

**THE UNIVERSITY OF HULL**

**EXPLORATIVE STUDY INTO  
PSYCHOLOGICAL DISTRESS IN  
PARENTS OF PREMATURE INFANTS**

**Being submitted in partial fulfilment of the  
requirements for the degree of Doctor of  
Clinical Psychology**

***In the University of Hull***

**By**

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## DEDICATION

This thesis is dedicated to the loving memory of Kathleen, my mother, a promise fulfilled, and without whom this would not have been possible.

Ar dheis Dé go raibh a hanam

Go n-éirí an bóthar leat.

Go raibh cóir na gaoithe i gcónaí leat.

Go dtaitní an ghrian go bog bláth ar do chlár éadain,

go dtite an bháisteach go bog mín ar do ghoirt.

Agus go gcasfar le chéile sinn arís,

go gcoinní Dia i mbois a láimhe thú.

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## ABSTRACT

**Background.** Due to the increase in the rate of premature birth in the U.K., research into investigating psychological distress in parents of premature infants is clinically important. It has been identified that there is an absence of research in the area of psychological distress (anxiety, depression and trauma) in parents, particularly in fathers' of premature infants. Attachment theory states that templates of personal attachment are repeated from parents to children. Parents who have difficulty in forming an attachment with their newborn may be more likely to be psychologically distressed.

**Aims.** The principle aim of the study was to understand the relationship between personal attachment style, psychological distress and trauma and the process of attachment in the postnatal period in the parents of premature infants. It aimed (1) to examine the most common personal attachment style of parents of premature infants, (2) to investigate changes in psychological distress (anxiety, depression and trauma) for parents post birth and 3-4 months later, (3) to investigate the relationship between psychological distress (anxiety, depression and trauma) and parents own personal attachment style, (4) to investigate any changes in parents attachment to their infant post birth and 3-4 months later, and (5) to investigate the relationship between parental attachment to their infant and psychological distress (anxiety, depression and trauma).

**Method.** Thirty-Two mothers and twenty-one fathers were recruited through neonatal intensive care units in two regional hospitals after the



birth of their premature infant. Participants were also contacted 3-4 months later, twenty-two mothers and thirteen fathers completing and returning postal questionnaires.

**Findings.** The participant group reported low scores on both the anxious and avoidant subscales of the Experience of Close Relationship-Revised (ECR-R) Questionnaire. Therefore, indicating that the participant group are securely attached.

Results revealed that overall; parents of premature infants had lower levels of anxiety and depression at Time 2 (3-4 months post-partum) in relation to Time 1(after the birth of the infant). However, parents reported higher levels of posttraumatic stress symptoms at Time 2 in comparison to Time 1. Additionally, mothers of premature infants reported higher levels of psychological distress (anxiety, depression and posttraumatic stress symptoms) at both Time periods in comparison to fathers. Mothers' anxiety scores (as measured by the HADS) reached caseness at Time 1. However, mothers' scores reduced significantly at Time 2.

In relation to personal attachment style and changes in level of psychological distress, findings indicated a relationship. Mothers with lower avoidant scores reported a decrease in scores on the EPDS from Time 2 to Time 1.

With respect to the relationship between changes in parental post-natal attachment and psychological distress, the overall findings suggest lower scores in three components of the Parental Post-Natal Attachment Scale (Tolerance, Pleasure in Proximity and Acceptance) at

Time 2 in comparison to Time 1. However, the findings suggest higher scores on the Competence component of the Parental Post-Natal Attachment Scale at Time 2 in comparison to Time 1. Additionally, the findings highlighted a significant relationship between differences in both mothers' Competence scores and HADS depression scores. The findings also propose a significant relationship between changes in both Pleasure in Proximity scores and HADS anxiety and depression scores

**Conclusion.** The findings highlight the importance of assessing parents' levels of psychological distress after the birth of their infant. Additionally, the findings highlight the importance of including fathers' of premature infants in the post-care of their infants to encourage positive interactions with their infant and thereby enabling them to gain from being in close proximity to their infant.

Therefore, the findings highlight the importance of continued care for parents post-discharge as the findings indicate that the parents experience difficulties at both follow-up and in NICU.

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# CHAPTER 1

## INTRODUCTION

### 1.1: Current Problem

Preterm birth is a major clinical problem, accounting for 47% of all neonatal deaths in the United Kingdom (U.K; Bidy & Stewart, 2004). The preterm delivery rate in the U.K. is approximately 7% and rates of preterm birth are gradually increasing (Bidy & Stewart, 2004). Preterm birth is an important risk factor for long-term neurodevelopmental problems, pulmonary dysfunction and visual impairments (Tucker & McGuire, 2004). Additionally, the survival rates amongst preterm infants in the U.K. have changed dramatically over the last decade with 88% survival for 27/28 weeks, and 21% for infants born at more than 24 weeks gestation (Bidy & Stewart, 2004). In reaction to the increase in survival rates amongst preterm infants in the UK, Government policies established a review group in 2001 to examine neonatal services (House of Commons Hansard Written Answers, 2005). The report of the group was issued for public consultation in April 2003 and it suggested a structured, collaborative approach to caring for newborn babies and proposed that hospitals worked closely together in formal, managed networks to provide the safest and most effective service for mothers and babies (House of Commons Hansard Written Answers, 2005). The report highlighted the need for a

collaborative medical service for mothers of preterm babies. However, the psychological needs of the parents of preterm infants were omitted from the report. Consequently, with the increase in survival rates of premature infants, attention must be given to the parents of the premature infants. It has been recognised in numerous studies (Affleck, Tennen & Rowe, 1990; Miles, Fink & Kasper, 1992; Hughes, Collum, Stefield & Sanchez, 1994) that parents of premature infants report higher levels of depression, anxiety and trauma than parents of full-term infants. This study aims to address this neglect of parents' needs by adding to the research literature on the changes in parents' levels of anxiety, depression and trauma after the birth of their infants and 3-4 months later (post-hospital discharge).

### **1.2: Focus of this study**

This study aims to investigate the changes that occur in anxiety, depression and reported trauma levels in parents of premature infants after the birth of their infant and 3-4 months post-discharge and how these issues may be related to attachment style. Attachment theory is concerned with the bond that develops between a child and their care-giver and the consequences this has for the child's emerging self-concept and developing view of the social world (Bowlby, 1977). According to Bowlby (1977) it is through the continued interaction between the infant and caregiver that the infant develops internal "working models" containing beliefs and expectations about the caregiver as someone who is caring and responsive, and also whether the self is worthy of care and attention.

Therefore, Bowlby (1977) regarded the ability to establish strong emotional attachment with specific individuals, as an important aspect of effective personal functioning, characterising people 'from the cradle to the grave' (p.129). Bowlby (1977) suggested that the pattern of these attachments is a significant determinant not only of resilience or vulnerability throughout life's journey, but also of our capacity to enjoy life. According to Bowlby (1977), an individual's attachment style is particularly evident when they are distressed, ill or afraid and it is their own personal working models that determine how they perceive people and the world around them and thus determine how they manage their distress.

Pregnancy, and the accompanying transition to parenthood, has been described as a developmental crisis or stressful life event that requires adaptation by individuals, couples and family units. However, when this process is interrupted by the unexpected birth of an infant and thereby parents are introduced to parenthood earlier than expected, levels of distress may increase (Raphel-Leff, 2001). It has been recognised that the postnatal period is a very distressing time for parents of preterm infants (Affleck, Tennen & Rowe, 1990; Miles, Fink & Kasper, 1992; Hughes, Collum, Stefield & Sanchez, 1994). Previous research has indicated that mothers of very low weight preterm infants reported more distress both immediately after giving birth and also over a period of 14 months postpartum in comparison to mothers of term infants (Kersting, et al., 2004). Fathers of pre-term infants reported the most 'stressful stressors' are the infants' appearance, health and hospitalization (Hughes,

McCollum, Shettel & Sanchez, 1994). However, Gennaro (1988) reported an increase in levels of anxiety and depression, 3 – 4 months after the birth of a low birth weight infant (in comparison to very low birth weight infants). It is currently unknown why this may be the case. Past research has highlighted that mothers of seriously ill preterm infants have been found to be more depressed and showed more problems in attaching and interacting with their infants even after the infant had made a full medical recovery versus mothers of less seriously ill preterm infants (Minde, Whitelaw, Brown & Fitzhardinge, 1983).

Therefore, this study aims to investigate whether parents own personal attachment style may be a mediating factor during the stressful period of looking after their preterm infant. In addition, parents who have secure attachment styles (low anxious and low avoidant) will experience less emotional distress as their secure attachment style will act as a “buffer” to distress. Conversely, parents who have insecure attachment styles (anxious or avoidant) may be more likely to be psychologically distressed. Consequently, parents who are distressed postnatally may have greater difficulty in demonstrating attachment behaviours with their newborn.

### **1.3: Overview of the Chapter**

This chapter will firstly review the model of attachment. The transition to parenthood (from pregnancy to birth) for parents' of both full term and preterm infants and the process of attachment to their infant will be

discussed and conceptualised through the models of attachment and the transition to parenthood. The chapter will then go on to explore the literature that has been published to date in relation to psychological distress (anxiety, depression and trauma) in parents of both preterm and term infants. Finally, the consequences of psychological distress for parents of premature infants and the impact on attachment will be briefly reviewed through both the conceptualised models of attachment and the transition to parenthood and the literature that has been published to date in relation to psychological distress in parents of preterm infant. The chapter will be concluded by outlining the clinical utility of this current piece of research.

#### **1.4: Model of Attachment and Attachment Styles**

Attachment theory is concerned with the bond that develops between child and caregiver and the consequences this has for the child's emerging self-concept and developing view of the social world. Bowlby's theory (1982; 1980; 1973), which was the first formal statement of attachment theory, is an evolutionary-ethological approach (Ainsworth, Blehar, Waters, & Wall, 1978). According to this view, infant attachment behaviours are controlled by a distinct, goal-corrected behavioural system, which has a set goal of maintaining proximity to a nurturing adult and a biological function of promoting the child's security and survival (Bowlby, 1982).

Furthermore, the set goal of the attachment system is not simply physical

proximity but, more broadly, to maintain “felt security” (Bischof, 1975; and Sroufe & Waters, 1977). Bowlby’s theory is also a model of social and personality development (1982; 1973). He argued that the attachment relationship has a profound impact on the child’s developing personality and that the nature and quality of this early relationship is largely determined by the caregiver’s emotional availability and responsiveness to the child’s needs (Bowlby, 1973). Through continued interaction, a child develops internal “working models” containing beliefs and expectations about whether the caregiver is someone who is caring and responsive, and also whether the self is worthy of care and attention. These working models are then carried forward into new relationships where they guide expectation, perceptions and behaviour (Bowlby, 1973). Thus, working models provide a mechanism for cross-age continuity in attachment style and are of particular importance in understanding the role that early relationships have in determining adult relationships. According to Brumbaugh & Fraley (2006), individuals recreate (often unintentionally) the same relationship pattern that characterised their relationship patterns in the past. This occurs because the working models people hold of past relationships are highly accessible and are used to guide interpersonal behaviour in novel circumstances. Therefore, this process is believed to partially explain the continuation of attachment patterns across time and context (Collins, 1996; Fraley, 2002; Fraley & Brumbaugh, 2004). Brumbaugh & Fraley (2006) investigated the transference of attachment patterns in relationships. Their results indicated that individuals apply their attachment representations of past partners to present and reported feeling



more anxious and less avoidant with a person that resembled their past partner. Attachment theory has been criticised for stating that internal working models of attachment are stable over time (Reis & Rusbult, 2004). According to Grossberg (1980) the internal working model, which is similar to cognitive structures in general, faces the stability-plasticity dilemma. According to the stability-plasticity dilemma models strive for stability, but have to remain plastic if they are to continue to be adaptive and useful (Reis & Rusbult, 2004). Additionally, as far as the researcher is aware longitudinal studies have indicated significant but not perfect continuity of attachment patterns over the first several months and year of life (Cassidy, 1988; Owen, Easterbrooks, Chase-Lansdale, & Goldberg, 1984; Waters, 1978). Ultimately, the degree of continuity from infancy through adulthood and the circumstances under which change is facilitated must be determined empirically.

Additionally, attachment theory has been criticised for claiming that caregiver responsiveness determines the quality of the attachment relationship therefore failing to acknowledge the importance of infant characteristics, especially temperament (Reis & Rusbult, 2004). Research highlights that both temperament and caregiver responsiveness are important influences on attachment quality (Reis & Rusbult, 2004). For example, one temperamental characteristic – distress proneness – has been linked in anxious/ambivalent attachment (Goldsmith & Alansky, 1987). On the other hand, responsiveness training for the caregivers of distress-prone infants appears to override the risks for later insecure attachment

(van den Bloom, 1994). To date, no investigation that the researcher is aware of has shown temperament to be better than caregiver responsiveness at predicting attachment classification, and no reported findings that the researcher is aware of would lead to the conclusion that the consistency and quality of caregiver responsiveness are not important determinants of infant attachment behaviour (Colin, 1991). Additionally, present ecological validity of attachment theory has been criticised due to the changes in family patterns and the decline of the two parent nuclear family (Issroff, 2005).

However, Bowlby (1977) suggests that the pattern of these attachments is a significant determinant not only of resilience<sup>1</sup> or vulnerability<sup>2</sup> throughout our life's journey, but also of our capacity to enjoy life. According to Bowlby (1977), an individual's attachment style is particularly evident when a person is distressed, ill or afraid. Hazan & Shaver (1987) have used attachment theory as a framework for understanding adult love relationships but it is the romantic love itself as a process of becoming attached that shares important similarities with child-caregiver attachment. Hazan & Shaver (1987) began by translating the typology developed by Ainsworth et al. (1978) into appropriate terms for adult relationships, resulting in three attachment descriptions: secure, avoidant and anxious-

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<sup>1</sup> Resilience: individuals' ability to appraise and express emotions, and to rely on close social relationships for support in times of stress (Bowlby, 1982).

<sup>2</sup> Vulnerability is dependent on the intricate interplay of the quality of the internal models, including both the development multiple models of the attachment figure and multiple models of self and others (Grossmann & Grossman, 1989).

ambivalent attachment styles. The *secure* style is defined by confidence in the availability of attachment figures in times of need, comfort with closeness, interdependence, and trust. The *avoidant* style is characterised by insecurity in others' intentions and preference for emotional distance. The *anxious-ambivalent* style portrays a strong desire for intimacy together with insecurity about others' responses to this desire and high fear of rejection.

Although Hazan & Shaver's (1987) three category measure served as a useful way to study the association between attachment styles and relationship functioning, it did not fully investigate that the same kinds of individual differences observed in infants might be manifest among adults. Subsequently, Brennan, Clark, and Shaver, (1998) investigated this and their findings suggested that there are two orthogonal dimensions of adult attachment: *anxiety* and *avoidance*. People with high levels of either or both dimensions are assumed to have an insecure adult attachment style. By contrast, people with low levels of attachment anxiety and avoidance can be viewed as having a secure adult attachment style (Brennan, et al., 1998; Lopez & Brennan, 2000; Mallinckrodt, 2000). *Adult attachment anxiety* is defined as the excessive need for approval from others and the fear of rejection and abandonment from others. *Adult attachment avoidance* is defined as the excessive need for self-reliance and the fear of depending on others. Consequently, (and as previously mentioned) these two adult dimensions can be understood in terms of an individuals' internal working models (Bowlby, 1973). Individuals with attachment anxiety styles tend to hold negative working models of self and positive working models

of others (Pietromonaco & Barrett, 2000). Conversely, individuals with attachment avoidance styles tend to hold positive working models of self and negative working models of others (Pietromonaco & Barrett, 2000). As a result of Brennan's findings most researchers conceptualize and measure individual differences in attachment dimensionally rather than categorically.

Studies have positively related both attachment anxiety and avoidance styles to several indices of psychological distress such as depression and anxiety (Lopez, Mitchell, & Gormley, 2002; Wei, et al., 2004), negative affect (Simpson, 1990), emotional distress and nervousness (Collins, 1996), and general distress symptoms (Lopez, et al., 2002). Moreover, insecure adult attachment styles have been negatively linked with perceptions of social support (Blain, et al., 1993; Collins & Read, 1990; Davis, et al., 1998; Kobak & Sceery, 1998; Lopez, 1997; Mikulincer & Nachshon, 1991; Ognibene & Collins, 1998; Priel & Shami, 1995; Simpson, Rholes, & Nelligan, 1992). Priel & Shami (1995) found that individuals with anxious and avoidant attachment styles (insecure attachment styles), as opposed to individuals with secure attachment styles, have lower numbers of individuals they can rely on for support and that they also report feeling less satisfied with the support they receive from others. Additionally, individuals with insecure attachment styles reported perceiving others as less close or committed (Mikulincer & Erev, 1991). These findings are consistent with attachment theory, which suggest that insecure individuals have less supportive relationships than secure individuals.

As previously mentioned by Bowlby, individuals' own attachment styles are more prominent when a person is under distress as it is an individuals' own personal working model which impacts how they perceive the world around them, function in relationships and enables them to manage stressful events in their lives. The transition from pregnancy to birth has been described as a major stressful life event experienced by both women and men (Raphel-Leff, 2001). This will be discussed in the next section in relation to the experiences of parents of infants born at both full term and prematurely.

### **1.5: Transition to Parenthood**

In order to better understand the experiences of the mother and father of the premature infant during their transition from pregnancy to birth the normal changes of transition from pregnancy to birth for both expectant mothers and fathers of full-term infants will be briefly discussed in Sections 1.5.1 and 1.5.2. Sections 1.5.3 and 1.5.4 will then focus on the transition from pregnancy to birth to parenthood for parents of preterm infants. Finally, Section 1.6 will discuss the disruption of the transitional process from pregnancy to birth of both mothers and fathers of premature infants and the impact this disruption could have on parents' of premature infants and their levels of psychological distress.

### **1.5.1: The Expectant Mothers Transition to Parenthood**

According to Raphael-Leff (2001), pregnancy is not a 'condition' but a process (Raphael-Leff, 2001). The transition to parenthood from pregnancy to childbirth is a process that first occurs separately in the internal psyche of both the expectant mother and father. Then the internal transition to parenthood from pregnancy to childbirth in both the expectant parents occurs between them and then to the external family unit. It is not a stagnant process but dynamic in nature as it occurs in the relationship both within and between expectant parents and their other family members. This dynamic process will now be described according to the psychological distress perspective by Raphael-Leff (2001).

During pregnancy a parallel process of growth occurs in relation to the expectant mother and her infant. As her infant develops physically the expectant mother is developing from the person she was to the mother she is becoming (Raphael-Leff, 2001). Pregnancy can be divided into three maturational phases, which roughly correspond to the three trimesters: the first trimester from birth to 12 weeks in which the fetus undergoes dramatic growth, the second trimester begins after 12 weeks (by this time the fetus is properly formed) until 24 weeks of pregnancy and the third trimester occurs between 25 weeks (at 25 weeks the fetus, if born, would survive) and the birth of the infant (Raphael-Leff, 2001). Similar to the maturational phases of the fetus, these phases would also apply to the expectant mother as her body changes and grows (Raphael-Leff, 2001). The theory proposes that the expectant mother is affected by both the physical

experiences (hormonal and metabolic changes in order to sustain the pregnancy) of the pregnancy and how she feels about it (Raphel-Leff, 2001). For example, the theory proposes that a mother-to-be often attributes a symbolic meaning to her sickness that has occurred due to the changes in her hormonal and metabolic systems (Raphel-Leff, 2001) and sometimes this attributed meaning works in conjunction with the physical illness thus one influencing the other. For example, Raphel-Leff, (2001) proposed that a women may equate being sick with her ambivalent attitude towards the pregnancy and birth thus leaving the woman unsure as to whether she wants the baby or not.

Raphel-Leff (2001) proposed that the maturational phases of pregnancy are often founded in the somatic processes of the pregnancy. Therefore it may be possible to parallel them to the previously described trimesters of pregnancy – the first phase lasting until the women has come to terms with the realities of pregnancy, the second phase ending with the women's preoccupation with labour and the final phase occurs with the expectant mothers realisation that her infant could exist outside her own body (Raphel-Leff, 2001). These phases are experienced by all women, however they do not have a fixed time-span therefore confirming and highlighting the uniqueness of the expectant mothers experience as she transcends from being someone else's daughter to a mother in her own right.

During the first phase of pregnancy, where the expectant mother is coming

to terms with the realities of the pregnancy, Raphel-Leff found that his clients tended to oscillate between feelings of being overwhelmed by the pregnancy and being totally unaware that she is pregnant (Raphel-Leff, 2001). During this stage, expectant mothers may vary between being totally convinced by the pregnancy and needing to be convinced by the pregnancy (Raphel-Leff, 2001). The last few weeks of the first trimester tends to be regarded as the 'dangerous period' as this is the time when miscarriages are more prevalent. The theory proposes that the first signs of movement of the fetus and the awakening for the women that another is occupying her body herald the second phase of pregnancy. Raphel-Leff (2001) proposed that for the expectant mother there is a dual demand for her attention, from her own body (her womb) and the external world around her. The theory proposes that it is during this time that the mother begins to form a relationship with her infant as she begins to imagine characteristics of her fetus and begins to understand what her fetus likes and dislikes are (Raphel-Leff, 2001). Raphel-Leff (2001) proposed that the expectant mother may perceive this as a reciprocal relationship as she can feel her infant caressing her and kicking her from the inside. Additionally, and therefore not surprisingly, for some expectant mothers it is during this time that they may choose to spend more time alone. However on occasions this may be overwhelming for the expectant mother and she may feel a greater need to socialise to prevent the overwhelming sense of 'drowning' within her own pregnancy (Raphel-Leff, 2001).

The theory proposes that women's perspectives change dramatically with



the advent of the third stage of gestation (Raphel-Leff, 2001). This phase begins with the expectant mother believing that her infant can survive outside her body if the infant was to be born prematurely (Raphel-Leff, 2001). During this time some women are reluctant to have the pregnancy end and are aware of the safe environment provided to the fetus through the expectant mother's womb (Raphel-Leff, 2001). The theory proposes that the expectant mother begins to become aware of the transient nature of her pregnancy and that the special (and private) relationship she has developed with her fetus is about to end (Raphel-Leff, 2001). Raphel-Leff (2001) proposed that it is during this phase that the expectant mothers' preoccupation begins to shift from the once imaginary fetus-baby to a real 'un-returnable' baby. Additionally, the theory proposes that as 'the moment of truth' emerges, the expectant mother begins to become consumed by the lifetime commitment she will have with the birth of her infant who is unknown to her (Raphel-Leff, 2001). Additionally, Raphel-Leff found that his clients tended to be consumed by questions about her infant, questions relating to their own abilities to produce an infant that is alive, good and valuable, by concerns about how their partner will transcend into fatherhood, their own parents into grandparents and her bulge into a baby (Raphel-Leff, 2001). As the pregnancy looms large the expectant mother's attention turns to the actual birth of the infant. Raphel-Leff (2001) proposed that many expectant women are concerned that when the infant emerges the infant will "draw everything out of them", resulting in all their internal organs spilling out and revealing the "mess" inside. The theory proposes that it is not just the expectant mother's internal organs that she is

concerned with exposing but her own hidden thoughts and feelings which she fears might indicate to the world that she is a 'bad' or 'mad' person (Raphel-Leff, 2001). This conceptualised model of the psychological processes of pregnancy highlight why anxieties may be heightened for the expectant mother if she was to give birth in a hospital setting as strangers would be viewing her most intimate anxieties (Raphel-Leff, 2001).

### **1.5.2: The Expectant Fathers Transition to Parenthood**

The transition to parenthood from pregnancy to childbirth is a process that first occurs separately in the internal psyche of both the expectant mother and father. Just as a mother is pregnant with herself as a mother the man is pregnant with himself as a father. Similar to the internal psyche phases a mother experiences, a man goes through similar internal psyche phases as he approaches fatherhood. In western societies, despite going through changes in self-image and identity, fathers-to-be are often at a disadvantage in relation to society's recognition of their new role as they do not have any visible indicators of the pregnancy to the outside world. Unlike the mother-to-be, the father-to-be does not have a bulge or ongoing hormonal stimulation (Raphel-Leff, 2001). Raphel-Leff (2001) proposed that the father's position has arisen out of the interplay between two biological relations – that of intercourse between man-and-women and that of gestation between women-and-infant.

The theory proposes that fathers' in western societies have cultural

expectations placed upon them which are based on their masculinity (Raphel-Leff, 2001). Therefore, Raphel-Leff (2001) proposed that the role of the expectant father is to help manage the expectant mother's emotional world as she goes through her own psyche transition from being a woman to becoming a mother – thus denying him the space to express his own emotional world as he too goes through his own transition for being a man to becoming a father. Consequently, the theory proposes that the expectant father in Western societies is viewed secondary and as an outsider in the pregnancy process. In some cultures, not only does the father become the focus of social attention but he may actually supplant the centrality of the pregnant woman in procreativity (Raphel-Leff, 2001). Raphel-Leff (2001) proposed that social custom may declare that he has made the baby; she has merely “grown” it. The theory proposes that such beliefs do not reflect ignorance of the facts of paternal contribution to procreation but an underlying ideology about the relative social importance of men and women (Raphel-Leff, 2001). In some societies, there is a belief that the mother merely gives the child its body, while the father gives it its soul (Raphel-Leff, 2001). Some practices of seclusion of baby and father after birth revolves around acquisition of the soul (Raphel-Leff, 2001). In some aetiological accounts of reproduction, the woman's contribution is minimised to merely functioning as a container for the miniature “homunculus” which the potent man has planted in her in seed form (Raphel-Leff, 2001).

In the past few decades, a shift has occurred in the involvement of fathers in their partners labour and birth but with little assistance and guidance to

assist the fathers' in their transition. Goodman (2005) proposed that the father role is important because they play a role in the interaction with their infant but also in supporting their partner. Previous research which investigated fathers' experiences of becoming a father included four overarching phases: 1) entering with expectations and intentions, 2) confronting reality, 3) working to create one's role as involved father, and 4) reaping the rewards. Although the phases occurred in a mainly linear direction, there was overlap and reciprocity between the phases (Goodman, 2005). In the first phase (entering with expectation and intentions) the majority of men reported that they were entering into fatherhood with the intentions of being emotionally involved and connected to their infant (Anderson, 1996a; Barclay & Lupton, 1999; Henderson & Brouse, 1991; Jordan, 1990). Most of the fathers expressed a desire to parent differently from their own fathers, whom they had perceived as being distant or disengaged from their families resulting in them missing out on positive experiences due to their lack of involvement (Anderson, 1996a; Barclay & Lupton, 1999; Hall, 1994; Jordan, 1990). Goodman (2005) proposed that the second transitional phase (confronting reality), involved the changes that occurred in the men after the birth of their infant. During this phase, the theory proposes that the men came to the realisation that their expectations before the birth of their infant were unrealistic (Goodman, 2005). As in the first phase, the theory proposed that the men focused on being there for their unborn child more than their own father was for them. However it is in the second phase that father's realise that 'being there' is unrealistic due to the immaturity and

unresponsiveness of the infant and the lack of time the father has to spend with the infant (Barcelly & Lupton, 1999). Additionally, during this phase men's expectations around the birth of their infant and the birthing process may have also been confronted as some of their partners experienced difficult births, physical exhaustion, and concerns about their partner and infant and any or all of these factors could have played a part in their inability to "connect with the infant" (Anderson, 1996b).

As previously mentioned, in the first phase men entering into fatherhood reported a strong sense of responsibility about becoming a father and wanting to do a better job than their own father did. However, Goodman, 2005 proposed that in the second phase men reported realising how much hard work, time and energy was required in looking after an infant thus adjusting to fatherhood proved to be a disruptive, disappointing, distressing and frustrating experience, resulting in them feeling helpless and guilty that they could not provide more for their infant. Men reported feeling their relationship with their infant was slower to develop than the mothers', perceiving their partner as holding a privileged position and having a head start because of her experiences of pregnancy and breast-feeding and more time spent with the infant (Goodman, 2005). As the reality of the situation did not mirror their expectations of being emotionally involved and connected to their infant the fathers' reported feelings of loneliness which were compounded but the feeling that they had no one to talk to (Goodman, 2005). This likely emphasises the perceived role of fatherhood as that of "bystander" and that men perceive their function in the process is

to support their partner's need.

Goodman (2005) proposed that the third transitional phase reported by fathers is 'working to create one's role as involved father'. As a result of the uncomfortable reality of the early weeks with the infant, fathers' make a conscious decision to work at becoming the kind of fathers they want to be (Goodman, 2005). It is during this phase that the fathers' decide to acquire the skills they view necessary to be a 'good father' (Goodman, 2005). However, they reported not having any role models or guidelines to follow in helping them develop their desired role as active involved fathers and as one father stated, "I feel like...I'm crawling through mud....There is nothing clear...I'm groping" (Jordan, 1990, p.15.). A crucial step for the father in becoming closer to the infant is the development of skills needed to care for the infant (Goodman, 2005). In this stage fathers begin to recognize the changes that the infant has brought to their lives and begins to change their expectations around their role as a father through negotiating these changes with their partner. Thus, the internal psyche transition from pregnancy to birth for both the mother and father as individuals begins to become a shared process through shared negotiation of expectations around motherhood and fatherhood leading to a common understanding of their roles as parents.

In summary, the transition to parenthood is a dynamic process in which both mothers and fathers encounter different psychological tasks. However, when an infant is born prematurely the parents' transition to

parenthood is abruptly interrupted preventing them from completing the psychological tasks. This will be reviewed in the next section.

### **1.5.3: The Un-Expectant Mothers Transition to Parenthood**

The birth of a premature infant can push a family into crisis as having a baby early can be frightening, occurs un-expectedly and without the perceived necessary preparation. Therefore, the arrival of the baby prematurely means that there is also a prematurity in the parents' developmental process of becoming parents; as they are being 'hurled' into parenthood (Tracey, 2002). Consequently, the premature end of the pregnancy process results in a premature end for both the parents in their own individual transitions from their concepts of themselves as individual people to their new concepts of themselves as parents (Tracey, 2002).

The mothers' pregnancy is abruptly halted during a critical period in the third stage of gestation. It is during this time in the developmental process that the expectant mother is beginning to process the fact that her infant can survive without her and that her pregnancy is a transient process and thereby she is consumed by the overwhelming sense of life-long responsibility that the infant will bring to her life (Raphel-Leff, 2001). The mother is caught unawares and usually without much warning she finds that pregnancy has ended and labour begun before she has completed the emotional processes of gradual separation.

Additionally, with a premature birth the mother loses her sensory contact with her infant (through breastfeeding), which keeps her involved with her infant (Tracey, 2002). Mothers described feeling a loss of the 'normal' infant and the lost "natural connection" reporting thoughts that their infants looked like "a starving infant", "a nestling" or "a monster" (Hackins, Ewald, Hedberg, & Starrin, 2006).

In addition, the mother is deprived of motherhood as she has a very small infant with a tenuous hold on life and she, as the mother, is unable to carry, directly feed or protect it (Raphel-Leff, 2001). The mother is dependent on other people and machines for the continuation of the infant's life (Raphel-Leff, 2001). Therefore, the mother may feel guilty for not holding the infant to full term but also angry and disappointed at the intrusion of the medical profession into the privacy of their life together (Raphel-Leff, 2001).

In a study conducted by Hackins, et al. (2006) which investigated the experiences of women of preterm infants whilst their infant was in neonatal intensive care, three distressing themes were uncovered. These themes included, 'losses, 'putting life on hold' and 'whose child is it?' (Hackins, et al., 2006). With respect to the 'loss' theme, mothers described an increase in their level of distress due to the pregnancy ending before completing the emotional process of gradual separation and 'being thrown into parenthood' (Hackins, et al., 2006). Mothers may go through a period of grieving for not experiencing the last period of pregnancy, as she has not felt the infant growing inside her or has not had the time she expected to



prepare like she would in a full term pregnancy (Hackins, et al., 2006). Invariably, the mother may wonder what she has "done wrong" that prevented her from retaining her infant. In this emotional chaos, mothers described, 'putting life on hold' (Hackins, et al., 2006). According to Hackins, et al. (2006) the mothers described 'putting their life on hold' as a coping strategy whereby they emotionally blocked their emotions and endured the situation. Mothers reported keeping their feelings bottled up and not discussing or reflecting on them due to the painful nature of their emotions, which consisted of feelings of fear, disappointment, anger and shame (Hackins, et al., 2006). Additionally, mothers described preparing themselves for the potential loss of their infant (Hackins, et al., 2006). Mothers described protecting themselves from falling in love while unconsciously preparing themselves for loss (Hackins, et al., 2006). Finally, the mothers describe their difficulties performing and defining their maternal role as their role begins and evolves in a public and medically focused context (Hackins, et al., 2006).

