Reflective Functioning scale is designed to be a brief assessment of maternal reflective functioning, applicable to mothers from various socioeconomic and educational backgrounds, cost efficient and easy to administer.

The Diamond Maternal Reflective Functioning scale is an 18-item scale with three independent subscales – Cue recognition, Mentalisation of Infant and Own Childhood Experience. The Cue recognition subscale relates to the mother's ability or attempts to recognize and interpret her baby's cues. These items are believed to relate to sensitive and responsive caregiving and correspond with Ainsworth's theory of sensitive attunement (Ainsworth et al., 1978; Diamond, 2014). The subscale Mentalisation of Infant is believed to relate to wondering what the infant's psychological experience may be like, as well as taking into account curiosity. These items correspond with Fonagy and Slade's idea of mentalization and attachment (Diamond, 2014; Fonagy et al., 1991). The Own Childhood Experience subscale relates to the mother's own experience of being parented within her family of origin and would seem to correspond with ideas from Main and the intergenerational transmission of attachment (Diamond, 2014; Main, 2006).

Diamond (2014) flagged the Diamond Maternal Reflective Functioning Scale as a tool to be potentially used both as a screener and as a pre and post measure within treatment programs. The scale demonstrates adequate reliability (both internal consistency and temporal stability), and provides evidence of

convergent and divergent validity (Diamond, 2014, p.160). Though the strong psychometric properties of the Diamond Maternal Reflective Scale support its use in both clinical and research settings, its robustness as a measure of treatment change has yet to be explored (Diamond, 2014). Further research was recommended to explore the usefulness of the scale as a measure of treatment change with both clinical and non-clinical populations. Part of this study will explore the usefulness of the measure to detect change in a non-clinical population.

2.8 Online technology

'Attention to how a program is implemented is as important to child, parent and family outcomes as what is implemented' (Wade et al., 2012, p. 28). Online technology is expanding at an exponential rate with most Australians having access to the Internet almost anywhere at any time (Knight & Hunter, 2013). Internet supported mental health interventions have been widely used since the mid-1990s. They have been shown to be widely used and often are just as effective as face-to-face interventions (Knight & Hunter, 2013).

Online programs such as MoodGym have been successfully used in the prevention of depression and have been found to fill a service gap by providing an effective solution that could be accessed anonymously, from anywhere and in the client's own time (Knight & Hunter, 2013). Drentea and Moren-Cross (2005) found that online programs can increase social capital for women during the perinatal period, specifically through emotional support and information giving. Furthermore, mothers involved in online support programs were even more likely to get support offline from family and friends. Knight and Hunter (2013) suggest that online services can offer enhanced self-reflection and that participants often feel they have more anonymity, privacy and convenience.

Schmidt and Neville (2011) explored the theoretical basis of a student advocacy intervention being implemented in Victorian schools. They describe the teacher advocate role as an attachment relationship and suggest that an aspect of

adolescent development is the revision of internal working models related to their attachment status. Schmidt and Neville (2011) purport that student advocacy and the electronic tools designed to support it facilitate the adolescent's development of reflective function. The results from the trial of the project suggest that the electronic tools worked as an effective trigger for reflection and enhanced the supportive teacher-advocate relationships.

2.9 The Current Study

Pregnancy is often a time of great hope with new parents open to and actively seeking new information as they prepare to start the journey with their new infant (Winston & Chicot, 2016). We have solid evidence of the role of positive early experiences and interventions strengthening these early relationships with positive long-term benefits for the family across generations (Shonkoff, 2010; Shonkoff et al., 2012). There are many focused services and a growing awareness of the need for early intervention for families who reach a clinical threshold in regards to both physical and mental health. Research has shown, however, that a great majority of new mothers, who do not meet the threshold for a clinical diagnosis, feel anxious and unprepared for caring for their new infant.

This project evolved out of the frustration of not being able to locate a cost effective, evidence-based program to recommend to a non-clinical population of new mothers. These were the mothers who did not reach the threshold to be eligible for 'early intervention' programs but who were nonetheless struggling with the early days of parenting and forming a strong relationship with their babies. They were also Mothers who were often for one reason or another reluctant to join a group program but motivated to 'parent differently' from their experiences of being parented. In individual sessions, these mothers would absorb information about development and cues and would delight in their babies' responses but also be overwhelmed with the multitude of conflicting information offered online. This research aims to evaluate a program that fills

this gap for this non-clinical group, providing the information in a widely accessible and non-threatening manner.

2.10 Aims and Hypotheses

The overall aim of this study is to extend the research on the transmission gap within infant attachment, specifically exploring whether it is possible to increase maternal reflective functioning with a targeted online, mindfulness program. The study will also provide information regarding the robustness of the Diamond Maternal Reflective Functioning Scale as a measure of treatment change with a non-clinical population.

Hypothesis One:
The primary hypothesis of the current study was that participating in the online Mindfully Parenting Your Baby program will enhance participants' capacity for maternal reflective functioning. Participants completing the program will show an increase in their scores from baseline on the self-report measures in Maternal Reflective Functioning.

Hypothesis Two:
Participating in the Mindfully parenting your Baby program will have a positive effect on participants' depression, anxiety and stress. Participants completing the Mindfully Parenting your Baby program will show a decrease in their scores from baseline on the self-reported Depression, Anxiety and Stress measures.

Hypothesis Three:
Higher levels of maternal reflective functioning will increase participants' enjoyment and satisfaction in parenting. Higher maternal reflective functioning scores will be positively correlated with higher parental satisfaction, efficacy and interest.

Chapter Three

Methodology

3.1 Introduction

This chapter will set out the methodology for the thesis. The first section covers the research design. This is followed by a description of participants including recruitment and demographics. The next section outlines the measures used with a description of their subscales. The final section outlines the procedure and gives a description of the program itself.

3.2 Research Design

The purpose of the project was to examine the effectiveness of an online parenting program in increasing Reflective Functioning for Mothers of infants, as well as to explore the sensitivity of a new self-report Reflective Functioning measure. In order to do so a Switching Replications, stepped-wedged quasi-experimental design was chosen. This design allowed all participants to participate in the program while also contributing control time. This design has been utilized in similar studies (Rostad, 2014) and is considered strong with respect to internal validity and believed to enhance external validity or generalizability (Handley, Schillinger, Shiboski, 2011; Trochim, 2006).

The design had two groups and three waves of measurement but differs from a traditional cluster randomized trial done in parallel time in that it allowed a stepped-wedge starting time for the groups. The staggered starting time allowed for greater recruitment time and is considered protective towards attrition of participants. In the first phase of the design, both groups were pretested, one was given the program and then both groups were post tested. In the second phase of the design, the original comparison group was then given the program. As this design assures that all participants are offered the program, it is considered one of the most ethically feasible quasi-experiments

(Handley, Schillinger, Shiboski, 2011; Trochim, 2006). Figure 1 portrays the research design.

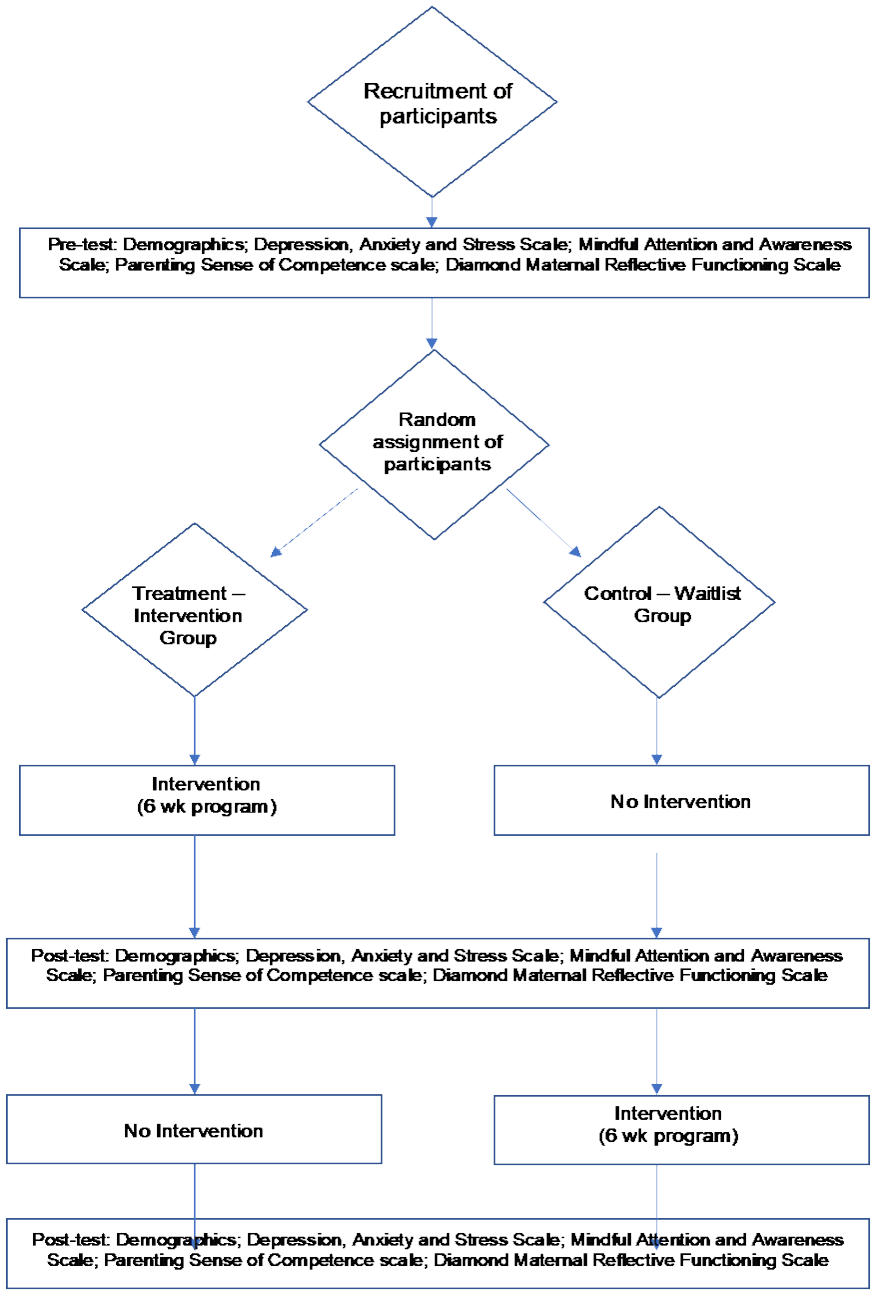


Figure 1: *Research Design*

3.3 Participants

Participants were recruited through advertisements in social media (e.g. Facebook), community websites (e.g. baby information sites, sell, swap and buy sites, sponsored baby blogs, baby markets), flyers and word of mouth (see Appendix I). The criteria for participation in the study was:

(1) Australian resident
(2) Participant was over 18 years of age
(3) Participant was the primary carer for a baby under 12 months of age
(4) English speaking

A computed sample size of 65 was determined for the study based on the assumption of a medium effect size, with power at 0.80 and statistical significance of p< .05. A medium effect size was chosen, as preliminary results using the Diamond Maternal Reflective Functioning Scale as a pre and post measure (in a separate project) had revealed a statistically significant improvement in mentalization following participation in a Circle of Security – Parenting ™ group, $z = 2.28$, $p < 0.05$, with a medium effect size ($r = .38$) (Private correspondence, August, 2015). Falkenstrom, Solbakken et al. (2014) also specified a medium effect size for their research investigating the interrelationship between Reflective Functioning, Affect Consciousness and Mindfulness. They note in their research that the use of a normal sample rather than a clinical one may limit the effect size. A sample size of N=80 was therefore selected to allow for attrition or incomplete surveys.

Participants self-selected for the program by indicating interest via a purpose designed website (see Appendix C). Participants could enrol in the program between August – October, 2016. During this time 79 mothers ranging in age from 18-40 years indicated interest in the program via the Mindfully Parenting Your Baby website. Of these, 69 participants met the participation criteria and went on to complete the first set of questionnaires. Participants recruited between August and September were randomly allocated into either a waitlist/control group or a participant group. Participants recruited after the end

of September were not allocated to a waitlist/control group to ensure they had time to complete the program. In total 33 participants were allocated to the waitlist/control group and then offered the program after their counterparts had completed the program, 25 of the waitlist/control group fully completed the first set of questionnaires and of these 19 then completed the second set of measures before beginning the program. Participants were given incentives for their participation in the program. Each week participants who completed the short reflection were entered into a draw to win a book voucher.

The average age range of participants who completed the first set of questionnaires was between 31-35 years (55%); the average age range of those who completed the program was equally divided between 25-30 years and 31-35 years (45% each). At both points in time the majority of the mothers were married (79% and 85%) or living with their partner (19% and 15%). Most participants were first time mothers (73% in the initial sample and 75% of those who completed the program), with 19% (and 15%) indicating they had two children and 8% (and 10%) indicating they had 3 or more children. The majority of participants indicated that they had completed a University degree either undergraduate (35%) or postgraduate (51%) in the initial sample, increasing slightly to 35% undergraduate and 60% postgraduate in the final sample. 95% were able to access Child Health services. Table 1 shows the descriptive statistics across the study.

Table 1: *Descriptive statistics across Time Points*

	Categories	Initial - Pretest (N=63)	Control/ Waitlist (N=25)	Posttest (N=20)	2nd Posttest (N=3)
Age:	18-20	2%	-	-	-
	21-24	2%	4%	-	-
	25-30	26%	24%	45%	-
	31-35	55%	40%	45%	100%
	36-40	14%	32%	10%	-
Education:	High School	11%	4%	-	-
	TAFE	3%	8%	5%	-
	Undergraduate	35%	32%	35%	33%
	Postgraduate	51%	56%	60%	67%
Relationship status:	Single	1%	8%	-	-
	Married	79%	76%	85%	67%
	Defacto	19%	8%	15%	33%
No of Children:	1	73%	64%	75%	67%
	2	19%	20%	15%	33%
	3 or more	8%	10%	10%	-

3.4 Measures

The survey set included questions regarding demographics, mood, mindfulness, parenting satisfaction and reflective functioning. The number of questionnaires were kept to a minimum to reduce the time burden on Participants. Participants took an average of 10 minutes to complete the surveys. Participants were asked to complete the same group of questionnaires on three occasions throughout the study.

The following instruments were selected:

Depression, Anxiety and Stress Scale (short form) – Mood

Parental Sense of Competence Scale – Parenting satisfaction

Mindful Attention Awareness Scale - Mindfulness

Diamond Maternal Reflective Functioning Scale – Reflective Functioning

All the instruments selected to test study hypotheses have been shown to have adequate reliability and validity. All instruments used in this research have been previously published in professional journals or publications with the exception of the Diamond Maternal Reflective Functioning Scale, which has recently been assessed through a doctoral thesis (Diamond, 2014). All of the selected measures have demonstrated good reliability and acceptable factor structure (Antony, Bieling, Cox, Enns, & Swinson,1988; Brown & Ryan, 2003; Diamond, 2014; Gilmore & Cuskelly, 2008).

The *Depression, Anxiety and Stress Scale* (DASS21; Henry & Crawford, 2005) is a 21-item self-report instrument designed to measure the emotional states of depression, anxiety and stress. Each of the scales contain seven items rated on a four-point scale from ‘Never’ (0) to ‘Almost Always’ (3). Participants are asked to rate the extent to which they have experienced each state over the past week. The scores for each state are then calculated by summing the scores for relevant items. The scales have been shown to have high internal consistency and to yield meaningful discriminations between the three states (depression, anxiety and stress) in a variety of settings (Henry & Crawford, 2005). Example items include:

I found it hard to wind down

I felt that I had nothing to look forward to

I felt I was close to panic

For a complete copy of the Depression, Anxiety and Stress Scale 21, refer to Appendix D.

The *Parenting Sense of Competence Scale* (PSOC; Johnston & Mash, 1989) is a 16-item self-report instrument designed to measure parental satisfaction and efficacy. Items are rated on a six-point scale from ‘Strongly Agree’ to ‘Strongly Disagree’. Participants are asked to rate their feelings about being a parent and how much each item applies to them. The Parenting Sense of Competence scale has been identified as the most commonly used tool for measuring parental self-efficacy (Jones & Prinz, 2005) and was originally designed specifically for first-time parents of infants (Gilmore & Cuskelly, 2009). For this study the total score was summed with several items reversed scored. Higher scores indicate greater satisfaction and confidence in parenting. Example items include:

Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age.

Being a parent is manageable, and any problems are easily solved.

I meet my own personal expectations for expertise in caring for my child.

For a complete copy of the Parenting Sense of Competence Scale, refer to Appendix E.

