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**BEYOND THE FEEDING RELATIONSHIP:
MOTHERS' DESCRIPTIONS OF
INTERACTION
WITHIN THE MOTHER-CHILD DYAD**

**SUBMITTED TO
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DIVISION OF NURSING AND MIDWIFERY**

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Declaration

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Abstract

BEYOND THE FEEDING RELATIONSHIP: MOTHERS' DESCRIPTIONS OF INTERACTION WITHIN THE MOTHER-CHILD DYAD.

The mother-child relationship is a key determinant of child health. Current evidence acknowledges that impaired mother-child interaction affects social, emotional, cognitive and behavioural development in infants. Disrupted interaction within the mother-child dyad can be caused by a variety of factors including prolonged separation, illness, abusive relationships, maternal stress and other psychosocial disturbances. Post Partum Depression (PPD), in particular, compromises mother-child interaction. Despite the fact that recent studies have demonstrated that the prevalence of PPD in low-income communities is approximately three times that found in first world countries, mother-child interaction is seldom evaluated and facilitated in primary care. Physical growth is often the only measure of infant health and development.

The objectives of this qualitative study were to explore the mother's description of mother-child interaction; the importance that the mother ascribes to this interaction; and the mother's perception of the factors which facilitated interaction within the mother-child dyad.

First-time mothers were purposively sampled and semi-structured interviews were conducted. After general inductive analysis of the verbatim transcriptions of the interviews, five main themes emerged. These were: (1) "*What I expected*" which described expectations around the birth and the impact on mother-child interaction, (2) "*Isn't one supposed to feel...?*" explored the mothers concerns regarding interaction, emotions and adaptation, (3) "*Connecting with my baby*" described a process of physical connectedness which enhanced emotional connectedness, (4) "*We reflect each other's feelings*" illustrated how feelings are echoed between mother and baby and empathy

developed, and (5) “*That helped/hindered our interaction*” described factors which eased the fluency of mother-child interaction.

These findings are discussed in relation to neuro-scientific developmental theories; namely Porges’ Polyvagal Theory of subconscious adaptation for social behaviour and security strategies, and The Mirror Neuron Theory which describes mechanisms of imitation and the development of empathy. Factors which enhanced mother-child interaction are discussed within the context of a changing society.

The findings suggest the potential value of including the facilitation of mother-child interaction in the practice of health professionals, particularly midwives and other workers in maternal and child health. This may include training in non-directive counselling of mothers, the recognition of disengaged mother-child interaction, and relationship facilitation. This study emphasizes the importance of mother-child interaction and that health professionals need to be aware of the potential for maternal mental health problems after birth, and the long-term consequences of poor mother-child interaction on infant health.

KEYWORDS: Mother-child dyad, infant mental health, mother-child interaction, postpartum depression, facilitated relationships, empathy.

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Glossary of Terms

Dyad

A noun of Greek derivation which means two units which are regarded as one. An alternate meaning is two persons in a continuing relationship involving interaction (Chambers Concise 20th Century Dictionary, 1985, p. 298).

Empathy

The psychological construct of empathy refers to an induction process by which positive and negative emotions are shared, without losing sight of whose feelings belong to whom (Decety and Meyer, 2008).

Maternal Sensitivity

Maternal sensitivity is the ability of the mother to read the infant's signals correctly and respond appropriately, promptly, and effectively. This relates to the mother's capacity to see things from the infant's point of view (Bretherton, 1992).

Attachment

Within the theory of attachment, attachment means a bond or tie between an individual and an attachment figure. Attachment theorists Bowlby and Ainsworth propose that children have a need for a secure relationship with adult caregivers, without which normal social and emotional development will not occur (Bretherton, 1992).

Disengaged interaction

Interaction characterized by emotional distance, or indifference of the mother toward her infant.

Kangaroo Mother Care (KMC)

Also known as 'skin-to-skin holding', this is a technique which requires that babies be placed naked in an upright position on their parent's chest. This has proved to be a safe alternative to incubator care, even for pre-term infants. The key features of this technique

are the maintenance of infant's body temperature, breastfeeding and touch, all of which are shown to accelerate neuro-development.

Post-Partum Depression (PPD)

Post-partum depression is a form of clinical depression which can affect women after the birth of a child. It can also affect men though less frequently. Beck, (2001) has identified several risk factors for PPD. Mothers with postnatal depression unconsciously show more negative emotions toward their children. They tend to be less responsive to infant cues, less emotionally available, and have infants that are less securely attached. In extreme cases, women may even have thoughts of harming their children.

Perinatal Depression

Perinatal depression is depression around the time of birth and can include the ante-natal period (Beck, 2001).

Edinburgh Postpartum Depression Scale (EPDS)

The EPDS is a questionnaire which consists of 10 self-answer questions regarding the mother's feelings during the preceding week and is a time-efficient way to identify mothers at risk of PPD (Cox, Holden and Sagovsky, 1987).

Failure To Thrive (FTT)

This is not a diagnosis in itself, but instead is a symptom associated with varying degrees of malnutrition and developmental delays which occur over a period of time. The causes may be endogenous or exogenous.

Non Organic Failure To Thrive (NOFTT)

Up to 80% of children with growth failure do not have an apparent physical cause. Non Organic Failure to Thrive may be due to complex interactional problems between child and care-giver (Christian and Blum, 2005)

Integrated Management of Childhood Illnesses (IMCI)

IMCI was an initiative of the WHO and UNICEF to reduce childhood mortality and morbidity. This strategy included skills training, resource management and increased awareness of health practices in the family and community.

UNICEF

The United Nations Children's Fund (formerly the United Nations Children's Emergency Fund) is an agency of the United Nations which develops programmes aimed at educating mothers and alleviating mother and child health related problems in developing countries.

The Expanded Program of Immunization (EPI)

A program adopted in many countries including South Africa, in an attempt to achieve the goal of at least 90% of all children to be fully immunized in all provinces. This program includes extra immunization campaigns in an attempt to eliminate certain diseases including Polio, Measles and Tetanus.

Preface

*“But what am I?
An infant crying in the night:
An infant crying for the light:
And with no language but a cry.”*

Alfred Lord Tennyson

In my professional role as paediatric nurse at a well-baby clinic I have frequent contact with mother-child dyads within the first few months following birth. Over the years I have noticed the different styles of interaction within mother-child dyads attending the well-baby clinic. I have seen infants persuading their mothers to interact and respond, and I have also seen babies of disengaged mothers appear to give up trying to initiate communication. I have been interested that these mothers sometimes interpret this as “good” behaviour.

I have found that observing mother and infant interact adds information to the mother’s description of the mother-child interaction and her infant’s behaviour. I have found that complimenting the mother on connected interaction when physical growth parameters have been slower than expected, seems to lead to a more engaged mother-child dyad interaction. Another personal observation is that when mother-child interaction is the focus and mothers are encouraged in this area, problems related to feeding and physical growth parameters appear to improve. These factors formed the basis for my interest in mother-child interaction.

Chapter 1

Introduction and Background

This chapter will give the reader an overview of the research problem by introducing current knowledge around mother-child interaction and current practice of nurse-practitioners who interact with mother-child dyads. It will also outline the context of the research question, and the aims, objectives and relevance of this research.

1.1 Introduction

Communication in its broadest sense is an intrinsic and basic survival mechanism of the infant. To communicate is to “succeed in conveying one’s meaning to others” (Chambers Concise 20th Century Dictionary, 1985, p.195). Early interactive patterns between mother and infant are characterised by an exchange of signals and responses. These develop meanings for the mother and child, and evolve into a pattern of communication. Factors which influence how information is shared and understood depend on innate abilities of both the sender and the receiver of the message.

In the mother-child dyad, the ability to communicate can be influenced by shared knowledge and experience, as well as the behavioural-emotional state (Papousek, 2007), and the extent to which the mother perceives the intentionality of the infant communication (Feldman and Resnick, 1996). Empathy, the ability to integrate the perspective of the sender into the communication, is central in the dynamics of mother-child interaction (Markova, Graumann and Foppa, 1995), and research indicates that the neural pathways required for this are laid down before birth (Porges, 2007).

Aristotle, the ancient philosopher, held the view that infants were born into the world with a blank mind (Nagy, 2008). Over the past few decades research into the newborn’s capacity to communicate have revealed that the neonate has an ability to initiate communication, shows intentionality around communication, and is capable of intricate

patterns of turn-taking in communication (Papousek, 2007). The newborn shows preference for the face (Kuroki, 2007), smell and voice of his mother (Field, 1985, as cited in Nagy, 2008). From a few hours after birth the infant is able to imitate facial expressions (Nagy and Molnar, 2004; Field, Woodson, Greenburg and Cohen, 1982). At the age of 2 weeks infants show sensitivity to the quality of care they experience, and by six weeks they show distress at even slight disruption of interpersonal contacts and are highly sensitive to maternal mood (Murray, Cooper and Stein, 1991). At four months the infant is able to compensate for the absent mother, and is able to self-soothe by using an active touching behaviour (Moszkowski, Stack, Girouard, Field, Hernandez-Reif and Diego, 2009).