The theme of 'whose child is it?' was also uncovered in a study conducted by Jackson, Ternstedt, & Schollin, (2003), in which mothers and fathers of preterm infants were interviewed at the infant's birth and at 2, 6 and 18 months later regarding their experiences. Mothers were affected by not having a normal pregnancy and delivery; they felt they had a need for control and participated more in the care of the baby (Jackson, et al., 2003). Several reported feeling as if they were borrowing their baby from the staff, and Palmer, Gordon, & Rivinus, (1983) also found that staff

unconsciously 'adopted' the very ill child. Additionally, when the child is being discharged from hospital mothers reported feeling unprepared as they had more responsibility for the care of the baby which resulted in them feeling insecure. However, after 6 months a clear adjustment to parenthood was observed and 3 months after discharge from the hospital mothers began to feel confident about caring for their infant (Jackson, et al. 2003).

Previous studies have highlighted the struggles mothers of preterm infants go through in order to feel like mothers, emotionally and socially, and how they aim to attain some form of reciprocal interaction with their infants (Jackson, et al., 2003, & Hackins, et al., 2006). Research relating to fathers of preterm infants will now be reviewed in relation to the interruption in their transition to fatherhood.

#### **1.5.4: The Un-expectant Fathers Transition to Parenthood**

Although a significant amount of research has focused on the experience of mothers, little is known about men's experiences in connection with the birth of their preterm infants.

As previously described, Goodman (2005) outlined the transitional phases that occurred in men after the birth of their infant. However, with the un-expectant birth of their infant men's' transition to parenthood is interrupted. Goodman (2005) highlighted that after the birth of their infant, men go through a transitional phase of confronting the reality that their

expectations before the birth were unrealistic, however they attempt to overcome their disappointment by becoming actively involved in the parenting of the infant. However, with the birth of a premature infant, the father has limited opportunity to employ an active role due to infant care being heavily dependent on the hospital's medical team, thus leaving the father somewhat redundant. During this time, the focus and sympathy is particularly directed towards the mother resulting in the father being expected to cope regardless (Tracey, 2002).

Interestingly, work remained an important focus in fathers' of premature infants even after the infants' early birth. Fathers returned to work quickly after their infant's birth and they approached their work with a renewed sense of vigour in order to provide financially for their families (Pohlman, 2005). Additionally, they reported finding comfort in their work because in the work setting they felt that they were experts, as opposed to feeling like novices in the Neonatal Intensive Care Unit (NICU) (Pohlman, 2005).

Additionally, during this period, the father's frightening image of his own father is active and in conjunction with the reawakening of any guilt from childhood about sexuality, results in different patterns of behaviour by the father (Tracey, 2002). If the infant is impaired in any way or there is a threat to their life, the father's role as a protector is threatened (Tracey, 2002). Thereby, the father may identify with the infant as weak, vulnerable and hurting and he may feel angry at the infant for showing up his own deficiencies. Additionally, the father's uncertainty about what to do and having to depend on the medical profession to take care of his family may

further add to his sense of failure.

In summary, pregnancy, and the accompanying transition to parenthood, has been described as a developmental crisis or stressful life event that requires adaptation by individuals, couples and family units (Raphel-Leff, 2001). One of the most dramatic transitions in the family life cycle, experienced by more than eighty percent of all adults, occurs between the stages of expectancy and childbirth (Lowenthal & Chiriboga, 1972). Adults themselves list the bearing of children and the establishment of a family as important turning points in their lives (Lowenthal & Chiriboga, 1972) as the behavioural, attitudinal, and relational patterns that are developed for one stage of life may no longer be functional at a later stage. For many, becoming a parent affects the development of self-concept and self-esteem (Neugarten, 1968), contributes to life satisfaction and dissatisfaction, and gives a sense of worth and meaning to life (Campbell, Cohn, & Meyers, 1995). Consequently, role transitions and life-event changes have long been recognised as stressful (Holmes & Rahe, 1967), for they may require the performance of new and distinctive tasks, the redefinition of behaviours and beliefs, and even the reorientation and reorganization of personality (Feldman, Biringen, & Nash, 1981).

The success of the transitions depends on a number of factors, both internally and externally to the individual parents that includes relationship patterns, personality characteristics of the couple, and the ability to communicate and understand one another's experience (St. John, et al., 2005). In relation to planning and incorporating a new infant into the parent's life, it is almost expected that many changes will occur and

perceptions between expectant mother and father may vary somewhat (St. John, et al., 2005). For some parents they may have spent time re-arranging the current family framework to fit the infant thereby their transition into parenthood is more successful. However, some parents may have unsuccessfully prepared themselves for this transition and thereby their infant may be seen as an “alien” within the current family framework (Bradley, et al., 2004). Indeed, the transition to parenthood brings uncertainty and threat of disorganization to families and thus results in challenging the members to reorganise and reconstruct their own lives. The impact of this disruption in the transitional process for parents will be discussed in the next section.

#### **1.6: The Impact of the Disruption of the Transitional Process for Parents of Premature Infants.**

The impact of disruptions in the transitional process from pregnancy to birth of parents of premature infants will be discussed, firstly in relation to the disruption in the prenatal attachment process between the parents' and their premature infants. Secondly, levels of psychological distress and the disruption in the transitional process will be conceptualised using the life transitional model (Hopson, 1981).

### **1.6.1: Disruption in the Transitional Process and the Process of Attachment between Parents' and their infant.**

According to Klein (1984), infants from birth onwards are capable of having experiences in which they feel that they are integrated and attending to the world around them. Therefore the newborn infant can move rapidly and unpredictably from different states and thus may appear to be a different baby from one moment to the next to the parent. Winnicott (1958) and Bion (1963) have both been interested in the early relationship of mothers and infants. They both came to view the mother's state of mind, which Winnicott (1956) calls 'primary maternal preoccupation', as closely related to the state of the newborn and as providing what the infant needs. According to Winnicott and Bion, the maternal state of mind arises from the actual experience of caring for a newborn infant and the mother's vulnerability takes on a new dimension when it appears open to being stirred up emotionally by the baby (Miller, Rustin, Rustin, & Shuttleworth, 1989). The outcome of this situation is extremely variable both between different mothers and for any one mother at different times. When things go well, the state of mind which the baby seems to engender in the mother become a basis for intense identification with, and sympathy for, the baby (Miller, et al., 1989). Consequently, these states of mind may sometimes be felt as unbearable and overwhelming for the mother and the baby's presence may then be experienced as a threat to the mother's sense of her own mind and identity (Miller, et al., 1989). The mother may then seek to withdraw from such intimate contact. Consequently, the environment

may not be rich enough for the newborns to develop mental capacity. Therefore the needs of the baby are being met through the mobilisation of states of primary maternal preoccupation (Miller, et al., 1989).

Although the role of mothers of newborn infants is important, other adults caring for the baby (e.g., fathers of the infant, hospital staff) experience similar intense engagement with the baby and their own baby-like feelings (Miller, et al., 1989). It is through this intense engagement in which the mothers (or other caring adults) are able to get in contact with their infant's state of mind, and through this supportive interaction the infant is enabled to grow psychologically (Miller, et al., 1989). It is through the effective emotional development of the receptivity of the 'container-contained' dynamic that individuals have a capacity to be responsive in all occasions during their life-time when they are brought into intimate contact with another person's state of mind (Miller, et al., 1989).

According to Bowlby (1977), an individual's attachment style is particularly evident when a person is distressed, ill or afraid. Bowlby (1969) views these as "world models", which encompasses a tendency for individuals to view themselves as relatively invulnerable, to regard the things that happen to them as being orderly, predictable, and meaningful, and to view the self as worthy and others as benevolent or at least benign. Attachment is also a key element in the pregnancy experience. The attachment that develops during pregnancy has some unique features. A woman initially becomes attached to being pregnant and gradually binds in, or develops, an attachment for the individual child inside her (Muller, 1993). Introduction

of the fetus and anticipated child is accompanied not only by changes in family relationships, responsibilities, and plans for the future but also by changes in the woman's body and concerns for herself and her fetus. Prenatal attachment may require the entire 9 months developing because it involves the woman's restructuring of her life (Muller, 1993). However, this attachment process may be interrupted for parents' of premature infants as the infant is born before the completion of the prenatal attachment process. This research aims to explore the suggestion that interruptions in completion of the prenatal attachment process between the parents and the infant impacts on the development of the postnatal attachment process.

Behavioural observations of maternal-infant interaction have made a great contribution to our understanding of parent-to-infant attachment (Condon & Corkindale, 1998). However, behavioural observations cause substantial problems, as they involve high costs, are labour intensive and the mothers' behaviour may be influenced by extraneous factors (e.g., her awareness of being filmed) (Condon & Corkindale, 1998). Consequently, Marris (1982) provided an important insight into approaching the methodological problem of quantifying maternal-infant attachment. He quantified maternal-infant attachment as: 'The ability to make sense of experience depends on connecting feeling to action by way of purpose' (p. 191). Therefore, Condon & Corkindale (1998) postulated that the core of attachment is a feeling state ('love') which gives rise to a series of goal-directed needs which express (or in some way deal with) the core emotion, but which may



or may not be translated into overt behaviours. Consequently, the core experience is linked to behaviours by intervening sets of 'dispositions' or 'needs' which may be more readily articulated than the core experience (Condon & Corkindale, 1998). Four types of 'indicators' of attachment are postulated to mediate between the core attachment experience and the diversity of overt attachment behaviours (Condon & Corkindale, 1998). Thus, Condon & Corkindale (1998) proposed that the strength of attachment could be gauged by the strength (and/or frequency) of the following subjective experiences.

Firstly, *pleasure in proximity* is operationally defined by Condon & Corkindale (1998) as a desire for interaction with the infant rather than separation (or avoidance). If the attachment is strong, such interaction is more likely to be experienced positively (e.g., as enjoyment or satisfaction) rather than negatively (e.g., boredom or tension) (Condon & Corkindale, 1998). Seeking proximity to an attachment object was also central to Bowlby's (1969) concept of attachment. Additionally, Emde (1980) highlighted the importance of 'pleasure in parenting' as a dimension of the attachment experience.

Secondly, *tolerance* is operationally defined by Condon & Corkindale (1998) as a greater ability to tolerate behaviour that in the absence of attachment would more than likely be experienced as irritating or frustrating. Similarly, if attachment is strong, resentment is less likely to be experienced by an individual when they are confronted by personal

sacrifice, and the responsibilities of infant care may not be experienced as quite a burden (Condon & Corkindale, 1998). Ainsworth (1982) introduced the concept of 'acceptance' and stated that 'rejecting' mothers lacked patience with their infants and expressed excessive amounts of irritation and resentment when they were faced with their infants' demands. According to Ainsworth (1982), these mothers stated that their infants were interfering with their other activities and interests, thereby reflecting the absence of the altruistic component inherent in attachment.

Thirdly, *need-gratification and protection* is operationally defined as a desire to identify and gratify the infant's emotional and physical needs, these needs may on occasion take priority over the needs of the parent (Condon & Corkindale, 1998). According to Condon & Corkindale (1998) the attachment process will be accompanied by a strong desire to protect the infant from harm, pain or discomfort therefore recognising and acknowledging the infants' position of helplessness and dependency on them. From an evolutionary perspective, it is this maternal function that constitutes the protection of the species and thus the rationale for attaching to a perceived older, wiser member of your species in order to ensure survival.

Finally, *knowledge acquisition* is operationally defined by Condon & Corkindale (1998) as a desire to understand the infant and a sense of competency derived from such understanding. Strong attachment is usually accompanied by a strong curiosity about what is going in the world

around the infant (Condon & Corkindale, 1998). Ainsworth's (1982) concept of maternal 'sensitivity' referred to the mothers' ability to empathize with the infants experience, notice its cues and interpret them. This concept of knowledge acquisition has been referred to in the literature in relation to attachment relationships as it is an indicator of our desire to know the other person in depth (Meares, 1977). Essentially, the above constitute four hypotheses about the indicators of the presence of parent-to-infant attachment (Condon & Corkindale, 1998). Importantly, Condon & Corkindale (1998) do not propose that the aforementioned four dispositions define 'attachment', nor is the subjective experience of them equated with that of parental 'love' (Condon & Corkindale, 1998).

Maternal psychopathology has been shown to affect the quality of maternal behaviour in mother-infant interaction and depression in particular has been studied in relation to mother-infant interaction (Murray Parker et al., 1996; Jones et al., 1997; Tronick & Weinberg, 1997). Other psychiatric disorders such as schizophrenia, borderline personality disorder and substance abuse have also been found to affect the quality of mother-infant interaction (Riordan, Appleby, & Faragher, 1999; Pajulo et al., 2001; Crandell, Patrick, & Hobson, 2003). However, it is not clear whether the influence of maternal psychopathology on maternal behaviour is seen in the very first months of the infant's life. Previous findings are somewhat contradictory. Campbell et al. (1995) showed that among married, middle class women there were no differences in mother-infant interaction between depressed and non-depressed mothers with infants at 2 months

of age. On the other hand, significant differences in early mother-infant interaction between depressed and non-depressed mothers have been found among mothers from lower social class groups and those living in adverse conditions (Cooper et al., 1999)

Maternal behaviour in early interactions with their infant may also be affected by the mother's experiences of other relationships. There is some evidence that behavioural patterns of relationships are transmitted from one generation to the next. Attachment studies have shown the continuity of attachment styles from parents to children, and even across three generations (Benit & Parker, 1994; Van Ijzendoorn, Juffer, & Duyvesteyn, 1995). Smith & Farrington (2004) showed continuities in antisocial behaviour between generations in their study. The most extreme examples of the continuity of behavioural patterns in relationships are found in studies on child abuse which often show that abusive parents have themselves been abused in their childhood by their own parents (Doumas, Margolin, & Johan, 1994; Pears & Capaldi, 2001). Nevertheless, the mechanisms involved in the intergenerational transmission of behavioural patterns of relationships are not well understood. The possibility that a mother's experience of her close relationships might affect her behaviour in early mother-infant interaction and thereby affect the behaviour of the next generation has rarely been investigated (this issue is also applicable to fathers). However, in attachment studies there are theoretical assumptions concerning the influence of the mother's own attachment on the quality of early mother-infant interaction, and more specifically on the sensitivity and responsiveness of the mother (Ainsworth, et al., 1978; Van Ijzendoorn, et

al., 1995), but relatively few empirical studies explore this issue.

Experiences from early relationships with parents may also impact on the quality of adult's other close relationships, such as the marital relationship (Morrison et al., 1997; Waters & Cummings, 2000). Morrison, et al. (1997) found that young adults with positive experiences of their childhood relationship with their parent and a secure attachment style described their intimate relationships as more positive and less conflicted than adults with more negative experiences of relationships associated with insecure attachment styles. On the other hand, Hart et al. (1999) showed that interactive styles might be stable across relationships. In their study among depressed intrusive and depressed withdrawn mothers, the mothers' interactive style with their infants was shown to be similar to the way they interacted with their spouses. However, further research needs to be conducted in investigating paternal behaviour in early interactions with their infant and whether this has been affected by the fathers' experiences of other relationships. This is one aspect of this research area that this study aims to explore.

### **1.6.2: Disruption in the Transitional Process and Psychological Distress**

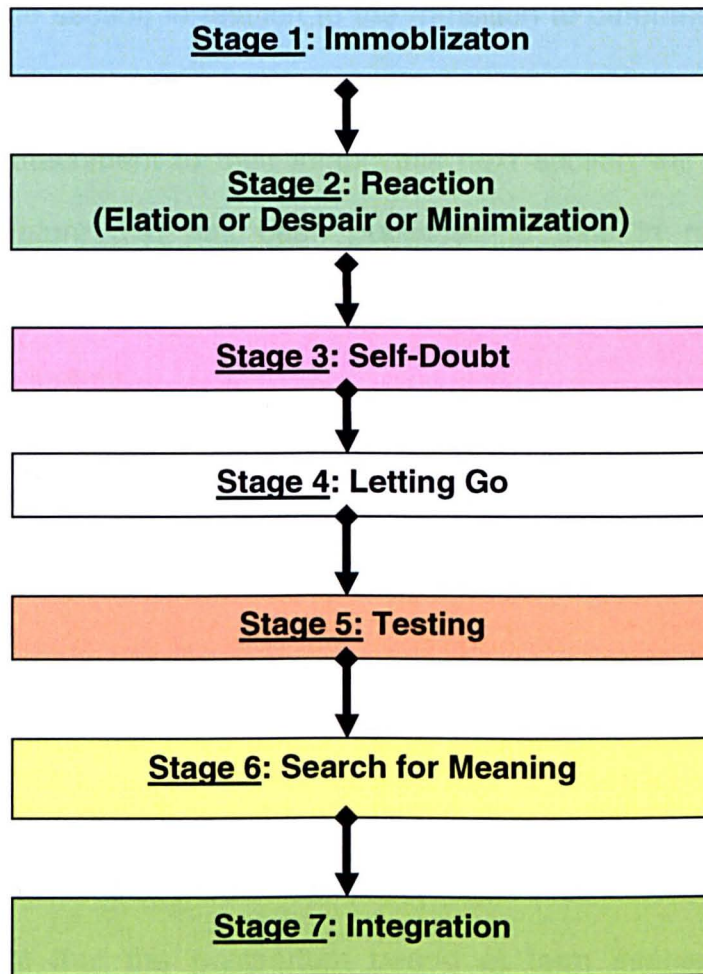
Parenthood and pregnancy may be conceptualised into a model of life transition to provide better understanding of the processes involved. The transition cycle (Hopson, 1981) attempts to take account of the different

disruptions to an individual's accustomed way of life by representing them in a predictable cycle of reactions and feelings (Hopson, 1981). According to Hopson (1981) not all individuals follow the same pattern, and the model allows for the individual to move between stages. The model encompasses seven stages. Firstly, the *Immobilization stage* may be congruent with the discovery that the infant is born before expected or prepared for and the shock or disbelief that may accompany this. Following this, *reaction* occurs, either through *elation* or *despair* or with *minimisation* which involves the condensing of feelings about the event. Thus the discovery of the premature birth of their infant might be greeted by the parents through the following questions, "I'm not ready, will I be able to cope? Emerging from the feeling of *despair* the individual responds with feelings of *self-doubt*, as the growing realisation of the situation becomes apparent and the parents become aware of the change to their family structure. This can be manifested as anxiety, depression and anger (Hopson, 1981).

The *letting go* stage occurs when individuals begin to detach themselves from the past, thus allowing them to cope more effectively with the new situation. For the parents of premature infants, it is about letting go of their 'fantasies'; for the mother it's letting go of the 'ideal image' of a being a mother and having the 'ideal' pregnancy, birth and infant and for the father it's also about letting go of the 'ideal' role of the perfect father. In the next stage, *testing* occurs which allows the individual to explore new territory and new ways of being within that territory. For example, when parents of premature infants begin to explore their relationship with both the infants' hospital surroundings and their infant and begin to combine a different way

of caring for their infant which incorporates both the doctors and nurses assistance and the limitations of the machines attached to their infant which is ensuring survival. The *search for meaning* follows the *letting go* stage. It is at the *search for meaning* stage that individuals' exhibit a conscious strive to learn from the experience by trying to make sense of it. The final stage is *integration*, it is at this point that the transition period is completed and the new adaptations have been made and integrated into the individual's narrative. Therefore the individual no longer exhibits symptoms of anxiety, depression and anger. This is perhaps the stage when the child is accepted into the family unit by the parents (Hopson, 1981).

Figure 1 The stages in the Transitional Model (Hopson, 1981)



The model highlights the pressure placed on parents of premature infants during their transition into early parenthood. The model also provides a framework for understanding parents of premature infants increased levels of psychological distress during their transition into early parenthood transition and thereby provides context for the current study. The literature relating to distress in parents of preterm infants will now be reviewed.



## **1.7: Psychological Distress in Parents of Preterm Infants**

Following from the section in relation to the transition to parenthood (from pregnancy to birth) for parents' of both full term and preterm infants and the process of attachment to their infant, this next section will go on to explore the literature that has been published to date in relation to psychological distress (anxiety, depression and trauma) in parents of both preterm and term infants.

### **1.7.1: Psychological Distress in Parents' of Term Infants**

As previously discussed, the transition from pregnancy to birth of an infant can bring about emotional, physical and social changes for parents. There are also a proportion of both mothers and fathers who experience the postpartum period as a time of severe psychological distress. With the acknowledgement that the postpartum period of term infants can be associated with increased levels of psychological distress (specifically, depression, anxiety and trauma); there has been a wealth of literature focusing on women's psychological health during this time. However, little focus has been attributed to fathers' of term infants' psychological well-being during the postnatal period.

Postnatal research studies in relation to distress in mothers' of term infants have consistently demonstrated that 10 - 15% of woman experience depressive symptomatology severe enough to meet the criteria for a

diagnosis of depression (O'Hara & Swain, 1996) with greater than 60% of these women having symptom onset within the first 6-weeks postpartum (Stowe & Nemeroff, 1995). With respect to fathers' of term infants during the postnatal period, Areias, Kumar, Barras, & Figueiredo, (1996) investigated the prevalence and risk factors associated with paternal depression in first-time fatherhood of term infants and found that at 3 months postpartum 4.8 % of men were depressed, climbing to 28.6% at 9 months. Ballard & Davis (1996) estimated a prevalence rate of depression following first-time fatherhood of term infants to be 10%.

Previous research has indicated that childbirth can be considered a traumatic experience for women. Evidence indicates that 1 - 9% of women have severe symptoms of post-traumatic stress disorder (PTSD) after childbirth (Wijma, Soderquist & Wijma, 1997; Creedy, Shochet, & Horsfall, 2000; Czarnocka & Slade, 2000; Ayers & Pickering, 2001; Soderquist, Wijma, & Wijma, 2002). According to Ayers & Pickering (2001), 2.8% of women reported PTS symptoms at 6 weeks post-partum and 1.5% reported these symptoms at 6 months post-partum. Additionally, the incidence levels of trauma distress increases dependent on whether the women reported experiencing extremely distressing labours (Allen, 1998). Epidemiological research found that there is a high degree of co-morbidity between depression and PTSD in mothers during the post-partum period (Davidson & Fairbank, 1993). Additionally, the prevalence of a PTSD profile for mothers who experienced traumatic births remained relatively stable across the first 12 months post-partum, with estimates being 2.6%

at 6 months and 2.4% at 12 months (White, Matthey, Boyd, & Barnett, 2006).

Whilst previous research often focused on one mental health condition, epidemiological studies reported substantial co-morbidity between depression and anxiety disorders such as PTSD. In the National Comorbidity Survey reported on by Kessler, Sonnega, Bromet, Hughes & Nelson, (1995) and colleagues it was concluded that just under 50% of men and women who suffered from PTSD had also experienced major depression during their life-time. Additionally, The National Vietnam Veterans Readjustment Study reported by Kulka, Fairbank, Jordan, & Weiss, (1990) stated that 16% of male Vietnam surgical theatre veterans and 23% of female surgical theatre veterans with current PTSD had also experienced a major depressive episode in the past 6 months. However, there is scant literature reporting on the extent that symptoms of depression and post-traumatic stress co-occur in the post-partum period. Czamocka & Slade (2000) assessed 264 women at 6 weeks post-partum for symptoms of post-traumatic stress and depression using self-report measures. They found that six out of the eight women who met the full DSM-IV criteria for post traumatic stress disorder, also scored 13 or more for probable major depression on the Edinburgh Postnatal Depression Scale (EPDS). In a study by Lyons (1998), women completed two self-report measures, the Impact of Events Scale (IES) (Horowitz, Wilner and Alvarez, 1979) (a widely used instrument measuring trauma) and the EPDS 4 weeks post-partum period. Lyons (1998) results indicated that

three of the four women scoring in the medium to high distress range on the IES scored above the 13 or more cut-off on the EPDS; however, the correlation between the IES and EPDS was only moderate at 0.4. The accuracy of these estimates may be affected by the small sample size in this study ( $n = 42$ ) (Lyons, 1998).

The extent to which women with PTSD post-partum are also depressed may have a number of important clinical implications. Firstly, if there is a high degree of overlap between the two conditions, post partum PTSD may be missed in favour of a diagnosis of Post Natal Depression (PND) as PND is a more commonly known mental health condition (and individuals are more aware of it) than post-partum PTSD (White, et al. 2006).

This study suggests research should include a trauma inventory when measuring parents' levels of depression in the post-partum period. It would be beneficial to use a trauma instrument that has been standardised to specifically measure perinatal post-traumatic stress in premature mothers. One such questionnaire is the Perinatal Post Traumatic Stress Questionnaire (De Mier, Hynan, Harris, & Manniello, 1996). More information will be given on this measure in methodology section three, page 65-67.

### **1.7.2: Psychological Distress in Mothers of Preterm Infants**

As previously described, the process of the transition to parenthood for parents of preterm infants maybe interrupted by the un-expected arrival of their infant before they have gone through their own natural stages of progression into parenthood. Consequently, parents' of preterm infants may be unprepared emotionally for their new role as parents. They may go through a period of mourning for not experiencing the last period of pregnancy. Therefore, with the acknowledgement that this is a period of psychological distress for the parents' of premature infants there has been a wealth of research conducted investigating increased levels of depression, anxiety and trauma in mothers of premature infants in relation to mothers of full-term infants. However, there appears to be little research conducted to investigate psychological distress in fathers of preterm infants. Additionally, there appears to be a proportion of parents of preterm infants who experience more severe levels of psychological distress during the transition to parenthood in relation to parents of full-term infants' transition to parenthood. Research has highlighted the birth weight of the infant as a determinant factor that influences levels of psychological distress.

Gennaro, York, & Brooten, (1990) compared the psychological stress responses (for e.g.; anxiety and depression) in mothers of very low birth-weight (VLBW = < 1500 grams) preterm infants and mothers of low birth-weight (LBW = 1501-2500 grams) preterm infants from the time of the infant's birth until the infant reached 5 months. There were significant

differences in the patterns of anxiety and depression experienced by mothers of LBW and VLBW infants over time. Mothers of VLBW infants had higher anxiety and depression levels until 2 months adjusted gestational age while mothers of LBW infants had higher anxiety and depression levels at 3 and 4 months. These results are supported by previous research findings which indicated the week after delivery to be a time of heightened anxiety when mothers of LBW infants were compared to mothers of term infants (Choi, 1973; Gennaro, 1988). Mercer, (1986), found that at 4 months postpartum mothers of term infants reported being comfortable with the maternal role and feeling well emotionally partially because of their infant's increased ability to communicate and more regular eating and sleeping patterns. In the study conducted by Gennaro, et al. (1990) at 4 months, mothers of VLBW infants also experienced emotional well-being and reported low levels of anxiety and depression in relation to mothers of LBW infants. Chronologically, the mothers in this study were more than 4 months postpartum when their LBW and VLBW infant reached 3 and 4 months adjusted age, but it is at this 3- and 4- month time period that the LBW and VLBW infants were also beginning to be more communicative.

Singer, et al. (1999) in a longitudinal prospective follow-up study of a cohort of mothers of high-and low-risk VLBW and term infants from birth to 3 years, showed results that supported Gennaro, (1988) at the 1 month time period. Singer et al. (1999) highlighted that at 2 years, mother of VLBW infants did not differ from term mothers, while mothers of high-risk

LBW infants continued to report psychological distress. By 3 years, mothers of high-risk VLBW children did not differ from term children in distress symptoms, whilst parenting stress remained greater.

Blumberg, (1980), found that mothers of ill preterm infants were more stressed (measured by anxiety and depression) than mothers of less sick full term babies. Mothers of sicker preterm infants have been found to be more depressed and less interactive even after the infant has made a full medical recovery than are mothers of less ill preterm infants (Minde, et al., 1983). In other studies, however, mothers appeared equally stressed regardless of how ill their infant appeared to health care professionals and mothers of sicker preterm infants were found to have enhanced rather than diminished caregiver-infant interactions (Benfield, Leib, & Rutter, 1976).

In relation to mothers' of premature infants higher levels of anxiety (in comparison to mothers of full-term infants) and interacting with her infant. Wijnorks, (1999), conducted a study which focused on the relationship between maternal recollected anxiety and the quality of mother-preterm infant interaction. The findings highlighted that high-anxiety mothers were more intrusive and more active during interaction with their infants than were mothers who recalled little or no anxiety during the postnatal period. (Wijnorks, 1999). Therefore, highlighting some evidence which indicates that psychological distress in mothers of preterm infants may impact on how they interact with their infant.

In relation to the research investigating trauma symptoms in mothers of preterm infants and taking consideration of birth weight, only three studies have been reported, one conducted during hospitalization (Pierrehumbert, Nicole, Muller-Nix, Forcada-Guex, and Ansermet, 2003); one conducted with parents attending support groups, whose infants varied widely in age (DeMier, et al., 1996) and the third, investigated posttraumatic stress symptoms at four different time periods (1-3 days postpartum; 14 days postpartum; 6 months postpartum and 14 months postpartum (Kersting et al., 2004). At all four time-points (except 6 months postpartum), the mothers of the VLBW infants recorded significantly higher levels of reported traumatic, depressive and anxiety symptoms compared to the mothers of term infants (Kersting et al., 2004). Additionally, in contrast to the mother of full-term infants, the mothers of VLBW infants displayed no significant reduction in posttraumatic symptoms 14 months after the birth of their infants (Kersting et al., 2004). De Mier et al. (1996) reported that 33% of mothers of high-risk infants would have qualified for a diagnosis of PTSD and had also sought formal help from counsellors or a psychotherapist for their perinatal experiences. Eighteen percent of the mothers not meeting these criteria also engaged in psychotherapy, in comparison to no mothers of healthy term infants (DeMier, et al., 1996). Consequently, severity of the infants' complications, gestational age, and length of hospital stay accounted for 35% of the variance in reports of posttraumatic stress symptoms (DeMier, et al., 1996).

Additionally, other studies of mothers of premature infants have described



responses similar to the posttraumatic symptoms clusters. These studies highlighted that mothers of preterm infants have persistent distressing thoughts about their neonatal intensive care unit (NICU) experiences (Affleck, Tennen, & Rowe, 1990; Holditch-Davis & Miles, 2000). They sometimes avoid taking their child to health care providers, which may be a way to avoid reminders of the NICU (Miles, et al., 1992). Mothers also have been found to be highly vigilant and overprotective of premature infants (Miles & Holditch-Davis, 1995) and to have more elevated levels of anxiety (Brooten, et al., 1988). Affleck et al. (1990), found that mothers of preterm babies who were having more intrusive thoughts at 6 and 14 months postpartum were more depressed and expressed more negative mood states. Thus, more research needs to be conducted to investigate the prevalence of posttraumatic stress symptoms in mothers of premature infants and their relation to the mother and infant interaction.

### **1.7.3: Psychological Distress in Fathers of Preterm Infants**

Although there are numerous reports on the impact of a premature birth on maternal psychological well-being few studies have investigated the psychological impact of premature birth on fathers.

Most of what is known about fathers of preterm infants is a result of quantitative studies that includes both fathers and mothers in the sample. Studies have repeatedly shown that the experience of having a premature or high-risk infant is stressful for parents; mothers report more stress and

anxiety than fathers (Miles et al. 1992; Pehundoff, 1990; Pinelli, 2000; Doering, Moser, & Dracup, 2000 and Hughes et al. 1994). However, Aradine & Ferketich, (1990) conducted a longitudinal study which compared the psychological impact of premature birth on women who were high risk during pregnancy and their partner with two comparison groups delivered at term (one high risk, one low risk). The couples (211 women and 123 men) were studied at four time periods between mid-pregnancy and four months post-delivery. The results indicated that neither the women nor the men differed significantly in anxiety, depression, sense of mastery, or self-esteem after the baby's birth. Maternal self-esteem increased after the birth; maternal depression scores differed significantly for the group by time interaction. Depression scores ranged widely at all times, with a significant proportion of women and smaller proportion of men indicating risks for clinical depression. Gennaro (1988) reported no differences among mothers of premature infants in initial anxiety, based on the level of the infant's illness. However, the outcome of Aradine & Ferketich (1990) study indicated that all mothers' anxiety scores after delivery were associated with the infants' neonatal scores at delivery; mothers of premature infants also showed anxiety 1 month related to the infant's birth status however this did not persist at 4 months. Therefore there is a difference between the results obtained by Aradine & Ferketich (1990) and Gennaro (1988). However, the results obtained by Aradine & Ferketich (1990) may be partially explained by the fact that the participants were selected because they were (or were not) high risk pregnancy, not because they delivered prematurely. Additionally, the range of prematurity

was wide (as opposed to Gennaro (1988) categorisation of premature infants into low and very low birth weight infants) and many of the infants in the Aradine & Ferketich study were not critically ill.