The *Mindfulness Attention Awareness Scale* (MAAS; Brown & Ryan, 2003) is a 15-item scale designed to measure dispositional mindfulness. Items are rated on a 6-point scale from ‘Almost always’ to ‘Almost never’, with higher scores indicating higher mindfulness levels. The Mindfulness Attention Awareness Scale has been used in similar studies (e.g. CALM Pregnancy: results of a pilot study of mindfulness-based cognitive therapy for perinatal anxiety). Previous studies have demonstrated that the Mindfulness Attention Awareness Scale taps a unique quality of consciousness that is related to, and predictive of emotional regulation, behaviour regulation and interpersonal well-being (Goodman et al., 2014). Example items include:

I could be experiencing some emotion and not be conscious of it until some time later.

I find it difficult to stay focused on what’s happening in the present.

It seems I am "running on automatic", without much awareness of what I'm doing.

For a complete copy of the Mindfulness Attention Awareness Scale, refer to Appendix F.

The *Diamond Maternal Reflective Functioning Scale* is a new self-report questionnaire developed by Diamond for use with mothers with infants younger than 12 months of age (Diamond, 2014). It has 18-items rated on a 4-point scale from 'None or a little of the Time' to 'Most of the Time', with higher scores indicating increased Maternal Reflective Functioning. Three subscales are derived representing Cue Recognition, Mentalization of Infant, and Own Childhood Experience. The Scale demonstrates adequate reliability across full scale and subscale scores with Cronbach alphas of 0.72 to 0.87 (Diamond, 2014). Example items include:

I am aware of my baby's cues.

I wonder how my baby feels about things around us.

Being a parent makes me think of my own childhood.

For a complete copy of the Diamond Maternal Reflective Functioning Scale, refer to Appendix G.

The Diamond Maternal Reflective Functioning Scale was designed to be a brief, cost efficient, easy to administer measure of reflective functioning to be used by front line staff in the child and family health services to help monitor and support developing mother-infant relationships (Diamond, 2014). It is a simpler alternative to previous reflective functioning measures that can take more than an hour to administer and require equal amounts of time for a trained scorer to transcribe and code (such as Fonagy's Reflective Functioning scale designed to be used in conjunction with the Adult Attachment Interview or the Parent Development Interview). The scale was designed to be easy to understand and applicable to mothers from a wide range of socioeconomic and educational backgrounds. The scale demonstrates adequate reliability (both internal consistency and temporal stability), and provides evidence of convergent and divergent validity (Diamond, 2014). The strong psychometric properties of the

Diamond Maternal Reflective Functioning Scale support its use in both clinical and research settings. As its robustness as a measure of treatment change has yet to be explored (Diamond, 2014), part of this study aims is to explore the potential of the measure to detect change in a non-clinical population.

The selected measures for the study with their subscales and when they were administered for each group is shown in Table 2.

Table 2: *Administered measures with their subscales for the Intervention and Waitlist / Control groups*

	Intervention Group			**Waitlist / Control Group**		
	Pretest	**Post test – following intervention**	**Post test – 6 weeks following intervention**	**Pretest**	**Post test – after 6 weeks wait**	**Post test – following intervention**
DASS	Depression	Depression	Depression	Depression	Depression	Depression
	Anxiety	Anxiety	Anxiety	Anxiety	Anxiety	Anxiety
	Stress	Stress	Stress	Stress	Stress	Stress
PSOC	Parenting confidence	Parenting confidence	Parenting confidence	Parenting confidence	Parenting confidence	Parenting confidence
MAAS	Dispositional Mindfulness	Dispositional Mindfulness	Dispositional Mindfulness	Dispositional Mindfulness	Dispositional Mindfulness	Dispositional Mindfulness
DMRFS	Cue Recognition	Cue Recognition	Cue Recognition	Cue Recognition	Cue Recognition	Cue Recognition
	Mentalisation of infant	Mentalisation of infant	Mentalisation of infant	Mentalisation of infant	Mentalisation of infant	Mentalisation of infant
	Own Childhood Experience	Own Childhood Experience	Own Childhood Experience	Own Childhood Experience	Own Childhood Experience	Own Childhood Experience

3.5 Procedure

Ethics approval for the study was granted by the Human Research Ethics Committee of James Cook University in July, 2015 (H6176) (Appendix A). An extension of time was requested and approved in July, 2016 allowing data collection until 30th July, 2017 (Appendix B). A progress report was submitted to the Human Research Ethics Committee of James Cook University in September, 2016. A final report was submitted to the Ethics committee in September, 2017.

Potential participants were recruited via social media and directed to a website which provided a description of the project, and contained an informed consent form and contact details where more information could be obtained (see Appendix H). Participants indicated their interest in participating in the program by completing the consent form and were then redirected to Survey Monkey to complete the online surveys. Once participants completed the informed consent form they were randomly allocated into either a waitlist control group or a participant group.

Participants were sent an email that indicated whether they had been randomly allocated to the waitlist or an email with the link to the first week's podcasts. Each week for six weeks participants were sent an email with links to the week's podcasts, any handouts from the week and a reminder to forward a short reflection regarding their reflections of their experience of the program and their relationship with their baby over the previous week. A total of 84 blogs were received from participants.

After completing the Mindfully Parenting Your Baby program participants were sent an email requesting they complete the online surveys again. The waitlist group were also sent an email asking them to complete the online surveys for a second time before beginning the program. When the waitlist group had

completed the program an email was sent to the original participants and the waitlist group asking them to complete the questionnaires for a third time.

3.6 Description of Program

The Mindfully Parenting Your Baby Program was provided in six-weekly sessions. Each week participants were emailed a link to a group of podcasts and mindfulness exercises (ranging from five to eight per week) as well as any handouts for the week. The podcasts and exercises ranged from two to eleven minutes in length and were a mixture of psychoeducation around attachment, infant development and mindfulness. The mindfulness tasks ranged from five to fifteen minutes in length and generally began with an individual focus and then moved on to include the infant. At the end of each week participants were asked to reflect on their experience of the program and their relationship with their baby over the past week.

The podcasts and mindfulness exercises were adapted for an online group from Dr Bronwyn Leigh's (Director, Perinatal Psychology Centre for Mindful and Reflective Parenting) *Mindfully Parenting Your Baby – Group Program (2015)* with Dr Leigh's consent (see Appendix K for letter of support from Dr Leigh). The Mindfully Parenting your baby – Group Program follows the format of Jon Kabat-Zinn's Mindfulness-Based Stress Reduction (MBSR) Program, with a focus on mindfulness practices involving teacher-guided inquiry and psychoeducation, with the added component of including mindfulness of the infant in the practice. The online version has remained true to the group program exercises and psychoeducation but have been recorded rather than being presented face-to-face in a group format. Each week's information builds on the information from the past week but has a slightly different focus. Table 3 summarises the week's contents.

Table 3: *Mindfully Parenting Your Baby Program content by week with examples of podcasts from weeks one and two*

Week	Content	No. of Podcasts / Mindfulness exercises
1	Introduction to Mindfulness and focus on breath • Welcome • What is Mindfulness • First mindful exercise • Breath Awareness Mindfulness exercise • Why is focusing on our breath important? • Focussed Mindful breathing • How can Mindfulness help my parenting? • Interacting with your baby in a mindful way	8
2	Using the Senses • Mindfulness of Body and Breath • Four key principles of Mindfulness • Becoming mindful using your senses • Mindfully looking at your baby • Hearing mindfully • Vocalising with your baby • Following your baby's lead	7
3	Mindfulness of touch and observation	5
4	Attachment	5
5	Mindfulness of mind/thoughts	8
6	Rupture and Repair	6

Chapter Four

Results

4.1 Data Analysis

The data analysis procedure will be described in three parts, one for each research question of the present study. For each research question, the planned statistical analyses and their theoretical assumptions are described. Additionally, the research hypotheses and null hypothesis will be explicitly stated and explained within each section of the data analysis.

Research Question 1: Does the Mindfully Parenting Your Baby intervention improve scores from the baseline in Maternal Reflective Functioning?

To determine whether the Mindfully Parenting Your Baby program affected maternal reflective functioning (measured via Diamond Maternal Reflective Functioning Scale), a paired samples t-test was conducted on pretest and posttest scores of the reflective functioning survey using the overall Diamond Maternal Reflective Functioning Scale scores, as well as each component of the scale (Cue Recognition, Mentalization, and Own Childhood Experience) for participants who participated in the Mindfully Parenting Your Baby program (experimental group). The same analysis was conducted on the control group to compare any improvement in maternal reflective functioning for participants who did not participate in the Mindfully Parenting Your Baby program (i.e. control group), and those who did participate in the program (experimental or intervention group).

The null hypothesis posits that there will be no difference in total Diamond Maternal Reflective Functioning Scale scores, nor on any individual component of the Diamond Maternal Reflective Functioning scale (cue recognition, mentalization, and childhood experience) between the baseline (i.e. pretest)

assessment and posttest assessment. The alternative hypothesis posits that there will be a difference between baseline and posttest ratings. Specifically, participants' maternal reflective functioning scores will be higher at the posttest assessment, after going through the six-week Mindfully Parenting Your Baby program, than at the baseline measure.

To conduct the proposed analysis, a paired samples t-test consists of four basic assumptions. The first assumption is that the dependent variable is measured on a continuous scale. The dependent variables, Diamond Maternal Reflective Functioning Scale scores and each component sub-scale scores, will be treated as continuous variables. A second assumption of the paired samples t-test is that the independent variable is two categorical, related groups or matched pairs (Dependent t-test, 2013). The present analysis consists of repeated measures for baseline and posttest assessment scores on the subscales and overall scores on the Diamond Maternal Reflective Functioning Scale. Thus, the same participants have scores measured at two time points, pretest and posttest. A third assumption of paired samples t-tests is that there are no significant outliers. A frequency histogram of the data was created to examine the shape of the distribution of Diamond Maternal Reflective Functioning Scale scores. Any values that are 2.5 standard deviations from the mean were removed for subsequent analyses (Dependent t-test, 2013). Finally, the paired-samples t-test assumes that the dependent variable is approximately normally distributed. The data was tested for normality using the Shapiro-Wilk test of normality. If the significance value of the Shapiro-Wilk test is greater than $p = .05$, the data do not significantly differ from a normal distribution.

Additionally, it is important to analyse the correlations between each sub-scale and the overall Diamond Maternal Reflective Functioning Scale scores. It is hypothesized that each sub-scale is positively correlated with the other sub-scales. The null hypothesis would posit no relationship between each sub-scale. To measure the relationship among each sub-scale, Pearson's Product-Moment correlation coefficients are reported (Pearson, 1948). Pearson's *r* is a

measure of the linear relationship between two variables. It is a ratio that varies between -1 and 1. One assumption of the Pearson's *r* correlation coefficient is that the level of measurement of the variables is ratio or interval. In the present study, each sub-scale is treated as a ratio scale of measurement. This measurement assesses the association between all paired variables. The relationship may be positive, negative, or no correlation. Another assumption is that there is a linear relationship between the variables being measured. The final assumption is that the data for each variable is normally distributed (Field, 2000). The Diamond Maternal Reflective Functioning Scale distribution was assessed for homoscedasticity, or variability in the independent variable.

Additionally, growth curve model analyses was conducted to assess the difference in Diamond Maternal Reflective Functioning Scale scores from pretest to posttest between the intervention and control group. Growth curve models are a type of mixed model that deals with clustered data at different levels, similarly to a repeated-measures ANOVA. In the present study, we have two levels of analysis: 1) between subjects (participants who participate in the Mindfully Parenting Your Baby intervention and those who did not initially participate in the intervention), and 2) within subjects (pretest versus posttest). The analysis nests scores on the Diamond Maternal Reflective Functioning Scale and sub-scales at time (pretest and posttest) and between groups (intervention and control groups).

To establish a causal relationship between the Mindfully Parenting Your Baby program and improved Maternal Reflective Functioning, we must directly compare the rate of change in Diamond Maternal Reflective Functioning Scale scores from pretest to posttest for both the experimental and control groups. The null hypothesis for this analysis posits that there is no difference in the change of maternal reflective functioning from pretest to posttest between the experimental group and control group. In other words, the six-week program did not affect maternal reflective functioning. The research hypothesis posits that participants who receive the Mindfully Parenting Your Baby program for six

weeks should demonstrate greater improvement in Diamond Maternal Reflective Functioning Scale scores from pretest to posttest. To assess the change in scores from pretest to posttest across groups, a growth curve model of analysis was employed.

Growth curve modelling is a type of mixed model. Growth curves are a special type of multi-level model in which the lowest level, a within-subjects factor, is a repeated measure (Bollen, 2007; Bollen & Curran, 2004). Growth models have been used in a multilevel modelling framework in previous research (Bryke & Raudenbush, 1987; Raudenbush & Bryk, 2002).

This type of analysis allows comparisons of slopes, or rate of improvement in maternal reflective functioning, for the experimental group and control group. The trajectories of change from pretest to posttest may be flat, or increase systematically (Curran, Obeidat, & Losardo, 2010). The present study has one between-subjects level of analysis (participants in the experimental versus control group), and one within-subjects level of analysis (pretest versus posttest). The growth curve model nests scores on the Diamond Maternal Reflective Functioning Scale at time (pretest and posttest) within groups (experimental and control groups).

The overall Diamond Maternal Reflective Functioning Scale scores, along with the three sub-scales, are the dependent variables. This type of analysis allows for inferences to be made regarding the efficacy of the six-week Mindfully Parenting Your Baby program. If the program improves maternal reflective functioning, the experimental group will have a steeper slope from pretest to posttest (i.e. larger improvement) than the control group. We will also be able to analyse how the Mindfully Parenting Your Baby program improves different components of maternal reflective functioning by examining the rate of change for each sub-scale. Because there are only two time periods of interest (pretest and posttest), the present analysis will include fixed-effects of the slopes and intercepts to examine the rate of change in reflective functioning. Fixed effects

were used to estimate the mean intercept (baseline measurement) and the mean slope (rate of change).

After conducting the analyses, model fit of the actual data was assessed to determine whether the obtained data fit within the growth curve model (Curran, Obeidat, & Losardo, 2010). The Bayesian Information Criterion (BIC) was used to estimate model fit (Bollen & Long, 1993). Lower BIC values indicate better model fit.

In all analyses associated with the first research question, the alpha level will be specified at .05. Significant differences between groups for all analyses is set at $p < .05$. The .05 represents the probability of rejecting the null hypothesis (that there is no difference between pretest and posttest) when in reality the null hypothesis is actually true. Alpha levels that fall between $p > .05$ and $p < .10$ will be considered *marginally significant*, as they still represent a less than 10% chance that the null is true.

Research Question 2: Does the Mindfully Parenting Your Baby program affect depression, anxiety, and stress?

To determine whether the Mindfully Parenting Your Baby program affected depression, anxiety, and stress as measured by the Depression, Anxiety and Stress scale (DASS-21), a series of paired samples t-tests will be conducted on participants in experimental and control conditions on pretests and posttests of the Depression, Anxiety and Stress scale overall score, and each sub-scale; depression, anxiety and stress. The null hypothesis posits that there will be no effect of the intervention program (i.e. no significant differences between pretest and posttest) on depression, anxiety or stress. Alternatively, the research hypothesis posits that the intervention will reduce scores on depression, anxiety and stress.

To conduct the analyses for this research question, the same assumptions about outliers and normally distributed data that were made for research question 1 were applied. A frequency histogram of Depression, Anxiety and Stress scale scores were extracted to determine the presence of any outliers and to observe the shape of the distribution. A Shapiro-Wilk test of normality was conducted for both experimental and control groups. If the significance value of the Shapiro-Wilk test is greater than $p = .05$, the data do not significantly differ from a normal distribution. If the data are not normally distributed (i.e. $p < .05$ for the Shapiro-Wilk statistic), a log transformation will be conducted on the data to approximate a normal distribution.

Similarly to research question 1, the correlations between each sub-scale and the overall Depression, Anxiety and Stress scale score were calculated. We hypothesize that each sub-scale is positively correlated with the other sub-scales, as well as the overall Depression, Anxiety and Stress scale scores.

Finally, a series of growth curve models was conducted to assess the difference in Depression, Anxiety and Stress scale scores from pretest to posttest between the intervention (experimental) and control group. The null hypothesis for this analysis posits that there is no difference in the change of depression, anxiety, or stress from pretest to posttest between the experimental group and control group. In other words, the Mindfully Parenting Your Baby program did not affect depression, anxiety or stress. The research hypothesis posits that participants who receive the Mindfully Parenting Your Baby program for six weeks should demonstrate a greater decline in depression, anxiety and stress from pretest to posttest. To assess the change in scores from pretest to posttest across groups, a growth curve model of analysis will be employed with the same assumptions as listed in research question one.

Research Question 3: Are maternal reflective functioning scores positively correlated with higher parental satisfaction, efficacy, and interest scores?

To analyse this research question, a series of correlational analyses was conducted on parental satisfaction, efficacy, and interest scores (i.e. parental confidence) and the Diamond Maternal Reflective Functioning Scale total scores. The same assumptions of correlational analyses described in research question one was applied to these analyses. Additionally, to determine which components of the Diamond Maternal Reflective Functioning Scale (cue recognition, mentalization, and own childhood experience) are related to parenting confidence, correlations for each sub-scale of the Diamond Maternal Reflective Functioning Scale and parenting confidence scores was calculated.