The mother also shows innate characteristics or communication style when interacting with the infant (Moszkowski and Stack, 2007). She demonstrates exaggerated actions which are repeated. Her voice is pitched higher than that used in adult to adult communication. The range of pitch and tone she uses is exactly that at which the newborn hears best (Papousek, 2007), and she has a natural tendency to place her face at a distance within the infant's field of vision (Field et al, 1982).

1.2 Background

Infants and young children experience their immediate environment through interactions with their mothers. Positive mother-child interactions correlate with good cognitive skills, early language development and appropriate physical maturation (Lobo, Barnard and Coombs, 1992). Disrupted interaction within the mother-child dyad can be caused by a variety of factors including poverty (Horodinski and Gibbons, 2004; Sach, Pietrakowizs and Hall, 1997), disease, abusive relationships and psychosocial disturbances. Maternal mental health problems, such as non-psychotic post-partum depression (PPD), have been shown to significantly compromise mother-child interaction (Murray, Cooper, Wilson and Romaniuk, 2003; Field, 1997). In situations of disengaged mother-infant communication there can be social, emotional, cognitive and behavioural disturbance in infant development (Weinberg and Tronick, 1998). Recently PPD and compromised mother-child interaction has also been associated with infant under-nutrition in low-

income countries (Harpham, Huttly, De Silva, Abramsky, 2005; Patel, Rahman, Jacob and Hughes, 2004). Furthermore, it is postulated that the mother-child relationship is the most important predictor of child health, not only in the short term, but this also has implications for the long-term health of the child (Parera and Suris, 2004; Mantymaa, Puura, Luoma, Salmelin, Davis, Tsiantis and Tamminen, 2003).

As PPD is strongly associated with compromised mother-child communication and disturbance in infant development (Murray,1992), it is important to understand the magnitude of the problem presented by PPD. Worldwide, depression is the fourth leading cause of disease burden, and accounts for almost 12% of all total years lived with disability (Lopez, Mathers, Ezzati, Jamison and Murray, 2006). Although statistics for non-psychotic PPD in developed countries has been estimated at between 10% and 15% (Dennis, 2004), until recently statistics for the developing world were not known. A study in Khayelitsha, a peri-urban settlement in South Africa, found the point prevalence for PPD to be close to 35%, about three times that of first-world countries (Cooper, Tomlinson, Swartz, Woolgar, Murray and Molteno, 1999). In ante-natal clinics of Kwazulu-Natal it was found to be around 41% (Rochat, Richter and Doll, 2006).

In South Africa issues related to poverty and the social and economic burden of HIV/AIDS are additional factors contributing to PPD. For many mothers a positive diagnosis of HIV is made at ante-natal screening visits. This means that this life-changing diagnosis and the birth of a child happen almost concurrently, possibly resulting in maternal depression and the consequences for the mother-child interaction that have been discussed already.

In 2007 the Department of Home Affairs registered close to 1.2 million live births (www.statssa.gov.za/newsletters/StatsOnline24July2008.html). Combining this statistic with the known prevalence of PPD in areas of South Africa, demonstrates the scale of the possible challenges related to PPD, and the subsequent impact on mother-child interaction; that up to 420 000 mothers in South Africa at any one time may have PPD.

As nurses are most often the interface between the community and the health care system, it should follow that nurses are familiar with recognising and facilitating dyads at risk of physical, emotional and social problems. Recent knowledge regarding mother-child interaction has not been incorporated into curricula and there remains a gap between current knowledge and current practice by nurse-practitioners in the primary health care setting.

Current primary health care practice determines that a mother-child dyad will visit the clinic at least three times during the first 4 months following birth. This is usually at 6, 10 and 14 weeks. The Expanded Programme of Immunisation (EPI) requires the mother to attend the clinic in order to immunise the infant according to this schedule. At these immunisation visits the nurse-practitioner will also measure physical growth of the infant and give advice with regard to infant feeding.

The focus on physical growth parameters evolved from UNICEF's effort to reduce mortality and morbidity in children under the age of 5 years. The acronym GOBIFFF (Growth monitoring, Oral rehydration, Breastfeeding, Immunization, Food supplementation, Female education, Family planning) was adopted in the training of paediatric nurses and health professionals in primary health care settings (Ebrahim, 1998). This focus did not address social and emotional issues of mother and baby, and did not acknowledge the mother-child interaction as being an important predictor of child health. The Integrated Management of Childhood Illnesses (IMCI), now used as standard practice, is a more systematic approach which has been adopted. This includes the mother as a key player in the health of the infant, but still does not include the practice of assessing mother-child interaction.

Research done in the area of non-pharmacological interventions in peri-natal depression and mother-child dyad facilitation in developing countries, indicates that many of the causes for depression that were identified by mothers, were similar to those identified in developed countries (Edhborg, Friberg, Lundh and Widsrom, 2005). Interventional studies in township areas of Cape Town have shown that limited facilitation of the

mother-child dyad can improve maternal sensitivity to infant cues (Tomlinson, Cooper, Stein, Swartz and Molteno, 2006). Simple interventions by community workers in South Asia aimed at improving mother-infant communication in mothers with PPD, demonstrated improved physical growth outcomes for infants with non-organic failure to thrive (Patel, Rahman, Jacob and Hughes, 2004). There is a close link between physiological and psychological aspects of development, and “the mother-child interaction is not just about food” (Tomlinson and Landman, 2007, pg 292).

This discussion has introduced the idea that facilitating mother-child interaction can be simple and cost effective. However, unless the recipients of the health services have perceived this facilitation to be necessary and user-friendly, it has little chance of being accepted. In addition, the already burdened health professionals at primary level clinics must perceive facilitating mother-child interaction as something they can integrate into current practice, and they must understand the benefits of doing this (Rahman, 2007). Mothers, as the most common care-givers, are the most frequent recipients of health services in clinics. It seems expedient therefore to ask the question: “How do mothers’ describe the interaction around the mother-child dyad during the first four months following birth?”

Problem Statement

Current knowledge indicates that the mother-child relationship is a key determinant of child health (Parera and Suris, 2004; Mantymaa et al, 2003; Lobo et al, 1992) and disrupted interaction is associated with negative developmental outcomes in the child (Weinberg and Tronick, 1998). Current practice in primary-level care does not assess mother-child interaction resulting in a knowledge-practice gap. This research aims to address aspects of the knowledge-practice gap by exploring South African mothers’ descriptions of interaction around the mother-child dyad and mothers’ descriptions of factors that have facilitated mother-child dyad interaction by family and health professionals, thereby informing the teaching of health professionals.

1.3 Research Question

How do mothers describe the interaction around the mother-child dyad during the first four months following birth?

1.4 Research Aim

To explore the mother's description of interaction with her infant and factors that facilitated this interaction within the first four months after birth.

1.5 Objectives

To explore:

- 1.5.1 Mothers' descriptions of mother-child interaction.
- 1.5.2 The importance mothers ascribe to mother-child interaction.
- 1.5.3 Mothers' description of factors which facilitate this interaction.

The study was qualitative and inductive in its approach. Semi-structured interviews were conducted after purposive sampling of first-time mothers. Because early experience of infants alters brain function and structure (Als, Duffy, McAnulty, Rivkin, Vajapeyam, Mulkem, et al, 2007), and the first few months after birth are highly sensitive in terms of establishing mother-child interaction (Field, 1997; Murray et al, 2003), this study interviewed mothers within the first four months following birth. Interviews were transcribed and analysed using general inductive analysis methods (Thomas, 2007).

1.6 Significance of the Study

This introduction has examined some of the current knowledge around the importance of mother-child interaction, compromised mother-child interaction and its association with PPD, and current primary health care practice. It also alluded to the possible extent of the problem of PPD within the South African context, which has consequences for mother-child interaction and long-term health outcomes for the child. Psychologists and neuroscientists have explored the dynamics and mechanisms of mother-child interaction and this study adds the description by mothers of this interaction.

The significance of this study is that:

1. It records mothers' description of early months of mother-child dyad interaction. This has not been found in the international literature in the past decade, and has not been found in the South African literature.
2. It describes mothers' perceptions of the importance of mother-child communication.
3. It records mothers' descriptions of factors which facilitated mother-child interaction.

This is relevant to every community and social stratum. The study could inform the practice of health professionals who interact with mother-child dyads and add new approaches to the teaching of child health professionals.

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Chapter 2

Literature Review

This chapter reviews current literature by using the following databases and keywords.

DATABASES: EBSCOHOST, Ovid, ScienceDirect and PubMed

KEYWORDS: Mother-child dyad, infant mental health, mother-child interaction, postpartum depression, facilitated relationships, empathy.