In summary, the birth of a preterm infant can cause an increase in both parents' anxiety and depression levels. There appears to be fluctuations in the degree of anxiety/depression which appears to be influenced by the birth weight of the infant. However, further research needs to be undertaken to investigate psychological distress in fathers of preterm infants. To the best of the author's knowledge, no studies exist that have investigated PTSD in fathers of preterm infants. Therefore it is imperative that research is undertaken in this area. Additionally, research suggests there are other contributing factors to psychological distress, for example, parental and infant characteristics and environmental issues, however, it is beyond the scope and remit of this study to review this literature here.

### **1.8: Consequences of Psychological Distress for Parents of Preterm Infants and the Impact on Attachment**

As previously described, the transition to parenthood can be abruptly interrupted for parents of preterm infants resulting in an inability to complete their own individual process from men/women to fathers/mothers. This interruption in the transitional process on parents may result in them questioning whether they are "ready" and will they "be able to cope?" (Hopson, 1981). Additionally, studies of anxiety, depression and trauma

indicate that parents of preterm infants have higher levels of anxiety, depression and trauma than parents of full-term infants. More specifically, mothers of low birth weight preterm infants (in comparison to mothers of very low birth weight preterm infants) reported higher levels of anxiety and depression 3-4 months postpartum in comparison to their levels of anxiety and depression after the birth of the infant. Bowlby (1973) suggests that a child's developing personality is influenced by their early relationships, more specifically, the emotional availability and responsiveness to the child's needs. It is through this continual interaction between the child and the caregiver that the child develops an "internal working model" which encompasses their beliefs and expectations about both the caregiver and relationships. These working models are carried forward in future relationships and guide a persons' expectations, beliefs and perceptions in relationships. Additionally, Bowlby (1977) suggests that individuals' attachments styles are significant not only regards resilience or vulnerability throughout life but also in the capacity to enjoy life. Previous research has positively related both attachment styles (anxious and avoidant) to several indices of psychological distress such as depression and anxiety (Lopez, et al., 2002; Wei, Mallinckrodt, Russel, & Abraham, 2004), negative affect (Simpson, 1990), emotional distress and nervousness (Collins, 1996), and general distress symptoms (Lopez, et al., 2002). Additionally, few controlled studies have explored maternal stress beyond the neonatal period (Singer, et al., 1999), and few studies have studied the relationship between maternal stress and the quality of parent-infant interaction (Wijnroks, 1999). Additionally, no studies have

investigated the relationship between paternal stress (anxiety, depression and trauma) and the quality of parent-infant interaction.

In summary, the early and unprepared transition to parenthood for parents of preterm infants which results in an increase in their levels of psychological distress and trauma in relation to parents of full-term infants, may be buffered by their own individual attachment styles. Additionally, paternal stress may have an impact on the quality of parent-infant interaction. Consequently, this is a multifactorial process which occurs over time and has potentially huge clinical outcomes. These will now be summarised.

### **1.9: Clinical Utility**

The present study involves both mothers and fathers' of premature infants in the transition process into parenthood. Parents' of premature infants have stated in previous studies that they feel "at a loss" and "without a role" when their infant has been born prematurely. Consequently, it is imperative to understand the psychological issues that may be affecting parents of premature infants and thus interventions can be put in place to help and empower them. Knowledge of attachment styles of parents of premature infants may help guide clinical intervention and help that parents might need. Additionally, if there are difficulties with the process of attachment (due to parents own personal attachment styles preventing them from buffering the distress they may be experiencing) the child may be

potentially at risk and knowing this allows for early intervention. Ultimately, allowing the inclusion of psychology in working in liaison with mid-wives and health visitors in the co-ordination of care of both parents and preterm infants may have significant benefits.

## CHAPTER 2

### AIMS AND OBJECTIVES

#### **2.1: Overview of Chapter**

In this section the rationale, aims, research questions and hypothesis for the study will be outlined.

#### **2.2: Rationale for the Proposed Study**

There is an increase in the rates of premature births in the U.K. Currently there are little or no guidelines of care for parents of preterm infants. Additionally, the guidelines that are present have been drawn from a medical model, with no regard for psychological models (more specifically attachment theory). The attachment theory highlights the importance of the formation of emotional bonds between mother/father and their infant. Additionally, an individuals' own personal attachment style influences how they perceive the world and enables people to manage distress (Bowlby, 1977).

The transition to parenthood from pregnancy to childbirth is a process that first occurs separately in the internal psyche of both the expectant mother and father and then develops externally between them. However, the

transition to parenthood for parents of premature infants is interrupted and ends before both the man and woman have fully completed. It is hypothesised when all the transitional stages have not been completed, individuals may experience distress. Additionally, the disruption in the pregnancy may interrupt the process of prenatal attachment between the parents and their infant which in turn may affect the process of postnatal attachment.

Current studies have proposed an increase in psychological distress (anxiety and depression) in parents of premature infants in comparison to parents of full-term infants. Additionally studies have highlighted significant differences in the patterns of anxiety and depression experienced by mothers of LBW and VLBW infants over time (Genarro, 1988; Singer, et al., 1999). However, no research has been conducted to date to determine why these significant differences in the patterns of anxiety and depression experienced by women of premature infants occur. Additionally, no research has been conducted to investigate if these patterns in anxiety and depression are present in fathers of premature infants.

Previous studies have reported that trauma symptoms are evident in women after the birth of their infant. To date only three studies have investigated post-traumatic stress symptoms. These studies have highlighted the importance of the inclusion of a separate measure to identify post traumatic stress symptoms in addition to depression symptoms. Additionally, to the best of the author's knowledge, no studies



exist that have investigated PTSD in fathers of preterm infants. Therefore it is imperative that research is undertaken to fill the gap in current knowledge.

In summary, research is required to investigate whether parents own personal attachment styles may be mediating and protective factors during a stressful period looking after their preterm infant. Parents who have anxious or avoidant attachment styles may be more likely to be psychologically distressed (experience higher levels of anxiety, depression and trauma) three to four months after the birth of their infant. Additionally, parents who are distressed postnatally may have greater difficulty in participating in the attachment process with their newborn. Consequently, they may have lower scores on pleasure in proximity, tolerance, competence and acceptance three to four months after the birth of their infant.

### **2.3: Underlying Assumptions for the Proposed Study**

Attachment theory is important as it states that an individuals' personal attachment style characterises an individual from the 'cradle to the grave' and it impacts on how individuals perceive the world and manage during times of distress. Additionally, the proposed study assumes that templates of personal attachment are repeated from one generation to the next. In addition, individuals' personal attachment styles can be measured through the Experience of Close Relationship Questionnaire-Revised, which

assumes that the attachment style an individual has in their intimate relationships, would be similar to their attachment style towards their parent(s). Additionally, the proposed study assumes that parents who have difficulty in forming an attachment with their newborn will be more likely to be psychologically distressed.

#### **2.4: Aims for the Proposed Study**

The principle aim of the study is to understand the relationship between personal attachment styles, psychological distress and trauma and the process of attachment in the postnatal period in the parents of premature infants.

The research questions and hypothesis are:

#### **2.5: Research Questions for the Proposed Study**

1. What are the most common personal attachment styles of parents of pre-term infants?
2. What are the levels of anxiety, depression and trauma in parents of pre-term infants at birth and 3-4 months after birth?
3. Do parents of premature infants (who experience change in level of psychological distress) have insecure personal attachment styles?
4. Do parents of premature infants who show change in level

of psychological distress (anxiety, depression and trauma) show change in level of pleasure in proximity, tolerance, acceptance and competence in relating to their infants?

## **2.6: Hypothesis for the Proposed Study**

A two-tailed hypotheses was used as no assumptions were made about the direction of the results.

1. Parents of premature infants will show changes in their levels of psychological distress 3-4 months after the birth of their infants.
2. Based on the research conducted by Lopez, et al. 2002; Wei, et al. 2004; and Simpson, 1990, the researcher predicted that parents of premature infants who show changes in their levels anxiety and trauma 3-4 months later will have anxious attachment styles.
3. Based on the research conducted by Blain, et al. 1993; Collins & Read, 1990; and Davis, et al. 1998 the researcher predicted that parents of premature infants who show changes in their depression levels 3-4 months post-birth will have avoidant attachment styles.

## CHAPTER 3

### METHOD

#### **3.1: Setting**

This study was carried out at two regional hospitals which provide neonatal intensive care for premature infants and their parents. For the period from January 2006 to December 2006, the larger maternity hospital reported 5,550 live births of which 244 (22.7%) were infants born at 35 weeks and under. For the period from January 2006 to December 2006, the smaller maternity hospital reported 2,020 live births of which 107 (5.2%) were infants born at 35 weeks and under. The two hospitals serve demographically similar populations to pregnant women and their families.

#### **3.2: Experimental Design**

This study utilised a longitudinal prospective repeated measures design with data collected at two time points (Time 1 and Time 2). At the first time point, 3-5 days after birth, a set of questionnaires were administered to parents in the hospital. The same questionnaires were administered to the same parents 3-4 months later. This allowed for comparisons of main measures over time.

#### **3.3: Participants**

The participants for the study were parents of premature infants who

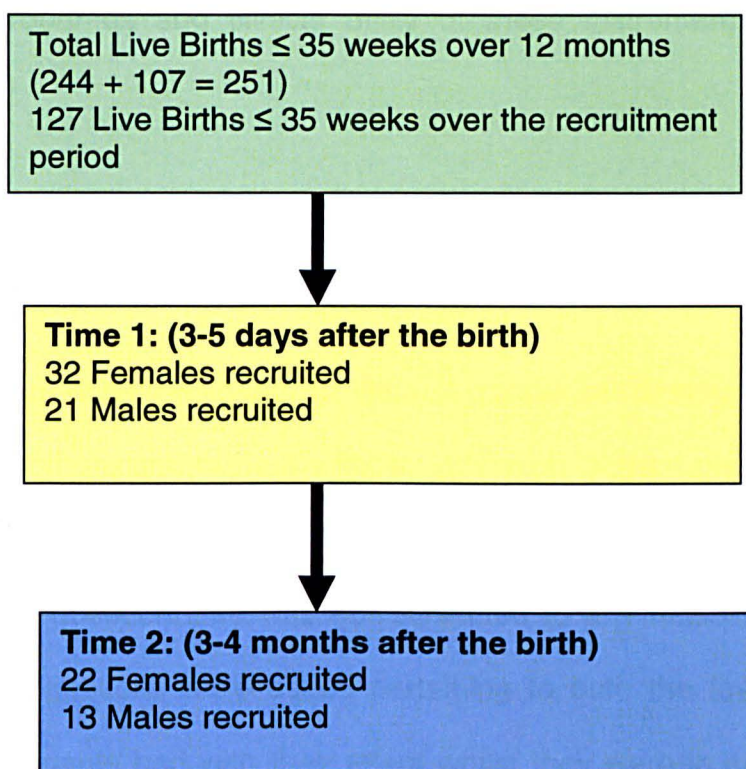
attended and were cared for by the neonatal intensive care unit staff within the hospitals. A total of 127 infants were born at 35 weeks and under between the two hospitals during the time of the recruitment phase of the study. A total of 32 mothers (25%) and 21 fathers (16%) completed questionnaires for the first time period. Twenty-two mothers (68%) and 13 fathers (61%) completed the questionnaires for the second time period of the study. The following inclusion criteria were applied:

- Parents whose infant was born at 35 weeks or under gestation.
- Parents aged 16 years and above.
- Parents whose infant was not in a critical condition.

The exclusion criteria were as follows:

- Parents under the age of sixteen years.
- Parents whose first language was not English (all the questionnaires were validated in the English language only)
- Parents' of infants who were in a critical condition at Time 1 of the study (3-5 days after delivery).

**Figure 2 – Total numbers of mothers and fathers at the two different time points over the data collection periods.**



### **3.4: Measures**

Two questionnaires were designed specifically for the study. They were the Demographic Questionnaire and the Premorbid Mental Health Screen. However, the researcher did not conduct any reliability or validity checks on these questionnaires. This is discussed in chapter five, section 5.6.2, pages 130-132. The study also utilised five psychometric instruments. They were, 1) Hospital Anxiety and Depression Questionnaire (HADS) (Zigmond and Snaith, 1983); 2) Edinburgh Post-Natal Depression Scale (EPDS) (Cox, Holden, & Sagovsky., 1987); 3) Perinatal Posttraumatic Stress Disorder Questionnaire (PPSQ) (De Mier, et al., 1998); 4) Experiences in Close Relationships – Revised Questionnaire (ECR-R) (Fraley, Waller &

Brennan, 2000) and 5) Postnatal Attachment Questionnaire (PAQ) (Condon & Corkindale, 1998). The development, structure, psychometric properties and clinical utility of these instruments are examined below.

### **3.4.1: Demographic Questionnaire**

This questionnaire was designed to gain a range of demographic information on mothers and fathers with an indication of their previous experiences of both childbirth and the neonatal intensive care hospital environment. The questionnaire was not subjected to any reliability or validity checks. Questions were asked pertaining to both the level of contact the participants had with their infant whilst they were in critical care and intensive care. Parents were to specify information including age, marital status, occupation, educational background and whether the infant was their first child. The questionnaire also asked if participants had any previous experience with any other children in a Neonatal Intensive Care Unit, and if so, what the outcome was for the child in question. In addition, parents were asked what type of delivery they had (or their partner had). Participants were asked questions with respect to the gestational age of the infant at birth and the number of weeks the infant spent in both intensive and critical care. Additionally, parents were asked to report how much daily contact they had with their infant according to the following categories: feeding, skin-to-skin contact, holding, any form of touching, kissing and any other form of contact.

### **3.4.2: Premorbid Mental Health Screen**

This questionnaire was developed to obtain information about participants' previous mental health, particularly regards antenatal history of depression, anxiety and trauma. The depression and anxiety sections of the premorbid mental health screening tool were constructed by the researcher through both the review of literature and consulting with researcher supervisor. The questions related to whether and when participants experienced clinical depression and or anxiety for which they had sought treatment.

### **3.4.3: Antenatal Trauma Screen**

The antenatal trauma screen was adapted from a pre-birth trauma screen (PBTS) used by Ashcroft (2005). The PBTS was originally adapted from the Structured Clinical Interview for DSM-IV Axis 1 Disorders: Clinical Version (SCID-V) Administration Booklet which specifically looks at post traumatic stress disorder (First, Spitzer, Gibbon & Williams, 1996) with the purpose of identifying any participants displaying signs/symptoms of pre-existing trauma before the birth of their child.



**Development and Structure:** The PBTS consists of a brief summary of events that an individual may perceive as distressing followed by ten questions that relate to the DSM-IV criteria for a diagnosis of Post-Traumatic Stress Disorder.

**Psychometric Properties:** At present there is no information available in relation to the reliability and validity of the PBTS. However, studies have revealed that the SCID (from which the PBTS was developed) has good reliability (Anthony & Barrow, 2002; Williams et al., 1992) and validity (Anthony & Barlow, 2002; Rogers 1995).

**Utilisation:** The PBTS was originally developed by Ashcroft (2005) to screen for trauma symptoms in men who have experienced their partner's childbirth. As this study was investigating trauma in parents of premature infants it appeared to be an appropriate tool for identifying and measuring pre-natal trauma experiences that may impact on psychological distress.

#### **3.4.4: Edinburgh Post-Natal Depression Scale (EPDS, Cox, et al., 1987)**

**Development and Structure:** The EDPS is a well known measure developed to screen for postnatal depression symptomatology in mothers and fathers. The EPDS is a 10-item self-report scale. The ten symptoms of depression included in the EPDS are inability to laugh, inability to look forward to things with enjoyment, blaming oneself unnecessarily, being anxious or worried, scared or panicky, inability to

cope, having difficulty sleeping, being sad or miserable, crying, and thoughts of harming oneself. The 10 items on the scale were derived from instruments that screen emotional well being in the general population. Each item is scored on a four-point scale (0-3), the minimum and maximum score being 0 and 30. A cut-off score of 12/13 has been found to identify most seriously depressed women (Cox, Murray, & Chapman, 1993). Additionally, a cut-off score of 9/10 has been suggested to increase sensitivity for the purpose of community screening in women (Harris, Huckle, Thomas, & Johns, 1989; Murray & Carothers, 1990). A validated study conducted by Matthey, Barnett, Kavanagh, & Howie, (2001) proposed a two-point lower cut-off point for fathers.

Therefore, a cut-off score of 9/10 and 12/13 to identify distressed and very distressed women with a two-point lower cut-off for fathers (7/8 (distressed fathers) and 10/11(very distressed fathers) was utilised in this study. Matthey, et al. (2001) suggests that there should be four point differences between two scores on the scale to be 95% confident that the change reflects a real change in the individual's mood and therefore not the result of measurement error (Matthey, et al., 2001).

**Psychometric Properties:** The original EPDS used with a female population indicated a satisfactory validity and split-half reliability of 0.88 and an internal consistency of 0.87 (Cronbach's standardised alpha; Cox, et al., 1987). When used with men, Matthey, et al. (2001) results

also indicated satisfactory validity, split-half reliability of 0.78 and an internal consistency (Cronbach's standardised alpha) of 0.81.

#### **3.4.5: Hospital Anxiety and Depression Questionnaire (HADS, Zigmond & Snaith, 1983)**

**Development and Structure:** The HADS is a self-report measure used widely in hospital settings as a screening instrument for anxiety and depression. It does not contain questions pertaining to somatic complaints, making it less likely to be confounded by the direct effects of medical conditions (Zigmond & Snaith, 1983). Hence, the anxiety scale concentrates upon those symptoms that are more 'generalised' in nature, rather than somatic complaints. The depression scale provides an indication of the person's depressed mood by focusing upon the degree of interest and pleasure they are able to demonstrate during everyday activities (Zigmond & Snaith, 1983).

Respondents are required to select the most applicable statements relating to their current functioning on each of two subscales: anxiety and depression, each of which consists of seven items (Zigmond & Snaith, 1983). Each item is rated on a four-point scale ranging from zero (absence of a symptom) to three (maximum symptomology; Zigmond & Snaith, 1983). For each subscale score, there is a maximum score of twenty-one (Zigmond & Snaith, 1983). Respondents are asked to complete the questionnaire according to how they have felt over the last week (Zigmond & Snaith, 1983). Using this measure, it is therefore

possible to gain an indication of psychological distress (Zigmond & Snaith, 1983).

Both of the subscales use the same cut off score of eight. For both the Anxiety and Depression subscale, raw scores between 8 and 10 identify mild cases, 11-15 moderate cases, and 16 or above, severe cases (Snaith & Zigmond, 1994). This classification was used in this study.

**Psychometric Properties:** Validation studies have found satisfactory internal consistencies of mean 0.83 in HADS-A and mean of 0.82 in HADS-D (Herman, 1997). Retest reliability shows high correlation,  $r > 0.80$ , for up to 2 weeks (Herman, 1997).

**Utilisation:** The HADS has not been widely used in assessing anxiety and depression in parents of premature infants. However, previous research has shown that the HADS is a valid instrument for assessing anxiety and depression in general out-patient populations. (Zigmond & Snaith, 1983). Additionally, the HADS was used to investigate anxiety and depression in fathers in teenage pregnancy (Quinlivan & Condon, 2005).

#### **3.4.6: Perinatal Posttraumatic Stress Disorder Questionnaire (PPSQ, DeMier, et al., 1998)**

**Development and Structure:** The PPSQ was developed to quantify symptoms of Post Traumatic Stress Disorder (PTSD) specifically

related to childbirth. Construction of the Perinatal PTSD Questionnaire was based on two sources: the diagnostic criteria for PTSD listed in the Diagnostic and Statistical Manual for Mental Disorders, third edition revised (DSM-III-R) and a similar survey validated as a measure of war trauma (DeMier, et al., 1998). The three components of PTSD are (1) unwanted flashbacks or recurrent memories of the traumatic event, (2) avoidance of stimuli associated with the trauma or a numbing of responsiveness, and (3) increased arousal and hypervigilance (DeMier, et al., 1998). These components are represented in questionnaire items 1 through 3, 4 through 9, and 10 through 14, respectively. The PPSQ is a 14-item dichotomously scored questionnaire. Respondents are instructed to answer "yes" to an item only if the experience described lasted for more than 1 month during the 6 months after birth (DeMier, et al., 1998).

**Psychometric Properties:** The PPSQ has a moderate level of internal consistency (coefficient alpha = 0.83; DeMier, et al., 1998). The test-retest reliability of the PTSD Questionnaire over a 2 to 4 week period was  $r = 0.92$ ;  $p < 0.01$ , (DeMier, et al., 1998). Additionally, studies have shown high correlation between the PPSQ and other well known PTSD scales such as the Impact of Events Scale (IES) ( $r = 0.78$ ,  $p < 0.001$ ) and the Penn Inventory ( $r(131) = 0.50$ ,  $p < 0.001$ ) (Quinnell & Hynan, 1999). Also, the PPSQ was positively correlated with the Becks' Depression Inventory – Second Edition (BDI-II) ( $r = 0.58$ ,  $p < 0.001$ ) (Callahan & Hynan, 2002). However, the PPSQ has not been standardised on fathers of premature infants.

**Utilisation:** The PPSQ has been used in studies assessing posttraumatic stress symptoms in mothers of premature infants (DeMier, et al. 1998; and Muller-Nix, Forcada-Guex, Pierrehumbert, Borghini, & Ansermet, 2004). DeMier et al. (1998) suggested that participants who answer 'yes' to six responses distributed according to the diagnostic criteria in addition to the symptoms causing significant distress or impairment in important areas of functioning (such as social or occupational functioning) would meet the DSM-IV criteria for PTSD. Additionally, mothers of infants would be described as at "high risk" of developing symptoms which would meet the diagnostic criteria for PTSD if they answered 'yes' to four or more questions (DeMier, et al., 1998). However, DeMier, et al. (1998), investigated woman's postnatal distress 6 months retrospectively after their infant's birth.

Muller-Nix, et al. (2004), investigated maternal stress and mother-child interaction at 6 and 18 months adjusted to infants' age. The preterm mother population in this study was divided into two groups: low stress, PPSQ < 6 (LS) and high stress, PPSQ ≥ 6 (HS) (Muller-Nix, et al., 2004). In the present study, an indication of trauma symptoms is of interest, rather than a diagnosis of PTSD and hence the questionnaire results were divided into low stress: PPSQ < 6 (LS) and high stress, PPSQ ≥ 6. The same cut-off points will be used for fathers' of preterm infants.

### **3.4.7: Experiences in Close Relationships – Revised (ECR-R, Fraley, Waller, and Brennan 2000)**

**Development and Structure:** The ECR-R questionnaire was developed in an attempt to provide a more accurate and reliable measure of adult attachment styles (Fraley, et al., 2000). It is based on the reanalysis of a comprehensive 323 item dataset previously collected by Brennan et al. (1998) from self-report measures of adult attachment.

The ECR-R consists of 36-items that assess how individuals experience emotionally intimate relationships with their romantic partner. It assesses two broad dimensions (i.e., anxiety and avoidance) that are theorized to underlie adult attachment styles (Brennan et al., 1998). The 18 anxiety items assess fear of abandonment and desire for intimate contact (e.g., “I often worry that my partner will not want to stay to stay with me”). The 18 avoidance items assess discomfort with interpersonal disclosure about personal issues (e.g., “I prefer not to show my partner how I feel deep down” and “I am nervous when my partner gets too close to me”). Individuals rate how well each item describes their feelings in their relationships from 1 = “strongly disagree” to 7 = “strongly agree”. A total score for each of the anxiety and avoidance items is obtained by adding up the items for each factor and dividing it by the number of items.

**Psychometric Properties:** Fairchild & Finney (2006), with a largely homogeneous college population, reported high estimates of internal

consistency from both scales (Cronbach's coefficient alpha above 0.90). The ECR-R has good construct validity with other questionnaires, i.e. UCLA Loneliness Scale-Version Three (Russell, 1996; Fairchild & Finney, 2006), The Social Provisions Scale (SPS; Cutrona and Russell, 1987; Fairchild & Finney, 2006) and The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990; Fairchild & Finney, 2006).

**Utilisation:** The ECR-R is a widely validated instrument for assessing adult attachment style. Previous researchers have used the ECR-R to investigate retrospective reports of parenting received in families of origin: the relationships to adult attachment in adult children of alcoholics (Kelley, et al., 2005) and the relationship between physicians' difficulty with emergency department patients and their attachment styles (Maunder, Panzer, Viljoen, Owen, Schalk, & Hunter, 2006).

#### **3.4.8: Postnatal Attachment Questionnaire (PAQ, Condon & Corkindale, 1998)**

**Development and Structure:** The PAQ explores parents' feelings about their infants. The questionnaire was designed to quantitatively assess the strength of the mother's emotional attachment to her infant during the first postnatal year (Condon & Corkindale, 1998).

The questionnaire was developed from unstructured interviews with 10 women who had infants under the age of 1 year old (Condon &



Corkindale, 1998). The interviews focused upon mothers' subjective experiences towards their infant (Condon & Corkindale, 1998).

The factor structure of the 19-item questionnaire comprises four constellations: *pleasure in proximity*, *acceptance*, *tolerance*, and *competence* (Condon & Corkindale, 1998) (See Table 1 for the individual items that relate to the components).

**Table 1: Main Features of the PAQ**

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<b>Components of the Questionnaire</b>	<b>Number of Items</b>
Pleasure in Proximity	3,7,8,9,14,15,16,17
Acceptance	10, 11, 12
Tolerance	1, 2, 6
Competence	4,5,13,18,19

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The PAQ has 19 items and each item has from two to five choices that describe the frequency of intensity of the mother's response to the infant (Condon & Corkindale, 1998).

The score for each item is 1 for low attachment to 5 for high attachment, regardless of whether the item has five choices or two choices (Condon & Corkindale, 1998). The possible range of scores is 19 to 95 (Condon & Corkindale, 1998). The score for each factor is the average of the scores for all the items in that factor (Condon & Corkindale, 1998).

**Psychometric Properties:** The questionnaire appears to have a high level of internal consistency (Cronbach's coefficient alpha for the three postnatal periods was as follows: at 4 weeks = 0.78; 4 months = 0.79 and 0.78 at 8 months (Condon & Corkindale, 1998). Additionally, at the 4 week assessment, the questionnaire was administered to a randomly selected sub-group of 56 women on two occasions separated by a 2-week interval to explore test-retest reliability (Condon & Corkindale, 1998). The Pearson correlation coefficient between the two assessments was 0.86 which is highly significant at  $p < 0.001$  (Condon & Corkindale, 1998).

The PAQ has good construct validity with other questionnaires; The Zung Self Rating Depression Scale (ZUNG) (Zung, 1965; Condon & Corkindale, 1998), The Hospital Anxiety and Depression Scale (HADS) (Zigmond & Smith, 1983; Condon & Corkindale, 1998), The Profile of Mood States (POMS) (McNair, Lorr & Droppleman, 1981; Condon & Corkindale, 1998) The Intimate Bond Measure (IBM) (Wilhelm & Parker, 1988; Condon & Corkindale, 1998), The Social Support Questionnaire (SSQ) (Sarason, Levine, & Basham, 1983; Condon & Corkindale, 1998) and The Infant Characteristics Questionnaire (Bates, Freeland & Lounsbury, 1979; Condon & Corkindale, 1998). However, the PAQ has not been standardised on fathers.

**Utilisation:** In Condon & Corkindale (1998) the four components measuring the process of attachment between the infant and mother were combined resulting in the usage of a global attachment score. Due

to limited number of participants in this study, the researcher used the four components separately to observe changes that occurred across the two study time periods. Additionally, Condon & Corkindale (1998) observed a different component structure at the 4 weeks time period in comparison to the other two time periods. As it was the 4 month time period that was of interest in this study, it was predicted that the individual component scores would be more informative than the global score.

### **3.5: Procedure**

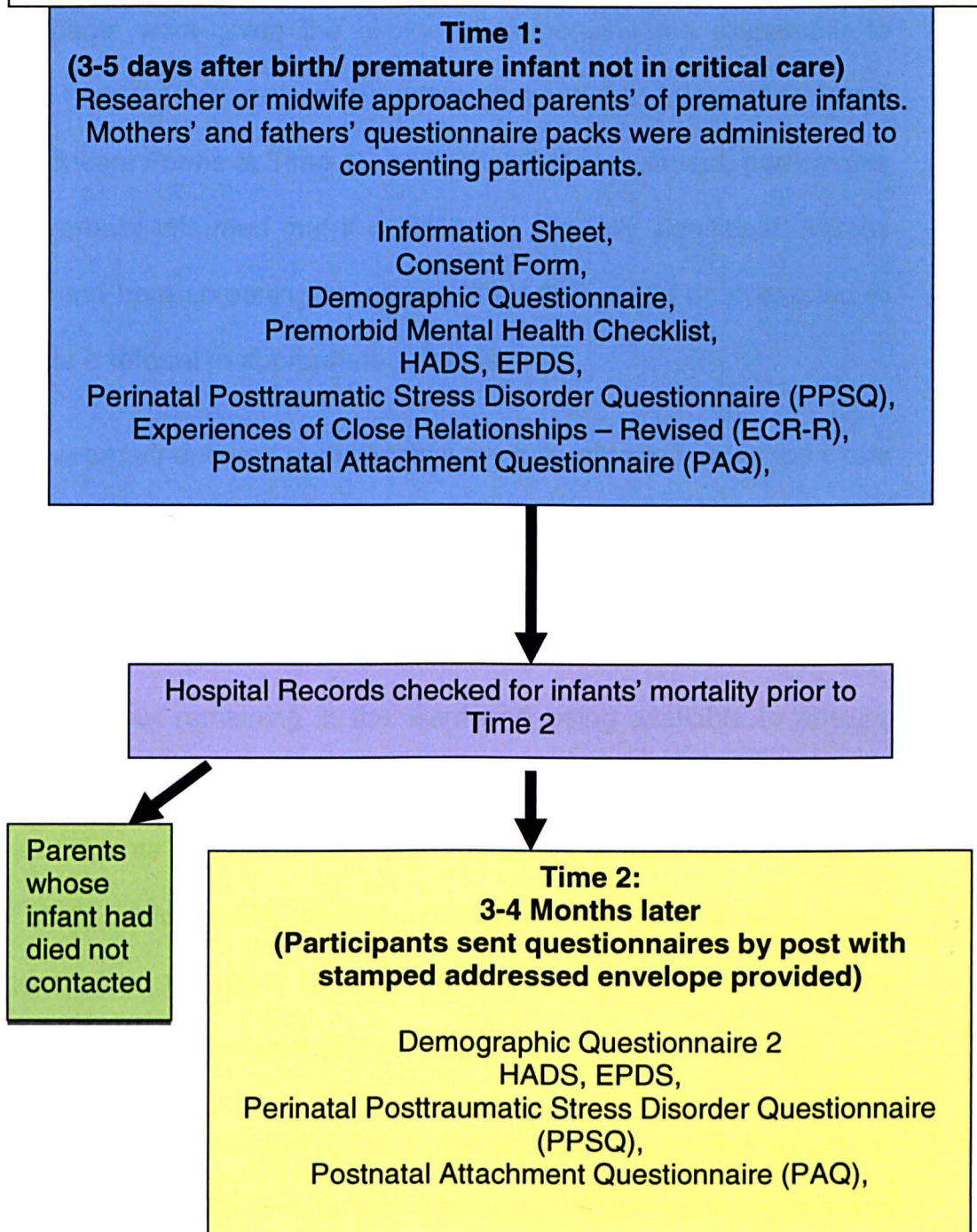
Ethical approval was gained for the present study from the Local Research Ethics Committee. Local NHS Hospitals Trust approval and honorary contracts for the researcher were also sought and gained. Copies of correspondence can be found in Appendix 2: Ethical Approval Documentation.

The hospital database was used by the medical secretary in both hospitals to identify parents of infants at 35 gestation weeks and under. After potential participants were identified, staff on the ward were consulted as to whether or not the parents could be approached about the study. Mothers and fathers were approached by the researcher and the study was explained to them. Each participant was given an Information Sheet and Consent Form (Appendix 3: Information Sheet and Consent Forms at Time 1). The participants were given approximately 20 minutes to consider whether they wanted to participate in the study. On agreement to participate in the study, separate mothers' and fathers' questionnaire packs were administered.

The questionnaire pack included: Demographic Questionnaire, Psychological well-being questionnaires (Mental Health Checklist (based on SCID questions), HADS, PPQ, ECR-R and PAQ (See Appendix 1: Questionnaire Pack given at Time 1). The questionnaires were completed in the hospital. If only one parent was present on the ward during the recruitment period, they were asked to take another set of questionnaires for their partner to fill out at home and return during their next hospital visit to the neonatal ward in the anonymous box provided by the researcher.