4.2 Results

The purpose of the present study was to examine the effects of a six-week online Mindfully Parenting Your Baby program on Maternal Reflective Functioning for mothers of infants. The following research question, "Does the Mindfully Parenting Your Baby program affect maternal reflective functioning?" served as the primary research question. Specifically, it is hypothesized that the program would increase maternal reflective functioning. A secondary research question was also analysed; does the Mindfully Parenting Your Baby program affect depression, anxiety and stress? It is hypothesized that participants in the Mindfully Parenting Your Baby program would have a decrease in self-reported depression, anxiety, and stress symptoms after completing the program. Finally, the relationships between reflective functioning and parental satisfaction, efficacy and interest scores were examined. It was predicted that reflective functioning scores will be positively correlated with parental satisfaction, efficacy and interest scores. The results pertaining to each specific research question are reported below.

Research Question 1: Does the Mindfully Parenting Your Baby program affect Maternal Reflective Functioning?

To test this research question, a paired samples t-test was conducted on the experimental group for participants who completed both the pretest and the Posttest. Several dependent variables were used in the analyses, including: a mindfulness scale, the total Diamond Maternal Reflective Functioning Scale scores, and each sub-scale of the Diamond Maternal Reflective Functioning Scale (Cue Recognition, Mentalization, and Own Childhood Experience). Before conducting the analyses, a frequency histogram of the Diamond Maternal Reflective Functioning Scale data was examined for outliers (see Figure 2). Based on the histogram, there appear to be a few outliers, with Diamond Maternal Reflective Functioning Scale scores equal to zero. However, these scores come from participants who partially completed the initial experimental session, but did not complete the post test. Therefore, these data points are not included in the analyses. Additionally, the data appear to approximate a normal distribution. According to the Shapiro-Wilk test, the Diamond Maternal Reflective Functioning Scale variable is normally distributed for the control group ($p = .762$), but not the experimental group ($p = .000$). The lack of normally distributed data in the experimental group is most likely due to several scores of 0 on the pretest. In fact, when excluding cases in which the pretest Diamond Maternal Reflective Functioning Scale score was zero, the Shapiro-Wilk test was not statistically significant ($p = .368$), meaning that the data does not significantly differ from a normal distribution. Because scores of zero on the Diamond Maternal Reflective Functioning Scale will not be included in the paired samples t-test between pre- and posttests, a log transformation is not necessary.

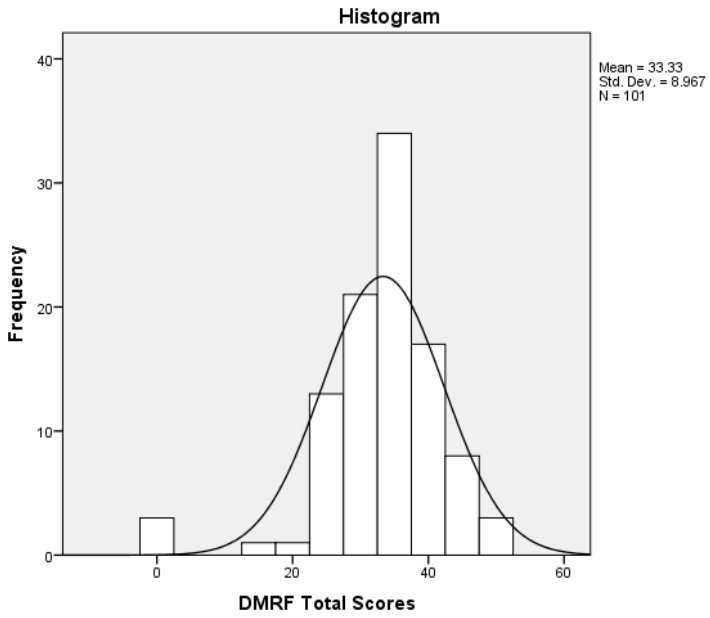


Figure 2: *Frequency Histogram of the Diamond Maternal Reflective Functioning Scale total scores.*

An initial independent samples t-test was conducted to determine the mean Diamond Maternal Reflective Functioning Scale scores and mean differences between the experimental and control groups at Time 1. The average Diamond Maternal Reflective Functioning Scale total score for participants who completed the intervention (n = 20) was 32.24 (SD = 9.983). The average Diamond Maternal Reflective Functioning Scale score for participants who did not initially complete the intervention (n = 39) was 35.05 (SD = 6.829). The difference between the experimental and control groups, averaged across pretest and posttests was not significant, t(98) = -1.678, p = .097. This implies that, across both pretest and posttest measures, participants in the experimental group scored slightly lower on the Diamond Maternal Reflective Functioning Scale than participants in the control group. This does not tell us about the efficacy of the intervention. It simply demonstrates that participants in the experimental and control groups may have been marginally different from each other in maternal reflective functioning.

A series of paired samples t-tests was conducted for both experimental and control groups using scores from the Mindful Attention Awareness scale (MAAS), the Diamond Maternal Reflective Functioning Scale and its sub-scales as dependent variables. A total of 20 participants completed both the pretest and posttest assessments (after completing the Mindfully Parenting Your Baby program). Scores on the Mindful Attention Awareness scale differed significantly from pretest to posttest for participants who participated in the Mindfully Parenting Your Baby program ($t(19) = -2.32$, $p = .03$, $n = 20$). This suggests that the program had a positive impact on mindfulness. The average score on the Mindful Attention Awareness scale before completing the intervention (pretest) was 52.9. After completing the Mindfully Parenting Your Baby program, the average mindfulness score was 57.65. Therefore, we confirm the experimental hypothesis that the mindfulness training did have an effect. To confirm that the training did indeed have an effect, the same analysis was conducted on participants who were initially put on the waitlist, and thus had pre and posttest scores without completing the intervention (i.e. control group). There was no significant difference between pretest (mean = 55.29) and posttest (52.93) scores for participants in the control group ($t(13) = 1.02$, $p = .33$).

Paired samples t-tests were conducted separately on the experimental and control groups comparing pretest and posttest Diamond Maternal Reflective Functioning Scale total scores. The difference between pretest and posttest Diamond Maternal Reflective Functioning Scale total scores was significant for the experimental group ($t(19) = -2.506$, $p = .021$). Scores on the posttest were greater (mean = 36.6) than scores on the pretest (mean = 33.55). The same analysis was conducted on participants' Diamond Maternal Reflective Functioning Scale scores from the control group. The results were not significant. The average Diamond Maternal Reflective Functioning Scale total score for participants in the control group was 34.81 on the pretest and 36.43 on the posttest. The results suggest that the mindfulness intervention did have

a positive effect on Maternal Reflective Functioning, as measured by the Diamond Maternal Reflective Functioning Scale total scores.

Finally, several analyses were conducted on the sub-scales of the Diamond Maternal Reflective Functioning Scale. Because the overall Diamond Maternal Reflective Functioning Scale scores were significantly greater for posttest assessments than pretest in the experimental group, an analysis of the sub-scales may determine exactly which components of maternal reflective functioning are affected by the intervention. To determine whether the Diamond Maternal Reflective Functioning Scale and its sub-scales are actually measuring components of maternal reflective functioning (internal validity), a series of correlational analyses were conducted among the sub-scales and total Diamond Maternal Reflective Functioning Scale scores. We predicted that each sub-scale would have a strong, positive correlation with Diamond Maternal Reflective Functioning Scale total scores, indicating that the particular sub-scale is strongly related to the total maternal reflective functioning score. Additionally, each sub-scale should be positively correlated with the other sub-scales, but with small-to-medium size effect sizes.

As predicted, there was a strong, significant correlation between each sub-scale and the total Diamond Maternal Reflective Functioning Scale scores (Cue Recognition and Diamond Maternal Reflective Functioning Scale total: $r = .86$, $p < .001$; Mentalization and total Diamond Maternal Reflective Functioning Scale: $r = .81$, $p < .001$; Own Childhood Experience and Diamond Maternal Reflective Functioning Scale total: $r = .68$, $p < .001$). Additionally, each subscale was significantly related to the other subscales. The effect sizes of the correlations between each subscale were small to moderate (Cue Recognition and Mentalization: $r = .35$, $p < .001$; Cue Recognition and Own Childhood Experience: $r = .27$, $p < .007$; Mentalization and Own Childhood Experience: $r = .49$, $p < .001$). These correlations were also predicted, and indicate that each sub-scale measures a slightly different, but related, component of a larger construct (Maternal Reflective Functioning) (see Figures 3, 4 and 5).

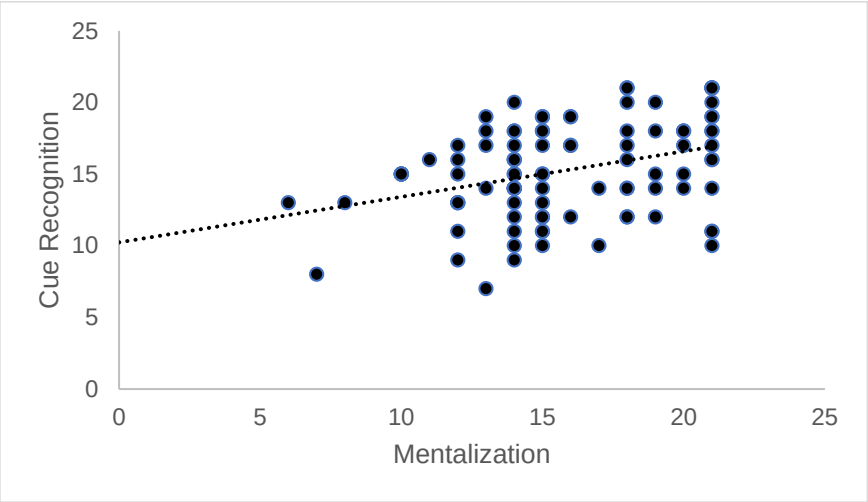


Figure 3: *Scatterplot of Cue Recognition and Mentalization scores*

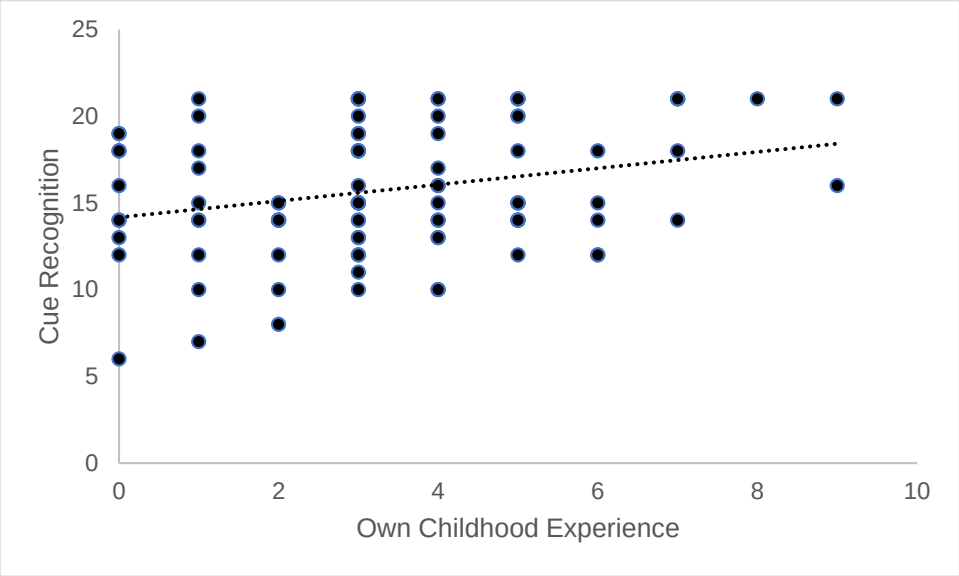


Figure 4: *Scatterplot of Cue Recognition and Own Childhood Experience scores*

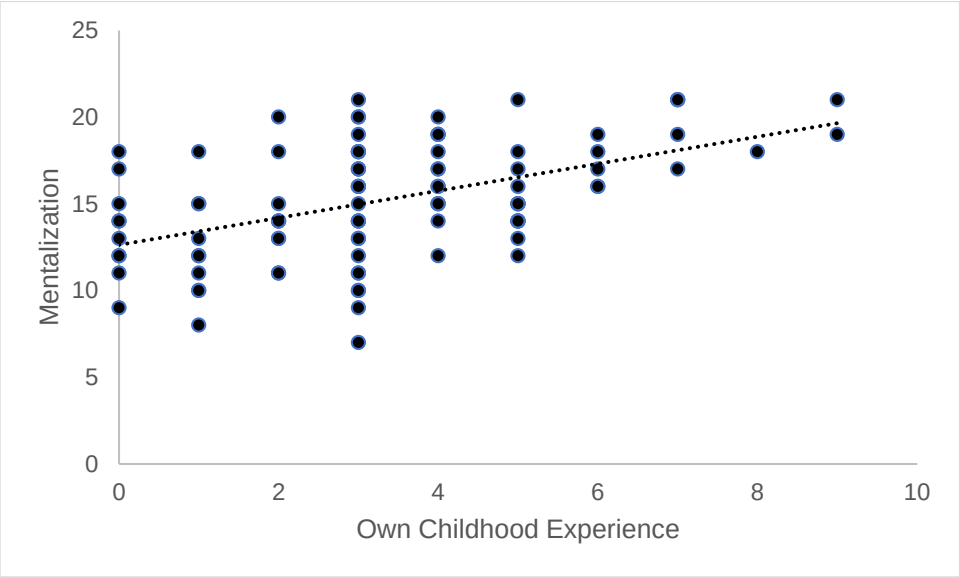


Figure 5: *Scatterplot of Mentalization and Own Childhood Experience scores*

A paired samples t-test was conducted for both the experimental group and control group to measure the difference between pretest and posttest for each sub-scales of the Diamond Maternal Reflective Functioning Scale. There was a significant difference between pretest and posttest for the Cue Recognition sub-scale for the experimental group ($t(19) = -2.65$, $p = .02$). The average score on the Cue Recognition sub-scale was higher after completing the online intervention (at posttest) (mean = 17.4) than pretest (mean = 15.5). This suggests that participants improved their Cue Recognition after completing the intervention. These results must be interpreted cautiously due to the relatively small sample size of participants in the experimental group that completed both the pretest and posttest. The difference between pretest and posttest Cue Recognition scores for the control group was not significant.

There was no significant difference between pretest and posttest for the Mentalization sub-scales for the experimental group. For the experimental group, the average score for mentalization was 15.05 for the pretest, and 16.10 for the posttest ($p = .071$). There was no significant difference between pretest ($M = 14.71$) and posttest ($M = 15.21$) scores for Mentalization for the control group. There was no significant difference between pretest and posttest for the

Own Childhood Experience sub-scale; the average score was 3.00 on the pretest and 3.10 on the posttest (p = .87). For the control group, average score on the Own Childhood Experience sub-scale was 3.14 at the pretest assessment and 3.43 at the posttest assessment (p = .41).

To assess whether the rate of improvement in maternal reflective functioning from pretest to posttest was significantly different in the experimental and control groups, a series of growth curve models were conducted. The null hypotheses posit that there is no difference in the rate of change from pretest to posttest for participants in the intervention and participants in the control condition. Alternatively, the research hypothesis posits that participants in the Mindfully Parenting Your Baby program will experience greater gains from pretest to posttest than participants in the control condition.

The first analysis was conducted using assessment time period (pretest and posttest) and group (experimental versus control) as fixed-effects predictors treating mindfulness scores as the dependent variable. There were no significant main effects of time (pretest versus posttest) ($t(24) = 1.20$, $p = .12$) nor group ($t(40) = 1.44$, $p = .16$). Additionally, the interaction between assessment period and group was not significant, $t(23) = -1.27$, $p = .22$. This suggests that the mindfulness intervention did not affect scores on the mindfulness questionnaire.

A second analysis was conducted using the same fixed-effects predictors, assessment time period and group, and Diamond Maternal Reflective Functioning Scale total scores as the dependent variable. There was a significant main effect of assessment time period, $t(59) = 2.01$, $p = .05$, in which overall Diamond Maternal Reflective Functioning Scale scores were higher at posttest than pretest. However, there was no significant main effect of group ($t(66) = 1.52$, $p = .13$) nor was the interaction between time period and group significant ($t(58) = -1.06$, $p = .30$. This pattern of results suggests that all participants scored higher on the Diamond Maternal Reflective Functioning

Scale at posttest relative to pretest, regardless of whether they were in the intervention or control group (Figure 6).