2.1 Historical Context of Mother-Child Communication.

Throughout history the birth of a child has been a celebrated occasion. In the Western World the Renaissance artists frequently used mother and child as a focal point, while the background would be filled with onlookers also persuading the viewer's attention towards the child. In different cultural settings the birth of a child has its importance in the continuation of a tribal or family name and as an insurance and hope for the future. However, world events such as wars, political instability, disease, poverty and recessions can affect this relationship. In certain cultures the changed role of women from childminder to being economically active can also impact on the mother-child interaction (Greenfield, 2009).

There is an expectation that mother-child interaction happens, and is instinctive. In previous generations trends in childrearing have promoted a routine and rigid approach to infant feeding and interaction, rather than maternal flexibility in response to infant needs. Knowledge of infant mental health has emerged but in some circumstances practice has not altered.

This chapter aims to explore mother-child interaction by examining the infant's ability to communicate, the mother's communicative behaviour, impaired mother-child interaction and the facilitation of mother-child communication.

2.2 The Infant's Ability to Communicate

Communication is based on an intrinsic capacity for imitation, turn taking and sensitivity to cues (Papousek, 2007). Infant communication begins immediately following birth when infants are observed to be in a quiet attentive state. The new-born's attention is attracted by a human face with open eyes (Kuroki, 2007). A few hours following birth infants are able to imitate facial expressions involving tongue protrusion and at about 3 days old infants were observed to imitate the different facial expressions of a model placed before them, indicating that imitation is an inborn ability in neonates (Jones, 1996; Field et al, 1982). They show preference for the face, voice (de Casper and Fifer, 1980) and smell of their own mother within the first 36 hours after birth (Nagy, 2008). In addition to this at a few days old, the infant also shows preference for a directed gaze and not an averted gaze (Farroni, Csibra, Simion and Johnson, 2002 as cited in Kuroki, 2007). Even at this early stage the infant is highly sensitive to the quality of care that is given, and at six weeks will show distress at absence of familiar care giver patterns and depressed mood of care-giver (Murray, Cooper and Stein, 1991).

As the infant develops he learns different ways of communicating. Touch is a vital means of communication in the neonatal period. Touch is seen both as a means of communication and exploration for the infant (Moszkowski et al, 2009). Touch as a basic and yet vital form of communication has received renewed attention as Kangaroo Mother Care (KMC) or skin-to-skin care is being used world-wide, even with extremely pre-term babies and critically ill neonates, to accelerate neuro-developmental maturation (Eichel, 2001).

During the first two months of life the infant is known to use his voice in a non-distressed manner which is not a cry. This non-distressed vocalisation often accompanies face-to-face interaction and smiling, and appears to be encouraged by the responsiveness of the care-giver (Hsu, Fogel and Messinger, 2001). The same study found the quality of the infant vocalisation to have more speech-like sounds when there was face-to-face contact with the mother, and when the mother was smiling. The infant not only imitates the mother, but also has the ability to initiate a "conversation" with the mother. This is a goal

directed and intentional activity and is correlated with the mother's responsiveness (Moszkowski and Stack, 2007).

Recent studies have shown that neurobiological systems of mirror-neurons in the pre-motor cortex of the brains of primates function in a way to control intentional action (Rizzolatti and Craighero, 2004). Even if an action is only observed, this is sufficient to activate the mirror-neuron system in the infant. According to Rizzolatti and Craighero (2004), this is the basis of imitation and observational learning, as well as being the basis for the development of empathy. The infant's ability to communicate, coupled with the mother's sensitivity in response are factors in determining the quality and quantity of interaction.

2.3 The Mother's Communicative Behaviour

The mother's communicative behaviour, her ability to interpret infant cues and interact appropriately encourages engaged mother-child interaction (Papousek, 2007). Bowlby's attachment theory which was developed in the years following World War 2, emphasises the mother's recognition of, and response to, the child's needs as a primary foundation for a secure attachment relationship (Bretherton, 1992). This pre-supposes that the mother is capable of recognising changes in her infant's emotional and physical needs.

Mothers show specific characteristics when communicating with their infants. These characteristics appear to be innate (Moszkowski and Stack, 2007). The mother will slow her actions and these will be more exaggerated and repeated. She will also place her face at a distance within the baby's field of vision. She will speak in a tone and pitch higher than she would use for adult to adult communication, and will use exaggerated eye and mouth movements. The speech used tends toward repetition, and a familiarity is achieved for the infant (Papousek, 2007).

Maternal sensitivity is the mother's capacity to understand infant behaviour from the infant's perspective. This sensitivity results in appropriate and timely responses to infant cues (Koren-Kari, Oppenheim, Dolev, Sher and Etzion-Caraso, 2002). The sensitive

mother is in tune with her infant as a person who has a variety of needs. She is able to identify sources of child distress, follow the child's focus and pace in interaction and have realistic expectations about child's emotional self-control. It follows therefore, that maternal sensitivity is closely associated with healthy mother-infant communication. The mother with limited sensitivity will not base her intervention to her infant's cues on the infant's perspective, but her own needs will be the primary consideration.

A rigid style of mothering, characterised by decreased response to infant cues, can lead to impaired mother-child interaction. Rigid attitudes in mothering at three months post-partum are associated with lowered responses to infant cues, decreased maternal sensitivity and less secure attachments at around a year (Butcher, Kalverboer, Minderaa, van Doormaal and ten Wolde, 1993).

The extent to which mothers see intentionality in the actions and activities of their infants, and understand these as the intention to communicate is also linked to maternal sensitivity. Mothers who interpret these actions as communication are likely to respond positively, which in turn encourages more mother-infant interaction (Feldman and Resnick, 1996).

In general terms, maternal communicative behaviour can be seen to encourage infant communicative behaviour and conversely infant behaviour encourages maternal communication. Therefore both mothers and infants are partners in developing the quality and symmetry of the interaction.

2.4 Impaired Mother-Child Interaction

Interaction within the mother-child dyad may be at risk for a variety of reasons. Some of the known factors which can cause long-term interference with maternal-child attachment are prematurity, psycho-social disturbance (Jung, Short, Letourneau and Andrews, 2007) rape, violence and abuse (Records, 2007), and the problems relating to poverty (Jacob, 2009). Impaired mother-child interaction is strongly associated with PPD. From early, the

infant experiences the environment through his mother. This means his development depends on the health and well-being of his mother, and extends to her interactions within the community and the availability of resources at her disposal. As the literature has demonstrated, the infant has an ability to communicate and regulate the communication according to feedback from the mother. It is not surprising therefore that a lack of feedback would create distress for the infant. If the two-week old infant is sensitive to the quality of care he receives, it follows that he will be acutely aware of maternal depressed mood (Murray et al, 1991).

The mother with PPD is typically unresponsive to infant cues, either withdrawing interaction or exhibiting an intrusive style of interacting. Infants of mothers who interact intrusively tend to withdraw; conversely infants of withdrawn, depressed mothers tend to exhibit a fussy, crying behavior (Weinberg and Tronick, 1998). Furthermore, the withdrawal seen in infants of depressed mothers is generalised to interactions with other non-depressed adults (Murray et al, 2003).

The infant of a depressed mother has changed frontal electrical brain activity on EEG, with decrease in left lobe activity (Dawson, Frey, Panagiotides, Yamada, Hessl and Osterling, 1999). According to Dawson et al, left brain lobe activity corresponds to experiences that are concerned with positive emotion, and this atypical pattern continues to be seen when the infant is interacting positively with a non-depressed adult.

PPD with disengaged mother-infant communication is associated with social, emotional, cognitive and behavioural disturbance in infant development (Weinberg and Tronick, 1998), and this can continue long after the maternal depression has resolved (Murray et al, 2003). A study in South Asia showed that PPD is also closely associated with poor physical growth and Non Organic Failure To Thrive (NOFTT) (Patel et al, 2004).

Until recently the extent to which PPD is a problem in the Third World has not been known. New evidence has shown a prevalence of 28% in Pakistan. This is approximately three times that of the developed world (Patel et al, 2004). In Khayelitsha, a peri-urban

community in South Africa the point prevalence of PPD was found to be 34% and was associated with poor mother-child interaction and insecure attachment (Tomlinson and Landman, 2007). In ante-natal clinics in rural Kwazulu-Natal the point prevalence of PPD was 41% (Rochat et al, 2006). This was measured using a previously validated Edinburgh Postpartum Depression Scale (EPDS) (Regmi, Sligl, Carter, Grut and Seear, 2002). Although these statistics show some variation, the consistent evidence of high prevalence of PPD and high prevalence of NOFFT in these communities may point to some shared aetiology.

The risk for adverse outcomes for children in these communities is great. Improving interventions by recognising the overlap of psychological, social and physical factors is a good starting point for facilitation of mother-child interaction in public health programmes.