Hospital records were checked by the hospital administration staff for infants' mortality before approaching participants 3-4 months later (Time 2). A set of parents whose infant died was not contacted for Time 2 data. The second set of questionnaires (HADS, EPDS, PPQ and PAQ) was sent by post with a pre-paid envelope included. The questionnaires were distributed for a second time with both covering information and demographic sheets (See Appendix 4: Covering Information Sheet for Questionnaire Pack at Time 2 and Appendix 1: Questionnaire Pack for Time 2). Two weeks after Time 2 questionnaires were sent out; a phone call was made to participants who had not yet responded to offer assistance in completing the forms. Figure 3 illustrates the procedure of the study.

Figure 3: Study Procedure



### **3.6: Ethical Considerations**

Participants were given the choice of authorising the researcher to inform their G.P of study participation (Appendix 3: Information Sheet and Consent Forms at Time 1). Additionally, at recruitment, participants were verbally informed that if evidence of clinically significant distress was found from screening measures, their G.P would be contacted to facilitate a referral to appropriate services.

The researcher ensured participants were fully informed about the study by providing a comprehensive information sheet. Before administration of the questionnaire pack, participants were given further opportunity to discuss any concerns or queries about the study. This was facilitated by the researcher remaining in the ward and being available to answer questions. The researcher's contact details were also provided in order for participants to express any future concerns or queries in relation to the study. Additionally, participants were informed that they could withdraw from the study at any time and that this decision would not impact on the medical care of their infant.

Participants were reassured that all the information provided would be kept confidential. To ensure that this occurred, the participants were assigned a number and their contact details were kept separate from questionnaire data.

### **3.7: Statistical Analysis and Choice of Statistical Tests.**

All questionnaire data was analysed using SPSS software (version 14.0). Tests of normality were undertaken to determine choice of

statistical test. Parametric tests assume that numerical scores are fairly accurate to the distribution in the normal population (Howitt & Cramer, 1997). Non-Parametric tests make few or no assumptions about the numerical data in relation to its distribution within the normal population (Howitt & Cramer, 1997). The distribution of the data for both males and females for each measure is outlined in Appendix 5, Table 1a and 1b.

The following analyses were then performed:

1. Descriptive components and analyses of frequencies to analyse demographic and premature infants' data.
2. Demographic differences between completers and non-completers for Time 2 were investigated by means of cross tabulation and Chi-square analysis.
3. A frequency table of number of parents showing each attachment style was constructed.
4. Paired sample tests both parametric (related t-tests) and non-parametric (Wilcoxon tests) were undertaken to investigate changes in levels of psychological distress (anxiety, depression and trauma) for parents at both time periods (Appendix 6 gives details of data distribution for each measure).
5. Spearman's correlations were used instead of Pearson's correlations to account for a non-linear relationship between the

variables. Spearman's correlations were undertaken to investigate the relationship between psychological distress (anxiety, depression and trauma) and parents' personal attachment styles.

6. Descriptive statistics for the four components of the Postnatal Attachment Questionnaire were presented. Additionally, changes in the four components were investigated using Wilcoxon signed-rank non-parametric tests.
  
7. Spearman's correlations were undertaken to investigate the relationship between the four components of the Postnatal Attachment styles and psychological distress (anxiety depression and trauma).



## **CHAPTER 4**

### **RESULTS**

#### **Overview**

This chapter will describe the results of the statistical analyses used for this study and the main findings. Firstly, demographic and descriptive information of the sample at Time 1 will be presented. Secondly, frequencies of the parents' own personal attachment styles will be presented. Thirdly, frequencies and descriptive statistics for anxiety, depression and trauma and other factors will be examined, with comparisons at Time 1 (after the birth of the infant) and Time 2 (3-4 months after the birth of the infant). Fourthly, the changes in levels of anxiety, depression and trauma will be examined, with comparisons at Time 1 and Time 2. Fifthly, the changes in levels of anxiety, depression and trauma will be investigated in relation to their own personal attachment styles. Sixthly, descriptive of parent-infant attachment behaviour will be examined, with comparisons at Time 1 and Time 2. Finally, the changes in parent-infant attachment behaviour will be investigated with respect to the changes in levels of anxiety, depression and trauma.

#### **4.1: Description of the Sample**

A summary of the demographic data for the mothers and fathers is presented in Table 2 and Table 3.

A summary of the demographic data of mothers and fathers in relation to marital status, living arrangements, length of current relationships, highest educational attainment previous children, type of delivery and previous neonatal experience (See Table 2).

A summary of the demographic data for the infants is presented in Table 4.

A summary of the demographic data of mothers and fathers in relation to marital status, living arrangements, length of current relationships, highest educational attainment previous children, type of delivery and previous neonatal experience (See Table 2)

#### **4.1.1: Age**

The female participant's age ranged from 18 to 38 years with a mean of 27 years. The male participant's age ranged from 21 to 43 years with a mean age of 30 years.

#### **4.1.2: Marital status, living arrangements and length of time with current partner**

The results showed that 29 (90.7%) of the female participants were currently in a relationship with the infant's father and co-habiting with their partner. Over seventy-eight percent of the females were in their current relationship for 1 – 10 years, with 40.6% (13) of the female participants in their current relationship for 1-5 years. All of the male participants were currently in a relationship with the infant's mother and all of male

respondents were co-habiting with their partners. Over 95% of the male participants were in their current relationship for 1 – 10 years, with 42.9% (9) of the male participants in their current relationship for 1-5 years.

#### **4.1.3: Previous children**

Results indicated that 16 (50%) of the female participants and 9 (42.9%) of the male participants were first time parents.

#### **4.1.4: Highest Educational Attainment**

From the sample it was found that 7 (21.9%) of the female participants had no educational qualifications and 15 (46.9%) of the female participants highest educational attainment was O-Levels/G.C.S.E.'s level. The results showed that 4 (19%) of the male participants had no educational qualifications and 10 (47.6%) of the male participants highest educational attainment was O-Levels/G.C.S.E.'s level.

#### **4.1.5: Type of delivery**

The results showed that 17 (53.1%) of the female participants had vaginal/normal deliveries and 13 (40.6%) had emergency caesarean deliveries. From the sample it was found that 12 (57.1%) of the male participants partners' had vaginal/normal deliveries and 8 (38.1%) of their partners' had emergency caesarean deliveries.

#### **4.1.6: Previous experience of Neonatal Intensive Care Units**

The results showed that 25 (78.1%) of the female participants and 18 (85.7%) of the male participants had no previous experience of an infant in neonatal intensive care.

**Table 2:**

Frequencies and percentages of demographic data of marital status, living arrangements, length of current relationship, previous children, type of delivery, previous neonatal experience and highest educational attainment.

	<b>FREQ (%) MOTHERS</b>	<b>FREQ (%) FATHERS</b>
<b>MARITAL STATUS</b>		
Married	15 (46.9%)	11 (52.4%)
Single	2 (6.3%)	0 (0%)
Partner	14 (43.8%)	9 (42.9%)
Other	1 (3.1%)	1 (4.8%)
Total	32 (100%)	21 (100%)
<b>LIVING ARRANGEMENTS</b>		
Living Together	29 (90.6%)	21 (100%)
Living Separately	2 (6.3%)	0 (0%)
Missing Data	1 (3.1%)	0 (0%)
Total	32 (100%)	21 (100%)
<b>LENGTH OF CURRENT RELATIONSHIP</b>		
Less than a year	0 (0%)	1 (4.8%)
1-5 years	13 (40.6%)	9 (42.9%)
6-10 years	12 (37.5%)	7 (33.3%)
11-15 years	6 (18.8%)	4 (19%)
Missing Data	1 (3.1%)	0 (0%)
Total	32 (100%)	21 (100%)
<b>HIGHEST EDUCATIONAL QUALIFICATION</b>		
No qualifications	7 (21.9%)	4 (19%)
O-Levels/G.C.S.E's	15 (46.9%)	10 (47.6%)
A-Levels	6 (18.8%)	2 (9.5%)
Diploma	1 (3.1%)	1 (4.8%)
Degree/Professional Qualification	2 (6.3%)	3 (14.3%)
Postgraduate Degree	1 (3.1%)	1 (4.8%)
Total	32 (100%)	21 (100%)
<b>PREVIOUS CHILDREN</b>		
Yes	16 (50%)	12 (57.1%)
No	16 (50%)	9 (42.9%)
Total	32 (100%)	21 (100%)
<b>TYPE OF DELIVERY</b>		
Vaginal/Normal Delivery	17 (53.1%)	12 (57.1%)
Elective/Planned Caesarean Delivery	1 (3.1%)	1 (3.1%)
Emergency Caesarean Delivery	13 (40.6%)	8 (38.1%)
Missing Data	1 (3.1%)	0 (0%)
Total	32 (100%)	21 (100%)
<b>PREVIOUS EXPERIENCE OF NEONATAL INTENSIVE CARE</b>		
Yes	7 (21.9%)	3 (14.3%)
No	25 (78.1%)	18 (85.7%)
Total	32 (100%)	21 (100%)

#### **4.1.7: Previous Depression Symptoms**

From the sample it was found that 4 (12.5%) of the female participants and 2 (9.5%) of the male participants had previously suffered episodes of depression (in which they had received treatment) (See Table 3).

#### **4.1.8: Previous Anxiety Symptoms**

Results indicated that 1(3.1%) of the female participants and 1 (4.8%) of the male participants had previously suffered episodes of anxiety (in which they had received treatment) (See Table 3).

#### **4.1.9: Previous Trauma Symptoms**

The results showed that 8 (25%) of the female participants and 9 (42.9%) of the male participants had previously suffered trauma symptoms (in which they had received treatment) (See Table 3).

**Table 3:**

**Frequencies and percentages of demographic data of parents' previous mental health difficulties.**

<b>PREVIOUS MENTAL HEALTH DIFFICULTIES</b>	<b>FREQ (%) MOTHERS</b>	<b>FREQ (%) FATHERS</b>
<b>DEPRESSION</b>		
Yes	4 (12.5%)	2 (9.5%)
No	28 (87.5%)	19 (90.5%)
Total	32 (100%)	21 (100%)
<b>ANXIETY</b>		
Yes	1 (3.1%)	1 (4.8%)
No	31 (96.9%)	20 (95.2%)
Total	32 (100%)	21 (100%)
<b>TRAUMA SYMPTOMS</b>		
Yes	8 (25%)	9 (42.9%)
No	24 (75%)	12 (57.1%)
Total	32 (100%)	21 (100%)

A summary of the demographic data for the premature infants in relation to infant birth weight, whether they spent time in intensive care and critical care, previous hospital admissions post-discharge, number of hospital admissions post-discharge and the reason for the infants admission to hospital post-discharge is presented in Table 4.

#### **4.1.10: Birth Weight of Infant**

From the sample it was found that 22 (68.8%) of the female participants' and 18 (85.7%) of the male participants' infants birth weight was less than 2,500 grams, placing them in the Low Birth Weight Category.

#### **4.1.11: Demographics of completers and non-completers**

In order to investigate any possible differences between completers and non-completers in the second part of the study, crosstabulation analyses were carried out to explore differences in the demographic characteristics,

previous mental health and details relating to their infant between the two groups. The results are shown in Appendix 5, Tables, 3-5).

Chi-Square tests were carried out to investigate whether there were any significant associations between the completers and non-completers. Chi-square analysis revealed an approaching significance between the male completers and non-completers in relation to previously suffering from trauma symptoms ( $\chi^2 = 4.86$ ,  $df = 1$ ,  $p = 0.06$  (two-tailed) (Appendix 5, Table 5). No other significant relationship was found between completers and non-completers

#### **4.2: Research Question: What are the most common personal attachment styles of parents of premature infants?**

##### **4.2.1: Frequencies of the Parents own Personal Attachment Styles**

Parents' own personal attachment styles were measured using the total scores on both the anxious and avoidant subscales of the ECR-R Questionnaire. Participants can obtain a minimum of 1 and maximum score of 7 on the ECR-R Questionnaire. Low scores on both the anxious and avoidant subscales indicate high secure personal attachment styles. Table 4 indicates that both males and females indicated that they have secure personal attachment styles (that is low mean scores on both the anxious and avoidant scales).

Table 4 shows the mean and standard deviation scores for the ECR-R scores for men and women. Table 4 illustrates that males reported low



scores on both the anxious (mean = 2.06, SD = 0.80) and avoidant scales (mean = 2.40, SD = 0.97). Females reported low scores on both the anxious (mean = 2.37, SD = 1.16) and avoidant scales (mean = 2.67, SD = 0.91) (See Table 4 for details).

**Table 4:**  
**Means and Standard Deviations for ECR-R scores for Females and Males at Time 1**  
**(after the birth of their infant).**

	Mean	SD	Minimum Score	Maximum Score	N
<b>Female Anxious Score</b>	2.37	1.16	1.33	5.94	32
<b>Female Avoidant Score</b>	2.67	0.91	1.67	4.50	32
<b>Male Anxious Score</b>	2.06	0.80	1.33	4.61	21
<b>Male Avoidant Score</b>	2.40	0.97	1.67	5.33	21

#### **4.2.2: Differences between completers and non-completers own Personal Attachment Styles**

Mann-Whitney tests to compare the distributions between completers and non-completers of both the males' and females' total anxiety and avoidance scores revealed no significant differences between the groups (See Appendix 5, Table 6)

#### **4.3: Research Question: What are the levels of anxiety, depression and trauma in parents of premature infants at birth and 3-4 months after birth?**

'Anxiety' was measured using the cut-off scores of 8 and above for both males and females as measured by the anxiety subscale of the HADS

(Zigmond & Snaith, 1983).

'Depression' was measured using the cut-off scores of 8 and above for both males and females as measured by the depression subscale of the HADS (Zigmond & Snaith, 1983). 'Depression' was also measured using the cut-off scores of 9/10 (distressed) and 12/13 (very distressed) for women and a two-point lower cut-off for fathers (7/8 distressed and 10/11 very distressed; Matthey et al. 2004).

'Trauma' was measured using the cut-off score of 5 and below and 6 and higher for both males and females as measured by the PPTSQ and includes the presence of high and low stress (Muller-Nix, et al. 2004).

#### **4.3.1: Descriptive Analyses of Psychological Distress Data at Time 1 (after the birth of the infant)**

Table 5 shows the means and standard deviations for HADS scores (anxiety and depression), EPDS scores and PPTS scores for men and women at Time 1 (after the birth of the infant). Additionally, Table 5 highlights the frequencies of both males and females who exceeded the clinical cut-off for HADS-Anxiety, HADS-Depression, EPDS and PPTS.

**Table 5:**

**Means and Standard Deviations of HADS scores (Anxiety and Depression), EPDS scores and PPTS scores for Males and Females at Time 1 (after the birth of the infant).**

	Mean	SD	Frequency of Cut-Off	Minimum Score	Maximum Score	N
<b>Female's HADS Anxiety Scores</b>	8	4.07	14 (43.7%)	0	16	32
<b>Female's HADS Depression Scores</b>	5.19	3.37	7 (21.9%)	0	12	32
<b>Female's EPDS Score</b>	9.69	5.91	19 (59.5%)	0	23	32
<b>Female's PPTS Total Score</b>	2.56	2.66	10 (31.2%)	0	8	32
<b>Male's HADS Anxiety Scores</b>	6.76	4.02	7 (33.3%)	2	17	21
<b>Male's HADS Depression Scores</b>	3.76	3.50	4 (19.1%)	0	12	21
<b>Male's EPDS Total Score</b>	5.67	5.67	17 (81%)	0	19	21
<b>Male's PPTS Total Score</b>	1.38	2.06	4 (19%)	0	6	21

**4.3.2: Comparison of Data for Psychological Distress at Time 1 (after the birth of the infant) and Time 2 (3-4 months post-partum) for Completers.**

To investigate any possible differences between completers and non-completers in Time 1 in relation to their levels of anxiety, depression, and

trauma, Mann-Whitney tests were undertaken. Differences between male and female completers and non-completers were compared for both the HADS anxiety scores, HADS depression scores, EPDS scores and PPS scores were not significant (See Appendix 5).

#### **4.3.3: Changes in Psychological Distress (HADS, EPDS and PPTS scores) at Time 1 and Time 2.**

##### **4.3.3.1: Hospital Anxiety and Depression Scale (HADS) data Time 1 and Time 2**

Tests of normality showed that a normal distribution could be assumed for all variables to be compared except the difference in fathers' HADS depression scores. Kolmogorov-Smirnov analysis was carried out to investigate whether the data for the Anxiety subscale of the HADS questionnaire was normally distributed. Kolmogorov-Smirnov analysis revealed a p value of 0.2 for the distribution of the data for both genders on the anxiety subscale of the HADS (See Appendix 5, Tables 1 and 2 for further details).

Kolmogorov-Smirnov analysis was carried out to investigate whether the data for the Depression subscale of the HADS questionnaire was normally distributed. The analysis revealed a p value of 0.2 for the distribution of the data for the females and a p value of 0.019 for the males (see Appendix 5, Tables 1 and 2 for further details).

Table 6 shows a comparison of mean and standard deviation for HADS anxiety and depression scores for mothers and fathers at Time 1 (after the birth of their infant) and Time 2 (3-4 months later). The mean HADS anxiety score for mothers was 8 (SD. 4.05) at Time 1 and 5.91 (SD. 3.81) at Time 2. The mean HADS anxiety score for fathers was 6.62 (SD. 3.86) at Time 1 and 4.92 (SD. 3.84) at Time 2. A paired samples t-test analyses revealed no significant difference between the means at Time 1 and Time 2 for males ( $t = 1.42$ ,  $df = 12$ ,  $p = 0.17$ ). However, a paired samples t-test analyses revealed a significant difference between the means at Time 1 and Time 2 for females HADS anxiety scores ( $t = 2.42$ ,  $df = 21$ ,  $p = 0.024$ ). The mean HADS depression score for mothers was 5.68 (SD. 3.56) at Time 1 and 4.68 (SD. 3.22) at Time 2. A paired samples t-test analyses revealed no significant differences between the means at Time 1 and Time 2 for females ( $t = 1.59$ ,  $df = 21$ ,  $p = 0.12$ ). The mean HADS depression score for fathers was 3.46 (SD. 3.73) at Time 1 and 3.62 (SD. 4.50) at Time 2. A non-parametric related test (Wilcoxon signed-rank test) for fathers' HADS depression scores ( $z = -1.617$ ,  $p = 0.891$ , 2-tailed) revealed no significant difference between Time 1 and Time 2 (Refer to Appendix 5, Table 1 for the analysis on the distribution of data).

#### **4.3.3.2: Edinburgh Postnatal Depression Scale (EPDS) data Time 1 and Time 2**

Table 6 shows a comparison of mean and standard deviation for EPDS scores of mothers and fathers at Time 1 (after the birth of the infant) and

Time 2 (3-4 months later).

The mean EPDS score for fathers was 5.54 (SD. 4.54) at Time 1 and 4.54 (SD. 5.50) at Time 2. The mean EPDS score for mothers was 9.50 (SD. 6.30) at Time 1 and 7.18 (SD. 5.06) at Time 2 (See table 7). A paired sample t-test for mothers' EPDS scores ( $t = 2.41$ ,  $df = 21$ ,  $p = 0.02$ ) revealed a significant difference between Time 1 and Time 2. A non-parametric related test (Wilcoxon) for fathers' EPDS scores ( $z = -0.25$ ,  $p = 0.79$ , 2-tailed) revealed no significant difference between Time 1 and Time 2 (Refer to Appendix 5, Table 1 for the analysis on the distribution of data).

#### **4.3.3.3: Perinatal Post Traumatic Stress Questionnaire (PPTS) data Time 1 and Time 2**

Table 6 indicates the mean PPTS score for mothers was 2.59 (SD. 2.72) at Time 1 and 3.45 (SD. 3) at Time 2. A paired sample t-test for mothers' PPTSQ scores ( $t = -1.45$ ,  $df = 21$ ,  $p = 0.16$ ) revealed no significant difference between Time 1 and Time 2. The mean PPTSQ score for fathers was 1.46 (SD. 2.06) at Time 1 and 2.92 (SD. 2.9) at Time 2 (See Table 6). A non-parametric related test (Wilcoxon) for fathers' PPTSQ scores ( $z = -1.57$ ,  $p = 0.11$ , 2-tailed) revealed no significant difference between Time 1 and Time 2 (Refer to Appendix 5, Table 1 for the analysis on the distribution of data).

**Table 6:**

**Means and Standard Deviations of HADS anxiety and depression scores, EPDS scores and PPTS scores for Males and Females at Time 1 (after the birth of their infant) and at Time 2 (3-4 months post-birth)**

	MEAN		SD		FREQ. of CUT-OFFS		MIN. SCORE		MAX. SCORE		N	
<b>Female's HADS Anxiety Scores</b>	8	5.91	4.05	3.81	5 (22.7%)	5 (22.7%)	1	0	14	15	22	22
<b>Female's HADS Depression Scores</b>	5.68	4.68	3.46	3.22	8 (36.4%)	8 (36.4%)	0	0	12	11	22	22
<b>Female's EPDS Scores</b>	9.50	7.18	6.30	5.06	12 (54.6%)	10 (45.5%)	0	0	23	19	12	22
<b>Female's PPTS Total Score</b>	2.59	3.45	2.72	3	7 (31.8%)	4 (18.2%)	0	0	8	11	22	22
<b>Male's HADS Anxiety Scores</b>	6.62	4.92	3.86	3.84	2 (15.4%)	2 (15.4%)	2	0	15	16	13	13
<b>Male's HADS Depression Scores</b>	3.46	3.62	3.73	4.50	4 (30.8%)	2 (15.4%)	0	0	12	16	13	13
<b>Male's EPDS Scores</b>	5.54	4.54	6.14	5.50	10 (76.9%)	2 (15.4%)	0	0	19	20	12	12
<b>Male's PPTS Total Score</b>	1.46	2.92	2.06	2.90	3 (23.1%)	3 (23.1%)	0	0	6	9	13	12

**Key: Figures in black denote Completers' Data collected at Time 1**

**Figures in red denote Completers' Data collected at Time 2**

**4.4: Research Question: Do parents of premature infants who experience change in level of psychological distress have insecure personal attachment styles?**

**4.4.1: Research Question 5(a) Do parents of premature infants who have changes in high levels of psychological distress (anxiety, depression and trauma) 3-4 months later have anxious personal attachment styles?**

Spearman's correlation was undertaken to investigate this research question as the Spearman's correlation measures association between two variables but does not assume a straight line relationship. Spearman's correlation analysis was conducted to investigate the relationship between the changes in HADS anxiety and depression scores, EPDS scores and PPTS scores from Time 1 and Time 2 and anxious attachment style for both mothers and fathers. Additionally, for the analysis of this research question the full scale of scores from both variables was used to obtain more power.

The Spearman's correlation analyses showed a non significant relationship between the decrease in mothers' HADS anxiety scores from Time 1 to Time 2 and anxious personal attachment style scores ( $r = 0.11$ ,  $p = 0.61$ , 2-tailed,  $n = 22$ ); the decrease in mothers' HADS depression scores from Time 1 to Time 2 and anxious personal attachment style scores ( $r = 0.20$ ,  $p = 0.35$ , 2-tailed,  $n = 22$ ); the decrease in mothers' EPDS scores from Time



1 to Time 2 and anxious personal attachment styles scores ( $r = -0.31$ ,  $p = 0.15$ , 2-tailed,  $n = 22$ ) and the increase in mothers' PPTS from Time 1 to Time 2 and anxious personal attachment style scores ( $r = 0.13$ ,  $p = 0.56$ , 2-tailed,  $n = 22$ ).

The Spearman's correlation analyses showed a non significant relationship between the decrease in fathers' HADS anxiety scores from Time 1 to Time 2 and anxious personal attachment style scores ( $r = -0.28$ ,  $p = 0.35$ , 2-tailed,  $n = 13$ ); the decrease in fathers' HADS depression scores from Time 1 to Time 2 and anxious personal attachment style scores ( $r = 0.09$ ,  $p = 0.74$ , 2-tailed,  $n = 13$ ); the decrease in fathers' EPDS scores from Time 1 to Time 2 and anxious personal attachment style scores ( $r = 0.03$ ,  $p = 0.74$ , 2-tailed,  $n = 13$ ) and the increase in fathers' PPTS from Time 1 to Time 2 and anxious personal attachment style scores ( $r = 0.03$ ,  $p = 0.90$ , 2-tailed,  $n = 13$ ).

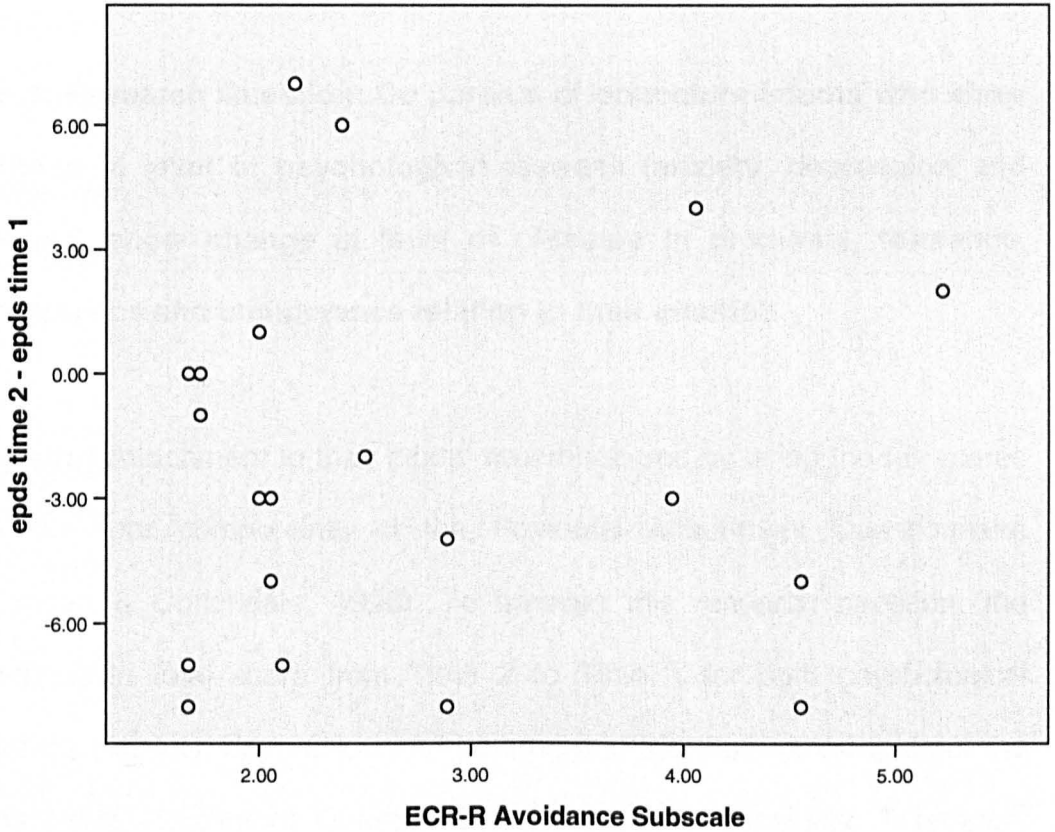
**4.4.2: Research Question 5(b): Do parents of premature infants who have changes in low levels of psychological distress (anxiety, depression and trauma) 3-4 months later have avoidant personal attachment styles?**

The Spearman's correlation analyses showed a non significant relationship between the decrease in mothers' HADS anxiety scores from Time 1 to Time 2 and avoidant personal attachment style scores ( $r = -0.04$ ,  $p = 0.33$ , 2-tailed,  $n = 22$ ); the decrease in mothers' HADS depression scores from

Time 1 to Time 2 and avoidant personal attachment style scores ( $r = 0.21$ ,  $p = 0.33$ , 2-tailed,  $n = 22$ ) and the increase in mothers' PPTS scores from Time 1 to Time 2 and avoidant personal attachment style scores ( $r = -0.16$ ,  $p = 0.47$ , 2-tailed,  $n = 22$ ).

The Spearman's correlation analysis showed a significant relationship between the differences in women's EPDS scores at Time 2 and Time 1 and avoidant personal attachment styles scores ( $r = -0.46$ ,  $p = < 0.05$ , 2-tailed,  $n = 22$ ). Results of the correlation indicate that lower avoidant attachment style scores are associated with a decrease in scores on the EPDS from Time 1 to Time 2. This relationship between the decrease in women's EPDS scores at Time 1 to Time 2 and avoidant personal attachment styles scores is depicted graphically in a scatterplot (See Figure 4).

**Figure 4: Relationship between a decrease in women's' EPDS scores from Time 1 to Time 2 and avoidant attachment styles**



The Spearman's correlation analyses showed a non significant relationship between the decrease in fathers' HADS anxiety scores from Time 1 to Time 2 and avoidant personal attachment style scores ( $r = -0.12, p = 0.68, 2\text{-tailed}, n = 13$ ); decrease in fathers' HADS depression scores from Time 1 to Time 2 and avoidant personal attachment style scores ( $r = 0.33, p = 0.26, 2\text{-tailed}, n = 13$ ); decrease in fathers' EPDS scores from Time 1 to Time 2 and avoidant personal attachment style scores ( $r = 0.16, p = 0.58, 2\text{-tailed}, n = 13$ ) and the increase in fathers' PPTS scores from Time 1 to Time 2 and avoidant personal attachment style scores ( $r = -0.82, p = 0.8,$

2-tailed,  $n = 12$ ).

#### **4.5: Parental Attachment to their infant**

**4.5.1: Research Question: Do parents of premature infants who show change in level of psychological distress (anxiety, depression and trauma) show change in level of pleasure in proximity, tolerance, acceptance and competence relating to their infants?**

'Paternal Attachment to their infant' was measured by using the full scores for the four components of the Postnatal Attachment Questionnaire (Condon & Corkindale, 1998). To analyse this research question, the changes in total score from Time 2 to Time 1 for both psychological distress (anxiety, depression and trauma) and the four components of the Post-Natal Attachment Questionnaire (Pleasure in Proximity, Tolerance, Acceptance and Competence) were used.

##### **4.5.1.1: Descriptive Analyses for Data at Time 1 (after the birth of their infant)**

Table 7 shows the means and standard deviations for men and women scores on the four components (Tolerance, Competence, Pleasure in Proximity and Acceptance) at Time 1.

**Table 7:**

**Means and Standard Deviations of the four component scores on the Postnatal Attachment Scale for Males and Females at Time 1 (after the birth of the infant)**

	Mean	SD	Minimum Score	Maximum Score	N
<b>Female Tolerance Score</b>	4.85	0.24	4.20	5	32
<b>Female Competence Score</b>	4.34	0.53	3.12	5	32
<b>Female Pleasure in Proximity Score</b>	3.69	0.31	2.99	4.16	32
<b>Female Acceptance Score</b>	4.88	0.21	4.10	5	32
<b>Male Tolerance Score</b>	4.69	0.75	1.87	5	21
<b>Male Competence Score</b>	4.44	0.58	3.18	5	21
<b>Male Pleasure in Proximity Score</b>	3.77	0.36	3.24	5	21
<b>Male Acceptance Score</b>	4.63	0.43	3.43	5	21

#### **4.5.1.2: Difference between completers and non-completers on the Parental Attachment Questionnaire**

Mann-Whitney tests of all the four components scores at Time 1 revealed no significant differences between the female completers and non-completers groups (Tolerance,  $z = -0.78$ ,  $p = 0.44$ , 2-tailed; Competence,  $z = -0.78$ ,  $p = 0.44$ , 2-tailed; Pleasure in Proximity,  $z = -1.11$ ,  $p = 0.27$ , 2-tailed and Acceptance,  $z = -0.51$ ,  $p = 0.67$ , 2-tailed). Therefore, there were no significant differences in the tolerance, competence, pleasure in proximity and acceptance scores between the female groups.

Non-parametric independent samples analyses of all the four components scores at Time 1 revealed no significant difference between the male

completers and non-completers groups for Pleasure in Proximity,  $z = -2.07$ ,  $p = 0.038$ , 2-tailed; Tolerance ( $z = -0.82$ ,  $p = 0.41$ ) and Competence ( $z = -1.77$ ,  $p = 0.077$ , 2-tailed). However, both groups are approaching significance for Acceptance ( $z = -2.76$ ,  $p = 0.06$ , 2-tailed).

#### **4.5.1.3: Comparison of Data at Time 2 (3-4 months after the birth of their infant)**

Means and standard deviations of the Postnatal Attachment subscale scores at Time 1 and Time 2 are reported in Table 8 below. Females scored lower in the tolerance, pleasure in proximity and acceptance subscales at Time 2 in relation to Time 1. However, females scored higher in the competence subscale score at Time 2 in comparison to Time 1. A similar pattern of changes in subscales scores from Time 1 to Time 2 was observed with the males.