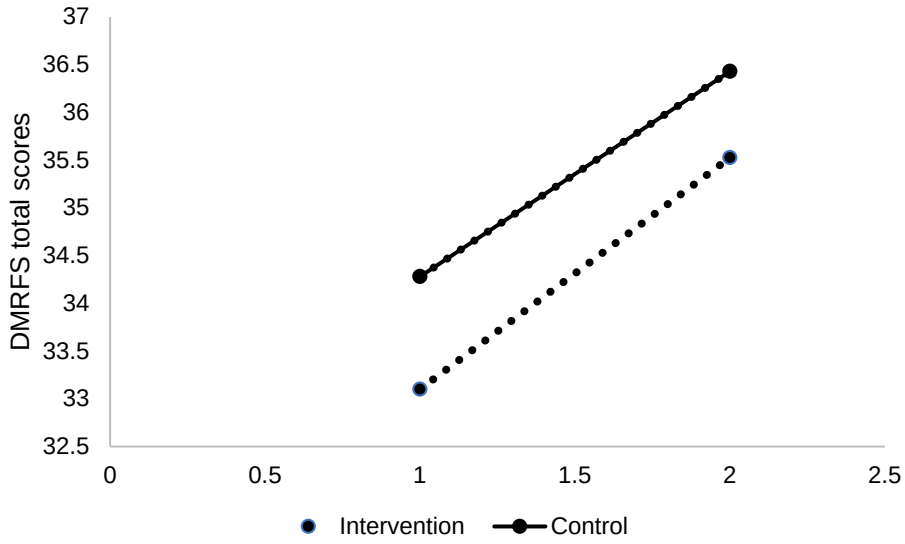


Figure 6: *Pretest and Posttest Diamond Maternal Reflective Functioning Scale scores for the Intervention and Control groups*

Similar analyses were conducted on each of the sub-scales of the Diamond Maternal Reflective Functioning Scale. The analysis in which cue recognition was treated as the dependent variable yielded no significant main effect of assessment period, $t(34) = 1.740$, $p = .091$, in which cue recognition scores were greater at posttest than pretest for both the experimental and control group. The main effect of group was not significant ($t(58) = 1.29$, $p = .20$), nor was the interaction between time period and group ($t(39) = -0.57$, $p = .60$). Again, this pattern of results suggests that participants scored higher on the Cue Recognition subscale at posttest relative to pretest, regardless of whether they were in the intervention or control group (Figure 7). The growth curve model analyses treating Mentalization and Own Childhood Experience as dependent variables did not yield any significant main effects or interactions (see Table 4 for means of Diamond Maternal Reflective Functioning Scale and sub-scales).

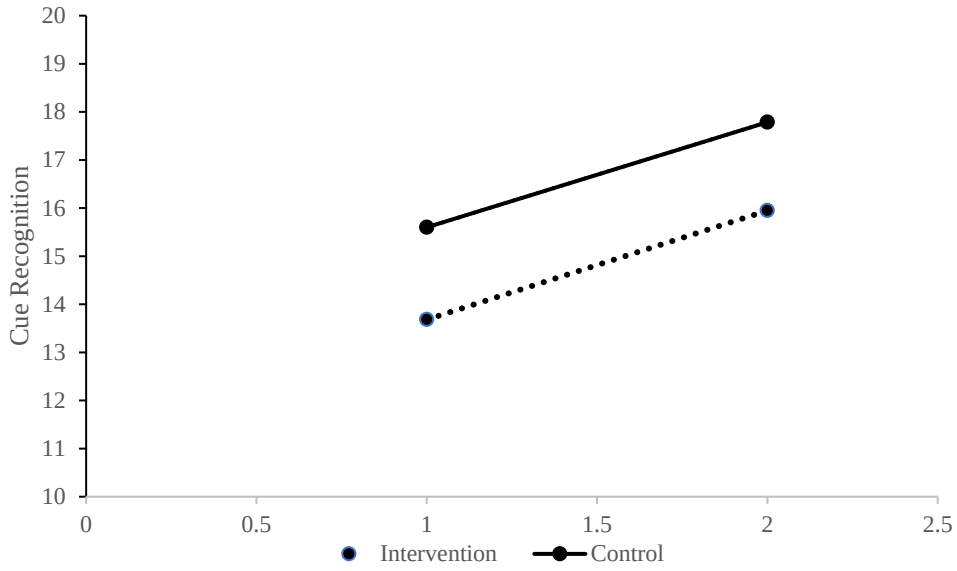


Figure 7. *Pretest and Posttest Cue Recognition scores for the intervention and control group*

Table 4: *Means for Diamond Maternal Reflective Functioning Scale and sub-scales*

	Experimental Group		Control Group	
	Pretest	Posttest	Pretest	Posttest
Diamond Maternal Reflective Functioning Scale total score	33.6	36.6	34.3	36.4
Cue Recognition	15.5	17.4	15.6	17.8
Mentalization	15.1	16.1	15.2	15.2
Own Childhood Experience	3.0	3.1	3.5	3.4

To answer the research question, does the Mindfully Parenting Your Baby program affect Maternal Reflective Functioning, a series of paired-samples t-tests were conducted on scores from the Diamond Maternal Reflective Functioning Scale. The total sample was split into participants who received the intervention (experimental group) and participants who did not initially participate in the Mindfully Parenting Your Baby program (control group). The results suggest that maternal reflective functioning significantly improved from pretest to posttest. On the analysis for the total Diamond Maternal Reflective Functioning Scale scores, posttest scores were greater than scores on the pretest. More specifically, the Cue Recognition sub-scale appears to be driving the difference between pre and posttests in the experimental group. The Mentalization sub-scale scores were also marginally higher at posttest than pretest for the experimental group. Own Childhood Experience was not significantly different from pre to posttest. The control group, pretest and posttest scores on the Diamond Maternal Reflective Functioning Scale from participants who did not participate in the initial intervention, did not yield significant differences between pre and posttests on the total Diamond Maternal Reflective Functioning Scale scores nor any of the sub-scales. This indicates that the intervention was indeed successful, particularly on improving Cue Recognition.

However, results from the growth curve model analyses do not distinguish between the experimental or control groups' improvements in Diamond Maternal Reflective Functioning Scale or cue recognition from pretest to posttest. This implies that the intervention program did not significantly improve maternal reflective functioning any more than the control condition. However, in growth curve models, sample sizes close to 100 are preferred, and the relationship between the number of repeated observations per individual (in the proposed study the maximum repeated observations was n = 20) may affect the outcome (Curran, Obeidat, & Losardo, 2010). Therefore, all results must be

interpreted cautiously due to the high rate of attrition and limited repeated observations included in the model.

Demographic information was also collected from participants in order to examine any potential confounding variables or co-variates that may affect the efficacy of the intervention program. One variable of interest was the age of participants. There were 2 cases of participant(s) aged 21 to 24; 29 cases of participants aged 25-30; 51 cases of participants between the ages of 31 and 35; and 19 cases of participants between the ages of 36 and 40 (note that the number of cases does not equal the sample size of the study. Some participants were included twice because they completed both the pretest and posttest, while those who only completed one session were included once). A one-way repeated measures ANOVA with age groups as the independent variable and Diamond Maternal Reflective Functioning Scale total score as the dependent variable revealed a significant effect of age on Diamond Maternal Reflective Functioning Scale scores, $F(3,97) = 3.612$, $p < .016$. Averaged across pretest and posttest assessments, there is a significant difference in Diamond Maternal Reflective Functioning Scale total scores for different ages.

Follow up pairwise comparisons revealed significant differences between participants aged 21-24 and those aged 25-30 ($p < .002$), those aged 31-35 ($p < .002$), and participants aged 36-40 ($p < .005$). Diamond Maternal Reflective Functioning Scale total scores are significant lower for participants aged 21-24 than all other ages. There were no significant differences between the other three age groups. It might be the case that the maternal reflective functioning intervention is more effective for younger aged participants. Participants aged 21-24 had lower maternal reflective functioning scores than the other age groups, and thus have more room for improvement following the six-week Mindfully Parenting Your Baby program. Future studies could recruit participants from this age range to test the efficacy of the maternal reflective functioning on younger adults.

Additionally, participants provided information as to how many children they had. Across both experimental and control groups, 51 participants reported having only one child. Of those participants, 17 completed both the pretest and posttest assessments (nine in the experimental group; eight in the control group). A paired samples t-test was conducted on all 17 participants who completed both pretest and posttest, and revealed that participants with only one child had higher maternal reflective functioning (overall Diamond Maternal Reflective Functioning Scale scores) on the posttest (mean = 37, SD = 6.49) than the pretest (mean = 33.8, SD = 6.94), $t(16) = -2.457$, $p < .026$. However, separate analyses with participants in the experimental and control conditions did not yield significant results (experimental: $t(8) = -1.676$, $p = .132$; control: $t(7) = -1.823$, $p = .111$). This may be due to small sample sizes and limited statistical power (VanVoorhis & Morgan, 2007). Twenty-nine participants reported having two or more children, ten of whom completed both the pretest and posttest assessments. A paired-sample t-test was conducted on all ten participants who completed both pretest and posttest, and no significant difference of Diamond Maternal Reflective Functioning Scale scores were obtained, $t(9) = -.139$, $p = .890$. The average Diamond Maternal Reflective Functioning Scale total score during the pretest was 34.2 (SD = 8.32), and 34.5 (SD = 8.13) during the posttest.

Research Question 2: Does the Mindfully Parenting Your Baby program affect depression, anxiety, and/or stress?

To examine this research question, a series of paired samples t-tests were conducted on experimental and control groups for participants who completed both the pretest and posttest Depression, Anxiety and Stress Scale (DASS). Several dependent variables were used in the analyses, including: Depression, Anxiety and Stress Scale total score, and the Depression, Anxiety, and Stress sub-scales. Before conducting the analysis, a frequency histogram of the Depression, Anxiety and Stress Scale data was examined for outliers (Figure 8). The frequency histogram of Depression, Anxiety and Stress Scale total

scores appears to approximate a normal distribution. However, Shapiro-Wilk test statistics of Depression, Anxiety and Stress Scale total scores for experimental group and control groups differ significantly from a normal distribution (p = .000, and p = .009, respectively). However, due to the robustness of the t-test and growth curve model analyses, it was not determined to be necessary to conduct a log or other transformation of the data (Ramsey, 1980).

The first group of paired samples t-tests were conducted using pretest and posttest assessments as the independent variable and Depression, Anxiety and Stress Scale total scores as the dependent variable. In the experimental group, there was no significant difference between the average Depression, Anxiety and Stress Scale score at pretest (mean = 14.5) and at posttest (mean = 11.65), t(19) = 1.663, p = .113. There was no significant difference of Depression, Anxiety and Stress Scale scores at pretest (12.23) and posttest (12.38) for the control group, t(12) = -.133, p = .896. This set of results implies that the Mindfully Parenting Your Baby program did not affect overall Depression, Anxiety and Stress Scale scores.

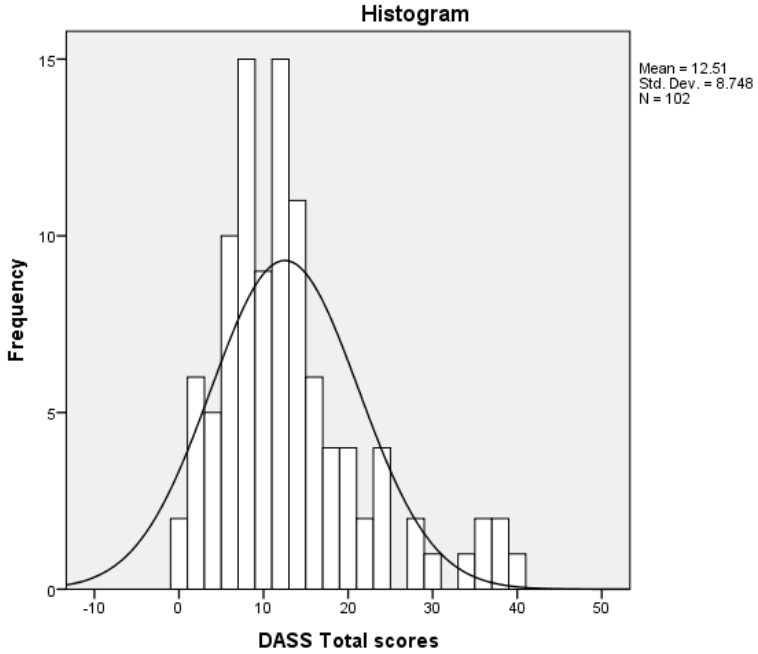


Figure 8: *Frequency histogram of DASS total scores*

Several analyses were conducted on the sub-scales of the Depression, Anxiety and Stress Scale. Although the overall Depression, Anxiety and Stress Scale was not significant, it still might be the case that for one or more of the sub-scales, there is a significant effect of the mindfulness intervention. First, to determine whether the Depression, Anxiety and Stress Scale and its sub-scales actually measure the components of depression, anxiety, and stress, a series of correlational analyses were conducted among the sub-scales and the total Depression, Anxiety and Stress Scale scores. There was a significant correlation between each sub-scale and total Depression, Anxiety and Stress Scale scores (Depression, Anxiety and Stress Scale total and depression: $r = .829$, $p < .001$; Depression, Anxiety and Stress Scale total and anxiety: $r = .886$, $p < .001$; DASS total and stress: $r = .913$, $p < .001$). This indicates that each sub-scale is strongly related to the total Depression, Anxiety and Stress Scale score. Additionally, the sub-scales were all positively correlated. The correlation between Depression and Anxiety subscales was strong, $r = .643$, $p < .001$. There was also a positive correlation between Depression and Stress, $r = .629$, $p < .001$, and a positive correlation between Anxiety and Stress, $r = .699$, $p < .001$.

It was confirmed that the sub-scales are correlated with each other and overall Depression, Anxiety and Stress Scale scores. There was no significant difference between pretest and posttest for depression and stress sub-scales of the Depression, Anxiety and Stress Scale (Table 5). However, there was a significant reduction in anxiety from pretest to posttest in participants who completed the Mindfully Parenting Your Baby program. This suggests that although the Mindfully Parenting Your Baby program did not affect overall Depression, Anxiety and Stress Scale scores, it did significantly reduce the amount of anxiety.

Table 5. *Means and t-test results for Depression, Anxiety and Stress Scale and sub-scales*

	Experimental				Control			
	Pretest	**Posttest**	**t**	**p**	**Pretest**	**Posttest**	**t**	**p**
DASS	14.5	11.7	1.66	.113	12.23	12.38	-.133	.896
Depression	2.95	2.00	1.79	.089	2.64	2.71	-.163	.873
Anxiety	4.20	2.90	2.14	.046	3.50	3.07	.322	.752
Stress	7.35	6.75	.736	.471	6.64	6.50	.298	.770

**note: the means listed in this table only include participants who had scores for both the pretest and posttest assessments*

To assess whether the rate of change in depression, anxiety, and stress from pretest to posttest was significantly different in the experimental and control groups, a series of growth curve models were conducted. The null hypotheses posits that there is no difference in the rate of change from pretest to posttest for participants in the intervention and participants in the control condition. Alternatively, the research hypothesis posits that participants in the Mindfully Parenting Your Baby program will experience greater decreases in depression, anxiety, and/or stress from pretest to posttest than participants in the control condition.

The first analysis was conducted using assessment time period (pretest and posttest) and group (experimental versus control) as fixed-effects predictors treating Depression, Anxiety and Stress Scale total scores as the dependent variable. There were no significant main effects of time (pretest versus posttest) ($t(33) = -1.205$, $p = .248$) nor group ($t(46) = -0.250$, $p = .804$). Additionally, the interaction between assessment period and group was not significant, $t(32) = 1.149$, $p = .259$. This suggests that the Mindfully Parenting Your Baby program did not affect scores on the Depression, Anxiety and Stress Scale.

Similar analyses were conducted on each of the sub-scales of the Depression, Anxiety and Stress Scale. The analysis in which Depression was treated as the dependent variable yielded a marginally significant main effect of assessment period, $t(25) = 1.839$, $p = .078$, in which Depression scores were slightly higher at pretest (2.94) than posttest (2.27) for both the experimental and control group. However, the main effect of group was not significant ($t(18) = -0.653$, $p = .522$), nor was the interaction between time period and group ($t(25) = 1.480$, $p = .151$). This pattern of results suggests that participants scored higher on the Depression subscale at pretest relative to posttest, regardless of whether they were in the intervention or control group. The growth curve model analysis treating anxiety as the dependent variable did not yield any significant main effects (test session: $t(34) = -0.987$, $p = .331$; group: $t(40) = -0.220$, $p = .827$) or interactions (test session*group: $t(33) = 1.258$, $p = .217$). The analysis treating stress as the dependent variable did not yield any significant main effects (test session: $t(47) = .042$, $p = .967$; group: $t(53) = .407$, $p = .686$) or interactions (test session*group: $t(25) = 1.480$, $p = .151$).