2.5 Facilitation of Mother-Child Interaction in Primary-level Care

The word 'facilitate' has a Latin derivation and means 'to ease or make easier' (Chambers Concise 20th Century Dictionary, p. 346). Facilitation in this context involves any intervention which aims at improving mother-child interaction. In order for intervention to be appropriate, health professionals need to have a deep and respectful understanding of the differences between cultural groups (Berg, 2003).

The introduction of KMC or skin-to-skin care, in poorly resourced hospitals in Columbia, initiated research on the impact of the physical closeness of mother and baby on physical and mental health of the premature infant, and on interaction within the dyad. Physical outcomes such as higher body temperatures, improvement in respiration rate and increased quiet sleep time were measured. In addition, mothers reported increased confidence in mothering, and improved mother-child interaction (Feldman, Weller, Sirota and Eidelman, 2002). A separate study found the KMC infants showed less agitation in general, and were reported as being more contented than the incubator-nursed preterm infants (Messmer, 1997 as cited by Johnson, 2005). In premature infants KMC was found to accelerate neuro-developmental maturation (Feldman and Eidelman, 2003).

The theme of physical closeness and its impact on mother-child interaction was examined in a study in Finland. Mothers were given support and parenting assistance in their homes by visiting nurses and physical closeness was encouraged between mother and baby. Mothers made journal entries about the amount of time spent in a state of physical closeness or “holding” in the home situation with full-term neonates. Physical closeness of the mother correlated with decreased time of infant crying in early months, and at 6 and 12 months with better reported mother-child interaction (Korja, Maunu, Kirjaveinen, Savonlati, Haataja, Lapinlehmä, Manninen, et al, 2007).

Recently, a home-based mother-child intervention carried out by community workers in a socioeconomically deprived community of South Africa demonstrated that maternal support and training mothers to respond sensitively to infant cues impacted positively on the reported mother-child relationship and secure attachment at 18 months. This intervention was done by local community workers in the mothers’ homes and is economically viable in low-income countries. The resultant positive mother-child engagement demonstrated the impact of relatively simple intervention and facilitation within the context of poverty (Cooper, Tomlinson, Swartz, Landman, Molteno, Stein, McPherson and Murray, 2009).

The duration and timing of facilitation of mother-child dyads was described by a study aimed at increasing maternal sensitivity. This study demonstrated that when intervention was carried out once a week for sixteen weeks and was of short duration (approximately an hour), it was as effective as longer programmes (Berlin, 2005).

To address the problem of how to assess withdrawal behaviour in infants as a result of relationship disorders, the simple screening tool, the Alarm Distress Baby Scale (ADBB), was developed. This tool assessed eye contact, vocalization of the baby, self-stimulating behaviours, and measured mother-baby interaction. It was found to be as sensitive in assessing at-risk mother-infant relationships as more complex tools, and could be used by nurses and primary care workers after a short training period. The implications of this were that complicated measures were not necessary in detecting vulnerable relationships

and could be implemented by primary level carers (Guedeney and Fermanian, 2007; Puura, Guedeney, Mantymaa and Tamminen, 2007).

The literature reviewed discusses the innate ability of the mother and infant to communicate, and demonstrates consensus among the authors about the importance of mother-child interaction as a predictor of infant health. It illustrates that facilitation in the at-risk mother-child dyad can be done by primary-level health professionals. The literature also shows that this can be done in the community setting, can be achieved over a short time period, and can be achieved with relatively simple interventions.

Semi structured interviews used in this research add the voices of South African mothers to the body of knowledge regarding mothers' descriptions of mother-child interaction, factors which facilitated this interaction, and will inform the teaching of health professionals and routine practice in public health programmes.

University of Cape Town

Chapter 3

Research Methodology

This chapter will address the choice of qualitative research design as the most appropriate means of data collection for the research question. It will discuss sampling, data collection, management and analysis, and include the ethics of the research process and trustworthiness of this research.

3.1 The Choice of a Qualitative Research Design

From the post modern era emerged new approaches in the research of anthropology and social sciences, which sought to understand the human experience in the context of the real world, and the meanings people gave to these experiences. The qualitative research inquiry typically examines participants in their natural settings, uses an inductive approach to data analysis and is not built from a hypothesis (Hull, 1997). There are numerous definitions of qualitative research as methodologists attempt to encapsulate this concept. Creswell (1998, p15) defines it as “an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem”.

Qualitative research describes, interprets and explains the human experience, and is used to gain more insight and new perspectives into problems where there is some existing information (Creswell, 1998). This research gathered data by interview, field notes and a researcher journal. Participants’ words and language were reported in what is called thick description from which the researcher attempted to construct their experiences.

The specific qualitative paradigm used in this research resembles phenomenology. Phenomenology describes accurately the lived-experience of people in relation to certain phenomena and has its origins in philosophy (Ploeg, 1999). This approach brings feelings and experiences to life (Robinson, 2000 as cited in Vivilaki, 2008). This study differs from true phenomenology in that it does not have existential philosophy as its basis. In

this study the researcher attempted to understand the mothers' experience of mother-child interaction.

3.2 The Study Design

A well designed study is the core feature of good research. The process of designing a study is seldom a linear process, but necessitates modifications until all aspects of the research question are addressed. The research design described below is the most appropriate to answer the research question.

3.2.1 Sampling

Sampling refers to the process used to select a portion of the population for the study (Ploeg, 1999). Qualitative research typically has a small sample size as insights, life experiences and understandings are the focus of the research. For this, it is important that the participants are able to express themselves and have experience and information about the research topic. These are termed information-rich participants. The sampling strategy used in this study was purposive sampling. Purposive sampling is described by Patton as "selecting information-rich cases for study in-depth" (2002, p.230). As this study required that mothers describe their experiences, the researcher actively sought mothers who could express themselves, who had information and who were willing to tell their story.

3.2.2 Sample Size

In qualitative research the sample size must not be too large so as to miss out on the information-rich experience, or too small so as not to be able to support claims of informational redundancy (Sandelowski, 1995). Sample size is not pre-determined but rather the sampling process stops when the data gathered achieves saturation point. This infers that the same codes and themes are appearing from the data, and the inclusion of more participants in the study would not add new information or a deeper understanding of the research topic. This research project reached the point of data saturation after one pilot interview and eight interviews had been done. At this point the researcher reflected that the data was redundant.

3.2.3 The Study Population

Participants were drawn from response to advertisements in child health care clinics (municipal and private), child health settings (including paediatricians' and general practitioner's consulting rooms) as well as public facilities (libraries and community centres) within the Southern Suburbs of Cape Town. This area was chosen as it is the wider community within which the researcher works. The respondents, however, came from a much wider area of Cape Town (from the Cape Flats to the City Bowl).

(See Appendix D -Advert for Participants).

3.2.4 Inclusion Criteria

- First time mothers were selected because they would not have previous experience which may bias the responses to the interview questions. This group of mothers may also be more sensitive to attitudes of health professionals and how they facilitate mother-baby interaction.
- The baby must have been born after 37 weeks gestation. This is so that the complications of prematurity of the infant and the subsequent extra facilitation of the mother-child relationship done for premature births would not influence participant experience.
- The mother was recruited when the baby was between three and four months old, and was interviewed when the baby was between four and four and half months old. This was so that the birth and early interaction were in her recent memory.
- Mother and baby had attended a well-baby clinic on at least three occasions. This was so she had interacted with nurses at a clinic.

3.2.5 Exclusion Criteria

- Mother and baby must not have attended the clinic at which the researcher works. This is to address a possible power relationship problem and address potential role confusion of the researcher by the participants.
- The baby must not have any known abnormality or known physical or chronic illness as this may interfere with normal mother-child interaction.

3.2.6 Gaining Access to the Participants

The participants who responded to the advert were participants who had the ability and economic means to use the public facilities and child health settings described above. They therefore would be able to walk to the community centre or library or clinic as they lived in the area, or have the means for personal or public transportation. This did therefore exclude participants who, because of lack of economic means would not have been able to see and respond to the adverts. Because purposive sampling for information-rich cases was the intention of the researcher, this was not seen as a limitation.

3.2.7 Permission for the Study

Permission for the research was given by the University Of Cape Town Faculty Of Health Sciences Research Ethics Committee (Appendix J).

3.2.8 Recruitment

Recruitment was as a result of a voluntary response to adverts (Appendix D). Two participants were included in the study because of word of mouth advertisement from participants already enrolled in the study. Enrolling participants as a result of voluntary response ensures that coercion is avoided, and also tends to attract participants who want to tell their story.

Participants were given written information regarding the study (Appendix B) and were given time to consider their participation in the study, discuss participation with family members, and time to pose questions to the researcher prior to making a decision about participation.