**Table 8:**

**Means and Standard Deviations of the four component scores on the Postnatal Attachment Scale for Males and Females at Time 1 (after the birth of the infant) and Time 2 (3-4 months later)**

	Mean	SD	Minimum Score	Maximum Score	N
Female Tolerance Score	4.83	0.27	4.20	5	22
Female Competence Score	4.40	0.48	3.64	5	22
Female Pleasure in Proximity Score	3.63	0.35	2.99	4.16	22
Female Acceptance Score	4.88	0.17	4.53	5	22
Male Tolerance Score	4.61	0.87	1.87	5	13
Male Competence Score	4.30	0.58	3.18	5	13
Male Pleasure in Proximity Score	3.66	0.20	3.31	4	13
Male Acceptance Score	4.45	0.45	3.43	5	13

\*Figures in black denote Completers' Data at Time 1

\*Figures in red denote Completers' Data at Time 2

#### **4.5.1.4: Changes in levels of Psychological Distress and Attachment to Infant at birth and 3-4 months post-partum**

To analyse this research question, the differences in total scores from Time 1 to Time 2 for EDPS, HADS-anxiety, HADS-depression and PPST (measuring changes in psychological distress) and the differences in total scores from Time 1 to Time for Pleasure in Proximity, Tolerance, Acceptance and Competence (four components of the Postnatal Attachment Questionnaire) were used for both mothers and fathers as

behaviour is a continual process.

The Spearman's correlation analyses showed non-significant relationships between a decrease in mothers' Pleasure in Proximity Scores and a decrease in EPDS scores ( $r = -0.33$ ,  $p = 0.12$ , 2-tailed,  $n = 22$ ); a decrease in HADS anxiety scores ( $r = -0.15$ ,  $p = 0.48$ , 2-tailed,  $n = 22$ ); a decrease in HADS depression scores ( $r = -0.315$ ,  $p = 0.15$ , 2-tailed,  $n = 22$ ) and a increase in PPTS scores ( $r = -0.37$ ,  $p = 0.08$ , 2-tailed,  $n = 22$ ) from Time 1 to Time 2.

The Spearman's correlation analyses showed non-significant relationships between a decrease in mothers' Acceptance Scores and a decrease in EPDS scores ( $r = -0.16$ ,  $p = 0.46$ , 2-tailed,  $n = 22$ ); a decrease in HADS anxiety scores ( $r = 0.11$ ,  $p = 0.61$ , 2-tailed,  $n = 22$ ); a decrease in HADS depression scores ( $r = -0.16$ ,  $p = 0.45$ , 2-tailed,  $n = 22$ ) and a increase in PPTS scores ( $r = -0.35$ ,  $p = 10$ , 2-tailed,  $n = 22$ ) from Time 1 to Time 2.

The Spearman's correlation analyses showed non-significant relationships between a decrease in mothers' Tolerance Scores and a decrease in EPDS scores ( $r = -0.17$ ,  $p = 0.44$ , 2-tailed,  $n = 22$ ); a decrease in HADS anxiety scores ( $r = -0.25$ ,  $p = 0.25$ , 2-tailed,  $n = 22$ ); a decrease in HADS depression scores ( $r = -0.33$ ,  $p = 0.12$ , 2-tailed,  $n = 22$ ) from Time 1 to Time 2. The Spearman's correlation analysis showed a near significant relationship between a decrease in mothers' Tolerance Scores and an increase in PPTS scores ( $r = -0.41$ ,  $p = 0.05$ , 2-tailed,  $n = 22$ ) from Time 1



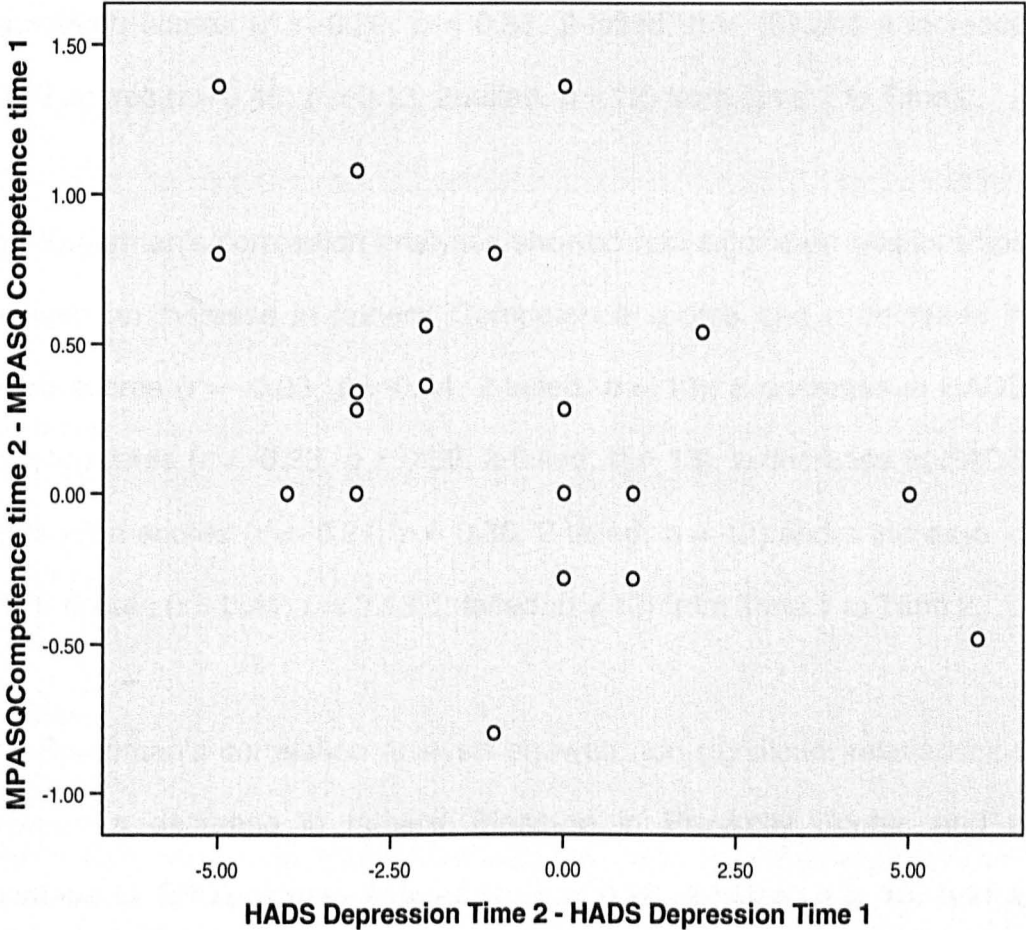
to Time 2.

The Spearman's correlation analysis showed non-significant relationships between an increase in mothers' Competence Scores and a decrease in EPDS scores ( $r = -0.31$ ,  $p = 0.17$ , 2-tailed,  $n = 22$ ); a decrease in HADS anxiety scores ( $r = -0.42$ ,  $p = 0.05$ , 2-tailed,  $n = 22$ ) and an increase in PPTS scores ( $r = 0.31$ ,  $p = 0.17$ , 2-tailed,  $n = 22$ ) from Time 1 to Time 2.

Spearman's correlation analysis shows a significant relationship between an increase in mothers Competence Scores and a decrease in HADS depression scores from Time 1 to Time 2 ( $r = -0.51$ ,  $p = 0.01$ , 2-tailed,  $n = 22$ ).

This relationship between the females' increase in Competence Scores from Time 1 to Time 2 and a decrease in HADS depression scores from Time 1 to Time 2 is depicted graphically in Figure 5. Results of the correlation indicate that changes in competence scores are associated with the changes in HADS depression scores. Therefore as their competence levels increase their depression levels decrease.

**Figure 5: Relationship between the changes in both Competence scores and HADS depression scores for mothers at Time 1(after the birth of the infant) and Time 2 (3-4 months later).**



The Spearman’s correlation analyses showed non-significant relationships between a decrease in fathers’ Tolerance scores and a decrease in EPDS scores ( $r = -0.09, p = 0.76, 2\text{-tailed}, n = 13$ ); a decrease in HADS anxiety scores ( $r = 0.04, p = 0.89, 2\text{-tailed}, n = 13$ ); a decrease in HADS depression scores ( $r = -0.39, p = 0.18, 2\text{-tailed}, n = 13$ ) and an increase in PPTS scores ( $r = 0.25, p = 0.43, 2\text{-tailed}, n = 12$ ) from Time 1 to Time 2.

The Spearman's correlation analyses showed non-significant relationships between a decrease in fathers' Acceptance scores and a decrease in EPDS scores ( $r = -0.20$ ,  $p = 0.51$ , 2-tailed,  $n = 13$ ); a decrease in HADS anxiety scores ( $r = -0.20$ ,  $p = 0.51$ , 2-tailed,  $n = 13$ ); a decrease in HADS depression scores ( $r = -0.29$ ,  $p = 0.33$ , 2-tailed,  $n = 13$ ) and a increase PPTS scores ( $r = 0.46$ ,  $p = 0.13$ , 2-tailed,  $n = 12$ ) from Time 1 to Time 2.

The Spearman's correlation analyses showed non-significant relationships between an increase in fathers' Competence scores and a decrease in EPDS scores ( $r = -0.23$ ,  $p = 0.44$ , 2-tailed,  $n = 13$ ); a decrease in HADS anxiety scores ( $r = -0.25$ ,  $p = 0.39$ , 2-tailed,  $n = 13$ ); a decrease in HADS depression scores ( $r = -0.27$ ,  $p = 0.36$ , 2-tailed,  $n = 13$ ) and a increase in PPTS scores ( $r = 0.41$ ,  $p = 0.18$ , 2-tailed,  $n = 12$ ) from Time 1 to Time 2.

The Spearman's correlation analysis showed non-significant relationships between a decrease in fathers' Pleasure in Proximity Scores and a decrease in EPDS scores ( $r = -0.31$ ,  $p = 0.28$ , 2-tailed,  $n = 13$ ) and a increase in PPTS scores ( $r = -0.09$ ,  $p = 0.78$ , 2-tailed,  $n = 12$ ) from Time 1 to Time 2.

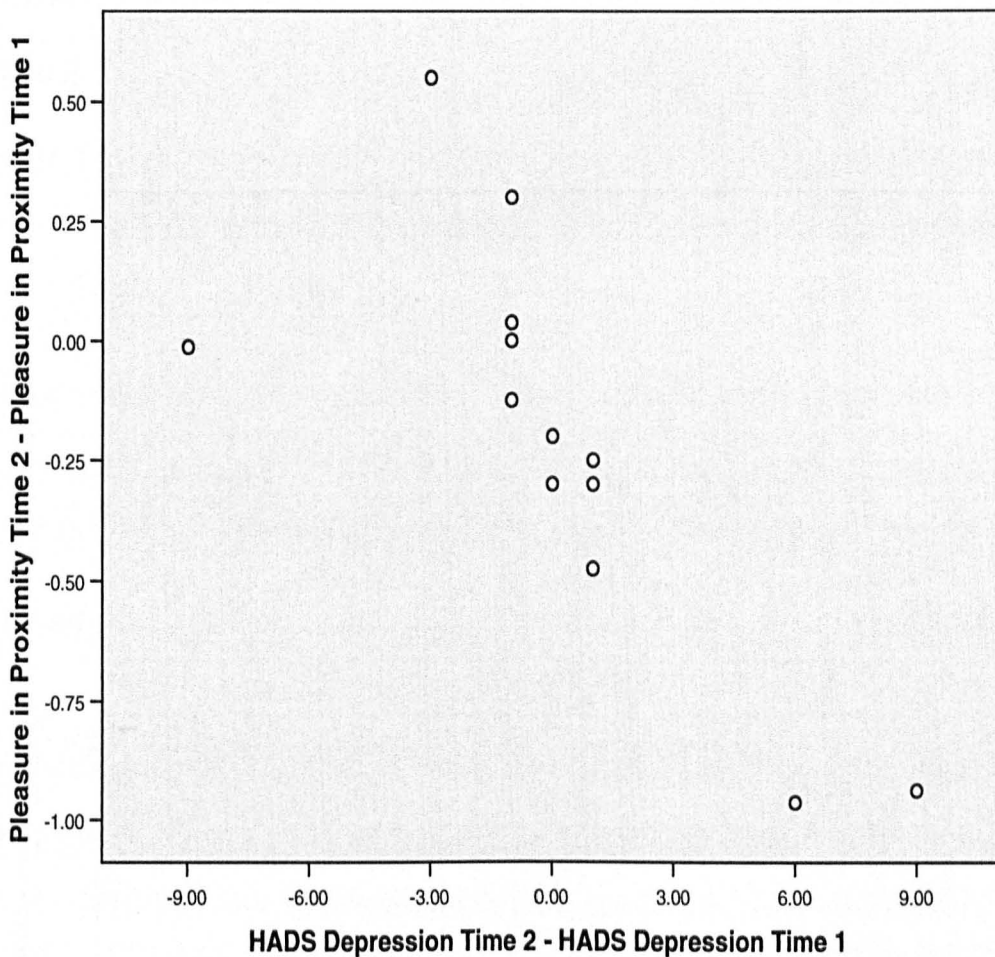
Spearman's correlation analysis shows a significant negative relationship between a decrease in fathers' Pleasure in Proximity Scores and degree of change in HADS anxiety scores from Time 1 to Time 2 ( $r = -0.62$ ,  $p = 0.02$ , 2-tailed,  $n = 13$ ) and degree of change in HADS depression scores ( $r = -0.88$ ,  $p = 0.00$ , 2-tailed,  $n = 13$ ) from Time 1 to Time 2.

This relationship between the decrease in the fathers' Pleasure in Proximity Scores from Time 1 to Time 2 and the amount of change in HADS depression scores from Time 1 and Time 2 is depicted graphically in Figure 6. Results of the correlation indicate that decreases in Pleasure in Proximity Scores are associated with less change in HADS depression scores. Therefore those fathers who show less change over time in levels of depression also show a decrease in Pleasure in Proximity scores. However, the graph also depicts three outliers which may have an impact on the overall strength of the correlation<sup>3</sup>.

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<sup>3</sup>The three outliers were removed which still resulted in a significant relationship between both Pleasure in Proximity scores and HADS depression scores for fathers at Time 1 and Time 2 ( $r = -0.681$ ,  $p = 0.03$ , 2-tailed,  $n = 10$ ).

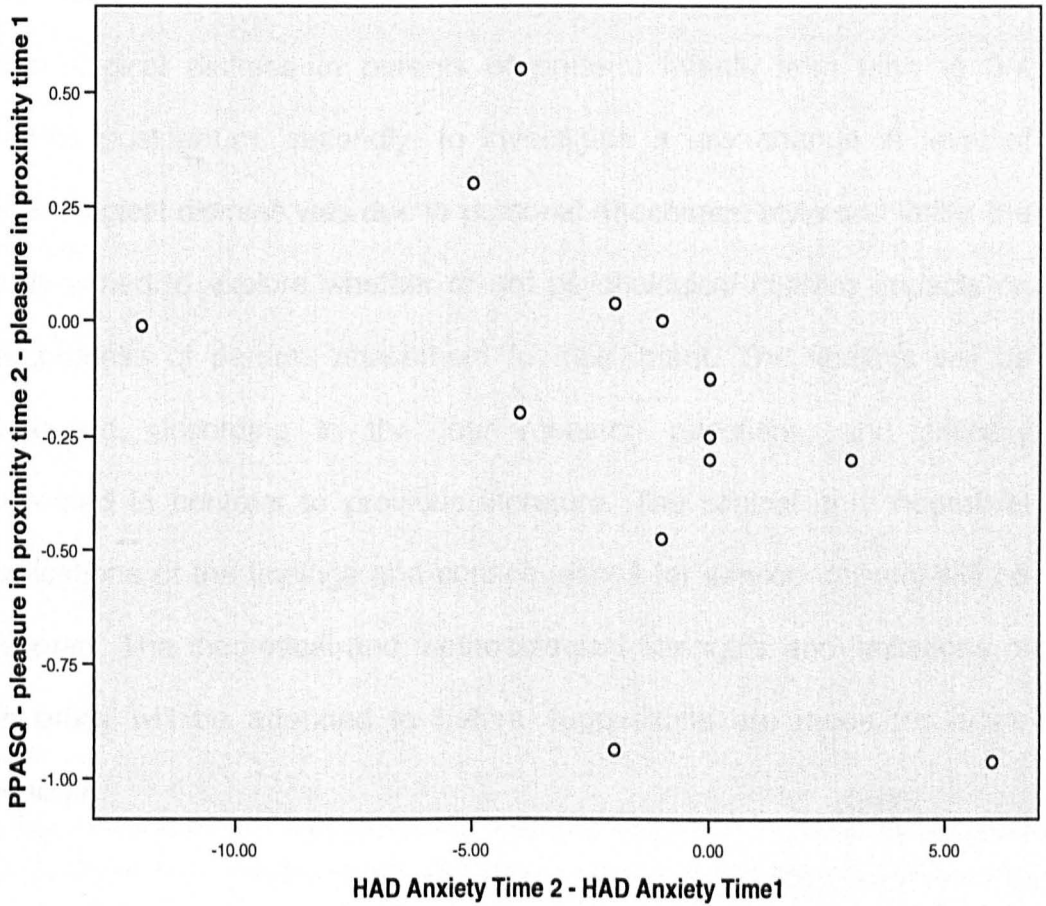
**Figure 6: Relationship between the decrease in both Pleasure in Proximity scores and HADS depression scores for fathers at Time 1 and Time 2.**



This relationship between the decrease in fathers' Pleasure in Proximity Scores from Time 1 to Time 2 and the amount of change in HADS anxiety scores from Time 1 to Time 2 is depicted graphically in Figure 7. Results of the correlation indicate that decrease Pleasure in Proximity levels are associated with less change in HADS anxiety levels. However, as also depicted in Figure 6, Figure 7 highlight three outliers which maybe

impacted on the strength of the overall correlation<sup>4</sup>.

**Figure 7: Relationship between the changes in both Pleasure in Proximity scores and HADS Anxiety scores for fathers at Time 1 and Time 2.**



<sup>4</sup> The same aforementioned three outliers were removed which still resulted in a significant relationship between both Pleasure in Proximity scores and HADS anxiety scores for fathers at Time 1 and Time 2 ( $r = -0.90$ ,  $p = 0.00$ , 2-tailed,  $n = 10$ ).

## **CHAPTER 5**

### **DISCUSSION**

#### **5.1 Overview**

The main aims of this study were: firstly, to explore any change in psychological distress in parents of preterm infants from birth to 3-4 months postpartum, secondly, to investigate if any change in level of psychological distress was due to personal attachment style and lastly, the study aimed to explore whether or not psychological distress impacts on the process of parents attachment to their infant. The findings will be discussed, according to the four research questions, and critically evaluated in contrast to previous literature. The clinical and theoretical implications of the findings and consequences for service delivery will be explored. The theoretical and methodological strengths and limitations of the study will be attended to before suggestions are made for future research.

#### **5.2: Personal attachment styles of parents of premature infants**

The question was asked, "What are the most common personal attachment styles of parents of pre-term infants?" Results will be discussed and possible trends linked back to previous literature. Parents' personal attachment style was assessed through the Experience of Close

Relationship Revised Questionnaire (ECR-R). Additionally, as attachment theory assumes that an individuals' personal attachment styles is consistent throughout an individuals' life span, (from the 'cradle to the grave', Bowlby, 1977), parents' personal attachment style was measured at Time 1 only. The findings in relation to this research question suggest that both mothers and fathers have low anxious (total mean score = 2.37, SD = 1.18 for mothers and a total mean score = 2.06, SD = 0.80 for fathers) and avoidant attachment styles (total mean score = 2.67, SD = 0.91 for mothers and a total mean score = 2.40, SD = 0.97 for fathers). Therefore, the population group can be described as having secure personal attachment styles. Previous researchers highlighted that people with low levels of attachment anxiety and avoidance can be viewed as having a secure adult attachment style (Brennan, et al., 1998; Lopez & Brennan, 2000; Mallinckrodt, 2000). Thereby, the completers hold positive working models of both the self and others. Studies have positively related high levels of both attachment anxiety and avoidance styles to several indices of psychological distress such as depression and anxiety (Lopez, et al., 2002; Wei, et al., 2004). Therefore, in relation to the present findings of the population group, there is an expectation that they would experience lower levels of psychological distress and trauma.

### **5.3: Changes in Psychological Distress**

The research question, "What are the levels of anxiety, depression and trauma in parents of pre-term infants at birth and 3-4 months after birth?"



was posed. Parents' level of anxiety and depression was measured using both the Hospital Anxiety and Depression Scale (HADS) and the Edinburgh Postnatal Depression Scale (EPDS). Parents' level of trauma was assessed through the Perinatal Post-Traumatic Stress Questionnaire (PPTS). Levels of anxiety, depression and trauma were measured at two time points (after the birth of the infant and 3-4 months later) and the differences in scores between Time 1 and Time 2 was obtained to highlight any change in psychological distress.

Results shows that both mothers and fathers had lower levels of anxiety, depression and distress 3-4 months post-partum in comparison to immediately after the birth of their infant. More specifically, with respect to mothers' HADS-Anxiety scores, caseness for clinical anxiety was reached at Time 1 (mean = 8, SD=4.05). Additionally, change in total anxiety scores from Time 2 (mean = 5.91, SD = 3.81) to Time 1 (mean = 8, SD = 4.05) reached significance, suggesting that mothers reported significantly lower levels of anxiety at Time 2 in relation to Time 1. With regards to mothers total scores on the EPDS, they reported significantly lower levels of distress at Time 2 (mean = 7.18, SD=5.06) in comparison to Time 1 (mean=9.50, SD=6.30). Interestingly, with respect to trauma, findings indicate that both mothers and fathers of premature infants report lower levels of trauma at Time 1 (mean=1.46, SD=2.06 for fathers and mean=2.59, SD=2.72 for mothers) in comparison to Time 2 (mean=2.92, SD=2.90 for fathers and mean=3.45, SD=3).

The high levels of both anxiety and depression for mothers of premature infants at Time 1 (after the birth of the infant) and low levels of both anxiety and depression for mothers of premature infants at Time 2 (3-4 months later) may be explained through previous research in this area. The results will be initially discussed in relation to previous research on psychological distress in parents of premature infants' and early transition into parenthood. Additionally, the impact of premature infants' birth weight and changes in mothers' levels of psychological distress will be discussed with respect to the current findings. Finally, the findings will be discussed in relation to previous research on the impact of environmental factors and infants' characteristics on parents' levels of psychological distress.

Research has highlighted that the birth of a premature infant is a very stressful time for parents as the birth occurs before the parents have had a chance to successfully complete the emotional transition to parenthood (Raphel-Leff, 2001). Additionally, with the birth of a premature infant the mother loses her sensory contact with her infant (through breastfeeding), which enables her to be involved with her infant (Tracey, 2002). This feeling of not being involved with their infant has been further highlighted by the study conducted by Hackins, et al. (2006) in which women described feeling a loss of the 'normal' infant and the 'natural connection; parents reporting that their infant looked like 'a starving infant', 'a nestling' or a 'monster'. Consequently, the findings found in this study are consistent with the research of both Hackins, et al. (2006) and Tracey, (2001).

Becoming a mother is a process that begins when a woman becomes pregnant, or even before. During the last two months of pregnancy the mother is in preparation for the birth and the arrival of the infant. But when the infant is born very premature, women give birth to infants for whom they may not be mentally prepared (Bruschweiler Stern, 1998). In addition, premature births and subsequent hospitalization of infants at a Neonatal Intensive Care Unit (NICU) imply an extraordinary life situation for women in which the maternal role begins and evolves in a public and medically focused context.

Therefore, the findings relating to the increase in levels of anxiety and depression post birth could be explained by the impact of parents' own personal characteristics, environmental factors and the infants' characteristics on parents' levels of psychological distress when the infant is still in the hospital.

Often parents of preterm infants have few financial resources to meet their basic needs, they may have little social support, and they may have had relatively few opportunities to learn good parenting skills from their own experiences. The fact that preterm infants are often less responsive in interaction makes it even more difficult for parents to interpret their infant's needs and to feel confidence in their care-giving skills. This period of adjustment with the new awareness for the parents of additional stressors is more predominant after the birth of the infant. Additionally, a number of month's post-partum the parents may begin to adjust to their situation. This

may explain why the parents in this study reported higher levels of anxiety, depression after the birth of their infant in comparison to 3-4 months postpartum. Also the fact that any great 'medical' fears and threats to the infant's life are over once discharged. However, interestingly, this cannot explain the increase in trauma symptoms seen 3-4 months post birth, and begins to suggest that parents could be screened for trauma post-discharge.

Furthermore, the parents' higher levels of depression and anxiety after the birth of their infant may be explained by the behavioural characteristics of their new infants. For example, premature infants have been found to be more irritable than healthy term infants (DiVitto & Goldberg, 1979). Several studies have indicated that parents of irritable infants have a more difficult transition to parenthood, a less positive perception of the infant, and reduced parental perceptions of their role competence than parents of non-irritable infants. Additionally, preterm infants are generally less responsive to social stimulation than full term infants. They also give relatively weak signals (less eye contact, movement, quiet crying) about their needs (Lundquist & Jakobsson, 2003). Additionally, the premature infant may appear less like the pictures of full-term babies parents may have seen in baby books and these images of their fantasy baby may be superimposed on their premature infant, parents then conclude that their infant seems alien or 'wrong' (Raphel – Leff, 2001). This difference in appearance may result in the parents of preterm infants being repulsed by the scrawny little 'skinned rabbit' or 'hairy, bony E.T. -like creature' (Raphel-Leff, 2001).

Additionally, as the premature infant begins to develop physically over the post-partum months the infant begins to appear physically similar to what the parents may have imagined their fantasy baby to be and also (similarly to full term infants) become more responsive to social stimulation. Consequently, this may explain the decrease in levels of anxiety and depression in parents of premature infants in the current study.

Additionally, this study's findings in relation to the pattern of psychological distress reported by parents of premature infants may be further explained by the characteristics of the environment surrounding the parents after the birth of their infant. Parents of a preterm infant generally have their first interaction with their baby in the neonatal intensive care unit. The NICU environment is stressful for parents because of the technology and the lack of privacy, and it does not provide for optimal parent-infant interaction (Miles, et al., 1992; Pinelli, 2000). The physical and psychological barriers of the incubator as well as the off-putting paraphernalia of intravenous tubing, humming ventilators and high-tech machinery attached to their baby may decrease parents' ability to interact with their infant (Raphel-Leff, 2001).

In summary, any or all of these factors may explain the increase in parents' levels of anxiety and depression after the birth of their infant in relation to 3-4 months later

Previous research has highlighted that birth weight of the infant is a

determinant factor that influences levels of psychological distress. In this study, 68.2% of the female completers' infants and 92.3% of the male completers' were classified at birth as Low Birth Weight (<2,500 grams). Additionally, 22.7% of the female completers' and 7.7% of the male completers' infants were classified at birth as Very Low Birth Weight (<1,500 grams). Consequently, the majority of infants whose parents' participated in this study would be in the Low Birth Weight (<2,500 grams) category. Therefore, findings with respect to infants' Low Birth Weight and change in parental levels of psychological distress found in this study are consistent with those found by previous researchers i.e., that the week after delivery is a time of heightened anxiety for mothers of LBW infants versus mothers of term infants (Choi, 1973; Gennaro, 1988). However, the findings from this study are not consistent with the results reported by Gennaro et al. (1990), who found that mothers of Low Birth Weight infants reported higher levels of anxiety and depression 3-4 months post-partum in relation to mothers of Very Low Birth Weight Infants. However, it is difficult to make comparisons between the groups of parents in this study on the basis of infants' birth weight due to the uneven distribution of infants' birth weight within the group.

In relation to findings regards trauma, the present study is consistent with previous research which indicates that mothers of premature infants have described responses similar to posttraumatic symptoms (Affleck, et al., 1990; Holditch-Davis & Miles, 2000). However, due to data from this study being based only on infants of LBW, only limited comparisons can be

made in relation to previous research which investigated trauma symptoms in mothers of both LBW and VLBW infants. Previous research has indicated that childbirth can be considered a traumatic experience for women. Evidence indicates that 1 - 9% of women have severe symptoms of post-traumatic stress disorder (PTSD) after childbirth (Wijma et al., 1997; Creedy et al., 2000; Czarnocka & Slade, 2000; Ayers & Pickering, 2001). Additionally, previous research suggests that the incidence levels of trauma increases dependent on whether the women reported experiencing extremely distressing labours in comparison to 'normal' delivery (Allen, 1998). With respect to this study, 53.1% of mothers reported having a Vaginal/Normal Delivery whilst 40.6% stated that they underwent an Emergency Caesarean Delivery. Therefore, it would have been useful to examine this aspect and/or control for type of delivery in the analysis of this study as a factor that could have influenced results.

Previous research has indicated that prevalence of PTSD symptoms for mothers who experienced traumatic births is relatively stable across the first 12 months post-partum (White, et al., 2006). Data from this study is not consistent with these findings. However, this may be explained by the time points used in the study. Parents' level of trauma was initially measured after the birth of their infant and the parents filled out the measure whilst they were in hospital. This may have impacted on their responses as they were still in a stressful environment. It may be that when the parents left the hospital setting they were better able to process the emotional context of their situation, and this may explain the increase in

stress scores 3-4 months later.

Previous research has also reported symptoms of depression and post-traumatic stress co-occurring in women in the post-partum period (Czamocka & Slade, 2000 and Lyons, 1998). The results of this study are not consistent with these findings. However, due to the low participant rate in this study the findings are to be interpreted with caution and are difficult to generalise to the general population.

In summary, these factors may explain the increase in trauma levels for both parents 3-4 months post-partum in relation to after the birth of their infant.

As outlined in chapter 1, previous researchers have highlighted the difficulties parents of premature infants can encounter in their transition to parenthood. Hackins et al. (2006) investigated how women of premature infants experience "becoming a mother" and highlighted the importance of quality in social bonds with the infant, father, staff and other mothers at the NICU. Three themes comprised a structure for descriptions of experiences, social bonds and mediated emotions: (1) 'loss' of the infant and the emotional chaos-"putting life on hold"; (2) separation-a sign of being unimportant as a person and a mother; and (3) critical aspects of becoming more than a physical mother (Hackins et al., 2006). The qualities were described as trustful or distrustful, characterised by accompanying feelings of pride/trust or shame/distrust (Hackins et al., 2006). The study



highlighted the impact of the interplay between interpersonal factors and the public environment and care routines, on the mothers being able to “become mothers” (Hackins et al., 2006). Therefore, this interplay between the mothers looking forward to “becoming mothers” and the limitation that the environment around them plays in preventing this, may explain the increase in level of anxiety and depression for mothers after the birth of their infant, in this study. Post birth, mothers were asked “In a few words, how would you describe yourself”. Several women echoed the findings of Hackins et al. (2006) by stating that they were “torn between 2 lives, 4 children and a husband” and feeling “slightly shocked by it all, nervous that his so small but really proud. I like to have a reasonable level of control of my life-so this was weird”. Additionally, in this study, mothers of premature infants reported lower levels of anxiety and depression 3-4 month’s post-partum. The current findings are consistent with Jackson, et al. 2003 findings that mothers begin to feel more confident 3 months after the birth of their infant. Also, in this study mothers were asked “In a few words, how would you describe yourself” 3-4 months later. Several women echoed the findings of Jackson et al. (2006) by stating that they were “feeling more confident as he gets older feeling enjoying being a mum”, “busy, confident and social” and “...calm and patient mum.... (I am) proud in every way”. These findings may also be explained by the mothers being able to take a more active role in caring for their infant without interference from their environment and interruptions to care routines that occurred whilst their infant was hospitalised.

The findings in this study indicate the mothers reported higher levels of anxiety and depression than fathers post birth and 3-4 months later. This finding may be explained by Chao-Hsing (2002) research into gender differences in anxiety, depression and somatic symptoms in parents with cancer which indicated that mothers averaged significantly higher levels of psychological distress in comparison to their partner (Chao-Hsing, 2002). The present findings are consistent with this work and may be explained by the fact that the mother is more willing to admit discomfort than the father. For example, men are expected to be "strong" and "keep a stiff upper lip" in English culture. This may make fathers more reluctant to admit their distress and feelings to the researcher. Additionally, this may be compounded by the traditional role of male "masculinity".