To examine the effects of the Mindfully Parenting Your Baby program on Depression, Anxiety, and Stress, a series of correlations, paired-samples t-tests, and growth curve models were conducted. First, the sub-scales on the Depression, Anxiety and Stress Scale were all strongly related to Depression, Anxiety and Stress Scale total scores, and each sub-scale (Depression, Anxiety, and Stress) were all positively correlated. This finding suggests that the Depression, Anxiety and Stress Scale did in fact measure what it was intending to measure. However, no significant differences were observed on pretest and posttest overall Depression, Anxiety and Stress Scale scores, nor any of the sub-scales for the experimental nor the control group. The hypothesis that the Mindfully Parenting Your Baby program would decrease symptoms of depression, anxiety, and stress could not be confirmed by the present data set. The growth curve models confirm this finding. There was no

difference in the rates of change from pretest to posttest for the experimental and control groups.

Exploratory analyses of potential covariates and confounding variables were conducted on participant information that was provided (age, sex, and number of children). There were two cases of participant(s) aged 21 to 24; 29 cases of participants aged 25-30; 51 cases of participants between the ages of 31 and 35; and 19 cases of participants between the ages of 36 and 40 (note that the number of cases does not equal the sample size of the study). Some participants were included twice because they completed both the pretest and posttest, while those who only completed one session were included once). A one-way repeated measures ANOVA with age groups as the independent variable and Depression, Anxiety and Stress Scale total score as the dependent variable revealed no significant effect of age on Depression, Anxiety and Stress Scale scores, $F(3,97) = .965$, $p < .965$.

Another variable of interest was the number of children participants had. Across both experimental and control groups, 51 participants reported having only one child. Of those participants, 19 completed both the pretest and posttest assessments. A paired samples t-test was conducted on all 19 participants who completed both pretest and posttest, and revealed that participants with only one child did not differ from pretest (mean = 12, SD = 4.28) to posttest (mean = 10.79, SD = 5.02) on Depression, Anxiety and Stress Scale scores, $t(18) = -1.121$, $p = .277$. Again, this may be due to small sample sizes and limited statistical power (VanVoorhis & Morgan, 2007). Twenty-nine participants reported having two or more children, eight of whom completed both the pretest and posttest assessments. A paired-sample t-test was conducted on all eight participants who completed both pretest and posttest, and found no significant difference of Depression, Anxiety and Stress Scale scores, $t(7) = -1.758$, $p = .122$. The average Depression, Anxiety and Stress Scale total score during the pretest was 16.5 (SD = 12.04), and 18.25 (SD = 13.38) during the posttest.

Research Question 3: Are maternal reflective functioning scores related to higher parental satisfaction/efficacy/interest scores?

A series of bivariate correlational analyses were conducted in order to determine the relationship between parental satisfaction, efficacy, and interest scores (parental confidence) and maternal reflective functioning scores. There is a strong, positive correlation between Diamond Maternal Reflective Functioning Scale total scores and parental confidence, $r = .661$, $p < .001$. This supports the initial hypothesis pertaining to this research question. As maternal reflective functioning scores increase, parental confidence also increases.

Additionally, there were significant correlations between the Cue Recognition sub-test and parenting confidence ($r = .655$, $p < .001$), Mentalization and parenting confidence ($r = .361$, $p < .001$), and Own Childhood Experience and parenting confidence ($r = .244$, $p < .015$) (see Figures 8, 9 and 10). Although the correlations between each sub-scale of the Diamond Maternal Reflective Functioning Scale and parenting confidence were all significant, it appears that the relationship between Cue Recognition and parenting confidence is the strongest.

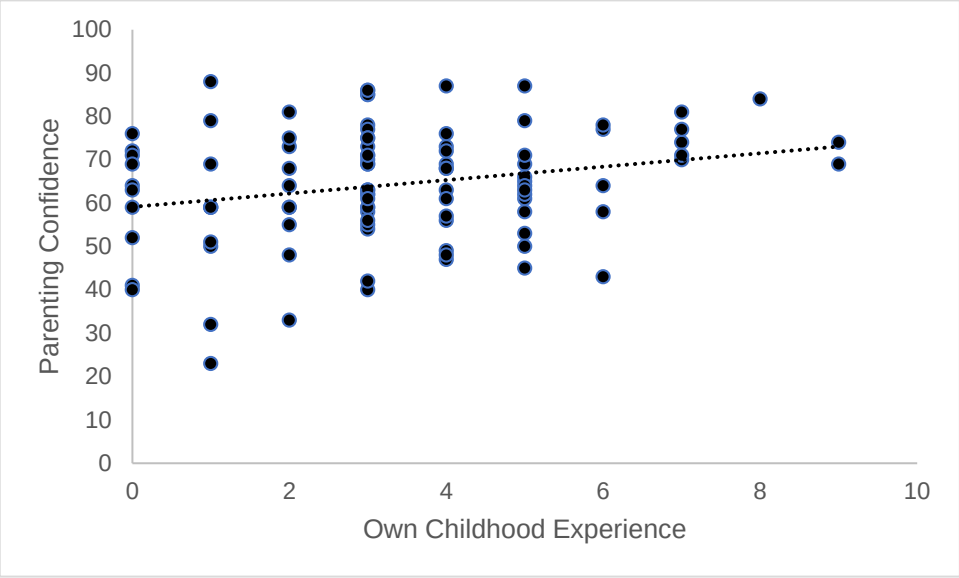


Figure 9: *Scatterplot of Parenting Confidence and Childhood experience*

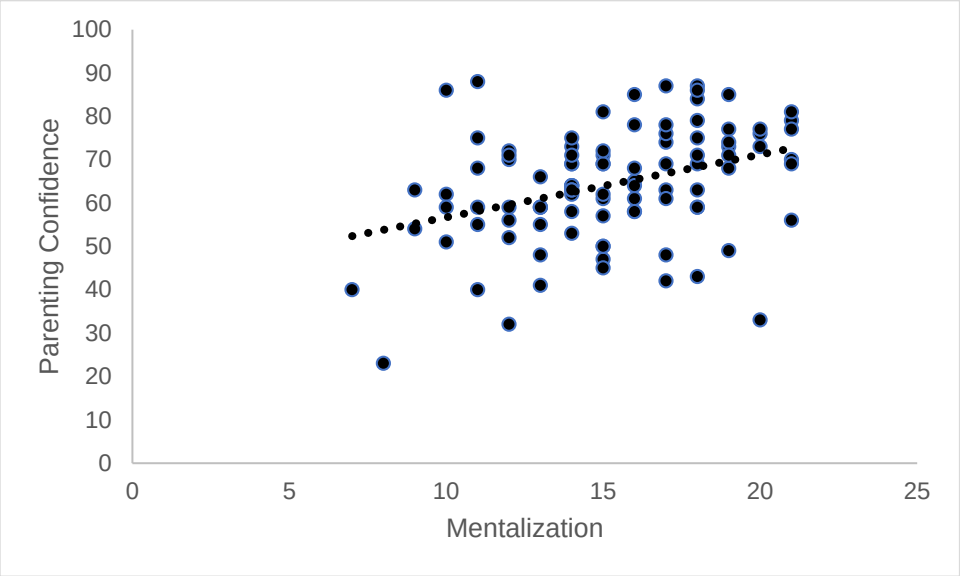


Figure 10: *Scatterplot of Parenting Confidence and Mentalization*

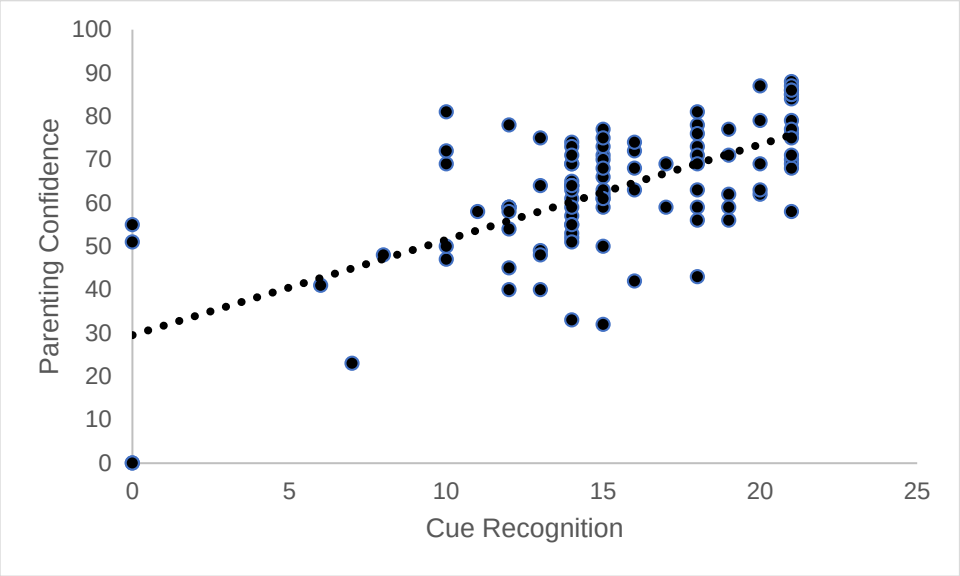


Figure 11: Scatterplot of Parenting Confidence and Cue Recognition

The results pertaining to the research question, “Are maternal reflective functioning scores related to higher parental satisfaction efficacy and interest scores?” appear to support the hypothesis that as maternal reflective functioning increases, parenting confidence also increases. The correlations for the overall Diamond Maternal Reflective Functioning Scale scores and parenting confidence was a strong, positive correlation. Also, each sub-scale of the Diamond Maternal Reflective Functioning Scale was significantly related to parenting confidence.

Chapter 5

Discussion

5.1 Summary of findings

The Mindfully Parenting Your Baby Program is a parenting program for parents with infants under 12 months of age which aims to enhance reflective functioning through mindfulness activities. The present study is one of the first to use empirical methods to examine the effectiveness of an online parenting program to increase reflective functioning in a non-clinical population. The overall results indicate an increase in mindfulness, reflective functioning and parental satisfaction and a decrease in anxiety for participants completing the program, supporting the primary hypotheses. However due to the small sample size, high attrition rate in the wait list group leading to reduced statistical power and the use of a new self-report measure of reflective functioning the results need to be interpreted with caution.

The aim of a Reflective Functioning or Mentalizing parenting program is to engage parents in thinking about their children in terms of the child's internal experience rather than their behaviour – i.e. to increase parental reflective function. These mentalizing skills in turn are believed to enhance a secure attachment and the development of mentalizing abilities in the child. Reflective functioning has proven to be a difficult concept to measure and as this study is trialling the use of a new self-report measure (The Diamond Maternal Reflective Functioning Scale) an exploration of both the quantitative results and an examination of the comments from the participants themselves collected from their weekly blogs will be done. The blogs will be examined for an indication of any changes in how the participants are thinking about their own and their infants' behaviour. When examining the comments in the blogs, it is important to note that participants were not asked any leading questions for their blogs but just given the following instructions: *'At the end of each week you will be asked to write a short reflection of your experience of the program and*

relationship with your baby over the past week. This can be as short as a couple of lines or as long as a page it is totally up to you'. Blogs were only requested of participants while completing the Mindfully Parenting Your Baby program and not of the control/wait list group.

Participants self-selected to participate in the Mindfully Parenting Your Baby program and many of the participants indicated that they were initially drawn or motivated to participate due to previous experience or interest in Mindfulness. The comments in their initial blogs indicated that many participants had been attracted to the program by the idea of becoming more mindful and that they hoped that mindfulness would help them be '*calmer, more relaxed and patient'* and help '*lessen the feeling of competitiveness of parenting'*. Participants indicated a wide variation in experience with Mindfulness prior to beginning the program from those who had previously participated in mindfulness or meditation exercises while pregnant or earlier, to the use of mindfulness colouring-in books, attendance at yoga classes through to some who had no experience but had heard of the term. What all participants indicated was the idea of completing Mindfulness exercises *with* their babies was a new concept for them.

Regardless of prior experience participants who completed the program showed a significant increase in scores on the Mindfulness measure indicating that the program increased participants' general mindfulness. There was no increase in scores for the control group. In fact there was a slight decrease in their mindfulness scores for the same period. These are important results as leaders in Mentalization research consider mindfulness to be one of the best indicators of high levels of mentalization (Bateman & Fonagy, 2013). The comments from participants in their blogs also indicate a crossover of skills between these two concepts. This research is one of the first studies to examine mindfulness with exercises that involve both members of the attachment dyad (i.e. both mother and infant), the *Mindfulness Attention Awareness Scale,* however, only measures dispositional mindfulness in the

individual. The quantitative results indicate an increase in mindfulness traits that relate to emotional and behavioural regulation and wellbeing in the individual, whereas the comments from the blog indicate that mothers are noticing benefits for their babies as well.

Comments from participants' blogs indicated that participants felt the Mindfully Parenting Your Baby program mindfulness exercises were lessening some of the automatized responses (as referred to by Dumas, 2005), in many of their day to day interactions with their babies. *'Being in the moment with my baby has led to lots more eye contact'; 'I have also been practicing lots more of the mindful breathing whist holding him – this has started to make a huge difference when transitioning him into his 'nap space'; 'I love that I have learnt to become mindful of all the little things … it has allowed me to appreciate every moment with my son'; 'I have noticed when I slow my breathing when Jack[*] is on me, he suddenly seems more focused on me- like we are both taking in the moment …he seems to relax more'; and 'Another idea which really stuck out to me was to be present in the process* (rocking daughter to sleep) *instead of just trying to get through it as quick as possible worried that my daughter is going to cry.'*

Many mums recognized that they were often not fully present in the moment, instead caught up thinking about what needed to be done, what they should have done and trying to do multiple things at the same time which led to them feeling time poor and rushed which in turn led to feelings of guilt. Participants commented on noticing a change with how they paced their days after completing the Mindfully Parenting Your Baby program, noting '*At times there feels to be so much pressure to parenting which I feel is exacerbated by social media. Mindfulness has taught me to slow down and take that breath and to understand that I am in control of what I let affect me';* '*I often feel we rush through the day and have enjoyed slowing down',* '*I also agree that finding time for mindfulness improved productivity'; 'I think the program has helped me to*

[*] Names have been changed to protect participant's privacy

slow down and be more present with my baby. I definitely try to put the phone away as much as I can and enjoy and observe my baby, '; 'I noticed in the breathing exercises that my baby's breathing slows and calms with me'. A participant noted that '*Mindfulness forces me to slow down and not get so caught up in the worries and anxieties*' as well as to focus less on '*the things I can't control*'.

Though we are able to see that the Mindfully Parenting Your Baby program did increase mindfulness in the participants who completed the program, the main aim of this study was to examine whether it was possible to increase maternal reflective functioning with a targeted online, mindfulness program. Three primary hypotheses were examined to explore this aim. It was theorized that mothers who completed the program would demonstrate higher maternal reflective functioning, lower scores on measures of anxiety, depression and stress, and overall increased satisfaction in parenting. More specifically it was predicted that participants completing the Mindfully Parenting Your Baby program would show an increase in maternal reflective functioning as measured by the Diamond Maternal Reflective Functioning Scale. Secondly, that participants would show a decrease in scores on anxiety, depression and stress as measured by the Depression Anxiety Stress Scale self-report measure after completing the program. Thirdly after completing the Mindfully Parenting Your Baby program participants would demonstrate increased satisfaction in parenting as measured by the Parental Sense of Competence Scale. The results of this study point to both the validity and complexity of these hypotheses.

The quantitative analysis shows a significant increase in scores on the Diamond Maternal Reflective Functioning Scale from pretest to posttest for participants who completed the Mindfully Parenting Your Baby program. More specifically, the Cue Recognition sub-scale of the Diamond Maternal Reflective Functioning Scale appears to be driving the difference between pre and posttests in the

experimental group. The Mentalization sub-scale scores were also higher at posttest than pretest for the experimental group. The Own Childhood Experience subscale however, was not significantly different from pre to posttest. The scores for the control group for the same period on the Diamond Maternal Reflective Functioning Scale did not show significant differences between pre and posttests on the total Diamond Maternal Reflective Functioning Scale scores nor any of the sub-scales. This indicates that the Mindfully Parenting Your Baby program was successful in enhancing reflective functioning and more specifically improving Cue Recognition.

These results are consistent with the results from an earlier study which also used the Diamond Maternal Reflective Functioning Scale to assess change in reflective functioning, in mothers attending an eight-week Circle of Security DVD group program (Newman, Leehy and Giles, 2015). The participant numbers in this study were comparable to the present study (n=23), with the participants meeting in groups of five to eight over an eight week period. Participants completing the Circle of Security DVD group program showed a significant change on the Diamond Maternal Reflective Functioning Scale with the change also being led by the Cue Recognition subscale.