The medium used for the advert, consent and information sheets for participants was English. While this was a limiting factor, as a qualitative study this study relies on language and words used for data, this decision was made so as not to lose any of the subtleties of meaning as the researcher's home language is English. Two mothers declined to be part of the study after having read the information brochure.

3.2.9 The Research Setting and Rapport with Participants

The interviews took place in the researcher's office in Claremont and in participants' homes. Participants were given this choice, and travel costs were reimbursed if the participant had travelled. The office had comfortable chairs, baby-changing facilities, and facilities for offering refreshments. It was private and suitably relaxing. This office is on a main road near to a business and shopping hub, and close to bus and train transport so is easily accessible. Rapport with participants was established by having a time of informal chatting and offering the participant refreshments prior to the interview.

The interviews were about 30 minutes duration as the presence of the baby limited the concentration of the mother. The presence of the baby was encouraged, as this allowed the researcher to observe the mother-child interaction. The presence of the baby did, however, limit the mothers' concentration more than the researcher had anticipated, and the interviews had to be adapted to accommodate the need to pause, and attend to the baby. In some cases a family member who was waiting for the mother was asked to care for the baby outside of the office. Immediately following the interview, field notes were made. A researcher journal was written at the end of the day with impressions, personal reflections on the interview itself and decisions made which influenced the research process.

3.3 Ethical Considerations

Because qualitative research gathers personal data from participants involving life experiences, special attention needs to be paid to ethical considerations. Participants in a qualitative research would seldom be at any physical risk; however the subtleties of risk may be risk to dignity and invasion of privacy by coercion. Qualitative research also presents unique challenges as the researcher and participant engage in interviews that can evoke memories (Eide and Kahn, 2008). The two basic premises of doing good and avoidance of harm are central in qualitative research and are discussed under various headings below. Good ethics need to be applied at every stage of the study from sampling and recruitment through data gathering to analysis and reporting.

3.3.1 Informed Consent

The principle of autonomy recognises the rights of the individual to self-determination and is rooted in a societal view that respects the individual's capacity to make informed decisions (Gillon, 1994). In this study the participant had access to information for a few days before signing consent to participate in the study. The information sheet (Appendix B) gave written information in accessible language regarding the aims of the study, the time requirements, location of the interview and explanation of travel costs to be refunded. The participants were given time to consider their participation in the study and to ask for clarification on any issues.

The consent for participation included consent for the recording of the interview, and consent to publish the findings of this study (See Appendix C). The participant also had the right to terminate the interview at any stage she chose without having to supply a reason. The principle of non-beneficence or avoidance of harm placed the onus on the researcher to stop the interview if she was aware of distress as a result of the interview.

3.3.2 Confidentiality

Privacy is a large part of confidentiality. Qualitative interviews by nature typically explore participants' experience. The researcher had an ethical responsibility to maintain confidentiality such that the research did not reveal participants' identity by making them recognisable in the report. Participants were given a number and thereafter referred to by their participant number, and proper names were not used in the interview or the transcription. Complete confidentiality meant that the decision to participate or not was not revealed to anyone. Information such as name of partner, baby or place of work that may reveal the identity of the participant was also changed.

3.3.3 Possible Benefit from the Research

Financially rewarding a participant is not acceptable clinical practice in research as it may bring into question whether a mother was rewarded to provide information that the researcher would like to show in the study (Gillon, 1994). However, participants should

not be part of a study at personal economic cost. This study reimbursed travel costs incurred up to R100.

There was no incentive or benefit for the participants, for example special treatment at the clinics, as a result of participating in the study. There was also no possibility of withdrawal of usual treatment for the mother and baby, or harm brought upon them by not participating. Any benefit to the mother and baby was of a personal nature as some mothers stated that they had enjoyed the opportunity to share their experiences.

The researcher remained accountable to the participants, to the public, to health professionals and to the academic body to represent the findings truthfully and publish the results so others may also benefit.

3.3.4 The Use of Transcribing Equipment

Consent was obtained for the interview to be recorded. Participants were told that a digital voice recorder would be used to capture the data. The researcher transcribed the data for the purposes of confidentiality so the participants' voices and expressions could not be recognised and anonymity was maintained. The data (transcribed and put onto computer disc) was stored in a lockable cupboard in the researcher's office.

3.3.5 Researcher-Participant Relationship

It is often difficult for a nurse-researcher to separate the roles of nurse and researcher (Eide and Kahn, 2008). The researcher is primarily concerned with listening to the stories of the participants in order to gain information while the nurse's primary focus is problem-solving in a therapeutic relationship. This can cause role-confusion for the researcher, and can also be difficult for the participant who knows she will be spending time talking to a nurse, albeit a researcher. In some cases the participant's willingness to be part of the study may be because she has a sense of trust in a process because it is being done by a nurse.

In this study one of the exclusion criteria was that the participants did not attend the clinic at which the nurse researcher worked. This was so the mother did not have therapeutic expectations of the nurse. Attendance at this clinic could also have affected the content of the information given, because of the type of questions posed.

The researcher had to engender a relationship of trust as the information given by the participant may have been sensitive. Rapport was established before the interviews, as the researcher had spoken to each participant on the telephone and had also met the participant to give verbal and written information about the study. The time spent in informal chat prior to the interview helped the participant relax and improved rapport.

3.3.6 Managing Sensitive Information and the Need for Support.

As far as a participant is concerned all information is sensitive information. Participants were told how their information was going to be used, and how their anonymity was going to be kept. The consent forms with personal information were kept separately from their transcribed interviews. Participants were ascribed a number and no proper names were used in interviews, transcriptions or analysis.

There was no reference to particular health-professionals or clinics, and no personal exposure of health professionals or health care facilities, either directly or by implication in the transcription and analysis of this research.

The researcher has a responsibility to any participant who displays evidence of distress or anxiety at the time of the interview. In this study, two participants appeared to have low affect. In both cases after the interview they volunteered the information that they were being counselled for PPD. A family counsellor had previously been arranged, to which the participants could be referred, but none of the participants required this additional support.

3.4 Data Collection

Semi structured interviews, field notes (including unstructured observation of the mother-child dyad) and researcher journal notes were all used as data. This added depth to the understanding of the data and, according to Patton this strengthens to the study (Patton, 2002,).

3.4.1 The Semi-structured Interview.

The role of the interview in qualitative research is a process of asking appropriate questions in order to explore the human experience (Britten, 1995). This study used semi-structured interviews for data collection as it allowed for detailed perspectives of the mothers' to be explored by directed questions, but also allowed flexibility so that unexpected avenues of interest could be pursued. According to Britten (1995), this is the optimal method of covering topics with a single interview, and is ideally used when the researcher has certain areas of interest around which she needs to gather data (Ploeg, 1999).

The interview schedule (see Appendix E) had three main questions which were the focus of the inquiry and these had probing questions for gaining deeper understanding. The interview was preceded by an informal chat to allow the mother to feel comfortable and relaxed. The use of open ended questions in the interviews allowed participants to use their own words. Probing questions were used where necessary. As qualitative research relies on words and language, the words used as well as the silences and hesitations were analysed. The interviews were about 30 minutes duration. The presence of the baby was encouraged and the mother was offered opportunities to pause during the interview in order to attend to the needs of the baby.

3.4.2 Field Notes

Field notes were completed straight after the interview. These recorded observations of mother-child interaction and anything which happened during the interview which may need additional comment. They also included some information which the participants gave after the digital recorder had been turned off. The extra information was included in

the study as participants gave consent for participation in the study which included the recorded interview and additional information which was gathered at the opening and closing part of the interview.

3.4.3 Researcher Journal

Journal notes were completed the same evening after the interview and were of a more personal nature. These notes included interviewer's impressions, reflections and feelings during the interview, her feelings about the process of interviewing, how interviews related to other interviews and the decisions made in the research process.

3.4.4 The Pilot Interview

A pilot interview was done to test the research instrument and identify potential practical problems in the research procedure (Strydom and Delpont, 2002). In this study one pilot interview was carried out mainly to test the interview schedule; that it included questions which were phrased for easy understanding, and to check if enough time had been allocated to the interview. As interviewing is a skill which a researcher develops, this pilot interview also allowed the interviewer to practice the interview and become familiar with using recording equipment. According to Holloway (1997), this is good practice for novice researchers. The pilot interview was conducted under exactly the same circumstances as was proposed for the main study. It was conducted in the researcher's office. It also allowed for practical aspects of having the baby present at the interview to be thought through, and adaptations were made to the physical space in the office for further interviews.

The time taken to do the pilot interview was recorded and ambiguous questions were reworded. Some changes were made to the structure of the interview schedule after the pilot interview. In addition, more time was allocated to the informal chat preceding the interview as it was noted that the participant was initially nervous. The pilot interview for this study was not included as data.