Men reported the same pattern of anxiety, depression, and trauma as the women but their scores may not be a true reflection of how they were feeling. For example, Connery & Davidson (2006) investigated attitudes to depression in the general public for comparison of age and gender differences. Their findings highlight the differences in attitudes towards depression dependent on the gender of the participant. Females reported more familiarity with depression, were more likely to recognise depressive symptoms as a sign of mental illness and were less likely to hold negative or stigmatizing attitudes about depression in relation to males (Connery & Davidson, 2006). Moreover, previous research into men's experience of depression suggested that some men who are depressed can experience a trajectory of emotional distress manifest in avoidant, numbing and

escape behaviours which can lead to aggression, violence and suicide (Brownhill, Wilhelm, Barclay & Schmied, 2005). Therefore, gender differences appear not in the experience of depression per se, but in the expression of depression (Brownhill, et al., 2005). Consequently, an implication of this research and in relations to the current findings gender specific measures are needed to increase sensitivity for identifying clinical significant male distress.

#### **5.4: Changes in Psychological Distress and Personal Attachment Styles**

The question was asked, "Do parents of premature infants who experience change in level of psychological distress have insecure personal attachment styles?" Results will be discussed and then possible trends will be linked back to previous literature.

There were no significant relationships between a decrease in HADS depression and anxiety score, a decrease in EPDS score and an increase PPTS score from Time 1 to Time 2 and anxious personal attachment styles for mothers and fathers of premature infants.

A significant relationship was found between a decrease in EPDS scores from Time 1 to Time 2 and avoidant personal attachment styles for mothers of premature infants. Results indicate that mothers with low avoidant personal attachment style reported a decrease in EPDS scores

from Time 1 to Time 2.

The study findings regards anxious and avoidant attachment styles and relationship to distress will now be discussed.

Study Completers reported having secure personal attachment styles. Previous research has positively related both anxious and avoidant personal attachment styles to several indices of psychological distress such as depression and anxiety (Lopez, et al., 2002; Wei, et al., 2004) negative affect (Simpson, 1990), emotional distress and nervousness (Collins, 1996) and general distress symptoms (Lopez, et al., 2002). However, as the completer group in this study had predominantly secure personal attachment styles (low anxious and low avoidant) it is impossible to explore if parents of premature infants who show changes in level of anxiety, depression and trauma have anxious or avoidant attachment styles.

However, the findings of the study are consistent with attachment theory which states that an individuals' pattern of attachment is a significant determinant not only of resilience or as buffer throughout life's journey, but also in our capacity to enjoy life (Bowlby, 1977). Through continued interaction between child and caregiver, the child develops internal "working models" containing beliefs and expectations about whether the caregiver is someone who is caring and responsive, and also whether the self is worthy of care and attention. Perhaps the secure attachment style of parents in this study contributed to the relatively low levels of anxiety,

depression and trauma reported. Thereby, highlighting that secure attachment style may have protected these parents resulting in less distress.

According to Bowlby (1977), an individual's attachment style is particularly evident when a person is distressed, ill or afraid. This study's data highlights that mothers with lower avoidant scores reported a decrease in distress level over time.

#### **5.5: Change in Psychological Distress and Attachment to Infant.**

The question was asked, "Do parents of premature infants who show change in level of psychological distress (anxiety, depression and trauma) show change in level of pleasure in proximity, tolerance, acceptance and competence in relating to their infants?" Results will be discussed and then possible trends will be linked back to previous literature. Parents' postnatal attachment to their infant was measured at two time points (post birth and 3-4 months later) using the Parental Postnatal Attachment Questionnaire which comprised of four components, Tolerance, Competence, Pleasure in Proximity and Acceptance. Differences between Time 2 and Time 1 were obtained to highlight any changes in the process of parent-infant attachment.

Both mothers and fathers had lower levels of Tolerance, Pleasure in Proximity and Acceptance and higher levels of Competence 3-4 months

post-partum (Time 2) in comparison to after the birth of their infant (Time 1). More specifically, with respect to the relationship between change in psychological distress and attachment to their infant, results indicated a significant relationship between an increase in mothers' Competence scores and a decrease in HADS depression scores from Time 1 to Time 2, i.e., as mothers' feelings of competence increase, level of depression decreases. The findings are consistent with Ainsworth's (1982) concept of maternal 'sensitivity' which refers to the mothers' ability to empathize with the infants' experience, notice its cues and interpret them, creating a desire to understand the infant, a sense of competency being derived from such understanding (Condon & Corkindale, 1998).

In relation to fathers and changes in psychological distress and Pleasure in Proximity from Time 1 to Time 2, a significant relationship was found, i.e., as fathers' levels in Pleasure in Proximity decrease, levels of HADS-anxiety decrease from Time 1 to Time 2. Additionally, as fathers' levels in Pleasure in Proximity decrease, levels of HADS-depression increase from Time 1 to Time 2.

These findings are consistent with Condon & Corkindale's (1998) operational definition for "Pleasure in Proximity" as being a desire for interaction with the infant rather than separation (or avoidance). Additionally, Condon & Corkindale (1998) reported if a strong attachment is present between care-giver and infant the interaction is more likely to be experienced positively (e.g., with enjoyment or satisfaction) rather than

negatively (e.g., boredom or tension). Fathers' significant relationship in relation to lower levels of Pleasure in Proximity and lower levels of HADS anxiety ( $r = -0.62$ ,  $p = 0.02$ , 2-tailed,  $n = 13$ ) and lower levels of HADS depression ( $r = -0.88$ ,  $p = 0.00$ , 2-tailed,  $n = 13$ ) from Time 1 to Time 2, this will be elaborated on later.

The findings' reported lower scores for fathers on three components of Acceptance, Tolerance and Pleasure in Proximity at Time 2 in comparison to Time 1 are inconsistent with Goodmans' (2005) research into the transitional phases that occur in fathers after the birth of their infant. During this phase, fathers confront the reality of their unrealistic expectations they held before the birth of their infant and in an attempt to overcome their disappointment they become actively involved in the parenting of their infant (Goodman, 2005). However, the findings are inconsistent with Traceys (2002) research which suggests that fathers of premature infants have limited opportunity to take an active role in the care of their infant due to the infant's care being heavily dependent on the hospitals medical team and thus report feeling like a "failure" as a father.

The relationship between a decrease in Pleasure in Proximity score and a decrease in HADS depression score for fathers, between the two time periods, are consistent with Pohlman's (2005) results which suggests that fathers' work remained an important focus and that they return to work quickly after the birth of their infant with renewed vigour because they felt that their work gave them a sense of purpose.

However, differences between male completers and non-completers with respect to the four component scores of the Postnatal Attachment Questionnaire may be of interest to place these results in context. Comparison of male completers and non-completers revealed a significant difference between the groups for Pleasure in Proximity,  $z = -2.07$ ,  $p = 0.03$ , (completers' *mean* = 3.66, non-completers' *mean* = 4.91), the difference between groups was approaching significance for both Competence ( $z = -1.77$ ,  $p = 0.77$ ) (completers' *mean* = 4.30, non-completers' *mean* = 4.66) and Acceptance ( $z = -2.76$ ,  $p = 0.06$ , 2-tailed) (completers' *mean* = 4.45, non-completers' *mean* = 4.91). Consequently, data from fathers' in this study are derived from fathers who reported feeling less Pleasure in Proximity towards their infant at Time 2 in comparison to Time 1. Additionally, the findings for the difference between the groups for both the Competence and Acceptance scores were approaching significance. One reason for this may be explained by Pohlman's (2005) study, which indicated that fathers' can feel like novices. If this is the case, it would be expected that fathers in this study may have been more eager to take part in the study in order for them to fill a purpose.

Finally, results may be explained by the fact that couples participated in this study and all fathers were all living with the mother of their child. Consequently, as the mothers feel less distressed and more competent in their new role as mothers, partners may feel "pushed out" of the situation. Therefore, fathers may not have had the same opportunities to be close to their infant. Additionally, fathers may have difficulties adjusting to their new



relationship with their partner as she assumes her new role as mother especially considering the fact that in this study 67% of fathers are first time fathers.

## **5.6: Strengths & Limitations of the present study**

### **5.6.1: Strengths of the present study**

There are a number of strengths to the study. Firstly, the study was the first that the researcher is aware of which explores psychological distress for both mothers and fathers of premature infants in the United Kingdom.

The study also aimed to understand why some mothers of low birth weight infants in comparison to very low birth weight infants experienced higher levels of anxiety and depression 3-4 months after the birth of their infant through the conceptual model of attachment. Demographic differences between completers and non-completers were minimal suggesting that the second stage of the study was representative of the study's population. However, recruitment numbers for the first stage of the study were relatively low with 25% of total females and 16% of total males participating, thus make generalisability difficult. However, it is interesting to note that during recruitment, a large proportion of fathers that were approached to participate stated that they were "pleased to take part as it gave them something to do". This is encouraging for future studies within the field.

Not only did this study provide prospective data, there was also a good return rate, (68% for mothers and 61% for fathers at Time 2 of the study). A further strength was in relation to data collection, this being undertaken at two different sites. The main measures (HADS, EPDS and ECR-R) used in the study were standardised which makes replication for future studies achievable.

A further strength of the study was the use of the Perinatal Post-Traumatic Stress Questionnaire (PPTSQ) which has higher face validity than other trauma measures as the items are specifically related to child-birth experiences. Furthermore, the items of the questionnaire are based on the DSM-IV criteria for diagnosis of Post Traumatic Stress Disorder. The findings revealed a difference between male completers and non-completers that approached significance ( $\chi^2 = 4.86$ ,  $df = 1$ ,  $p = 0.06$  (two-tailed)) in relation to having previously suffered from trauma symptoms, with male completers indicating that they had suffered more trauma symptoms in the past in relation to male non-completers.

### **5.6.2: Limitations of the present study**

There are also a number of limitations to the current study. Firstly, during the initial stage of data collection, nursing staff were consulted in relation to which parents' to approach for study recruitment. Parents' whose infant was not medically stable or according to the midwives were experiencing high levels of distress were not approached by the researcher. Therefore,

the participant sample may be biased and consist of parents who may have been experiencing lower levels of distress. Also, of the parents approached, a number declined to participate and the reasons for non-participation were not noted. Consequently, this selection procedure may have biased findings. Additionally, parents' whose infant was not medically stable were more likely to have a very low birth weight.

A further limitation of this study is in relation to the questionnaires administered, more specifically, that no validity and reliability was conducted on the premorbid mental health screen. Additionally, both the Perinatal Post-Traumatic Stress Questionnaire and Post-Natal Attachment Questionnaire has not been standardised on fathers. Consequently, findings with respect to these questionnaires need to be taken with caution. Furthermore, parents' were asked to complete a large number of questionnaires at both time periods. This may have impacted on response rate.

A further limitation is the fact that gender differences were not considered with regards to distress measures. Previous research has questioned using psychological distress measures that have not been standardised on both males and females, some studies suggesting that men express distress differently to women. Consequently, the measure of psychological distress utilised in this study may not have been sensitive enough to pick up on fathers' levels of distress. On reflection, the Positive and Negative Affective Schedule (PANAS) (Watson, Clark, & Tellegen, 1988) could have

being utilised in this study.

An obvious limitation of this study relates to one of the exclusion criteria. All participants' first language was English due to the fact that questionnaires were validated in English language only thereby excluding people from ethnic groups. Future research could be conducted to explore psychological distress in other ethnic groups who may hold different models of birth and the transition to parenthood.

One limitation of the study is the fact that a control group of parents' whose infants were born at full-term were not recruited which renders the data difficult to interpret. The use of a control group would enable clarification of 'usual' change that may occur 3-4 months post-partum. However, data from the study was linked with information regarding transition to parenthood so the results can be put in context of 'usual' changes during this time.

During the data collection period, problems were encountered with approaching staff (namely midwives) to help with the data collection process. This was due to the midwives experiencing both job and staffing pressures and therefore being unable to administer questionnaires when the researcher was not present. However, this may also be a reflection of the lack of psychology as a profession within the predominantly medical NICU team. The nursing staff may have been unfamiliar with the role of psychology and this, combined with a distinct lack of psychological input

into the service, may have resulted in the researcher not being viewed as part of the team. Therefore, on reflection, the researcher would have aimed to include nursing staff at the very early stages of the research procedure. Additionally, at the time of recruitment, staff at the hospital were also faced with job pressures (lack of staff and an outbreak of MRSI within the unit) and as a result it was extremely difficult to ask for assistance. This possibly highlights the fact that there are not enough midwives to offer necessary support for both mothers and fathers.

A further limitation of this study is the use of multiple statistical tests which may have led to the researcher to judge some of the findings as significant by chance. Consequently, the use of multiple statistical tests may have inflated the overall Type 1 errors.

### **5.7: Theoretical Implications**

The present study is an exploratory investigation of psychological distress in parents of premature infants. The overriding theories that underpin all aspects of this study are Attachment Theory (Bowlby, 1982; 1980; 1975) and The Transitional Model of Parenting (Raphel-Leff, 2001). Bowlby (1977) suggested that an individuals' personal attachment style characterises people 'from the cradle to the grave' (p.129) and it is a significant determinant not only of resilience or vulnerability throughout life's journey, but capacity to enjoy life and is most predominant during times of distress. The current findings are consistent with the attachment model as mothers with lower avoidant scores had lower changes in

distress scores from Time 1 to Time 2. However, other distress scores were not associated with either avoidant or anxious attachment style and this lack of finding maybe a consequence of the low sample size.

The study findings suggest that The Transitional Model of Parenting can make a valuable contribution to increasing understanding of psychological distress in parents of premature infants. However, it may be suggested that there is a need for greater integration between psychological principles and midwifery practice in this area.

### **5.8: Clinical Implications**

This study highlights that parents' experience higher levels of anxiety and depression after the birth of their premature infant in comparison to 3-4 months post-partum. Conversely, parents experience higher levels of trauma 3-4 months after the birth of the infant rather than in the immediate period after birth. The study also highlights that fathers' level of depression increases, and they gain less pleasure from being around their infant.

These findings highlight the importance of including psychology services in the neonatal intensive care team. Maternity Services have taken on board the importance of including fathers in the care of their infant whilst the infant is still in hospital. However further services are required to promote a positive relationship between the father and the infant in the months post-discharge.

In the National Service Framework for Children, Young People and Maternity Services entitled 'Every Child Matters' an increase of services have been proposed for children under school-going age with the aim of providing them with the best possible start in life. However, these service provisions do not extend to the infant in their first year of life. This study provides provisional evidence to support the claim that it would be of benefit to parents and their infants to be provided with a psychologically-based neonatal service.

Additionally, as previous research has indicated, there is a high prevalence of developmental difficulties for infants born prematurely and these children may be at greater risk of maltreatment in the future. Therefore, if a psychology-led service was provided from the outset, it may enable maternity services to better liaise with Child Psychology Services and Child and Adolescent Mental Health Services in the future, thus providing more integrated care for both parents and infants. Additionally, this would meet one of the main objectives of the National Service Framework for Children, Young People and Maternity Services which states "all children and young persons, from birth to their eighteenth birthday, who have mental health problems and disorders have access to timely, integrated, high quality multidisciplinary mental health services to ensure effective assessment, treatment and support, for them and their families" (pp.22).

Finally, findings suggest a negative relationship between change in fathers' levels of depression and Pleasure in Proximity scores post birth to 3-4

months later. This suggests that fathers of premature infants may have difficulties in one of the behavioural components operationally defined by Condon & Corkindale (1998) in forming an attachment to their infant. Therefore, government policies may consider giving fathers the option of increasing paternity leave. Fathers may be able to use this additional time to accompany their partners to parent and baby groups thus providing the opportunity for them to spend more time with their infant. Previous research investigating the experience of first-time fatherhood highlighted that fathers' reported negative experiences of antenatal classes, reporting that they felt the classes encouraged them to neglect their personal support needs and focus entirely on the support needs of their partner (Bradley, Mackenzie & Boath, 2004), further highlighting the importance of including and involving fathers in the postnatal care of their infant.

### **5.9: Possibilities for future research**

The present study found that parents of premature infants reported higher levels of anxiety, depression and distress after the birth of the infant in comparison to 3-4 months later. Further research could be undertaken to investigate what kind of support the parents would find most beneficial during this time. Additionally, findings suggest a negative relationship between changes in HADS anxiety and depression scores and pleasure in proximity scores between Time 1 and Time 2. Consequently further research could be undertaken to investigate this finding with a larger sample population using a repeated measure longitudinal design focusing



on fathers' post-natal attachment to their infant during the infants' first year.

The current study used quantitative research methods. Therefore, future research could employ content and thematic analysis which may yield rich data, specifically in relation to adult personal attachment styles. The combination of quantitative and qualitative methodology may bridge the gap between the two schools of thinking around attachment, i.e.: Bowlby suggests that a person's own personal attachment style can be observed through their behaviour which is more easily accessible through behaviour observations and quantitative methods. The psychoanalytic model views attachment as something that is internal to an individual (part of their unconscious) and therefore qualitative methodology may be more appropriate. A combination of research methods may provide greater insight and understanding into parents' attachment styles.

The present study also raises questions about whether or not parents own personal attachment style acts as a mediator between level of psychological distress and attachment to their infant. Due to the low participant rate in this study and therefore low statistical power, this research question was not investigated. However, this could be investigated in the future with a larger sample size. Additionally, it would be interesting to investigate psychological distress in parents of premature infants who are in couple relationships as opposed to single parents, with respect to whether couples "buffer" each other from experiencing depression/anxiety/trauma in relation to single parents.

The present study utilised the Perinatal Post Traumatic Stress Questionnaire which was not standardised for mothers and fathers. Future research to validate the scale for fathers is advocated. The current study also adapted the Maternal Post-Natal Attachment Questionnaire to use on men as a Paternal version of the questionnaire was not available. However, Condon & Corkindale are currently in the process of publishing a paternal version with well-validated psychometric properties. Future research to investigate psychological distress and the process of attachment between fathers and their infant could be undertaken utilising the new measure.

Research into the possible co-occurrence of trauma and depression symptoms in both fathers and mothers of premature infants after birth and in the post-partum period is advocated. Research in this area is still in its infancy with respect to mothers and as far as the researcher is aware, no research exists in this area with respect to fathers. The present study did not find any significant difference between co-occurrence of trauma and depression between fathers and mothers, but this maybe due to the small sample size of the study. Therefore, future research could include further investigation of the prevalence of co-occurrence of trauma and depression in both parents, utilising a larger sample size.

#### **5.10: Conclusion**

In conclusion, this exploratory study has provided greater insight and

understanding regarding levels of anxiety, depression, and trauma experienced by male and female parents, both after the birth of their premature infant and 3-4 months later. The study suggests that mothers experience higher levels of anxiety, depression and distress in comparison to fathers post birth and 3-4 months later. Fathers who had increased change in their depression scores reported reduced pleasure in proximity towards their infant post birth to 3-4 months later. Additionally, fathers who had decreased changes in their anxiety scores reported an increased pleasure in proximity towards their infant post birth and 3-4 months later. The present study further found that mothers who reported lower avoidant attachment style also had lower changes in their distress score between the Time periods. Consequently, it is hoped that the current study's findings will stimulate further research to increase understanding of psychological distress and trauma in parents of premature infants, the impact such distress and trauma may have on the postnatal attachment process between parents and their infant and to explore if parents personal attachment style act as a mediator between psychological distress and trauma and the postnatal attachment process.

## CHAPTER 6

### REFLECTIVE STATEMENT

The findings of this study indicated that parents of premature infants are less psychologically distressed at Time 2 in relation to Time 1 and this finding verifies the research question stating that individuals with secure attachment styles will be less psychologically distressed over the two Time periods.

However through personal communications with the participants an incongruence arose as mothers stated that their mood was low. Additionally, fathers stated that they were finding it difficult to cope with the emotional strain, stating that they felt a failure as a father to their infant and a partner. In order to cope with the situation the fathers reported that they were working longer hours in their respective occupations.

There may be a number of reasons for this incongruence. Firstly, the measures may not be sensitive enough to pick up on the emotional subtleties as they may have been too long or too clinical removed to be applicable. Secondly, the researcher's role in the process must also be considered. The researcher may have represented two different roles (as a female and a trainee clinical psychologist) to the participants which may have influenced their responses on the measures. As a female, the participants, in particular the mothers may have found it difficult to admit to the difficulties they are experiencing due to societal

expectations towards women and motherhood. Also, the participants were aware that the researcher was a trainee clinical psychologist which may have raised their concerns about not being fully honest about how they were feeling as they may have been aware of the researcher's professional duty of care.

On personal reflection, whilst collecting the data for this researcher project it was observed that the fathers of the premature infants were more eager to participate in this study in comparison to the mothers. This may be due to the fact that the fathers perceive this as having something concrete to do as they may not have felt like they had a parental role within the hospital setting and the researcher referring to them in relation to their paternity may have made them feel included in the process.

## References

Affleck, G., Tennen, H., and Rowe, J. (1990). Mothers and fathers and the crisis of newborn intensive care. *Infant Mental Health Journal*, **1**, 12-25.

Ainsworth, M., Blehar, M., Waters, E. and Wall, S. (1978). *Patterns of attachment. A psychological study of the Strange Situation*. Hillsdale, NJ: Erlbaum.

Ainsworth, M. D. (1982). Attachment: retrospect and prospect. In: Parkes, C. M. and Stevenson-Hides, J. (Eds), *The Place of Attachment in Human Behaviour*. Tavistock, London.

Allen, S. (1998). A qualitative analysis of the process, mediating variables and impact of traumatic childbirth. *Journal of Reproductive and Infant Psychology*, **16**, 107-131.

Anderson, A. H. (1996a). Factors influencing the father-infant relationship. *Journal of Family Nursing*, **2**, 306-324.

Anderson, A.H. (1996b) The father-infant relationship: Becoming connected. *Journal of the Society of Pediatric Nurses*, **1**(2), 83-93

Anthony, M., and Barlow, D. (2002). *Handbook of Assessment and Treatment Planning for Psychological Disorders*. Guilford Press, London.

Aradine, C., and Ferketich, S. (1990). The Psychological Impact of Premature Birth on Mothers and Fathers. *Journal of Reproductive and Infant Psychology*, **8**, 75-86.

Areias, M., Kumar, R., Barras, H. and Figueiredo, E. (1996). Correlates of postnatal depression in mothers and fathers. *British Journal of Psychiatry*, **169**, 36-41.

Ashcroft, M. (2005). Men's Expectations and Experiences of Childbirth. Unpublished Clin.Psy.D Thesis, Hull: University of Hull.

Ayers, S. and Pickering, A.D. (2001). Do women get posttraumatic stress disorder as a result of childbirth? A prospective study of incidence. *Birth*, **28**, 111-118.

Ballard, C. and Davies, R. (1996). Postnatal depression in fathers. *International Review of Psychiatry*, **8**, 65-71.

Barclay, L.M. and Lupton, D. (1999). The experiences of new fatherhood. A socio-cultural analysis. *Journal of Advanced Nursing*, **29**, 1013-1020.

Benfield, D., Lieb, S., and Reuter, J. (1976). The response of parents after referral of the critically ill newborn to a regional center. *Neonatal England Journal of Medicine*, **294**, 975-978.

Benit, D. and Parker, K. C. (1994). Stability and transmission of attachment across three generations. *Child Development*, **65**, 1444-1456.

Biddy, E., and Stewart, A. (2004). The epidemiology of preterm birth. *Neuro Endocrinol Letter*, **25** (1) 43-47.

Bion, W. (1963). *Elements of Psychoanalysis*. London: Heinemann.

Bischof, N. (1975). A systems approach toward the functional connections of attachment and fear. *Child Development*, **46**, 801-817.

Blain, M., Thompson, J., and Whiffen, V. (1993). Attachment and perceived social support in late adolescence: The interaction between working models of self and others. *Journal of Adolescent Research*, **8**, 226-241.

Blumberg, N. (1980). Effects of neonatal risk, maternal attitude, and cognitive style on early postpartum adjustment. *Journal of Abnormal Psychology*, **89**, 139-150.



Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation, anxiety, and anger*. New York: Basic Books.

Bowlby, J. (1977). The making and breaking of affectionate bonds: aetiology and psychopathology in the light of attachment theory. *British Journal of Psychiatry*, **130**, 201-210.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss*. New York: Basic Books.

Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.

Bradley, E., Mackenzie, M. and Boath, E. (2004). The experience of first-time fatherhood: a brief report. *Journal of Reproductive and Infant Psychology*, **22** (1), 45-47.

Brennan, K., Clark, C., and Shaver, P. (1998). Self report measurement of adult attachment: An investigation overview. In J. Simpson & W. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.

Brooten, D., Gennaro, S., Brown, L., Butts, P., Gibbons, A., Bakewell-Sachs, S., and Kumar, S. (1988). Anxiety, depression, and hostility in mothers of preterm infants. *Nursing Research*, **37**, 213-216.

Brownhill, S., Wihelm, K., Barclay, L., and Schmeid, V. (2005). 'Big build': hidden depression in men. *Australian and New Zeland Journal of Psychiatry*, **39**, 921-931.

Brumbaugh, C., and Fraley, C. (2006). Transference and Attachment: How Do Attachments Patterns Get Carried Forward From One Relationship to the Next. *Personality and Social Psychology Bulletin*, 552-260

Bruschweiler Stern, N. (1998). Early emotional care for mothers and infants. *Pediatrics*, **102**, 1278-1281.

Callahan, J., and Hynan, M., (2002). Identifying Mothers at Risk for Postnatal Emotional Distress: Further Evidence for the Validity of the Perinatal Posttraumatic Stress Disorder Questionnaire. *Journal of Perinatology*, **22** (6), 448-454.

Campbell, S. B., Cohn, J. F. and Meyers, T. (1995). Depression in first-time mothers: mother-infant interaction and depression chronicity. *Developmental Psychology*, **31**, 349-357.

- Cassidy, P. (1988). Child-Mother attachment and the self in six year olds. *Child Development*, **59**, 121-134.
- Chao-Hsing, Y. (2002). Gender differences of parental distress in children with cancer. *Journal of Advanced Nursing*, **38** (6), 598-606.
- Choi, M. (1973). A comparison of maternal psychological reaction to premature and full-size newborns. *Journal of Maternity and Children Nursing*, **2**, 1-13.
- Collins, N. (1996). Working models of attachment: Implications for explanation, emotion, and behaviour. *Journal of Personality and Social Psychology*, **71**, 810-832.
- Collins, N., and Read, S. (1990). Adult attachment, working models and relationship quality in dating couples. *Journal of Personality and Social Psychology*, **58**, 644-663.
- Collin, V.L. (1991). *Human attachment: What we know now*. Chevy Chase, MD: U.S. Department of Health and Human Services.
- Condon, J., and Corkindale, C. (1998). The assessment of parent-to-infant attachment: development of a self-report questionnaire instrument. *Journal of Reproductive and Infant Psychology*, **16** (1). 57-76.

Connery, H., and Davidson, K. (2006). A survey of attitudes to depression in the general public: A comparison of age and gender differences. *Journal of Mental Health, 15* (2), 179-189.

Cooper, P.J., Tomlinson, M., Swartz, L., Woolgar, M., Murray, L. and Molteno, C. (1999). Post-partum depression and the mother-infant relationship in a South African peri-urban settlement. *British Journal of Psychiatry, 175*, 554-558.

Cox, J., Holden, J., and Sagovsky, R. (1987). Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry, 150*, 782-786.

Cox, J., Murray, D., and Chapman, G. (1993). A controlled study of the onset, duration, and prevalence of postnatal depression. *British Journal of Psychiatry, 163*, 27-31.

Crandell, L.E., Patrick, M.P. and Hobson, R.P. (2003). Still-face interactions between mothers with borderline personality disorder and their 2-month-old infants. *British Journal of Psychiatry, 175*, 554-558.

Creedy, D.K., Shochet, I.M. and Horsfall, J. (2000). Childbirth and the development of acute trauma symptoms: Incidence and contributing factors. *Birth, 27*, 104-111.

Cutrona, C.E. and Russell, D. (1987). The provisions of social relationships and adaptation to stress. In W.H. Jones and D. Palman (Eds). *Advances in personal relationships* (Vol. 1. pp. 37-67). Greenwich, CT: JAI Press.

Czamocka, J. and Slade, P. (2000). Prevalence and predictors of post-traumatic stress symptoms following childbirth. *British Journal of Clinical Psychology*, **39**, 35-51.

Davidson, J. R. and Fairbank, J. A. (1993). *The epidemiology of posttraumatic stress disorder. Posttraumatic stress disorder: DSM-IV and beyond*. American Psychiatric Press, Wasington, DC.

Davis, M., Morris, M., and Kraus, L. (1998). Relationship-specific and global perceptions of social support: Associations with well-being and attachment. *Journal of Personality and Social Psychology*, **74**, 468-481.

De Mier, R., Hynan, M., Harris, H., and Manniello, R. (1996). Perinatal Stressors as Predictors of symptoms of Posttraumatic Stress in Mothers of Infants at High Risk. *Journal of Perinatology*, **16** (4), 276-280.

DiVitto, B., and Goldberg, S. (1979). The effects of newborn medical status on early parent-infant interaction. In Field, T., Sostek, S, & Shuman, H. (Eds). *Infants Born at Risk* (pp. 311-332). New York, NY: Spectrum.

Doering, L.V., Moser, D.K., and Dracup, K. (2000). Correlates of anxiety, hostility, depression, and psychosocial adjustment in parents of NICU infants. *Neonatal Networks*, **19** (5), 15-23.

Doumas, D., Margolin, G. and Johan, R.S.. (1994). The intergenerational transmission of aggression across 3 generations. *Journal of Family Violence*, **9**, 1557-175.

Emde, R. N. (1980). Emotional availability: a reciprocal reward system for infants and parents with implications for prevention of psychosocial disorders. In Taylor, P. M. (Ed.), *Parent-Infant Relationship*. Grune & Stratton, New York.

Fairchild, A., and Finney, S. (2006). Investigating validity evidence for the Experience in Close Relationships-Revised Questionnaire. *Educational and Psychological Measurement*, **66** (1). 116-135.

Feldman, S.S., Biringen, Z.C., and Nash, S.C. (1981). Fluctuations of sex-related self attributions as a function of stage of family life cycle. *Developmental Psychology*, **17**, 24-35.

First, M.B., Spitzer, R.L., Gibbon, M., Williams, J.B. (1996). *Structured Clinical Interview for DSM-IV axis 1 disorders*. American Psychiatric Publishing, Washington, DC.

Fraley, J., Waller, N., and Brennan, K. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, **78**, 350-365.

Fraley, R. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modelling of development mechanisms. *Personality and Social Psychology Review*, **6**, 123-151.

Fraley, R. and Brumbaugh, C. (2004). A dynamical systems approach to understanding stability and change in attachment security. *Nursing Research*, **37**, 82-85.

Gennaro, S., York, R., and Brooten, D. (1990). Anxiety and depression in mothers of low birthweight infants: Birth through 5 months. *Issues in Comprehensive Pediatric Nursing*, **13**, 97-109.

Goldsmith, H., and Alansky, J. (1987). Maternal and infant temperamental predictors of attachment: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, **55**, 805-816.

Goodman, J. (2005). Becoming an involved father of an infant. *Journal of Obstetric, Gynecologic, and Neonatal Nursing in review*, **34** (2), 190-200.

Grossberg, S. (1980). How does the brain build a cognitive code? *Psychological Review*, **87**, 1-51.

Grossmann, K.E. & Grossmann, K. (1991). Attachment quality as an organizer of emotional and behavioral responses in a longitudinal perspective. In C.M. Parkes, J. Stevenson-Hinde & P. Marris (Eds.), *Attachment across the life cycle* (pp. 93-114). London/New York: Tavistock/Routledge.

Hackins, R., Ewald, U., Hedberg, K., and Starrin, B. (2006). Trustful bonds: A key to "becoming mother" and to reciprocal breast-feeding stories of mothers of very preterm infants at a neonatal unit. *Social Science and Medicine*, **62** (1), 70-80.

Hall, W. (1994). New fatherhood: Myths and realities. *Public Health Nursing*, **11**, 219-228.

House of Commons Hansard Written Answers. 16 March, 2005. 'Perinatal/Infant Mortality'. [www.parliament.uk](http://www.parliament.uk).

Harris, B., Huckle, P., Thomas, R., and Johns, S. (1989). The use of rating scales to identify post-natal depression. *British Journal of Psychiatry*, **154**, 813-817.

Hart, S., Field, T., Jones, N. and Yando, R. (1999). Intrusive and withdrawn behaviours of mothers interacting with their infants and boyfriends. *Journal of Child Psychology and Psychiatry*, **40**, 239-245.



Hazan, C., and Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, **52**, 511-524.

Henderson, A., and Brouse, A.J. (1991). The experiences of new fathers during the first 3 weeks of life. *Journal of Advanced Nursing*, **16**, 293-298.

Holditch-Davis, D., and Miles, M.S. (2000). Mothers' stories about their experiences in the neonatal intensive care unit. *Neonatal Network*, **19** (3), 13-21.