The Cue Recognition subscale relates to the mother's ability or attempts to recognize and interpret her baby's cues. Participants' reflections in their blogs also reflect a significant increase in awareness of their infants cues: *'It also hit me that he uses a certain tone of language when he's wanting to engage with me – which is very different from the language he uses when he's tired or hungry'; '(I am) Noting how he likes to play but sometimes things suddenly get too overwhelming or stimulating and that's when he needs mum or dad'; 'I have also been more aware of his cues of wanting to be put down or discover something new'; 'I find that he will look at me more and talk to me more when he is interested, and be more agitated and look away when he is not interested in massage'; 'I feel that I have been able to foster a deeper connection with him*

by being more attuned to his signals'; 'The information about the cues is also helpful, I have been guilty of getting in my babies face and kissing him until he gets really annoyed. Knowing the cues that you outlined of him having enough and 'please let me be now' have resulted in less tantrums and more trust'.

The subscale Mentalisation of Infant on the Diamond Maternal Reflective Functioning Scale is believed to relate to the caregiver wondering what the infant's psychological experience may be like. Though this subscale was only approaching a significant difference, in the quantitative analysis between the participants pre and post scores, many of the comments in the blog revealed increasing thought or curiosity about their babies' inner experiences: '*My light bulb moment came … where you spoke about how my reaction when baby is upset etc. affects them … had not spent much time putting myself in 'baby's shoes' so didn't fully understand the impact I have with my responses'; ' I seem to have far more patience when I think more of what she must be feeling'; . '…has led me to realties that I jump in way too much, and also that our play space is a bit overwhelming for our baby, so I've removed some things'; 'It has been beautiful to begin to see things from how he does' and 'Up until now I approached massage from the perspective that Harvey*, even if not particularly engaged at the time, would benefit from the massage (i.e. better sleep etc) and therefore I would keep going unless he was very agitated. Your podcasts have totally reversed this perspective however, and I make the effort now to be much more attuned to his signals'.* It may be that this internal process of mentalization develops more slowly than the externally observable cue recognition subset of skills. Unfortunately in this study only three participants completed the third set of measures which would have allowed a clearer picture of development of the Mentalization of Infant items over a longer time period.

There was no difference in participants' scores for the Own Childhood Experience subscale on the Diamond Maternal Reflective Functioning Scale pre and post program. This subscale relates to the mother's own experience of

being parented within her family of origin. Some of the blog comments from participants indicated there was some thought about these relationships: '*I've been lucky that my Mum has and is that secure base for me' and 'My own relationship with my mother is not a particularly strong one, so I want my son to feel comfortable coming to me for anything'.* Participants with older children also reflected on some of their experiences when their older children were infants '*I found this week a bit challenging in that it brought up a lot of feelings and memories from when my older two children were babies. I had two very different experiences … '.*

These results seem to suggest that maternal reflective functioning is a skill that develops first around noticing and responding to external behaviour or cues, then a developing curiosity about what internal experiences are like for others and finally the more abstract concept of evaluating relationships and internal experiences for self and others in removed time periods. On reflection this would seem to mirror the development of mentalization in securely attached children. Future research could explore whether it is possible to target specific aspects of reflective functioning and how targeted intervention affects the wider skill set. For instance future research could explore whether an intervention focused on developing insight and reflection on the parents' own attachment relationships with their family of origin increase the cue recognition subset of reflective functioning as measured by the Diamond Reflective Functioning measure.

Overall the results from this study indicate that the Mindfully Parenting Your Baby intervention did have a positive effect on Maternal Reflective Functioning as measured by the Diamond Maternal Reflective Functioning Scale. However these results need to be interpreted with caution. The quantitative results showed significant changes in scores on the Diamond Maternal Reflective Functioning Scale when comparing scores from the participants who completed the program (experimental group) with their base line scores. There was no significant difference for the control group participants' measures for the same

time period. However, when we compared the differences found pre and post in the intervention group with the differences found pre and post in the control group the differences between the groups were too small to be considered significant. The pattern of results suggest that on average all participants scored higher on the Diamond Maternal Reflective Functioning Scale at posttest relative to pretest regardless of whether they were in the intervention or control group. This implies that the Mindfully Parenting Your Baby program did not significantly improve maternal reflective functioning for participants completing the program over those who were in the control condition.

This is extremely disappointing on face value but there is likely to be a number of reasons contributing to the non-significant difference between the two groups in the second group of measures. The most likely and obvious is the lack of statistical power due to small group numbers. Sample sizes close to 100 are preferred in the growth curve models that were used to compare the two groups, unfortunately our intervention group was much smaller than this. Due to the design of the study some of the participants from the control group later completed the program and so became part of the intervention group, meaning they would have completed the measure on three occasions also complicating the interpretation.

Maternal Reflective Functioning is not a stagnant skill and is one that could be reasonably expected to increase as the relationship between mother and infant developed, which is exactly what we are seeing with both groups of participants. The act of reading about and choosing to sign up to participate in the Mindfully Parenting Your Baby program and then completing the self-report measures is likely to increase curiosity and reflection about the dyadic relationship and so prompt the development of reflective functioning in this relationship. It could also be reasonably argued that due to the close pre and post time between measures (only six weeks) the differences between the increase in the two groups could continue to grow over time. That is, changes in maternal reflective functioning would be expected to occur over this time period

in both groups, due to the developing relationships between the mothers and their infants. The intervention may widened the gap between the groups and as the relationship grew it could be expected that this trajectory will continue over time. Unfortunately very few of the participants completed the measures as initially proposed six weeks after completing the program to allow us to further explore this theory.

These results are consistent with the reflections from Sadler and colleagues when analysing the development in maternal reflective functioning in their Minding the Baby study (Sadler et al., 2013). This study looked at the development of maternal reflective functioning over a two-year period with participants in the Minding the Baby home visiting program using the Parent Development Interview. Sadler and colleagues found an increase in attachment security as measured by the Strange Situation but not a significant difference in maternal reflective functioning. They concluded that the difficulty in discerning intervention effects could be due to the fact that maternal reflective functioning appears to develop as the parent becomes more experienced with the baby making it difficult to detect changes in reflective functioning in the intervention group over the control group (Sadler, et al., 2013). Sadler and colleagues (2013) also reflected that the Parent Development Interview may not have been the most effective way of assessing change in reflective functioning in this situation.

Rostad's (2014) Circle of Security DVD group study's initial results seemed to suggest that the Circle of Security DVD program actually reduced reflective functioning, as both the Treatment-Control and the Control-Treatment groups reported a decrease in their certainty of their child's mental states after participating in the 8-week intervention. The author concluded that the Treatment-Control groups' scores appeared to recover at the final assessment, indicating that the intervention may have a delayed effect on reflective functioning (Rostad, 2014). Future research could explore whether reflective

functioning is a skill that follows a continued trajectory or whether without further intervention levels out over time.

The demographic of the participants themselves should also be considered. The program is aimed at a non-clinical population who self-selected to participate in the program and so as such were motivated to strengthen their relationship with their infants. Many of the participants themselves reported they had previous experience with mindfulness, had investigated and pursued a number of other educational or supportive media around parenting (participants described participating in baby groups, child health visits, books and websites they had used). It may be that the Diamond Maternal Reflective Functioning Scale does not have the sensitivity to reveal differences with a small sample group over a small period of time with a non-clinical population.

When the Diamond Maternal Reflective Functioning Scale scores were explored for different age groups, a significant difference in Diamond Maternal Reflective Functioning Scale total scores for different ages were found, with scores significantly lower for participants aged 21-24 than all other ages. It might be the case that the Mindfully Parenting Your Baby program is more effective in enhancing maternal reflective functioning for younger aged participants. Participants aged 21-24 had lower maternal reflective functioning scores than the other age groups, and thus had more room for improvement following the six week Mindfully Parenting Your Baby program. It could also be the case that lower maternal functioning scores for any age group would allow more room for improvement and that the rate of improvement naturally flattens out. Analysis also revealed a greater increase in maternal reflective functioning for the mothers completing the program with only one child. This may be due to the amount of available time the mothers had to focus on their child. Future studies could further explore the effect of maternal age and the number of children on the enhancement of maternal reflective functioning.

The second hypotheses for this study was that participants completing the Mindfully Parenting Your Baby program would show a decrease in scores on anxiety, depression and stress as measured by the Depression Anxiety Stress Scale self-report measure. There was no significant decrease in the overall Depression Anxiety Stress Scale scores from pretest to posttest for the intervention group. However, there was a significant reduction in anxiety from baseline to post-intervention for the intervention group. All of the scores on the subscales and overall on the Depression Anxiety Stress Scale showed a decrease in actual averages from pretest to posttest for the intervention group. This was not the case for the control group whose mean scores remained quite similar or increased across the time period. These results are consistent with previous mindfulness research demonstrating mindfulness as a proven intervention for anxiety. What is interesting is the lack of significant results for an improvement in depressive symptoms. This again may be due to the short time frame, the majority of mindfulness based treatments run for an average of eight sessions (Hofmann et al, 2010). This may also be a symptom that improves over time and could be explored in future research.

Though the scores on the Anxiety subscale demonstrated a significant decrease from baseline to post intervention for the participants completing the Mindfully Parenting Your Baby program, growth curve models again were not able to demonstrate a significant difference between the intervention and control groups post-intervention. This may have been due to a higher baseline score for the intervention group and again most likely can be attributed to small group numbers and the short time period. As the Mindfully Parenting Your Baby program did not purport to address participant anxiety directly, the significant change in a relatively short period of time is a strong finding. It is interesting to note that the Stress subscale remained relatively stable in the same period reflecting that for many of the participants day-to-day stress was a constant. Some of the participants returned to work during the program or had returned to work not long before beginning the program and reflected on the added stress

this put on their parenting. The comments from participants themselves in their blogs indicated a noticeable lessening of their anxiety and provide an insight into the participants experience especially when noting that participants were not asked to specifically comment on anxiety: *'I have noticed a huge difference to my level of anxiety'; 'I really am enjoying this course and feeling some of my anxiety slip away'; 'Listening to your podcasts I felt I was able to let go of more of those negative self-doubting thoughts and just watch them go by'; 'I truly thank you for a fantastic course and for making me take time for me and my baby. I think it came at just the right time as I was starting to feel anxious and overwhelmed at being mum'.*

Participants often reflected in their blogs of situations they noticed becoming less overwhelmed in and the effects this had on themselves and their babies: '*I felt myself getting anxious, impatient and worked up. I was worried that he wants to wean off me and that I would lose that connection as well as being away from him during work hours. I was getting quite upset. I did the breathing techniques and again after maybe 10 breathes this time and standing Ben* on my lap looking at me we both calmed. He was able to latch, I continued the breathing and felt my milk let down so much quicker than usual, leading to a happy mummy and a very content baby. It worked again!'; 'Today was a challenging day. My baby woke with a fever quite early and barely slept all day. I would usually find these 2 things quite overwhelming but it didn't seem to bother me for the first time, possibly ever'; 'Harry* was picking up on these anxieties and would have trouble settling. I have started to slow my breathing whilst rocking him … I have found this has made a big difference to our nap times, and more often than not, it does not take long to settle Harry* into sleep'.* These comments certainly reflect a growing understanding of the connection between mothers and infants' internal states and external behaviours.

The final hypothesis theorized that higher maternal reflective functioning scores will be positively correlated with higher parental satisfaction, efficacy and interest and that after completing the Mindfully Parenting Your Baby program

participants would demonstrate increased satisfaction in parenting as measured by the Parental Sense of Competence scale. The correlations for the overall Diamond Maternal Reflective Functioning Scale scores and the Parental Sense of Competence scale was a strong, positive correlation. Also, each sub-scale of the Diamond Maternal Reflective Functioning Scale was significantly related to parenting confidence with the relationship between the subscale cue recognition and parenting confidence being the strongest. Both the quantitative analysis and the comments from participants themselves appear to support the hypothesis that as maternal reflective functioning increases, parenting confidence also increases: '*Accepting that my son is different in his needs made it easier to be less judgmental of myself'; 'Thanks for teaching me how to better enjoy my baby. It has helped provide the foundation of a strong relationship that I hope to keep this way his entire life';* '*I would be devastated if my daughter was trying to connect with me and I was rushing through the moment ignoring her. Thinking of this has completely changed my interactions with my daughter this week and I have enjoyed the tasks I used to find mundane such as feeding, changing nappies, bathing and my daughter has enjoyed the time too. It feels like we have slowed down and have more smiles and eye contact than before'; 'It has been really powerful for me'; 'I think these will be skills that I can practice over time that will be invaluable as he grows older'; 'I like to feel that I'm making a more conscious connection with my baby' 'We have thoroughly enjoyed our sessions and will continue to refer back to each podcast as needed'.*

5.2 Reflections on the Diamond Reflective Functioning measure

The primary hypothesis of this study concerned the outcome of reflective functioning and whether participation in the Mindfully Parenting Your Baby Program would be able to enhance a participant's maternal reflective functioning. Time and money constraints precluded the use of established reflective functioning measures that involve scoring protocols of lengthy interviews such as the Parent Development Interview and Adult Attachment Interview and as such a new self-report measure of maternal reflective

functioning was chosen. One of the aims of this study was to further investigate the sensitivity of the Diamond Maternal Reflective Functioning Scale as a pre and post outcome measure in research with a non-clinical population.

The measure was well accepted by participants with no confusion or refusal to complete noted. One of the difficulties, as raised by Fonagy et al. (2016), of assessing reflective functioning by self-report is the need for the very skill itself to accurately complete the questionnaire. There is a general expectation that individuals will be biased in regard to their own capacity for reflective functioning and those with limited reflective ability may still have a firm belief in their abilities and so rate a question, such as *I am aware of my baby's cues,* highly regardless of the observable evidence. Though the blogs from participants seem to indicate that participants are developing a genuine capacity for reflection about their infants as separate from themselves the self-report nature of the questionnaire remains vulnerable to this criticism. Another difficulty of using a self-report questionnaire of reflective functioning as a pre and post measure is that it assesses reflective functioning retrospectively and not during a social interaction, when stress and arousal levels are typically much higher and so is vulnerable to the mood and memory of the participant at a particular instance in time. Despite these limitations the results suggest that the measure was able to detect differences in the pre and post responses of participants.

It was not possible in this study to correlate the results from the pre and post Diamond Reflective Functioning Scale with another established measure of reflective functioning however the results from the scale were correlated with the other measures used in the study in the expected direction (i.e. increases in mindfulness and parental satisfaction were positively correlated with increases in the Diamond Maternal Reflective Functioning scale). The results from the scale also appear to be consistent with the participants blogs which seem to show an increased curiosity and reflection of the internal states and cues of their infants, core elements of maternal reflective functioning.

This study along with results from a similar study (Newman, Leehy & Giles, 2015) provides preliminary evidence that the Diamond Reflective Functioning Scale is sensitive to change and able to be used as a pre and post measure of psychosocial interventions. The Cue Recognition subscale appears to be the most sensitive to change with the Mentalization subscale also showing change in the expected direction. The Own Childhood Experience subscale did not indicate significant difference in either study and further investigation is needed to examine if this is a result of the interventions themselves, the relatively short time between the pre and post completion of the questionnaire or the construct itself.

Though, the Diamond Maternal Reflective Functioning Scale will never be able to yield the detailed and clinically rich information that can be obtained through interview or observer based methods, the scale nonetheless shows potential as a pre and post measure for both research and psychosocial interventions. Further research is needed with a larger more diverse sample. It would also be useful to correlate the scale with a measure of attachment such as the Strange Situation protocol.

5.3 Limitations

The results of this study need to be viewed in the light of methodological issues which restrict the conclusions that can be drawn from the results. This was a pilot study with a small sample size of predominantly Caucasian participants, with a medium to high education level. Research suggests that both these factors (ethnicity and economic status) are associated with complementary and alternative medicine use among the general population, this may have influenced the compilation of the sample as participants self-selected to participate in the study (Tindle, Davis, Philips & Eisenberg, 2005). Recruitment was predominantly through social media outlets, as more information comes to light about how this media uses algorithms, it has become increasingly evident

that this would also have influenced who received information about the program and therefore the sample selection.

The greatest limitation were the difficulties with recruitment and attrition which compromised the power of the study. The low numbers compromised the power for many of the analyses, and thus, all results need to be considered within the context of this limitation. Multiple findings were marginally or approaching significance, limiting conclusions regarding these outcomes to the current sample under the study; had greater numbers been recruited and retained, those results may have reached statistical significance. Though there was considerable interest shown for the Mindfully Parenting Your Baby program, demonstrating the face validity of the program, many of the participants allocated to the control/wait list group did not complete the program or the final measures. This may have been due to changing circumstances or interest. Recruitment was through social media and there was no individual contact with participants, participants may have signed up on the spur of the moment and then found interest and free time waned when asked to wait for six – eight weeks before beginning the program.