3.5 Ensuring Scientific Rigor

Quantitative research uses the terms reliability and validity to express the measurable quality of the research. In qualitative research the judgment of the quality of the research is made using different constructs and hence different terminology. Scientific rigor will be discussed here under the headings credibility, transferability, dependability and confirmability. According to Guba and Lincoln (1989), these terms form the basis for trustworthiness and their differences and meanings will be explored.

Because the research instrument in qualitative research is the researcher, emphasis on skills and innate abilities of the researcher also impact on trustworthiness. Investigator responsiveness is a term used to describe sensitivity and creativity of the researcher. As qualitative research is not a linear process this means the researcher must interact with the data, and her ability to listen to the data and abstract ideas will shape her decisions (Morse, Barrett, Mayan, Olson and Spiers, 2002).

3.5.1 Credibility

Research is termed credible if the findings are congruent with the context, have a logical relationship and are substantiated in the narrative (Roberts and Priest, 2006). Credibility is dependent on the researcher as research instrument and her perceptiveness in observation and ability to make good decisions regarding the study direction.

In this study credibility was enhanced by doing the following:

- Methodological coherence- The research methods in this study fit the research question.
- Researcher preparation- The researcher wrote a pre-study journal in an attempt to “bracket” her biases and assumptions.
- Purposive sampling ensured that participants had communicative ability and were able to understand the language and terms used.
- Sampling adequacy- The number of participants sampled must be large enough to achieve data saturation (Sandelowski, 1995). In this research data saturation was achieved after 8 interviews when no new themes emerged from the data.

- Triangulation is the use of two or more different data sources in a study, and provides a sense of confirmation and enhances the confidence in the findings (Halcomb, 2005). In this study, unstructured observation of mother and baby was included in field notes, recordings of interviews and researcher journal notes were all data sources.
- Peer review- Regular discussion happened with supervisors about the study and the analysis was scrutinised.
- Member checking - Thomas (2006), states that stake-holder or member checks add to credibility by giving participants an opportunity to comment on whether they have been accurately represented. The researcher met participants after the interviews had been transcribed. Participants agreed that they had been accurately represented after reading through the printed format of the verbatim transcriptions and signed a memo to this effect. These signed copies were kept with the consent forms as they contained the participants' names.

3.5.2 Transferability

This is a concept which answers the question of how generalisable the research is and how applicable it is to another context (Morse et al, 2002). In this study, semi-structured interviews resulted in information rich data. Unstructured observation of mother-child dyads and field notes created a fuller picture and the reader can judge the transferability of this research to another setting. The findings apply to this particular study population until tested on other study populations. Since mother-child dyad interaction occurs in every community, the findings of this study should be transferable and relevant to all communities.

3.5.3 Dependability

A study is dependable if the findings are reproducible and there is consistency within the data collected (Hull, 1997). In this study the researcher carefully documented every step of the procedure and a detailed description of the decision making can be seen in the audit trail (Appendix I). Unstructured observations, field notes and the researcher journal notes contributed to methodological decisions. The implication is that another researcher can see how the data was analysed and how the results were achieved.

3.5.4 Confirmability

Confirmability in research infers that the perspectives of the participants have been accurately reported in the data (Morse et al 2002). In this study the researcher documented her bias and assumptions in a pre-research journal. During the research process further journal notes were written in an attempt to acknowledge researcher bias. This is the process of reflexivity. The use of participants own words as codes or themes and using quotes in the findings and discussion enhanced confirmability.

3.6 Transcribing the Data

The interviews were recorded for transcription by the researcher. The researcher listened to the complete interview a few times to gain familiarity of the whole interview before the transcription began. The process of listening many times and then transcribing allowed the layers of meaning to emerge. A verbatim transcription was done within a week of the interview in order to be able to recreate the sense of meanings around the words used by the participant and link observations with the interview content.

3.7 Data Analysis

Qualitative data analysis is described by Froggatt (2000, p. 434) as having an “iterative relationship with data collection and writing up the data”. The following description demonstrates the iterative relationship in this study: data was collected by semi-structured interviews and transcribed immediately. Primary analysis was done before the next interview happened. The transcription and initial coding and analysis determined, to an extent, the direction of the following interviews. Data analysis was described under the following headings: data management, describing the data and presentation of the data.

3.7.1 Data Management

Data, in the form of recorded interviews, was copied onto computer disc, labelled and indexed according to date of interview and with the participant number. This ensured confidentiality. Transcription of recorded interviews was done by the researcher. Transcribed interviews were formatted so the interviewer and participant’s words were

colour coded. The entire transcription was included for analysis. Biographical data included was from field notes and observation.

3.7.2 Description of the Data

In describing the data and analysing it a general inductive approach was used. This is described by Thomas (2006), as a method that condenses the text, establishes links between research objectives and summary findings and develops a theory about the experiences being researched. Inductive analysis allowed themes which were frequent, dominant or significant and inherent in the raw data to emerge (Froggatt, 2000). The themes and codes were examined and their relationship with the research question was scrutinised.

In this research the process was as follows:

- After transcription into a uniform format the researcher read and re-read the text until she achieved familiarity with the content and understood the nuances.
- She then condensed the text into meaning units which were a brief summary format, attempting to retain actual words spoken. Each piece of transcribed text was examined for relation to the research question. The question was posed “How does this explore how mothers describe mother-child interaction?”
- From the text and meaning units she identified codes. Codes are single words or groups of words which encapsulate the meaning and feeling of the section of text. According to Graneheim and Lundman (2004, p.106), “labelling a condensed meaning unit with a code allows the data to be thought about in new and different ways”.
- At this point the researcher was acutely aware that the codes were derived from the text and not from her own experiences.
- Parts of the text which did not relate to the research question were left uncoded.
- Once the transcriptions had been coded, the codes with commonality were rearranged into larger categories. Creating categories was a core feature of analysis (Graneheim and Lundman, 2004). Since the analysis was inductive the

codes and categories were all derived from the data and not from the researcher's interview schedule.

- The categories were given a label which was derived from the codes or was a direct quote from the transcription.
- The categories were also given a description or definition. (See Appendix H-Explanation and Definition of Categories). This was to facilitate the audit trail (Appendix 1).
- Categories were sometimes linked in a relationship.
- The categories from the eight interviews were explored and five themes were found.
- Once the transcription had been re-examined the five themes were placed back into the original text so as not to lose sight of the whole.

An example of this process has been described as a table (See Appendix G).

This chapter has demonstrated the research process in a step-wise manner, how ethical issues of this study have been addressed, as well as showing the measures taken to achieve trustworthiness. The next chapter will describe how this methodology was used to answer the research question and introduce the participants and the findings of the study.

Chapter 4

Participants and Research Findings

This chapter will give an overview of the participants and a brief description of those who were included in the study. It will also present the findings as five main themes from participants' descriptions of mother-child interaction. For the purposes of this study the words 'participants' and 'mothers' will be interchangeable. Colloquialisms and grammatical errors in the participants' quotes have not been changed.

4.0 The Participants

Although the participants were recruited as a result of an advert placed in public and private child health facilities in the Southern Suburbs of Cape Town, four participants lived much further afield. The participants ranged in age from 18 to 35 years old. The participants comprised two white mothers and six coloured mothers, but no black mothers responded to the advert. Of the eight participants three were Moslem, one was Jewish and four were Christian or nominally Christian. All the participants had at least high-school level of education. The socio-economic status of the participants was difficult to gauge as they all lived in houses and not informal dwellings, though some lived in shared accommodation with other family members. Of the eight participants who were included in the study, two were being treated for depression.

4.1 Introduction to the Participants

This introduction will give the reader a sense of the participants as people who have a story to tell. It also helps to contextualise the findings, as the information included here is written from unstructured observation and impressions as well as discussion before and after the recorded interviews. The participants will be introduced using a participant number so as to protect their true identity, and other details such as the places of employment, names of husband or partner, and baby have also been changed.

4.1.1 Participant 1 (P1)

She was a pretty, slim 18 year old mother who was well-turned out in a pair of jeans and a T-shirt. She lived in a house with her parents and her husband. Her mother (the grandmother) was an important support figure in her life and was described as the matriarch of the extended family. Participant 1 had never worked before the birth of her baby, and was planning to stay at home to look after her baby. She said she was very proud of having a son, which she explained was thought to be a great blessing in her family. Her son was a healthy-looking boy who was breastfed. He made good eye contact with his mother and she in turn handled him in a very relaxed manner. During the interview she called her mother to look after her son in the adjacent room. Participant 1 was quite obviously anxious about being separated from him. She was included because she was an example of a teenage mother who appeared to cope well because of an extended family support system.

4.1.2 Participant 2 (P2)

Participant 2 arrived straight from a training session for work, without her baby, although she had been encouraged to bring her baby. She had been out all day and her baby was being cared for by her mother. She was dressed in a knee-length black dress and her reddish hair was cut in an angular style. She was confident and very keen to tell her story. She was in her late 20's and has been living with her partner for the past 5 years. She had recently returned to her work in a hotel-spa. She and her partner owned the house they lived in and had just done renovations to the house. She said she wanted to be involved in the research project as it was a place where she could talk about her experiences. This participant had lost her step-father during her pregnancy and was clearly still working through her grief. She had a disarming honesty about her difficulties as a mother and after the recorded interview said she was being treated for PPD.