Holmes, T. H. and Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research*, **11**, 213-218.

Hopson, B. (1981). 'Response to the papers by Schlossberg, Bramer and Abrego'. *Counselling Psychologist*, **9** (2), 36-39. Cited in Sugarman, L (1986). *Life-Span Development: Concepts, Theories and Interventions*. Routledge: London.

Horowitz, M., Wilner, M., and Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, **41**, 209-218.

Howitt, D., and Cramer, D. (1997). *An Introduction to Statistics for Psychology: a complete guide for students*. London: Prentice Hall Harvester Wheatsheaf.

Hughes, M., Collum, J., Stefield, D., and Sanchez, G. (1994). How parents cope with the experiences of neonatal care. *Child Health Care*, **2**, 1-4.

Issroff, J. (2005). *Donald Winnicott and John Bowlby: Personal and Professional Perspectives*. Karnac: London.

Jackson, K., Ternestedt, B-M., and Schollin, J. (2003). From alienation to familiarity: experiences of mothers and fathers of preterm infants. *Issues and Innovations in Nursing Practice*, **43** (2), 120-129.

Jones, N., Field, T., Fox, N.A., Davalos, M., Malphurs, J. and Carraway, K. (1997). Infants of intrusive and withdrawn mothers. *Infant Behaviour and Development*, **20**, 175-186.

Jordan, P. (1990). Labouring for relevance: Expectant and new fatherhood. *Nursing Research*, **39** (1), 11-16.

Kelley, M., Nair, V., Rawlings, T., Cash, T., Steer, K., and Fals-Stewart, W. (2005). Retrospective reports of parenting received in their families of origin: Relationships to adult attachment in adult children of alcoholics. *Addictive Behaviours*, **30** (8). 1479-1495.

Kersting, A., Dorsch, M., Wesselmann, U., Kudorff, K., Witthaut, J., Ohrmann, P., Hornig-Franz, I., Klockenbusch, W., Harms, E., and Arolt, V. (2004). Maternal posttraumatic stress response after the birth of a very low birth weight infant. *Journal of Psychosomatic Research*, **57** (5), 473-476.

Kessler, R.C., Sonnega, A., Bromet, E., Hughes, M., Nelson, C.B. (1995). Post-traumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, **52**, 1048-1060.

Klein, M. (1984). *The psychoanalysis of children (The writings of Melanie Klein, Vol. 2)*. Fress Press, London.

Kobak, R., and Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development*, **59**, 135-146.

Kulka, R. A., Fairbank, J. A., Jordan, B. K. and Weiss, D. S. (1990). *Trauma and the Vietnam War Generation*. Brunner/Mazel, New York.

Lindquist, P., and Jakobsson, L. (2003). Swedish Men's Experiences of Becoming Fathers to their Preterm Infants. *Neonatal Network*, **22** (6). 25 – 31.

Lopez, F. (1997). Student-professor relationship styles, childhood attachment bonds and current academic orientations. *Journal of Social and Personal Relationships, 14*, 271-282.

Lopez, F., and Gormley, B. (2002). Stability and change in adult attachment style over the first-year college transition: Relations to self-confidence, coping, and distress patterns. *Journal of Counselling Psychology, 49*, 355-364.

Lopez, F., Mitchell, P., and Gormley, B. (2002). Adult attachment and college student distress: Test of a mediational model. *Journal of Counselling Psychology, 49*, 460-467.

Lopez, F., and Brennan, K. (2000). Dynamic processes underlying adult attachment organization: Toward an attachment theoretical perspective on the healthy and effective self. *Journal of Counselling Psychology, 47*, 283-301.

Lowenthal, M.F., and Chiriboga, D. (1972). Transition to the empty nest. *Archives of General Psychiatry, 28*, 8-14.

Lyons, S. (1998). A prospective study of posttraumatic stress symptoms 1 month following childbirth in a group of 42 first-time mothers. *Journal of Reproductive and Infant Psychology, 16*, 91-105.

Mallinckrodt, B. (2000). Attachment, social competencies, social support, and interpersonal process in psychotherapy. *Psychotherapy Research*, **10**, 239-266.

Marris, P. (1982). Attachment and society. In C.M. Parkes and J. Stevenson-Hide (Eds.), *The place of attachment in human behaviour* (pp.185-201). London: Tavistock.

Matthey, S., Barnett, B., Kavanagh, D. and Howie, P. (2001). Validation of the Edinburgh Postnatal Depression Scale for men, and comparison of item endorsement with their partners. *Journal of Affective Disorders*. **64** (2-3), 175-184.

Maunder, R., Panzer, A., Viljoen, M., Owen, J., Schalk, H. and Hunter, J. (2006). Physicians' difficulty with emergency department patients is related to patients' attachment style. *Social Science & Medicine*, **63** (2), 552-562.

McNair, D.M., Lorr, M., Droppleman, L.F. (1981). *Profile of Mood States (POMS) Manual*. Educational and Industrial Testing Service. San Diego, California.

Meares, R. (1977). *The Pursuit of Intimacy: an approach to psychotherapy*. Nelson, Melbourne.

Mercer, R.T. (1986). Predictors of maternal role attainment at one year post-birth. *Western Journal of Nursing Research*, **8** (1), 9-32.

Meyer, T.J., Miller, M.L., Metzger, R.L., & Borkovec, T.D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, **28**, 487-495.

Mikulineer, M., and Erev, I. (1991). Attachment styles and the structure of romantic love. *British Journal of Social Psychology*, **30**, 273-291.

Mikulineer, M., and Nicholson, O. (1991). Attachment style and patterns of self-disclosure. *Journal of Personality and Social Psychology*, **61**, 321-331.

Miles, M.S. and Holditch-Davis, D. (1995). Compensatory parenting: How mothers describe parenting their 3-year-old, prematurely born children. *Journal of Pediatric Nursing*, **10**, 243-253.

Miles, M.S., Fink, S.G. and Kasper, M.A. (1992). The stress response of mothers and fathers of preterm infants. *Research in Nursing & Health*. **15** (4). 261-269.

Miller, L., Rustin, M., Rustin, M. and Shuttleworth, J. (1989). *Closely Observed Infants*. Gerald Duckworth & Co. Ltd.: London.

Minde, K., Whitelaw, A., Brown, J. and Fitzhardinge, P. (1983). Effects of neonatal complications in premature infants on early parent-child interactions. *Developmental Medicine and Child Neurology*, **25**, 763-777.

Morrison, T.L., Goodlin-Jones, B.L. and Urquiza, A.J. (1997). Attachment and the representation of intimate relationships in adulthood. *The Journal of Psychology*, **131**, 57-71.

Muller, M. E. (1993). A questionnaire to measure mother-to-infant attachment. *Journal of Nursing Measurement*, **2**, 129-141.

Muller-Nix, C., Forcada-Guex, M., Pierrehumbert, L., Borghini, A., and Ansermet, F. (2004). Prematurity, maternal stress and mother-child interactions. *Early Human Development*, **79** (2), 145-158.

Murray, L., and Carothers, .A. (1990). The validation of the Edinburgh Postnatal Depression Scale on a community sample. *British Journal of Psychiatry*, **157**, 288-290.

Murray Parker, C., Stevenson-Hides, J., and Marris, P. (1996). *Attachment Across the Life Span*. Routledge. London.

National Services Framework for Children, Young People, and Maternity Services – Executive Summary (2004). Standard 9 – The Mental Health and Psychological Well-being of Children and Young People. Department of Health.

Neugarten, B. L. (1968). Adult personality: Toward a psychology of the life cycle. In Neurgarta (Ed). *Middle age and aging* (pp 137-147). Chicago: University of Chicago Press.

O'Hara, M.W., and Swain, A.M. (1996). Rates and risk of postpartum depression-a meta-analysis. *International Review of Psychiatry*, **8**, 37-54.

Ognibene, T., and Collins, N. (1998). Adult attachment styles, perceived social support and coping strategies. *Journal of Social and Personal Relationships*, **15**, 323-345.

Owen, M., Easterbrooks, M., Chase-Lansdale, L., and Goldberg, W. (1984). The relation between maternal employment status and the stability of attachments to mother and to father. *Child Development*, **55**, 1894-1901.

Palmer, A., Gordon, H., and Rivinus, T. (1983). The 'adoption process' in the inpatient treatment of children and adolescence. *Journal of the American Academy of Child Psychiatry*, **12**, 286-293.



Pajulo, M., Savonlathi, E., Sourander, A., Ahlqvist, S., Helenius, H. and Piha, J. (2001). An early report on mother-baby interactive capacity of substance abusing mothers. *Journal of Substance Abuse Treatment*, **20**, 143-151.

Pears, K.C. and Capaldi, D.M. (2001). Intergenerational transmission of abuse: a two-generational prospective study of an at-risk sample. *Child Abuse and Neglect*, **25**, 1439-1461.

Perehundoff, B. (1990). Parents' perceptions of environmental stressors in the special care nursery. *Neonatal Networks*, **9** (2), 39-44.

Pierrehumbert, B., Nicole, A., Muller-Nix, C., Forcada-Guex, M., and Ansermet, F. (2003). *Archives of Disease in Childhood Fetal and Neonatal Edition*, **88**, 400-404.

Pietromonaco, P., and Barrett, L. (2000). The internal working models concept: What do we really know about the self in relation to others? *Review of General Psychology*, **4**, 155-157.

Pinelli, J. (2000). Effects of family coping and resources on family adjustment and parental stress in the acute phase of the NICU experience. *Neonatal Network*. **19** (6). 27-37.

Pohlman, S. (2005). The Primacy of Work and Fathering Preterm Infants: Findings from an Interpretive Phenomenological Study. *Advances in Neonatal Care*, **5** (4), 204-216.

Priel, B., and Shami, D. (1995). Attachment style and perceived social support: Effects on affect regulation. *Personality and Individual Differences*, **19**, 235-241.

Quinnell, F., and Hynan, M. (1999). Convergent and Discriminant Validity of the Perinatal PTSD Questionnaire (PPQ): A Preliminary Study. *Journal of Traumatic Stress*. **12** (1), 193-199.

Quinlivan, J.A., and Condon, J. (2005). Anxiety and depression in fathers in teenage pregnancy. *Australian and New Zealand Journal of Psychiatry*, **39** (10), 915-920.

Raphel-Leff, J. (2001). *Psychological Processes of Childbirth*. The Anna Freud Centre. Great Britain.

Reis, H., and Rusbult, C. (2004). *Close Relationships*. Psychology Press. New York. Rholes and J.A. Simpson (Eds) *Adult attachment: Theory, research, and clinical implications* (pp.86-132). New York: Guildford.

Riordan, D., Appleby, L. and Faragher, B. (1999). Mother-infant interaction in post-partum women with schizophrenia and affective disorders. *Psychological Medicine*, **29**, 991-995.

Rogers, R. (1995). *Diagnostic and structured interviewing: A handbook for psychologists*. Odessa, FL: Psychological Assessment Resources.

Russel, D.W. (1996). UCLA Loneliness Scale (Version 3): Reliability, Validity, and Factor Structure. *Journal of Personality Assessment*, **66** (1), 20-40.

Sarason, I.G., Levine, H.M., Basham, R.B. (1983). Assessing social support: the social support questionnaire. *Journal of Personality and Social Psychology*, **44**, 127-139.

Simpson, J. (1990). The influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, **59**, 971-980.

Simpson, J., Rholes, W., and Nelligan, J. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology*, **62**, 434-446.

Singer, L.T., Salvator, A., Guo, S., Collin, M., Lilien, L., and Baley, J. (1999). Maternal psychological distress and parenting stress after the birth of a very low-birth-weight infant. *The Journal of the American Medical Association*, **281** (9), 799-805.

Smith, C.A., and Farrington, D.P. (2004). Continuities in antisocial behaviour and parenting across three generations. *Journal of Child Psychology and Psychiatry*, **45**, 230-247.

Snaith, R.P., and Zigmond, A.S. (1994). *The Hospital Anxiety and Depression Scale Manual*, NFER, Nelson Windsor.

Soderquist, J., Wijma, K., and Wijma, B. (2002). Traumatic stress after childbirth: The role of obstetric variables. *Journal of Psychosomatic Obstetrics and Gynaecology*, **23**, 31-39.

Sroufe, L., and Waters, E. (1977). Attachment as an organizational construct. *Child Development*, **48**, 1184-1199

St John, W., Cameron, C., and McVeigh, C. (2005). Meeting the challenge of new fatherhood during the early weeks. *Jognn: Clinical Research*, **34** (2), 180-189.

Stowe, Z.N., and Nemeroff, C.B. (1995). Women at risk for postpartum-onset major depression. *American Journal of Obstetrics and Gynaecology*, **173**, 639-645.

Tracey, N. (2002). *Parents of premature infants – their emotional world*.

Athenaeum Press Ltd. Gateshead, Tyne & Wear

Tronick, E.Z. and Weinberg, M.K. (1997). Depressed mothers and infants: failure to form dyadic states of consciousness. In: L. Murray and P. Cooper (Eds), *Postpartum depression and child development* (pp. 54-81). New York: Guilford.

Tucker, M. & McGuire, C. (2004). Epidemiology of preterm birth. *British Medical Journal*, **329**, 675-678

Van den Bloom, 1994. The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development*, **65**, 1457-1478.

Van Ijzendoorn, M.H., Juffer, F. and Duyvesteyn, M.G. (1995). Breaking the intergenerational cycle of insecure attachment: a review of the effects of attachment-based interventions on maternal sensitivity and infant security. *Journal of Child Psychology and Psychiatry*, **36**, 225-248.

Waters, E. (1978). The reliability and stability of individual differences in infant-mother attachment. *Child Development*, **49**, 483-414.

- Waters, E. and Cummings, E.M. (2000). A secure base from which to explore close relationships. *Child Development*, **71**, 164-172.
- Watson, D., Clark, L.A., and Tellegen, A. (1988). Development and validation of brief measure of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, **54** (6), 1063-1070.
- Wei, M., Mallinckrodt, B., Russel, D., and Abraham, T. (2004) Maladaptive perfectionism as a mediator and moderator between attachment and negative mood. *Journal of Counselling Psychology*, **51**, 201-212.
- White, T., Matthey, S., Boyd, K., and Barnett, B. (2006). Postnatal depression and post-traumatic stress after childbirth: Prevalence, course and co-occurrence. *Journal of Reproductive and Infant Psychology*, **24** (2), 107-120.
- Wijma, K., Soderquist, J. and Wijma, B. (1997). Posttraumatic stress disorder after childbirth: A cross sectional study. *Journal of Anxiety Disorders*, **11**, 587-597.
- Wilhelm, K and Parker, G. (1988). The development of a measure of intimate bonds. *Psychological Medicine*, **18** (1), 225-234.

Williams, J.B., Gibbon, M., First, M.B., Spitzer, R.L., Davies, M., Borus, J., Howes, M.J., Kane, J., Pope, H.G., Rounsaville, B., and Wittchen, H. (1992). The Structured Clinical Interview for DSM-III-R (SCID): Multisite test-retest reliability. *Archives of General Psychiatry*, **49**, 630-636.

Wijnroks, L., (1999). Maternal recollected anxiety and mother-infant interaction in preterm infants. *Infant Mental Health Journal*, **20** (4), 393-409.

Winnicott, D. W. (1949). Birth Memories, birth trauma and anxiety. In *Collected Papers: Through Paediatrics to Psychoanalysis*. London: Hogarth Press/Institute of Psychoanalysis. London.

Winnicott, D. W. (1958). *Collected Papers: Through Paediatrics to Psychoanalysis*, London: Hogarth Press/Institute of Psychoanalysis. London.

Zigmond, A.S. and Snaith, R.P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scand*, **67**, 361-370.

Zung, W.W. (1965). A Self Rating Depression Scale. *Archives of General Psychiatry*, **12**, 63-70

## **APPENDIX 1**

### **Questionnaire Packs administered at Time 1 and Time 2**

- **Demographic Questionnaire 1 (administered at Time 1)**
- **Demographic Questionnaire 2 (administered at Time 2)**
- **Premorbid Mental Health Checklist (administered at Time 1)**
- **Hospital Anxiety and Depression Scale (HADS) (administered at Time 1 and Time 2)**
- **Edinburgh Post-Natal Depression Scale (EPDS) (administered at Time 1 and Time 2)**
- **Perinatal Posttraumatic Stress Questionnaire (PPSQ) (administered at Time 1 and Time 2)**
- **Experiences of Close Relationships-Revised (ECR-R) (administered at Time 1)**
- **Parental Postnatal Attachment Questionnaire (PPAQ) (administered at Time 1 and Time 2)**



## Demographic Questionnaire (1)

Please fill in the questions below to provide us with some information about you. All personal details will be coded to protect your identity and kept strictly confidential.

Please provide your name and address (Capital letters) below in order for us to send you further questionnaires 4 months (Part II of the study).

Your Full Name: -----

Your Address: -----

Your Post Code: -----

1. Age:

2. Gender:

Male [ ]

Female [ ]

3. How long have you and your current partner been together?

Less than 1 year [ ]

11 – 15 years [ ]

1 – 5 years [ ]

16 + years [ ]

6 – 10 years [ ]

4. Are you:

Married [ ]

Single [ ]

Partner [ ]

Other [ ]

5. Do you live?

Together [ ]

Separately [ ]

6. Occupation (or usual occupation if unemployed) -----

7. Please tick the box showing the highest qualifications you have:

No qualifications [ ]

Diploma [ ]

O-Levels/G.C.S.E's [ ]

Degree/Professional [ ]

A-Levels [ ]

Postgraduate Degree [ ]

8. Is this your first child?

Yes [ ]

No [ ]

9. If yes, have you had any previous experience with any other children in

Neonatal Intensive Care Unit?

Yes [ ]

No

[ ]

10. If yes, what was the outcome? -----

-----

11. What delivery did you have with this baby?

- Vaginal/Normal Delivery [ ]  
 Elective/Planned Caesarean Delivery [ ]  
 Emergency Caesarean Delivery [ ]  
 Instrumental Assisted Delivery e.g. forceps (please specify): [ ]

12. How many weeks premature was your infant? -----

13. Has your baby been in intensive care? -----

If Yes, how many weeks -----

14. Has your baby been in critical care? -----

If Yes, how many weeks -----

15. In a few words, how would you describe your baby? -----

-----

16. In a few words, how would you describe yourself? -----

-----

17. How much contact have you had with your baby when s/he was in intensive care?

(Please Circle)

Feeding	Yes	No	Length of Time ----
Skin-to-Skin contact	Yes	No	Length of Time ---
Holding	Yes	No	Length of Time ---
Any form of touching	Yes	No	Length of Time ---
Kissing	Yes	No	Length of Time ----
Other	Yes	No	Length of Time -----

(Please Specify) -----

18. How much contact have you had with your baby when s/he was in critical care?

(Please Circle)

<b>Breastfeeding</b>	<b>Yes</b>	<b>No</b>
----------------------	------------	-----------

**Length of Time**

**Bottle-feeding**

**Skin-to-Skin contact**

**Holding**

**Any form of touching**

**Kissing**

**Other (Please Specify) -----**

19. How close do you feel to your baby?

(Please Circle)

**Questionnaire Pack given at Time 1-Demographic Questionnaire 1**

**Not at all      A Little Close      Close      Very Close**

**20. Do you think your baby knows that you are there for him/her?**

**(Please Circle)**

**Not at all      A Bit      Possibly      Very Much So**

**21. When you think of your baby what image comes to your mind?**

-----  
-----

**22. When you think of yourself what image comes to your mind?**

-----  
-----

**23. How much do you have your baby in mind?**

**(Please Circle)**

**Not at all      A Little      Often      Very Often/All the time**

## Demographic Questionnaire for Part 2 of the Study

Please answer the following questions

Your Full Name: -----

Your Address: -----

Your Post Code: -----

1. Has there been any changes or stressful events in your life for the last 3-4 months?

Yes [ ]

No [ ]

If yes, what happened?

-----  
-----

2. How much contact have you had with your baby in the last week?

-----  
-----

(Please Circle)

Feeding	Yes	No
Skin-to-Skin	Yes	No
Holding	Yes	No
Any Form of Touching	Yes	No
Kissing	Yes	No
Other	Yes	No

(Please Specify) -----

## Premorbid Mental Health Checklist

1. Have you ever suffered from clinical depression in which you received treatment?

Yes [ ]

No [ ]

2. If yes, how many years? -----

3. Have you ever suffered from clinical anxiety in which you received treatment?

Yes [ ]

No [ ]

4. If yes, how many years? -----

Sometimes things happen to people that are extremely upsetting – things such as being in a life-threatening situation such as a major disaster, very serious accident or fire; being physically assaulted; seeing another person very seriously harmed, or badly hurt, or hearing about something horrible that has happened to someone you are close to.

5. At any time in your life have any of these things happened to you?

Yes [ ]

No [ ]

6. If yes, then how long ago (approximately) was the incident?

-----  
-----

7. Are you still troubled by the event at the present time?

Yes [ ]

No [ ]

**If 'yes', then go to question 4**

**If 'no' then stop here and go onto the next page**

8. Do you think about the event when you did not want to, or do thoughts about the incident come to you suddenly when you don't want them to?

Yes [ ]

No [ ]

9. Do you have dreams about the incident?

Yes [ ]

No [ ]

**Questionnaire Pack given at Time 1 – Premorbid Mental Health Checklist**

10. Do you find yourself acting or feeling as if you were back in the incident?

Yes [ ]

No [ ]

11. Do you find yourself getting very upset when something reminded you of the incident?

Yes [ ]

No [ ]

12. When reminded of the incident do you ever have physical symptoms such as breaking out in a sweat, breathing heavily or irregularly, or your heart pounding or racing?

Yes [ ]

No [ ]

13. Since the incident have you made a special effort to avoid thinking or talking about what happened?

Yes [ ]

No [ ]

14. Since the incident have you stayed away from things or people that reminded you of the incident?

Yes [ ]

No [ ]

## HADS Scale

The following questionnaire has been widely used in previous research. It is designed to assess how you have been feeling **in the last 7 days**.

Please read each item and place a tick in the box opposite the reply which comes closest to how you have been feeling in the past week. Don't take too long over your replies; your immediate reaction to each item will probably be more accurate than a long thought-out response.

*Tick only one box in each section*

**I feel tense or 'wound up':**

Most of the time.....	<input type="checkbox"/>
A lot of the time.....	<input type="checkbox"/>
Time to time, Occasionally...	<input type="checkbox"/>
Not at all.....	<input type="checkbox"/>

**I feel as if I am slowed down:**

Nearly all the time.....	<input type="checkbox"/>
Very Often.....	<input type="checkbox"/>
Sometimes.....	<input type="checkbox"/>
Not at all.....	<input type="checkbox"/>

**I still enjoy the things I used to enjoy:**

Definitely as much.....	<input type="checkbox"/>
Not quite so much.....	<input type="checkbox"/>
Only a little.....	<input type="checkbox"/>
Hardly at all.....	<input type="checkbox"/>

**I get a sort of frightened feeling like 'butterflies' in the stomach:**

Not at all.....	<input type="checkbox"/>
Occasionally.....	<input type="checkbox"/>
Quite often.....	<input type="checkbox"/>
Very often.....	<input type="checkbox"/>

**I get a sort of frightened feeling as if something awful is about to happen:**

Very definitely and quite badly	<input type="checkbox"/>
Yes, but not too badly.....	<input type="checkbox"/>
A little, but it doesn't worry me	<input type="checkbox"/>
Not at all.....	<input type="checkbox"/>

**I have lost interest in my appearance:**

Definitely.....	<input type="checkbox"/>
I don't take so much care as I should	<input type="checkbox"/>
I may not take quite as much care...	<input type="checkbox"/>
I take just as much care as ever.....	<input type="checkbox"/>

**I can laugh and see the funny side of things:**

As much as I always could.....	<input type="checkbox"/>
Not quite so much now.....	<input type="checkbox"/>
Definitely not so much now....	<input type="checkbox"/>
Not at all.....	<input type="checkbox"/>

**I feel restless as if I have to be on the move:**

Very much indeed.....	<input type="checkbox"/>
Quite a lot.....	<input type="checkbox"/>
Not very much.....	<input type="checkbox"/>
Not at all.....	<input type="checkbox"/>

**Worrying thoughts go through my mind:**

A great deal of the time.....	<input type="checkbox"/>
A lot of the time.....	<input type="checkbox"/>
From time to time but not too often	<input type="checkbox"/>
Only occasionally.....	<input type="checkbox"/>

**I look forward with enjoyment to things:**

As much as ever I did.....	<input type="checkbox"/>
Rather less than I used to.....	<input type="checkbox"/>
Definitely less than I used to.....	<input type="checkbox"/>
Hardly at all.....	<input type="checkbox"/>

**Questionnaire Pack given at Time 1 and Time 2 - Hospital Anxiety and Depression Scale (HADS)**

**I feel cheerful:**

Not at all.....  
Not often.....  
Sometimes.....  
Most of the time.....


**I get sudden feelings of panic:**

Very often indeed.....  
Quite often .....  
Not very often.....  
Not at all.....


**I can sit at ease and feel relaxed:**

Definitely.....  
Usually.....  
Not Often .....  
Not at all .....


**I can enjoy a good book or radio or TV programme:**

Often.....  
Sometimes.....  
Not Often.....  
Very Seldom.....




## **The Edinburgh Postnatal Depression Scale (EPDS)**

As you have recently had a baby, we would like to know how you are feeling.

Please **UNDERLINE** the answer which comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

***Here is an example, already completed.***

***I have felt happy:***

***Yes, all the time***

***Yes, most of the time***

***No, not very often***

***No, not at all***

***This will mean that: 'I have felt happy most of the time' during the past week. Please, complete the other questions in the same way.***

**In the past 7 days:**

1. I have been able to laugh and see the funny side of things

As much as I always could  
Not quite so much now  
Definitely not so much now  
Not at all

2. I have looked forwards with enjoyment to things

As much as I always could  
Not quite so much now  
Definitely not so much now  
Not at all

3. I have blamed myself unnecessarily when things went wrong

Yes, most of the time  
Yes, some of the time  
Not very often  
No, never

4. I have been anxious or worried for no good reason

No, not at all  
Hardly ever  
Yes, sometimes  
Yes, very often

**Questionnaire Pack given at Time 1 and Time 2 - Edinburgh Postnatal  
Depression Scale (EPDS)**

5. I have felt scared or panicky for no very good reason

- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

6. Things have been getting on top of me

- Yes, most of the time I haven't been able to cope at all
- Yes, sometimes I haven't been coping as well as usual
- No, most of the time I have coped quiet well
- No, I have been coping as well as ever

7. I have been unhappy that I have had difficulty sleeping

- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

8. I have felt sad or miserable

- Yes, most of the time
- Yes, quite often
- Not very often
- No, not at all

9. I have been so unhappy that I have been crying

- Yes, most of the time
- Yes, quite often
- Only occasionally
- No, never

10. The thought of harming myself has occurred to me

- Yes, quite often
- Sometimes
- Hardly ever
- Never

## **Maternal Perinatal Post Traumatic Stress Questionnaire (P.P.S.Q)**

Please read each item and **circle "Yes"** if you are experiencing any of these statements since the birth of your perterm baby.

1. Did you have several bad dreams of giving birth or your baby's hospital stay?

Yes

No

2. Did you have several upsetting memories of giving birth or your baby's hospital stay?

Yes

No

3. Did you have any sudden feelings as though your baby's birth was happening again?

Yes

No

4. Did you try to avoid thinking about childbirth or your baby's hospital stay?

Yes

No

5. Did you avoid doing things which might bring up feelings you had about childbirth, or your baby's hospital stay (for example, not watching a TV show about babies)?

Yes

No

6. Were you unable to remember parts of your baby's hospital stay?

Yes

No

7. Did you lose interest in doing things you usually do? (For example, did you lose interest in your work or your family?)

Yes

No

8. Did you feel alone and removed from other people? (For example, did you feel like no one understood you?)

Yes

No

9. Did it become more difficult for you to feel tenderness or love with others?

**Questionnaire Pack given at Time 1 and Time 2 - Perinatal Post Traumatic Stress Questionnaire (PPSQ)-Maternal Version**

Yes

No

10. Did you have unusual difficulty falling asleep or staying asleep?

Yes

No

11. Were you more irritable or angry with others than usual?

Yes

No

12. Did you have greater difficulties concentrating than before you gave birth?

Yes

No

13. Did you feel more jumpy? (For example, did you feel more sensitive to noise, or more easily startled?)

Yes

No

14. Did you feel more guilt about the childbirth than you felt you should have?

Yes

No

## **Paternal Perinatal Post Traumatic Stress Questionnaire (P.P.S.Q)**

Please read each item and **circle "Yes"** if you are experiencing any of these statements since the birth of your perterm baby.

1. Did you have several bad dreams of your partner giving birth or your baby's hospital stay?

Yes

No

2. Did you have several upsetting memories of your partner giving birth or your baby's hospital stay?

Yes

No

3. Did you have any sudden feelings as though your baby's birth was happening again?

Yes

No

4. Did you try to avoid thinking about your partner's childbirth or your baby's hospital stay?

Yes

No

5. Did you avoid doing things which might bring up feelings you had about partner's childbirth, or your baby's hospital stay (for example, not watching a TV show about babies)?

Yes

No

6. Were you unable to remember parts of your baby's hospital stay?

Yes

No

7. Did you lose interest in doing things you usually do? (For example, did you lose interest in your work or your family?)