The age of their baby may also have influenced participation with some participants noting some exercises were more difficult to complete as their babies became more mobile – waiting for 6 – 8 weeks to begin the program can make quite a difference to this aspect of an infant's life. Other participants commented on the difficulty of completing the exercises in the set time when they also had a toddler or other children: *I also found it was rare that my baby was awake to do the exercises when my toddler was asleep.* Also many participants noted the feeling of pressure to try and complete each weeks exercises in the allocated time and commented that this constraint had led to some not being able to complete the program in the set time: *I am finding it hard to find the time to listen to the podcasts within the week; Unfortunately I wasn't able to complete the whole 6 weeks however I do intend to engage with the rest of the podcasts eventually; I loved this program but was*

a little tardy with keeping up to date with the podcasts and blogs. I found that I liked to focus on the concepts/tasks for a little more than a week. (suggested 2 week framework may have been more manageable); Another barrier was my anxiety itself, it actually made me stressed to do the program because it was a weekly thing and I needed to do a reflection every week and then I was behind. Some participants noted how unexpected events like illness or visitors staying interfered with their ability to complete each weeks exercises.

Another limitation of the study was the use of only self-report measures, these measures all relied on participant's self-report of relationships, behaviours, parenting practices, mood and past experiences. Previous research has shown that self-report measures are vulnerable to limitations in self-knowledge and biases as well as social desirability factors (Fonagy et al, 2016; Nosek, Hawkins & Frazier, 2011). The anonymity that comes with the program being offered online may may have helped negate some of these biases, as well as the weekly blog reflections which make it more likely that participants responses on questionnaires were consistent with their reported behaviours.

5.4 Future research

Despite the limitations the current study provides a foundation for future research of both the practicality of the Mindfully Parenting Your Baby online program itself, similar online programs and the Diamond Maternal Reflective Functioning Scale.

Future research could compare the online Mindfully Parenting Your Baby outcomes with outcomes from the group program. The blog element of the online program at face value would seem to be a crucial component to the success of enhancing reflective functioning, future research could compare outcomes of the program with participants who did not complete the blog.

The low participant numbers limit many of the findings so future research with a larger and more diverse participant group could further explore the difference in

the effect of maternal age, socio-economic status and the number of children on the enhancement of maternal reflective functioning. Also, this study included only mothers, and thus replication of findings in fathers is needed.

Future research utilizing collateral measures of reflective functioning as well as additional waves of data collection is needed to clarify findings around the Diamond Maternal Reflective Functioning Scale.

5.5 Conclusion

This is one of the first studies to demonstrate that it is possible to enhance maternal reflective functioning through an online program. This is a significant finding for many families as time and distance can make it difficult to participate in face to face intervention or programs. The cost of running programs over a number of weeks also means that often these programs are only offered to those identified with the greatest need. Therefore the results suggesting the Mindfully Parenting Your Baby Program can enhance reflective functioning online for a nonclinical sample are very encouraging. The program itself was well accepted and interest was expressed from a wide range of mothers in different locations and demographics.

Despite limitations in statistical power, the current study provides a foundation for research on the effectiveness of an online program for new mothers and babies and suggests future directions for a more rigorous study. It also provides preliminary evidence of the robustness for the new Diamond Maternal Reflective Functioning Scale as a suitable pre and post measure for psychosocial intervention in this area. Notwithstanding overall small participant numbers the interaction effects were all in the hypothesised direction with the results from the measures consistent with the participants' reflections in their weekly blogs.

The Mindfully Parenting Your Baby online program holds promise as a brief intervention for new families. With the final reflections rightly going to the participants themselves:

I have decided to this week put away my phone while I am feeding my baby so we can enjoy the moment and he can see me gazing back at him instead of away from him at a screen. He is enjoying my undivided attention.;

It's been beautiful to begin to see things from how he does. What does my face look like? What can he see? Wondering what he is thinking?;

I have found it challenging to prioritise these podcasts as there seems to be so many other things that I need to do – which highlights the need to engage with them all the more! ;

I've found every week spending time doing the podcasts and exercises really nice. I like to feel that I'm making a more conscious connection with my baby.;

I am really enjoying this course and feeling some of my anxiety slip away.;
We have thoroughly enjoyed our sessions and will continue to refer back to each podcast as needed.;

I truly thank you for a fantastic course and for making me take time for me and my baby. I think it came at just the right time as I was starting to feel anxious and overwhelmed at being a mum.;

I have really liked this program. … I think the program has helped me to slow down and be more present with my baby.

Thankyou for teaching me how to better enjoy my baby. It has helped provide the foundation of a strong relationship that I hope to keep this way his entire life.;

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Appendix A

Ethics Approval

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Appendix B

Ethics Amendment

This administrative form has been removed

Appendix C

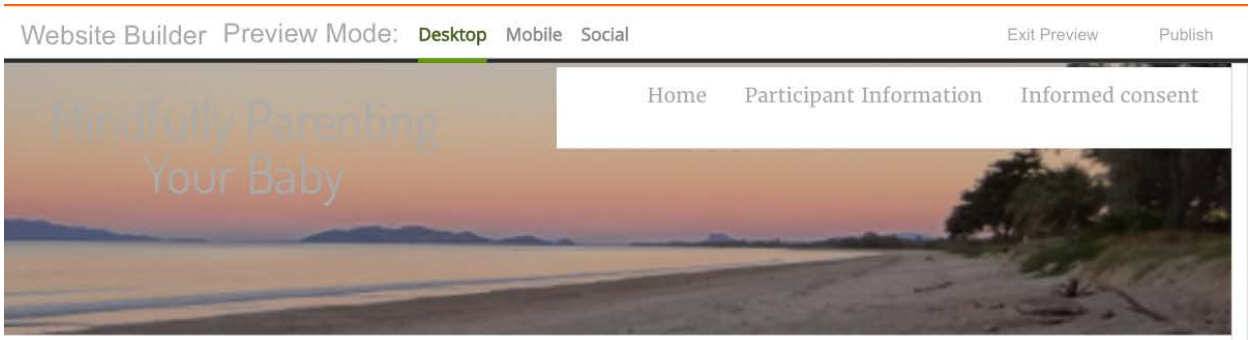
Mindfully Parenting Your Baby Website



Mindfully Parenting Your Baby Website (cont.)



Mindfully Parenting Your Baby Website (cont)



INFORMED CONSENT FORM

PRINCIPAL INVESTIGATOR: Ms Charmain Newman
SUPERVISOR: Associate Professor Nerina Caltabiano
PROJECT TITLE: Enhancing Reflective Functioning in a Mindful way.

I understand the aim of this research study is to investigate the effects of an online mindful parenting program. I consent to participate in this project, I have read the Participant Information page and am aware of how to obtain further information.

I understand my participation will involve completing some questionnaires and participating in a 6 week mindfulness program including writing a short reflection each week about myself and my baby and I agree that the researcher may use the results as described on the Participants Information page.

I acknowledge that:

- any risks and possible effects of participating in the *Mindfully Parenting Your Baby* program and completing the questionnaires have been explained to my satisfaction;
- taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
- that any information I give will be kept strictly confidential and that no names will be used to identify me with this study without my approval;
- I will recieve a brief report of the results at the end of this study

If you would like to take part in this study please indicate your consent by entering a username and valid email in the space below and then indicating your eligibility, you will be then taken to the initial questionnaires.

Username: *

Enter text here

Email: *

Enter email address

I am 18 years of age or older *

I am the primary carer for a baby under 12 months of age *

I am an Australian resident *

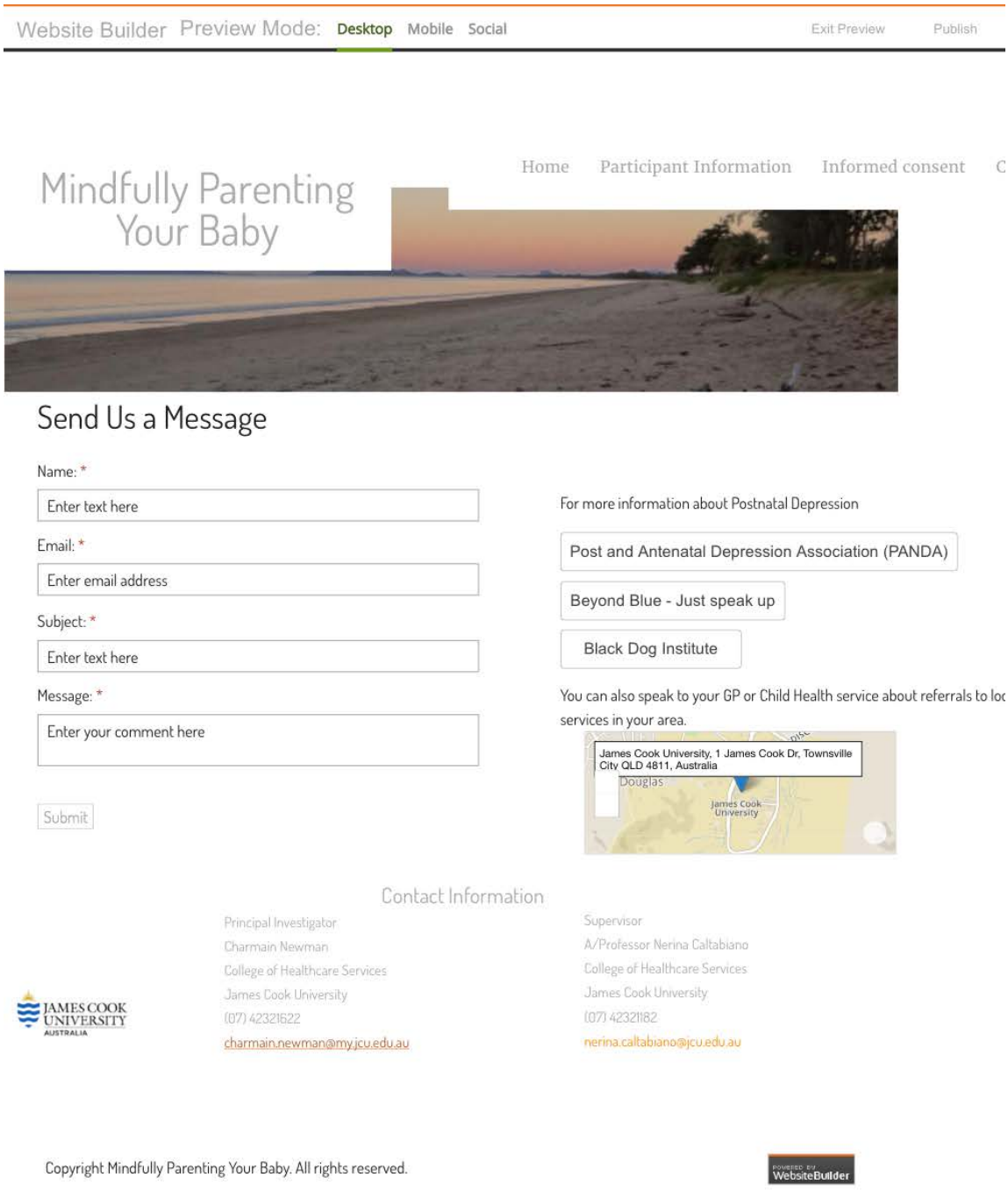
I consent to complete questionnaires *

I consent to participate in the Mindfully Parenting Your Baby Program *

[If you have checked all of the above requirements you will be directed to the online questionnaires when you click submit]

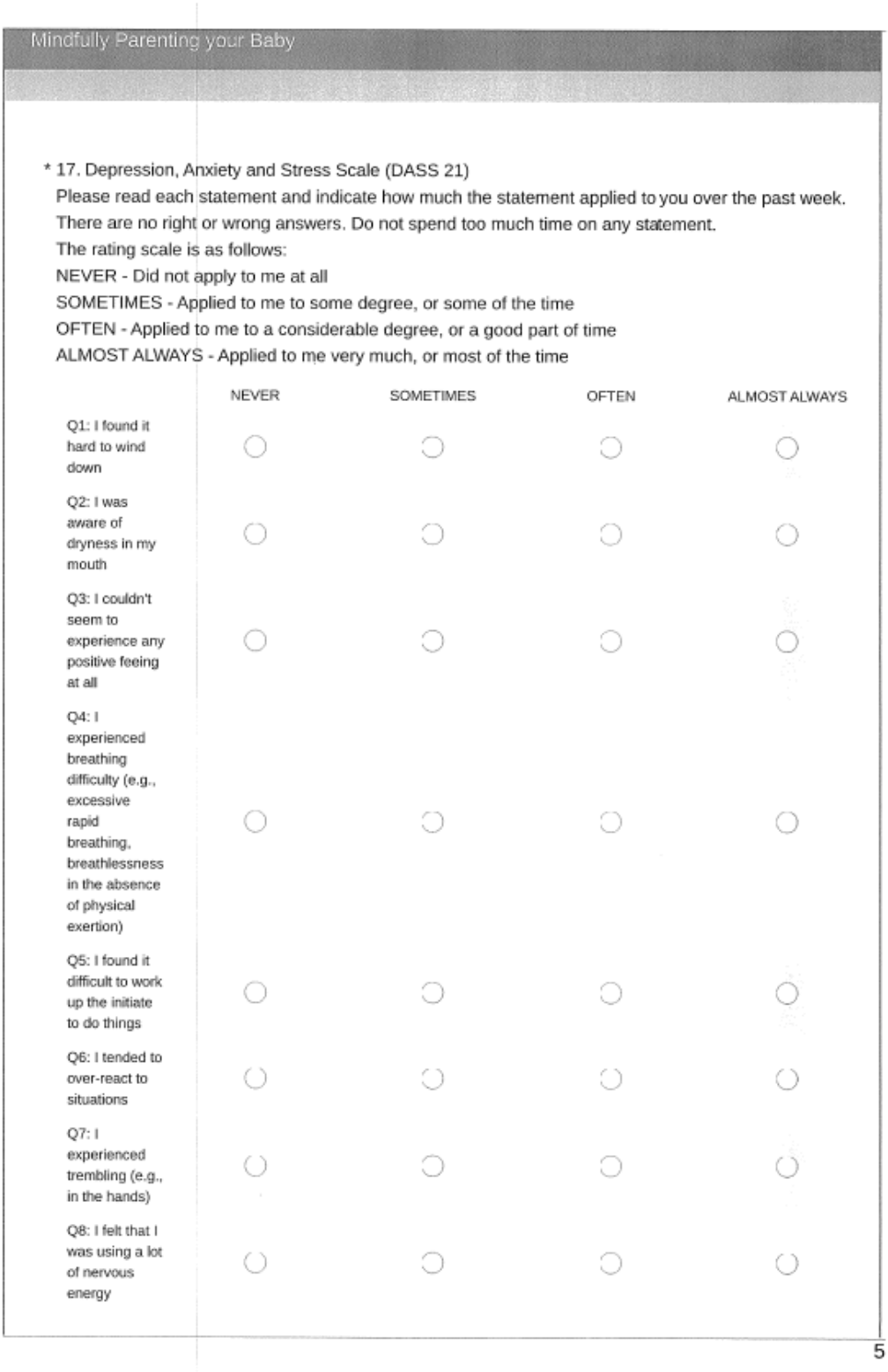
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Mindfully Parenting Your Baby Website (cont.)