4.1.3 Participant 3 (P3)

Participant 3 was a tall, sporty looking woman who emitted a great sense of energy. She was dressed in old-looking jeans and T-shirt. She was well prepared with a baby bag for nappy changes and a cool bag, thermos of warm water, jugs to heat bottles and even

waterless hand cleaner. She said she had learned how to be a mobile mum and that he (baby) was happy as long as she was there, and they were seldom separated. She lived with her partner in a flat which they rent. He had been out of a job for a few months and had recently got temporary employment. She resigned from her job as a receptionist during her pregnancy as she was unhappy with her working conditions. She mentioned that they were financially stressed, but her mother helped them as much as possible. At every stage of the interview the baby and mother were positioned face to face. At some stages she was feeding him, and later, because it was hot, she put him in a car seat chair facing her and continued to stroke his hands. She was interested in how mothers communicate with their babies and wanted to be included in the study to find out more about this topic.

4.1.4 Participant 4 (P4)

Participant 4 was a 22 year old mother who had a miscarriage last year. She was dressed casually in light, white cotton three-quarter pants and a strappy top. She had dressed her baby in a vest and nappy-appropriate for the temperature of the day. She said she lived in a granny-flat with her husband at her parents-in-law's home, and that these grandparents were going to care for the baby while she was at work. She said she was anxious about her return to work as a clerk at a large firm as her employer was not sympathetic to women taking time off for child-related matters. She had already been back for occasional days. Her husband was employed as a sales representative and had to do trips away from home every month. She appeared to be calm, even when her baby was unsettled and left him a few times to settle himself without intervening. She mentioned she was very proud of the fact that she had breastfed him and that he was such a healthy looking baby. This participant really wanted to be part of the study. She said because she was returning to work, she was all the more determined not to allow working to interrupt the interaction she had with her baby.

4.1.5 Participant 5 (P5)

She arrived with her grandmother (great-grandmother of the baby) who was a small, lithe woman of 75 years. Her grandmother had a parrot on her shoulder which made

intermittent noises. The great-grandmother of the baby was very keen to contribute to the interview. Participant 5 was 19 years old and very young looking. She was clearly nervous as she told me she had had a bad experience with the midwife in the labour ward. She lived with her husband in a large family house along with her sister and family, her brother and his wife, her unmarried brother and her parents and grandmother. She said this was not unusual for a big Moslem family. Participant 5 had not worked since leaving school but helped around the house. Her parents both worked in the family business and her husband worked as a panel-beater. She had been given plenty of advice with regard to child-rearing from her extended family, and even the presence of her grandmother in the next door room appeared to subdue her. Extended family living together could add different dynamics to the mother-child interaction.

4.1.6 Participant 6 (P6)

Participant 6 was interviewed in her home, a large house in a wealthy area. She lived with her divorced mother and grandmother who both work part-time. She was nominally Jewish but said she was not observant. The baby's father, her partner, does not live with them but visits daily. The house was untidy and disorganized. She was well dressed and had all the best brands of baby-equipment in the lounge. She is a 25 year-old who had been employed in marketing office furniture. She was going to be returning to work after 6 months of maternity leave. She said she was struggling with the fact that she did not have enough adult company and badly wanted to be part of the study. She had no eye contact or physical contact with her baby during the interview. She said she was on medication for the treatment of PPD.

4.1.7 Participant 7 (P7)

Participant 7 was well turned out and well organised. She took her involvement in the study very seriously. Her husband who was an accountant took time off work to bring her and to help look after the baby during the interview. She was 28 at the time of the interview, and she said her baby had been planned after being married for 4 years. She had stopped working for a magazine as she said she had seen how others had struggled with being a working mother in a "deadline work environment." She and her husband

lived in a flat near the city centre. This was quite a way from the community in which they had grown up but she said they felt they needed to separate themselves and establish a family.

4.1.8 Participant 8 (P8)

Participant 8 was a 35 year old mother who was delighted to be a mother after some years of difficulty in falling pregnant. She had stopped working after 12 years working as an administrator for the same employer. Her husband was self-employed and they live in their own house 45 minutes drive from the rest of the extended family but, since the birth of the baby, the extended family visited twice a week. She was accompanied to the interview by her husband who was very protective and proud of his wife and son, and a very involved father. She said the birth of her baby had made her appreciate her family and she had felt very fragile after her emergency Caesarean Section.

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4.2 The Research Findings

The research findings are presented in five themes. These themes emerged from the data and will be represented by data pieces from the interviews. Appendix G gives an example of the analysis process. Appendix H is an explanation and description of the categories which formed the themes. Appendix I shows the reader the decision trail in the analysis process. The table below is a summary of the five main themes and includes a brief description of the themes, which will be expanded on in the chapter that follows.

An overview of the themes shows a trend of progression toward integration within mother-child interaction. Broadly speaking, the data describes mothers' expectations around the first interaction, the continuum of mother-child interaction and the changes that occur with time. At every stage the factors that facilitate this interaction are mentioned. Facilitation of the mother-child interaction is explored as a separate entity although it relates back to each of the themes.

Table 1: Main Themes and Descriptions

	Title of Theme	Brief Description
1	"...what I expected"	Mothers' expectations around the birth and first interaction with her baby.
2	"Isn't one supposed to feel...?"	Mothers' concerns around the interaction, feelings and adaptation to motherhood
3	"Connecting with my baby"	Mothers' descriptions of factors leading to physical connectedness and emotional connectedness
4	"We reflect each other's feelings"	Mothers' descriptions of how feelings are echoed between mother and baby and how empathy is developed
5	"That helped/ hindered our interaction"	Factors which facilitate interaction around the mother-child relationship

4.2.1 Theme 1 “...what I expected”

Expectations of the participants were borne out of observing the interaction of other mother-child dyads, personal experience from the participant’s own childhood, from stories and articles in the media and were also influenced by personal hopes and aspirations around birth events and mother-child interaction. Participants described how the reality of their experience related to their expectations. Two sub-themes which emerged were expectations around the birth and expectations around mother-child interaction. All the participants had positive expectations of the birth and mother-child interaction, though for some these expectations were unmet.

4.2.1.1 Expectations around the Birth

The participants in this study had a variety of experiences. They describe the experience of the birth and feelings at the birth, and how this compared with their expectations. For those whose expectations were met there was a sense of satisfaction and fulfilment. For others, unmet expectations and unanticipated events affected the first mother-infant interaction. This quote illustrates how expectations around this participant’s birth were met and how for her, this experience was the beginning of engaged mother-child interaction.

“It was a really lovely birth ...a really lovely birth...Yes, you know you hear so many women who have these plans and then they don’t get it. I got what I wanted and then it was such an amazing experience.....and then I actually saw....as his head came out G still said to me “Babes, Look his head is out...” So...it was amazing... It was really great...The midwife put him on my chest and he was crying and she put him onto my breast and he just sucked and sucked.”(P3)

Those who had positive ante-natal experiences and physical and emotional well-being during pregnancy were more likely to be satisfied with the outcome of the birth, even when expectations were unmet. The same participant who described a positive birth experience described this of her pregnancy.

“I had a lovely pregnancy. I carried him so nicely; everyone said I looked so good. Because I am tall and I have such a long torso. There was quite a lot of space for him so...I mean I carried him nicely...and I was happy, and I felt so well.”(P3)

The contrast between expectation and reality is particularly evident when a normal birth is expected and planned for, but for medical reasons a Caesarean Section is necessary. Although mother and baby, due to the intervention are well, some participants described unmet expectations and disappointment around the birth, and they describe how the suddenness of the event left them feeling dissociated. The following is an example of unmet expectations. The participant described the unexpected nature of her birth after a healthy pregnancy. She did not have time to adjust to the idea and later in the interview she described feeling disconnected from her baby.

“...with the birth...it was supposed to be a natural birth. I was planning on that because my pregnancy was fine...but things didn't work out like that (Pause) and then, um...they had to do a Caesarean. When they took him out everything went too quick...I wasn't expecting that...and I just could not get used to him being there.” (P4)

Expectations of the birth may differ so vastly from reality, that for some, the experience is traumatic and is even perceived as a near death experience. Safety in childbirth is expected, and careful monitoring of mother and baby usually means problems are detected early. For this participant who described her emergency Caesarean Section as a near death experience, emotional recovery took time. This may have been compounded by years of difficulty in falling pregnant, high blood pressure during the pregnancy, and anxiety about the well-being of the baby.