Yes

No

8. Did you feel alone and removed from other people? (For example, did you feel like no one understood you?)

Yes

No

**Perinatal Post Traumatic Stress Questionnaire (PPSQ)-Paternal Version**

9. Did it become more difficult for you to feel tenderness or love with others?

Yes

No

10. Did you have unusual difficulty falling asleep or staying asleep?

Yes

No

11. Were you more irritable or angry with others than usual?

Yes

No

12. Did you have greater difficulties concentrating than before your partner gave birth?

Yes

No

13. Did you feel more jumpy? (For example, did you feel more sensitive to noise, or more easily startled?)

Yes

No

14. Did you feel more guilt about your partner's childbirth than you felt you should have?

Yes

No













## Parental Postnatal Attachment Questionnaire (PPA)- Maternal Version

Please read the following statements carefully and then **circle** the response that best indicates how you feel in general. **Remember that there is no right or wrong answers, just feelings.**

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

1	2	3	4	5
Very Frequently	Frequently	Occasionally	Very Rarely	Never

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

1	2	3	4	5
Very Frequently	Frequently	Occasionally	Very Rarely	Never

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

1	2	3	4	5
Dislike	No strong feelings towards the baby	Slight Affection	Moderate Affection	Intense Affection

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

1	2.3	3.6	5
Feel guilty that I am not more involved	Feel moderately guilty that I am not more involved	Feel slightly that I am not involved	I don't have feelings regarding this

5. When I interact with the baby I feel:

1	2.3	3.6	5
Very incompetent and lacking in confidence	Moderately incompetent and lacking in confidence	Moderately competent and confident	Very Competent and confident

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

1	2.3	3.6	5
Very Frequently	Frequently	Occasionally	Almost Never

**Questionnaire Pack for Time 1 and Time 2 - Parental Postnatal Attachment Questionnaire (PPAS)-Maternal Version**

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

1	2.3	3.6	5
Very Frequently	Frequently	Occasionally	Almost Never

8. I try to involve myself as much as I possibly can PLAYING with the baby:

1	5
This is true	This is untrue

9. When I leave the baby:

1	2	3	4	5
I usually feel rather relieved and it's easy to leave)	I often feel rather relieved (and it's easy to leave)	I have mixed feelings of both sadness and relief	I often feel sad (or it's difficult to leave)	I am usually sad (or it's difficult to leave)

10. When I am with the baby

1	2.3	3.6	5
I rarely get a lot of enjoyment/satisfaction	I occasionally get a lot of enjoyment/satisfaction	I frequently get a lot of enjoyment/satisfaction	I always get a lot of enjoyment/satisfaction

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

1	2	3	4	5
Not at all	Occasionally	Frequently	Very Frequently	Almost all the time

12. When I am with the baby:

1	5
I usually try and shorten the time I spend with him/her	I usually try and prolong the time I spend with him/her

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

1	2	3	4	5
Negative feelings about the ideas	No feelings about the ideas	Mild pleasure at the ideas	Moderate pleasure at the ideas	Intense pleasure at the ideas

14. I now think of the baby as:

1	3	5
Not yet really my own baby	A bit like my own baby	Very much my own baby

**Questionnaire Pack for Time 1 and Time 2 - Parental Postnatal Attachment Questionnaire (PPAS)-Maternal Version**

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

1	2.3	3.6	5
I find that I resent it quite a lot	I find that I resent it a moderate amount	I find that I resent it a bit	I don't resent it at all

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

1	2.3	3.6	5
Almost all the time	Very frequently	Occasionally	Not at all

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

1	2.3	3.6	5
Very much so	Somewhat so	Slightly so	Not at all

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

1	2.3	3.6	5
Almost never	Occasionally	Most of the time	Almost all of the time

19. When I am with the baby:

1	2.3	3.6	5
I am very impatient	I am a bit impatient	I am moderately patient	I am extremely patient

20. In a few words, how would you describe your baby? -----  
-----  
-----

21. In a few words, how would you describe yourself? -----  
-----  
-----

22. How close do you feel to your baby?  
(Please Circle)

Not at all	A Little Close	Close	Very Close
------------	----------------	-------	------------

23. Do you think your baby knows that you are there for him/her?  
(Please Circle)

Not at all	A Bit	Possibly	Very Much So
------------	-------	----------	--------------

**Questionnaire Pack for Time 1 and Time 2 - Parental Postnatal Attachment  
Questionnaire (PPAS)-Maternal Version**

24. When you think of your baby what image comes to your mind?

-----  
-----

25. When you think of yourself what image comes to your mind? -----

-----  
-----

26. How much do you have your baby in mind?  
(Please Circle)

Not at all

A little

Often

Very Often/All the time

## **Parental Postnatal Attachment Questionnaire (PPA)-Paternal Version**

Please read the following statements carefully and then **circle** the response that best indicates how you feel in general. **Remember that there is no right or wrong answers, just feelings.**

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

1	2	3	4	5
Very Frequently	Frequently	Occasionally	Very Rarely	Never

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

1	2	3	4	5
Very Frequently	Frequently	Occasionally	Very Rarely	Never

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

1	2	3	4	5
Dislike	No strong feelings towards the baby	Slight Affection	Moderate Affection	Intense Affection

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

1	2.3	3.6	5
Feel guilty that I am not more involved	Feel moderately guilty that I am not more involved	Feel slightly that I am not involved	I don't have feelings regarding this

5. When I interact with the baby I feel:

1	2.3	3.6	5
Very incompetent and lacking in	Moderately incompetent and lacking in	Moderately competent and confident	Very Competent and confident

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

1	2.3	3.6	5
Very Frequently	Frequently	Occasionally	Almost Never





**Questionnaire Pack for Time 1 and Time 2 - Parental Postnatal Attachment Questionnaire (PPAS)-Paternal Version**

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

1	2.3	3.6	5
I find that I resent it quite a lot	I find that I resent it a moderate amount	I find that I resent it a bit	I don't resent it at all

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

1	2.3	3.6	5
Almost all the time	Very frequently	Occasionally	Not at all

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

1	2.3	3.6	5
Very much so	Somewhat so	Slightly so	Not at all

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

1	2.3	3.6	5
Almost never	Occasionally	Most of the time	Almost all of the time

19. When I am with the baby:

1	2.3	3.6	5
I am very impatient	I am a bit impatient	I am moderately patient	I am extremely patient

20. In a few words, how would you describe your baby? -----

-----  
-----  
-----

21. In a few words, how would you describe yourself? -----

-----  
-----  
-----

22. How close do you feel to your baby?  
(Please Circle)

Not at all	A Little Close	Close	Very Close
------------	----------------	-------	------------

**Questionnaire Pack for Time 1 and Time 2 - Parental Postnatal Attachment  
Questionnaire (PPAS)-Paternal Version**

23. Do you think your baby knows that you are there for him/her?  
(Please Circle)

Not at all      A Bit      Possibly      Very Much So

24. When you think of your baby what image comes to your mind?

-----  
-----

25. When you think of yourself what image comes to your mind? -----

-----  
-----

26. How much do you have your baby in mind?  
(Please Circle)

Not at all      A little      Often      Very Often/All the time

**APPENDIX 2**

**Ethical Approval Documentation**

## Hull and East Riding Local Research Ethics Committee

Coniston House (Trust Headquarters)  
Willerby Hill Business Park  
Willerby  
HULL  
HU10 6ED

Tel: 01482 389246  
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26 September 2006

Miss Carmel Lawless  
Trainee Clinical Psychologist  
Hertford Building  
University of Hull  
Cottingham Road  
HU6 7RX

Dear Miss Lawless

**Study title:** Predictors of Psychological Distress in Parents of  
Premature Infants  
**REC reference:** 06/Q1104/75

**Amendment number:** 1.0  
**Amendment date:** 12 September 2006

The above amendment was reviewed at the meeting of the Chair's Actions sub committee

### Ethical opinion

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

### Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Notice of Substantial Amendment (non-CTIMPs)		12 September 2006
Covering Letter		12 September 2006

### Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

## **Research governance approval**

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

## **Statement of compliance**

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

**06/Q1104/75:**

**Please quote this number on all correspondence**

Yours sincerely

**Committee Co-ordinator**

**Copies**      *R&D Department for HEYH NHS Trust*

**Enclosures**      *List of names and professions of members who were present at the meeting and those who submitted written comments*

## Hull and East Riding Local Research Ethics Committee

Room SC39  
Coniston House (Trust Headquarters)  
Willerby Hill Business Park  
Willerby  
HULL  
HU10 6ED

Telephone: 01482 389246  
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02 October 2006

Miss Carmel Lawless  
Trainee Clinical Psychologist  
Clinical Psychology Department  
Hertford Building  
University of Hull  
Cottingham Road  
HU6 7RX

Dear Miss Lawless

**Full title of study:** Predictors of Psychological Distress in Parents of  
Premature Infants  
**REC reference number:** 06/Q1104/75

The REC gave a favourable ethical opinion to this study on 17 July 2006.

Further notification(s) have been received from local site assessor(s) following site-specific assessment. On behalf of the Committee, I am pleased to confirm the extension of the favourable opinion to the new site(s). I attach an updated version of the site approval form, listing all sites with a favourable ethical opinion to conduct the research.

### Research governance approval

The Chief Investigator or sponsor should inform the local Principal Investigator at each site of the favourable opinion by sending a copy of this letter and the attached form. The research should not commence at any NHS site until research governance approval from the relevant NHS care organisation has been confirmed.

### Statement of compliance

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

**06/Q1104/75**

**Please quote this number on all correspondence**

Yours sincerely

**Committee Co-ordinator**

**Hull & East Riding Local Research Ethics Committee**

**LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION**

*For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.*

<b>REC reference number:</b>	06/Q1104/75	<b>Issue number:</b>	2	<b>Date of issue:</b>	02 October 2006
<b>Chief Investigator:</b>	Miss Carmel Lawless				
<b>Full title of study:</b>	Predictors of Psychological Distress in Parents of Premature Infants				

*This study was given a favourable ethical opinion by Hull & East Riding Local Research Ethics Committee on 17 July 2006. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.*

<i>Principal Investigator</i>	<i>Post</i>	<i>Research site</i>	<i>Site assessor</i>	<i>Date of favourable opinion for this site</i>	<i>Notes <sup>(1)</sup></i>
Miss Carmel Lawless	Trainee Clinical Psychologist		Hull & East Riding Local Research Ethics Committee	13/07/2006	
Miss Carmel Lawless	Clinical Psychology Trainee		South Humber Local Research Ethics Committee	02/10/2006	

Approved by the Chair on behalf of the REC:

..... (Signature of ~~Chair~~/Administrator)  
 (delete as applicable)



ES/JK/SCC/R&D10/06  
Medical Director's Office  
Research & Development  
Northern Lincolnshire & Goole  
Hospitals Trust  
Tel: 01724 - 290410  
sue.c.clark@nlg.nhs.uk

5<sup>th</sup> October 2006

Miss Carmel Lawless  
Trainee Clinical Psychologist  
Hertford Building  
University of Hull  
Cottingham Road  
HU6 7RX

Dear Miss Lawless

**Re: Predictors of Psychological Distress in Parents of Premature Infants**

Your study has been processed by the Trust Research & Development department and submitted to the North & East Yorkshire & Northern Lincolnshire Strategic Health Authority (South Humber LREC) on your behalf.

To inform you that in addition to the REC approval, of which the Trust has been informed, the Trust also grant approval for the study to commence.

However, you are required to inform the Trust Research & Development department in advance of any significant proposed changes to the original protocol, adverse events or issues of safety. Your project will be subject to monitoring in line with the requirements for Research Governance and will be notified to the National Research Register. In addition the Northern Lincolnshire & Goole Hospitals NHS Trust Research & Development department will require progress reports and end of study notification.

Should you require any further assistance regarding this study, please do not hesitate to contact me.

Wishing you every success with your study.

Kind regards

R&D Manager  
Northern Lincolnshire & Goole  
Hospitals NHS Trust

**APPENDIX 3**

**Information Sheet and Consent Form at Time 1**

Title of Project  
**Psychological Distress in Parents of Premature Infants  
Research Project**

**Information Sheet**

You are being invited to take part in a research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take the time to read the following information carefully.

***What is the purpose of the study?***

Studies have shown that the postnatal period is a very distressing time for parents of preterm infants. This study aims to find out more about what parents experience in the postnatal period and to understand how a parent's attachment mediates psychological distress and the relationship to the newborn.

It is up to you whether you agree to take part in this study. Participation in the study will involve two stages. In Stage 1, you will be given this information sheet to keep and you will be asked to sign a consent form and leave your contact details. You will also be asked to complete a set of questionnaires. In Stage II of the study, you will be contacted by post four months later and you will be asked at that time to complete a second set of questionnaires. You can withdraw from the study at any time. There are no penalties for withdrawing and no one will be informed of your decision. Participation or non-participation will not affect the standard of care for your child.

***What are the possible benefits of taking part in this research?***

By taking part you will help provide valuable information that will contribute to the understanding of parents' experiences in the postnatal period in order to improve support during this difficult time. This information may also facilitate further studies in this area.

***What are the possible disadvantages of taking part in this research?***

You may find that some questions asked evoke upsetting thoughts or feelings. Should this happen, the main researcher of the study is a psychologist in clinical training who with your consent will either inform your midwife or refer you for appropriate support.

***Confidentiality***

All the information that is collected about you during the course of the research will be kept strictly confidential. However, if you consent, your GP will be notified of your participation in this study. All the information collected from individuals will be made anonymous. However, confidentiality will be broken if the researcher feels that any of the information collected raises any serious concerns that indicate either you or your baby are at risk confidentiality will be broken.

**Information Sheet for Part 1 of the study**

**What will happen to the results of the research study?**

The results of this research will be reported to the Paediatrics Department of Hull Royal Infirmary and will be written up and published in professional journals. In such publications no identifiable names are included so confidentiality is always ensured. You will be given the option of receiving feedback about the findings of the study.

**Who is organising and funding the research?**

The research is being undertaken as part of a postgraduate doctoral qualification in Clinical Psychology at the University of Hull. The research has been approved by the Hull and East Riding Local Research Ethics Committee.

**Contact for further information**

Should you require further information about the research, please do not hesitate to contact the main researcher at the address below:

Miss Carmel Lawless  
Trainee Clinical Psychologist  
Department of Clinical Psychology,  
Hertford Building  
University of Hull,  
Cottingham Road,  
Hull,  
HU6 7RX.

Tel: 01482 464117

Thank you for taking the time to read this information.

**Consent Form**

Patient Identification Number

**Consent Form**

**Title of Research Study:** Predictors of Psychological Distress in Parents of Premature Infants

**Name of Researcher:** Carmel Lawless BSc. (Hons) Psychology  
Dr Nayda Bedenko BSc. (Hons), MA, ClinPsyD.

**Please tick all relevant boxes to which you agree:**

1. I confirm that I have read and understood the information sheet for the above study and have had the opportunity to ask questions.
  
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.
  
3. I understand that sections of my medical notes may be looked at by responsible individuals involved with the study to check when our baby is born and his/her mortality rate. I give permission for these individuals to have access to my records
  
4. I agree to take part in Part I of the study
  
5. I agree to take part in Part II of the study and as such have filled in my contact details so that I can be contacted by post.
  
6. I agree to my GP being informed of my involvement of the study (if so please complete the form attached to this sheet)

**Please print clearly using capital letters**

Name of Patient: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Name of Researcher: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Name of Person taking consent: \_\_\_\_\_ Date: \_\_\_\_\_

(if different from the researcher)

Signature: \_\_\_\_\_

**Consent Form**

**Please complete your contact details below if you wish to participate in Part II of the study AND/OR you would like to receive a summary of the study's conclusions upon completion of the project.**

**Contact Details:**

Address:

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Post Code:

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Telephone Number:

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**GP and Practice Contact Details (to be completed if you agree to your GP being informed of your involvement in the study).**

**G.P's Name:**

**Practice or Surgery Name:**

**Address (if Known):**

## **APPENDIX 4**

- **COVERING INFORMATION SHEET FOR QUESTIONNAIRE PACK  
AT TIME 2**
- **LETTER TO PARTICIPANTS' G.P**

**Covering letter to participants inviting them to take part in Part 2 of the Study**

Dear Parent,

As you may remember you participated in a study entitled "Psychological Distress in Parents of Premature Infants" between September 2006 and January 2007 in the Neonatal Intensive Care Unit, The Women and Children's Hospital, Hull Royal Infirmary (or Neonatal Intensive Care Unit, Scunthorpe General Hospital). During this time, I informed you that I would be contacting you 3-4 months later to participate in Part 2 of the study.

Please find enclosed a questionnaire pack, which included an information sheet about the study, a short demographic questionnaire and four different questionnaires. I would be grateful if you would complete the questionnaire pack within a week of receiving the pack and return them in the "Stamped Address Envelope" provided.

I would like to take this opportunity to thank you in advance for your time and co-operation and if you have any queries or concerns regarding the study please do not hesitate in contacting me at the address or e-mail address provided below.

Yours sincerely,

Miss Carmel Lawless  
Psychologist in Clinical Training

Dr Nadya Bedenko  
Research Supervisor and Clinical Tutor

Department of Clinical Psychology,  
Hull York Medical School,  
Hertford Building,  
University of Hull,  
Cottingham Road,  
Hull,  
HU6 7RX

Tel: 01482 464117 (Dr Nadya Bedenko, Research Supervisor)  
E-Mail: C.Lawless@2004.hull.ac.uk



Dear Dr

RE: (Patient Name, Date of Birth and Address)

Your patient has recently agreed to take part in a research study titled "Psychological Distress in Parents of Premature Infants". Details of the study can be found in the enclosed patient information sheet.

Individual data regarding your patient will not be obtainable; however an overview of the research results will be available from August 2007.

If you would like to receive this overview or should require any further details regarding the study itself, please do not hesitate to contact me at the address or e-mail below.

Yours faithfully,

Miss Carmel Lawless  
Trainee Clinical Psychologist

Department of Clinical Psychology,  
Hertford Building,  
University of Hull,  
Cottingham Road,  
Hull,  
HU6 7RX

Tel: (Dr Nayda Bedenko Research Supervisor) 01482 464117  
E-mail: [clawless@2004.hull.ac.uk](mailto:clawless@2004.hull.ac.uk)

## **APPENDIX 5**

### **Statistical Analysis:**

- **Normality Distribution Checks for Measures**
- **Demographics of Completers and Non-Completers**
- **Differences between Completers and Non-Completers  
own Personal Attachment Styles**
- **Completers and Non-Completers scores' on the HADS, EPDS  
and PPSQ**
- **Differences between Completers and Non-Completers scores'  
on the Parental Post Attachment Questionnaire**

**Distribution of Male and Female data (using Kolmogorov-Smirnov test) for each of the questionnaires**

**Table 1: The Distribution of the male data (using Kolmogorov-Smirnov test) for each of the questionnaires**

<b>Questionnaires</b>	<b>Kolmogorov-Smirnov</b>	<b>Distribution</b>	<b>Test Used</b>
HADS-Depression	0.019	Not Normal	Non-Parametric Paired Sampled test (Wilcoxon)
HADS - Anxiety	0.200	Normal	Parametric Paired Sampled test (Paired Samples t-test)
EPDS	0.074	Normal	Parametric Paired Sampled test (Paired Samples t-test)
PPTSQ	0.000	Not Normal	Non-Parametric Paired Sampled test (Wilcoxon)

***Distribution of Male and Female data (using Kolmogorov-Smirov test) for each of the questionnaires***

**Table 2: The Distribution of the female data (using Kolmogorov-Smirov test) for each of the questionnaires**

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<b>Questionnaires</b>	<b>Females</b>	<b>Distribution</b>	<b>Test to Use</b>
HADS- Depression	0.200	Normal	Parametric Paired Sampled test (Paired Samples t-test)
HADS - Anxiety	0.200	Normal	Parametric Paired Sampled test (Paired Samples t-test)
EPDS	0.200	Normal	Parametric Paired Sampled test (Paired Samples t-test)
PPTSQ	0.200	Normal	Parametric Paired Sampled test (Paired Samples t-test)

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## **Demographics of Completers and Non-Completers**

In order to investigate any possible differences between completers and non-completers in the second part of the study, crosstabulation analyses were carried out to explore differences in the demographic characteristics in the two groups. The results are shown on in Table 3 and 4.

A summary of the demographic data for the mothers and fathers of completers and non-completers in relation to marital status, living arrangements, length of current relationships, highest educational attainment, previous children, type of delivery and previous neonatal experience (is given in Table 3 and 4).

A summary of the demographic data of the mothers and fathers of completers and non-completers in relation to previous mental health difficulties (is given in Table 5).

A summary of the demographic data of the premature infants for the mothers and fathers of completers and non-completers is presented in Table 4.

Table 3 highlights that overall there are few important differences between the groups. A higher proportion of male completers were married and in their current relationship for a longer period of time (between 11-5years) and their partners' had a emergency caesarean section compared to the male non-completers

### ***Demographics for Completers and Non-Completers***

A higher proportion of female's completers were living separately to their infant's father compared to the female non-completers. However the proportions in both the completers and non-completers groups are small.

There was a higher proportion of both male and female whom completed who had previous experience of neonatal intensive care compared to male and female non-completers. A lower proportion of both male and female completers than corresponding non-completers reported having no educational qualifications and a higher proportion of both male and female completers than corresponding non-completers reported achieving higher educational qualification (Degree/Professional Qualification and Postgraduate Degree).

**Demographics for Completers and Non-Completers**

**Table 3:**

**Frequencies and percentages of demographic characteristics for the male and female participants according to completion status.**

	<b>FREQ (%)</b> <b>Female</b> <b>Completers</b>	<b>FREQ (%)</b> <b>Female</b> <b>Non-</b> <b>Completers</b>	<b>FREQ (%)</b> <b>Male</b> <b>Completers</b>	<b>FREQ (%)</b> <b>Male</b> <b>Non-Completers</b>
<b>Martial Status</b>				
Married	11 (50%)	4 (40%)	8 (61.5%)	3 (37.5%)
Single	0 (0%)	2 (20%)	0 (0%)	0 (0%)
Partner	10 (45.5%)	4 (40%)	5 (38.5%)	4 (50%)
Other	1 (4.5%)	0 (0%)	0 (0%)	1 (12.5%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Living Arrangements</b>				
Living Together	20 (90.9%)	9 (90%)	13 (100%)	8 (100%)
Living Separately	2 (9.1%)	0 (0%)	0 (0%)	0 (0%)
Missing Data	0 (0%)	1 (10%)	0 (0%)	0 (0%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Length of Current Relationship</b>				
Less than a year	0 (0%)	0 (0%)	1 (7.7%)	0 (0%)
1-5 years	9 (40.9%)	4 (40%)	5 (38.5%)	4 (50%)
6-10 years	9 (40.9%)	3 (30%)	4 (30.8%)	3 (37.5%)
11-15 years	4 (18.2%)	2 (20%)	3 (23.1%)	1 (12.5%)
Missing Data	0 (0%)	1 (10%)	0 (0%)	0 (0%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Highest Educational Qualification</b>				
No qualifications	3 (13.6%)	4 (40%)	1 (7.7%)	3 (37.5%)
O-Levels/G.C.S.E's	11 (50%)	4 (40%)	6 (46.2%)	4 (50%)
A-Levels	4 (18.2%)	2 (20%)	1 (7.7%)	1 (12.5%)
Diploma	1 (4.5%)	0 (0%)	1 (7.7%)	0 (0%)
Degree/Professional Qualification	2 (9.1%)	0 (0%)	3 (23.1)	0 (0%)
Postgraduate Degree	1 (4.5%)	0 (0%)	1 (7.7%)	0 (0%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)

**Demographics for Completers and Non-Completers**

**Table 4:**

**Frequencies and percentages of demographic characteristics for the male and female participants according to completion status**

<b>Previous Children</b>				
Yes	11 (50%)	5 (50%)	6 (46.2%)	3 (37.5%)
No	11 (50%)	5 (50%)	7 (53.8%)	5 (62.5%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Type of Delivery</b>				
Vaginal/Normal Delivery	12 (54.5%)	5 (50%)	6 (46.2%)	6 (75%)
Elective/Planned Caesarean Section	1 (4.5%)	0 (0%)	1(7.7%)	0 (0%)
Emergency Caesarean Section	9 (40.9%)	4 (40%)	6 (46.2%)	2 (25%)
Missing Data	0 (0%)	1 (10%)	0 (0%)	0 (0%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Previous Experience of Neonatal Intensive Care</b>				
Yes	20 (90.9%)	7 (70%)	10 (76.9%)	5 (62.5%)
No	2 (9.1%)	2 (20%)	3 (23.1%)	3 (37.5%)
Missing Data	0 (0%)	1 (10%)	0 (0%)	0 (0%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)

Table 5 highlights that overall there are few important differences between the groups.

A lower proportion of female completers who reported previously suffering from both clinical depression and anxiety in which they received treatment and reported experiencing traumatic symptoms in relation to female non-completers.

With regard to previous experiences of both clinical depression and



### **Demographics for Completers and Non-Completers**

anxiety and experiences traumatic symptoms a higher proportion of male participants tended to respond at time 2.

A summary of the demographic data of female completers and non-completers and male completers and non-completers in relation to previous mental health difficulties (See Table 5).

**Table 5:**  
**Frequencies and percentages of previous mental health difficulties according to completers and non-completers**

<b>Previous Mental Health Difficulties</b>	<b>Freq (%) Female Completers</b>	<b>Freq (%) Female Non-Completers</b>	<b>Freq (%) Male Completers</b>	<b>Freq (%) Male Non-Completers</b>
<b>Depression</b>				
No	2 (9.1%)	2 (20%)	2 (15.4%)	0 (0%)
Total	20 (90.9%)	8 (80%)	11 (84.6%)	8 (100%)
<b>Anxiety</b>				
Yes	22 (100%)	10 (100%)	13 (100%)	8 (100%)
No	0 (0%)	1 (10%)	1 (7.7%)	0 (0%)
Total	22 (100%)	9 (90%)	12 (92.3%)	8 (100%)
<b>Trauma Symptoms</b>				
Yes	4 (18.2%)	4 (40%)	8 (61.5%)	1 (12.5%)
No	18 (81.8%)	6 (60%)	5 (38.5%)	7 (87.5%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)

Table 6 highlights that overall there are few important differences between the groups.

A higher proportion of female completers' infants and male completers' infants spent time in Intensive Care in relation to male and female non-completers. A lower proportion of female completers' infants did not spend time in Critical Care in relation to female non-completers.

## ***Demographics for Completers and Non-Completers***

A higher proportion of male completers' infants' birth weight was in the low birth weight in relation to the male non-completers.

A higher proportion of both male and female completers' infants were admitted to hospital post-discharge and their infant was admitted on two occasions in relation to the infants of both male and female completers.

A summary of the demographic data of the premature infants for the female completers and non-completers and male completers and non-completers is presented in Table 6.

## Demographics for Completers and Non-Completers

**Table 6:**

**Frequencies and percentages of demographic data of premature infants' for female completers and non-completers and for male completers and non-completers.**

	<b>Freq (%) Female Completers</b>	<b>Freq (%) Female Non- Completers</b>	<b>Freq (%) Male Completers</b>	<b>Freq (%) Male Non- Completer</b>
<b>Birth Weight of Infant</b>				
Low Birth Weight (< 2,500 grams)	15(68.2%)	7 (70%)	12 (92.3%)	6 (75%)
Very Low Birth Weight (<1,500 grams)	5 (22.7%)	2 (20%)	1 (7.7%)	0 (0%)
Extremely Low Birth Weight (<1000 grams)	2 (9.1%)	1 (10%)	0 (0%)	2 (25%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Time Spent in Intensive Care</b>				
Yes	20 (90.9%)	7 (70%)	10 (76.9%)	5 (62.5%)
No	2 (9.1%)	2 (20%)	3 (23.1%)	3 (37.5%)
Missing Data	0 (0%)	1 (10%)	0 (0%)	0 (0%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Time Spent in Critical Care</b>				
Yes	9 (40.9%)	4(40%)	5 (38.5%)	3 (37.5%)
No	13 (59.1%)	4(40%)	8 (61.5%)	5 (62.5%)
Missing Data	0 (0%)	2(20%)	0 (0%)	0 (0%)
Total	22 (100%)	10(100%)	13 (100%)	8 (100%)
<b>Previous Hospital Admissions Post Discharge</b>				
Yes	5 (22.7%)	4 (40%)	1 (7.7%)	2(25%)
No	17( 77.3%)	5 (50%)	11 (84.6%)	5 (62.5%)
Missing Data	0 (0%)	1 (10%)	1 (10%)	1 (12.5%)
Total	22 (100%)	10 (100%)	13 (100%)	8(100%)
<b>Number of times infant was admitted Post Discharge</b>				
Never Been Admitted	17(77.3%)	5 (50%)	11 (84.6%)	5 (62.5%)
One Occasion	5(22.7%)	2 (20%)	2 (15.4%)	1 (12.5%)
Two Occasions	0 (0%)	2 (20%)	0 (0%)	1 (12.5%)
Missing Data	0 (0%)	1 (10%)	0 (0%)	1 (12.5%)
Total	22 (100%)	10 (100%)	13 (100%)	8 (100%)
<b>Reason for Admission Post Discharge</b>				
Bronchiolitis	2 (40%)	2 (40%)	1 (50%)	1 (33.3%)
Poor Feeding and Bronchiolitis	0 (0%)	1 (20%)	0 (0%)	1 (33.3%)
Not Specified	3 (60%)	1 (20%)	1 (50%)	0 (0%)
Missing Data	0 (0%)	1 (20%)	0 (0%)	1 (33.4)
Total	5 (100%)	5 (100%)	2 (100%)	3 (100%)

Chi-Square tests was carried out to investigate whether there were any

### ***Demographics for Completers and Non-Completers***

significant associations between the variables tabulated in Tables 3, 4, 5 and 6 and completion status. The exact p-value was used due to small sample size. Chi-square analysis revealed an approaching significance between the male completers and non-completers in relation to previously suffering from trauma symptoms ( $\chi^2 = 4.86$ ,  $df = 1$ ,  $p = 0.06$  (two-tailed)), Chi-square analysis revealed an approaching significance between the female completers and non-completers in relation to the number of times their infant was admitted to hospital post-discharge ( $\chi^2 = 5.31$ ,  $df = 2$ ,  $p = 0.08$  (two-tailed)). No other significant relationship was found between completers and non-completers.

**Difference between Completers and Non-Completers on HADS, EPDS and PPS scores at Time 1.**

To investigate any possible differences between completers and non-completers in Time 1 second part of the study in relation to their levels of anxiety, depression, and trauma, a Mann-Whitney test (a non-parametric independent samples test) was undertaken.

Differences between male completers and non-completers were compared for both the HADS anxiety scores (completers' *mean* = 11.04, non-completers' *mean* = 10.94) and the HADS depression scores (completers' *mean* = 10.35, non-completers' *mean* = 12.06) at Time 1 and the standard deviations or variances are about the same.

Non-parametric independent samples analyses of total HADS anxiety scores at Time 1 for male completers and non-completers revealed no significant differences between the groups for both HADS anxiety scores ( $z = -0.03$ ,  $p > 0.05$ , 2-tailed) and HADS depression scores ( $z = -0.62$ ,  $p > 0.05$ , 2-tailed). Therefore, there were no significant differences in levels of anxiety and depression between male completers and non-completers. Non-parametric independent samples analyses of both the totals for HADS anxiety scores (female completers' *mean* = 16.55, female non-completers' *mean* = 16.40) and HADS depression scores (female completers' *mean* = 17.75, female non-completers' *mean* = 13.75) for female completers and non-completers Time 1 revealed no significant difference between the groups for both HADS anxiety

***Difference between Completers and Non-Completers on HADS, EPDS and PPS scores at Time 1***

scores ( $z = -0.04$ ,  $p > 0.05$ , 2-tailed) and HADS depression scores ( $z = -1.12$ ,  $p > 0.05$ , 2-tailed). Therefore, there were no significant differences in levels of anxiety and depression between female completers and non-completers.

Differences between male completers and non-completers were compared for EPDS scores at Time 1 (completers' *mean* = 10.46, non-completers' *mean* = 11.88). Non-parametric independent samples analyses of total EPDS scores at Time 1 revealed no significant differences between the groups ( $z = -0.51$ ,  $p > 0.05$ , 2-tailed). Therefore, there were no significant differences in levels of distress between the male completers and non-completers. Non-parametric independent samples analyses of total female EPDS scores (completers' *mean* = 16.23, non-completers' *mean* = 17.10) at Time 1 revealed no significant differences between the groups ( $z = -0.24$ ,  $p > 0.05$ , 2-tailed). Therefore, there were no significant differences in levels of distress between the female completers and non-completers.

Differences between male completers and non-completers were compared for PPSQ scores at Time 1 (completers' *mean* = 11.35, non-completers' *mean* = 10.44). Non-parametric independent samples analyses of total PPSQ scores at Time 1 revealed no significant differences in levels of stress between the groups ( $z = -0.36$ ,  $p > 0.05$ , 2-tailed). Therefore, there were no significant differences in levels of stress between the male completers and non-completers. Non-parametric independent samples analyses of total female PPSQ scores (completers' *mean* = 16.66, non-completers' *mean* = 16.15) at Time 1 revealed no significant differences in levels of stress between the

***Difference between Completers and Non-Completers on HADS, EPDS and PPS scores at Time 1***

groups ( $z = 0.14$ ,  $p > 0.05$ , 2-tailed). Therefore, there were no significant differences in levels of stress between the female completers and non-completers.

**Comparison of Data for ECR-R at Time 1 (3-5 days after the birth of the infant) and Time 2 (3-4 months post-partum) for Completers and Non-Completers own Personal Attachment Styles**

Table 7 shows the means and standard deviations for ECR-R scores for male and female completers and non-completers. Table 7 illustrates that both males and female completers tend to have slightly lower scores for both avoidant and anxious attachment styles implying that the completers have securer personal attachment styles when compared to both male and female non-completers ECR-R scores.

**Table 7:**  
The mean and standard deviation to the ECR-R scores for Female completers and non-completers and Male completers and non-completers

	Mean	SD	Minimum Score	Maximum Score	N
<b>Female Completers</b>					
<b>Anxious Score</b>	2.22	1.10	1.33	5.61	22
<b>Female Non-Completers</b>	2.70	1.28	1.61	5.94	10
<b>Female Completers</b>					
<b>Avoidant Score</b>	2.53	0.87	1.67	4.39	22
<b>Female Non-Completers</b>	2.98	0.97	1.67	4.50	10
<b>Male Completers</b>					
<b>Anxious Score</b>	1.93	0.64	1.33	3.28	13
<b>Male Non-Completers</b>	2.26	1.03	1.33	4.61	8
<b>Male Completers</b>					
<b>Avoidant Score</b>	2.32	0.84	1.67	4	13
<b>Male Non-Completers</b>	2.54	1.20	1.72	5.33	8

\*Figures in black denote Date of completers

\*Figures in red denote Data of non-completers



### ***Differences between Completers and Non-Completers own Personal Attachment Styles***

Mann-Whitney tests to compare the distributions between completers and non-completers of both the females' total anxiety scores (completers' *mean* = 2.22, non-completers' *mean* = 2.70) and avoidant scores (completers' *mean* = 2.53, non-completers' *mean* = 2.98) revealed no significant differences between the groups for both anxiety scores ( $z = -1.37, p > 0.05$ ) and avoidant scores ( $z = -1.39, p > 0.05$ ). Therefore, there were no significant differences for the anxious and avoidant attachment styles' scores between the female completers and non-completers.

Mann-Whitney non-parametric independent analyses of both the males' total anxiety scores (completers' *mean* = 1.93, non-completers' *mean* = 2.26) and avoidant scores (completers' *mean* = 2.32, non-completers' *mean* = 2.54) revealed no significant differences between the groups for both anxiety scores ( $z = -0.80, p > 0.05$ ) and avoidant scores ( $z = -0.76, p > 0.05$ ). Therefore, there were no significant differences between both the anxious and avoidant attachment styles' scores between the male completers and non-completers.