Appendix D

Depression, Anxiety and Stress Scale (21)



Mindfully Parenting your Baby

* 17. Depression, Anxiety and Stress Scale (DASS 21)

Please read each statement and indicate how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

NEVER - Did not apply to me at all

SOMETIMES - Applied to me to some degree, or some of the time

OFTEN - Applied to me to a considerable degree, or a good part of time

ALMOST ALWAYS - Applied to me very much, or most of the time

	NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
Q1: I found it hard to wind down	○	○	○	○
Q2: I was aware of dryness in my mouth	○	○	○	○
Q3: I couldn't seem to experience any positive feeing at all	○	○	○	○
Q4: I experienced breathing difficulty (e.g., excessive rapid breathing, breathlessness in the absence of physical exertion)	○	○	○	○
Q5: I found it difficult to work up the initiate to do things	○	○	○	○
Q6: I tended to over-react to situations	○	○	○	○
Q7: I experienced trembling (e.g., in the hands)	○	○	○	○
Q8: I felt that I was using a lot of nervous energy	○	○	○	○

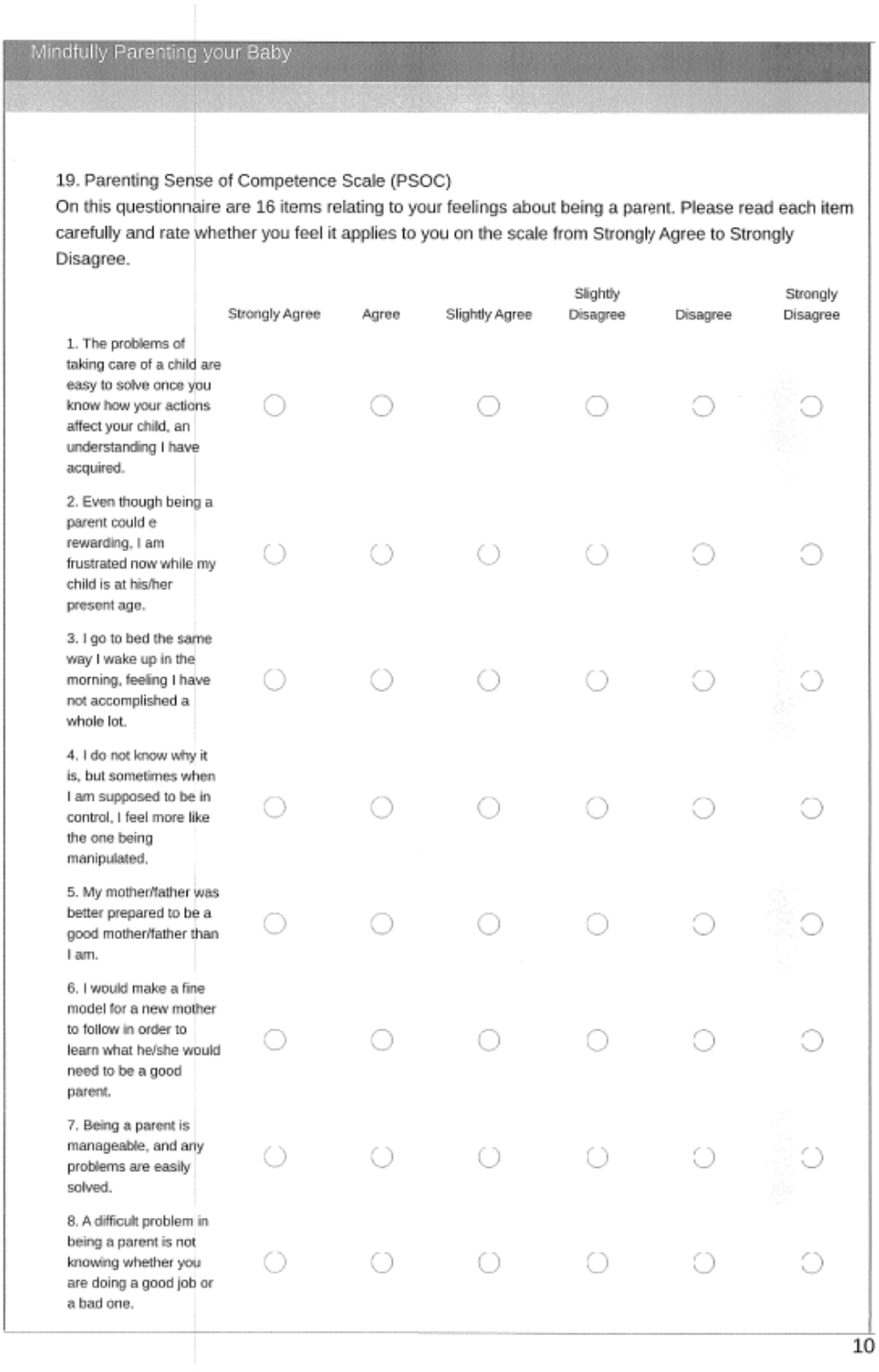
5

	NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
Q9: I was worried about situations in which I might panic and make a fool of myself	○	○	○	○
Q10: I flt that I had nothing to look forward to	○	○	○	○
Q11: I found myself getting agitated	○	○	○	○
Q12: I found it difficult to relax	○	○	○	○
Q13: I felt down-hearted and blue	○	○	○	○
Q14: I was intolerant of anything that kept me from getting on with what I was doing	○	○	○	○
Q15: I felt I was close to panic	○	○	○	○
Q16: I was unable to become enthusiastic about anything	○	○	○	○
Q17: I felt I wasn't worth much as a person	○	○	○	○
Q18: I felt that I was rather touchy	○	○	○	○
Q19: I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	○	○	○	○

	NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
Q20: I felt scared without any good reason	○	○	○	○
Q21: I felt that life was meaningless	○	○	○	○

Appendix E

Parenting Sense of Competence Scale



Mindfully Parenting your Baby

19. Parenting Sense of Competence Scale (PSOC)

On this questionnaire are 16 items relating to your feelings about being a parent. Please read each item carefully and rate whether you feel it applies to you on the scale from Strongly Agree to Strongly Disagree.

	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
1. The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.	○	○	○	○	○	○
2. Even though being a parent could e rewarding, I am frustrated now while my child is at his/her present age.	○	○	○	○	○	○
3. I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot.	○	○	○	○	○	○
4. I do not know why it is, but sometimes when I am supposed to be in control, I feel more like the one being manipulated.	○	○	○	○	○	○
5. My mother/father was better prepared to be a good mother/father than I am.	○	○	○	○	○	○
6. I would make a fine model for a new mother to follow in order to learn what he/she would need to be a good parent.	○	○	○	○	○	○
7. Being a parent is manageable, and any problems are easily solved.	○	○	○	○	○	○
8. A difficult problem in being a parent is not knowing whether you are doing a good job or a bad one.	○	○	○	○	○	○

10

	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
9. Sometimes I feel like I am not getting anything done.	○	○	○	○	○	○
10. I meet my own personal expectations for expertise in caring for my child.	○	○	○	○	○	○
11. If anyone can find the answer to what is troubling my child, I am the one.	○	○	○	○	○	○
12. My talents and interests are in other areas, not in being a parent.	○	○	○	○	○	○
13. Considering how long I have been a mother, I feel thoroughly familiar with this role.	○	○	○	○	○	○
14. If being a mother/father were only more interesting, I would be motivated to do a better job as a parent.	○	○	○	○	○	○
15. I honestly believe that I have all the skills necessary to be a good mother to my child.	○	○	○	○	○	○
16. Being a parent makes me tense and anxious.	○	○	○	○	○	○

Appendix F

Mindful Attention Awareness Scale

18.

Mindful Attention Awareness Scale (MASS)

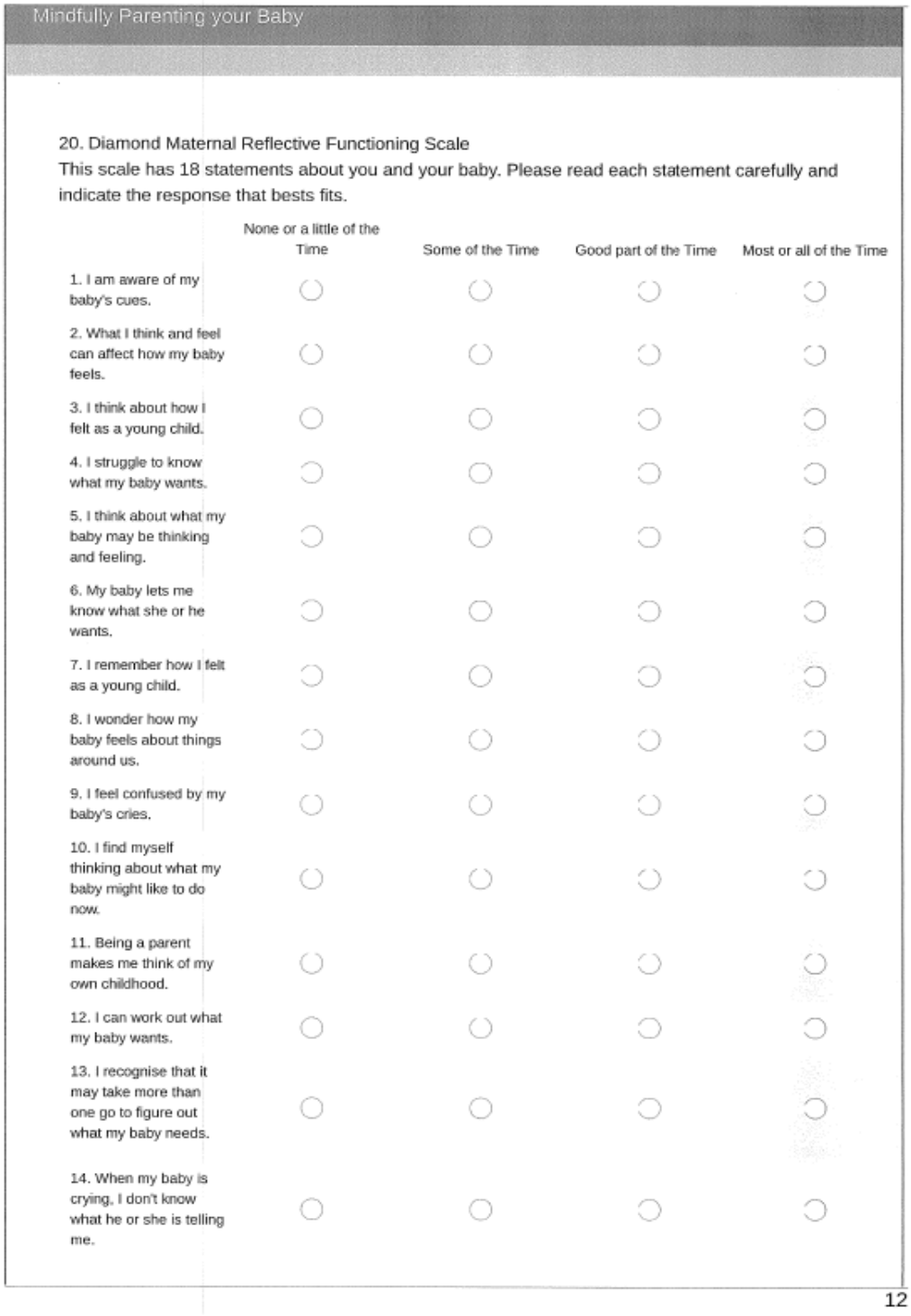
Instructions: Below is a collection of statements about your everyday experience. Using the scale (from Almost Always - Almost Never) below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be. Please treat each item separately from every other item.

	Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never
I could be experiencing some emotion and not be conscious of it until some time later	○	○	○	○	○	○
I break or spill things because of carelessness, not paying attention, or thinking of something else	○	○	○	○	○	○
I find it difficult to stay focused on what's happening in the present	○	○	○	○	○	○
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	○	○	○	○	○	○
I tend not to notice feelings of physical tension or discomfort until they really grab my attention	○	○	○	○	○	○
I forget a person's name almost as soon as I've been told it for the first time	○	○	○	○	○	○
It seems I am "running on automatic,"without much awareness of what I'm doing	○	○	○	○	○	○
I rush through activities without being really attentive to them	○	○	○	○	○	○

	Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	○	○	○	○	○	○
I do jobs or tasks automatically, without being aware of what I'm doing	○	○	○	○	○	○
I find myself listening to someone with one ear, doing something else at the same time	○	○	○	○	○	○
I drive places on 'automatic pilot' and then wonder why I went there	○	○	○	○	○	○
I find myself preoccupied with the future or the past	○	○	○	○	○	○
I find myself doing things without paying attention	○	○	○	○	○	○
I snack without being aware that I'm eating	○	○	○	○	○	○

Appendix G

Diamond Maternal Reflective Functioning Scale



Mindfully Parenting your Baby

20. Diamond Maternal Reflective Functioning Scale

This scale has 18 statements about you and your baby. Please read each statement carefully and indicate the response that bests fits.

	None or a little of the Time	Some of the Time	Good part of the Time	Most or all of the Time
1. I am aware of my baby's cues.	○	○	○	○
2. What I think and feel can affect how my baby feels.	○	○	○	○
3. I think about how I felt as a young child.	○	○	○	○
4. I struggle to know what my baby wants.	○	○	○	○
5. I think about what my baby may be thinking and feeling.	○	○	○	○
6. My baby lets me know what she or he wants.	○	○	○	○
7. I remember how I felt as a young child.	○	○	○	○
8. I wonder how my baby feels about things around us.	○	○	○	○
9. I feel confused by my baby's cries.	○	○	○	○
10. I find myself thinking about what my baby might like to do now.	○	○	○	○
11. Being a parent makes me think of my own childhood.	○	○	○	○
12. I can work out what my baby wants.	○	○	○	○
13. I recognise that it may take more than one go to figure out what my baby needs.	○	○	○	○
14. When my baby is crying, I don't know what he or she is telling me.	○	○	○	○

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	None or a little of the Time	Some of the Time	Good part of the Time	Most or all of the Time
16. I try to work out what my baby is communicating.	○	○	○	○
17. I can work out what my baby needs.	○	○	○	○
18. My baby can pick up on my feelings.	○	○	○	○

Appendix H

Participant Informed Consent Sheet

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Appendix I

Mindfully Parenting your Baby
Participant Information Sheet

You are invited to take part in a research project about Mindfully parenting your baby. The study is being conducted by Ms Charmain Newman and will contribute to the degree in Doctor of Psychology at James Cook University.

If you agree to be involved in the study, you will be invited to participate in a 6-week online mindfulness program – *Mindfully Parenting your Baby.* You will then be randomly assigned to either a wait-list group or a participant group. The wait-list group will be asked to complete some questionnaires and then wait 6 weeks before completing the program.

Mindfully Parenting your Baby is a 6 week online program for parents with babies aged 0 – 12 months. The program uses mindfulness and reflection to enhance attachment and the experience of parenting.

The *Mindfully Parenting your Baby program* consists of a number of short podcasts and mindfulness exercises which will be sent to you each week by email. The podcasts will provide information about infant social and emotional development, mindfulness and attachment. The mindfulness exercises will focus on using mindfulness in everyday living using breathing and awareness to bring our attention into the present moment. The podcasts and exercises are designed to fit in with your day and can be listened to while you are doing other tasks, it is anticipated the tasks should take up around 10 – 15 minutes each day and can be completed in a block or over a number of days. At the end of each week you will be asked to write a short reflection of your experience of the program and relationship with your baby over the past week. This can be as short as a couple of lines or as long as a page it is totally up to you. The reflection will be emailed to a secure email address.

Before beginning the program and after completing it you will be asked to complete some questionnaires (2 questionnaires about your experiences as a parent, 1 about your mood and 1 about mindfulness) and provide some information about yourself (e.g. age, education level etc). The questionnaires will take about 10 – 20 minutes to complete. You will also be asked to complete the questionnaires a third time either 6 weeks before or 6 weeks after completing the program. All participants will receive a brief report of the results at the end of the study.

Benefits:
The first year of your baby's life can be both an exciting and a difficult time as mother and baby begin to get to know each other. Many new mothers can experience difficulty reading their baby's cues. Research has shown that your relationship with your baby sets patterns for the rest of his or her life. We hope that this program will provide a way to enhance your relationship with your baby.

Risks:
It is unlikely that participating in any of the program activities will cause distress, however the first year of a babies life can often be stressful. Some new mothers find their ability to enjoy their new baby or activities they previously enjoyed has changed. If you or someone you know is showing signs of depression or you become upset from listening to any of the podcasts or from answering any of the questions, there are a number of places you can go for help.
Pregnancy, Birth and Baby Helpline 1800 882 436
Beyondblue justspeakup.com.au
Post and Antenatal Depression Association (PANDA) www.panda.org.au
Black Dog Institute www.blackdoginstitute.org.au

Confidentiality and Privacy:
All information collected from participants during this study will be kept strictly confidential; you will not be identified in any way. The information will only go to the Principal Investigator and will be kept in a locked office or password-protected computer. The data from the study will be used in research publications and reports. You will not be identified in any way in these publications.

James Cook University rules say that all information must be kept for 7 years after the study has finished.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice.

For further information please contact:

Principal Investigator:
Charmain Newman
College of Healthcare Services
James Cook University
Phone: (07) 42321622
Email: charmain.newman@myjcu.edu.au

Supervisor: A/Professor Nerina Caltabiano
James Cook University
Phone: (07) 42321182
Email: nerina.caltabiano@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811 Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Appendix J

Mindfully Parenting Your Baby Flyer



Mindfully Parenting your Baby is a free 6 week online mindfulness program for Mothers of babies aged 0 -12 months. The program uses mindfulness and reflection to enhance attachment and the experience of parenting. It incorporates ideas that promote infant social and emotional wellbeing.

Who can participate?
Any mother of a baby aged birth to 1 year who is 18 or older, is a resident of Australia and has access to the internet.

If you would like to find out more please log onto our website at

www.mindfullyparentingyourbaby.com.au

Mindfully Parenting your Baby

What will I need to do?
Each week you will be sent a number of short podcasts and mindfulness exercises that will give you information about:

- Mindfulness skills
- Infant observation
- Reading your baby's cues
- Exploration of secure attachment ideas
- Connecting with your baby through play using mindfulness skills

For more information follow the link below to our website or contact:

Charmain Newman:
College of Healthcare Services
James Cook University
Phone: (07) 42321622

www.mindfullyparentingyourbaby.com.au

The study is being conducted by Ms Charmain Newman and will contribute to the degree in Doctor of Psychology at James Cook University.

Appendix K

This administrative form has been removed

Appendix L

Newman, C.M., Caltiabiano, N., & Caltiabiano, M. (2015, September). *Enhancing Reflective Functioning in a Mindful way. In B. Leigh (Chair),'Celebrating the past, looking toward the future in Perinatal and Infant Psychology'.* Symposium conducted at 50th Australian Psychological Society Annual Conference, Gold Coast.