“It was quite hot and as it is my first pregnancy I did not know what to expect. I thought this was all normal. But then I suddenly felt my eyes were a bit blurry...um...I ended up having an emergency Caesar. They said “Else you are going to die or your baby is going to die.” So my plans for natural birth were out the window. ..And I said “Ok, fine, do a Caesar ...my life is at stake so do a Caesar” (P8).

Good communication skills of health professionals can make a difference when receiving bad news. The data showed that participants found some of the medical terms used by health professionals created anxiety in them, as they did not fully understand the implications. Equally frightening, was the rather bald language used to in communicating the news to this participant. She was left feeling terrified and helpless. She described later that she did not have a chance to process feelings until she was home again, and struggled to interact with her baby initially. She expressed the need to apologise to her baby.

“Those things only came to mind after I was home and the emergency Caesar was done...then I had time to think. I had to say sorry to him for not being around at those first few days...I wasn't really with it...I didn't feel like I had a baby” (P8).

This perceived near-death experience obviously affected mother-child interaction and the participant's interaction with the nurses at the well-baby clinic. When discussing her overall experience of the well-baby clinic, this participant said she felt that the health professionals would have understood her better had they known about her birth.

“...they don't know that I nearly died when I had him” (P8).

4.2.1.2. Expectations of the First Mother-Child Interaction

Expectations and the responses to the new baby were mixed, and the experiences during the pregnancy played a role in this. Some participants described an immediate connection with the baby in the first minutes to hours after the birth, which they had not anticipated. This participant illustrates this, and how she felt her experience impacted positively on mother-child interaction.

“She looked straight up into my eyes...straight into my eyes. Straight up at me...she looked at me. I could feel a connection immediately...I didn't expect that...” (P5)

Major losses and bereavement during pregnancy can affect emotional bonding between mother and unborn child. The usual grief reactions and progression toward acceptance seen in non-pregnant women may differ in pregnant women (Lewis, 1979). This participant who had experienced bereavement and major stressors in her pregnancy described how this had left her emotionally and physically unprepared. She described earlier in the interview how her bereavement had distracted her focus from her pregnancy, and she had not anticipated what her newborn baby would look like or how she would feel.

“She had black hair...we both were light, blue eyes, blond... and she had black hair. She was dark blue...she was all purple and we were like...horrified. It was the weirdest thing ...and for a minute I almost felt guilty....” (P2).

4.2.2 Theme 2- “Isn’t one supposed to feel...?”

Motherhood brought with it a new identity-one which was accompanied by adaptation to new roles. The participants in this study described how they felt they **should** be feeling, and how this differed from what they actually felt. The common trend was that the participants felt tired, overwhelmed, vulnerable, and wanted to be mothered. They expressed guilt over these feelings.

“I thought “Aren’t you supposed to feel this amazing feeling towards that thing?”and it was just bizarre, I felt weird, and I felt like “Oh, crap, what have we done?” Very scary(pause),though it was real. (Sighs) I was petrified.”(P6).

Many participants obtained their information regarding mothering from magazines, and their expectations regarding feelings were shaped by the media. They described disappointment in themselves for not being the mother on the magazine cover and said the lay press had created unrealistic images of motherhood for them. This participant voiced these thoughts when she said:

“I expected to feel like everyone says you should feel. Like, you know...” Oh, this is my baby”. ...and I was thinking, “What is that thing?”(P2).

The participants who lived with their extended families appeared to have had more experience of observing mothering. They also had a more realistic idea of how they would feel and interact with the baby. Although the number of participants in this study is small, other research reports similar findings; that family or social support affected the ability of the mother to function and care for their infants (Hunker, Patrick, Albrecht and Wisner, 2009).

“Then the day came to go home...Yes, I was excited. I had my mother...everything that I couldn’t do before I can do now. I learnt everything. My mother is there for me a lot...she knows what it’s like ...and my aunt, my granny ...all of them look after me tell me what to eat to make good milk...how to bind him for the tummy...and help me with the stuff I need to do” (P1).

Physical isolation and lack of support made going home from the security of the hospital difficult. The hospital environment was described as a secure place as advice and help was available. The extract that follows is a description by a participant who was discharged after a 24-hour hospital stay, and did not have the support and helpful knowledge which is passed down generations of women, and which is experienced in an

extended family. This comment was echoed by others who felt they should know what to do and how to feel as a mother.

“I cried the whole way back from the hospital...everything went by in such a blur. I was in such a state...there was no one to tell me what to do...the first three weeks I was struggling to feed...it is not as easy as they say.”(P3)

Isn't one supposed to feel...?” was also experienced by a participant who was aware that other people, including health professionals, appeared to know her baby better than she did. This extract describes the sense of dissociation and guilt that she felt, while she saw the excitement of her friends and family.

“..Sounds funny but he was like a stranger that I had to get to know. The nurses knew him better in those first few days ...better than his own mother... I didn't feel like I had a baby...just sore and...Um...strange...sort of like a trance... I was a bit ...um...not really there... I had all these presents.... Everyone else was excited...They all had their own feelings about having a baby.” (P8)

The initial dissociation described was followed by a more realistic stage of interaction with adaptation to the new relationship and adjustment to new role. Participants spoke about adaptation and learning as a process whereby they resolved the guilt and negative feelings, and began to feel comfortable and own their feelings. For some participants the adjustment was only happening at the time of the interview (when the baby was four months). This was described by a participant who spoke about how responding to her baby's cues and learning what he wanted helped her feel more confident and connected.

“In the afternoon he was screaming, and he wouldn't take my breast, nothing. So I had to calm him down, and I eventually got that right.”(P4)

Participant-mothers spoke of adjustment to motherhood and some losses which they experienced by being stay-at-home mothers. Those who were returning to work stated that this required re-adjustment. Mothers may have looked forward to being back in the work place, and experienced guilt as they imagined they should not have these feelings. This participant spoke about how she had been looking forward to her return to work, and then had a change of heart which left her with a sense of loss and separation.

”Shame, he was screaming his head off...I did not want to go back to work that day...but for the money....” (P3).

PPD can affect mother-child interaction, as previously discussed. PPD is associated with emotional withdrawal and slow adaptation to motherhood (Lier, 1988). This participant, who appeared to have a dissociated style of interaction with her baby during the interview, said she was on treatment for PPD, expressed her thoughts.

“I did not know what to do with this little bundle of joy.....It’s not like they say... I was feeling very emotional...I just really wanted to be on my own...and nobody else...But things are getting better now.” (P6)

4.2.3 Theme 3- “Connecting with my baby”

The previous theme demonstrated the disconnectedness that some participants experienced. This theme describes how other participants experienced immediate, deep mother-child closeness, and how those who initially described feeling disconnected resolved this. Three areas of mother-child interaction described were; physical connection, emotional connection and a sense of being inextricably linked which they described as “knowing”. These are described separately, but they are obviously not mutually exclusive. The patterns of connecting varied over time but there was a general trend toward increasing emotional connectedness. Although the purpose of this study was not to compare mother-child interaction of mothers with PPD with mothers without PPD, it was observed that the mothers who had PPD were less likely to demonstrate physical closeness with their babies during the interview. They also reported less time spent with the baby, and had observed less intentional behaviour.

4.2.3.1. Physical Connections

Touch is a vital part of development in all mammals including humans. In the animal world, the animal-mother surrounds her young in protection, feeding and cleaning rituals. In this study, physical connections including touch, holding and physical closeness were commonly described by participants at the birth, especially when there was no immediate separation of mother and baby.

“He came out crying...and then when they put him on me he was quiet. I felt completely overwhelmed... He stopped crying because I was holding him.” (P7)

Breastfeeding with its obvious physical connection enhanced emotional connections for participants. The mothers who were still exclusively breastfeeding at four months described feeling in tune with the baby.

“At the beginning it was a bit tough because I wasn’t used to the breasts being so full and sore and its tender...and he wants to just suck, suck, and suck all day. But I think that is also where the bonding started.” (P4)

Another participant was in agreement and stated this about breastfeeding:

“Breastfeeding almost takes the place of the umbilical cord.”(P5)

Some hospitals practice the separation of mother and baby after birth. The baby is observed and cared for in the nursery, while the mother goes to a nearby post-natal ward after the birth. The participants described how physical separation of mother and baby contributed to the feeling of disconnectedness, while prolonged contact, especially following the birth improved interaction.

“I had no time really with him. Just breastfeeding and then they took him away to the nursery. At that stage it was like I wasn’t connecting with him.”(P4)

4.2.3.2. Emotional Connections

Participants described connecting emotionally with their infant as a process. They explained how in the early stages after birth they started to understand what the baby intended by certain actions, and this progressed to understanding what the baby was feeling.

Participants described how the infant’s ability to communicate increased the sense of emotional connection. Responsiveness of the infant, facial expressions and smiling and vocalisation by the infant all were factors which enhanced this. Initially this mother felt protective, but as the infant’s communicative ability increased it is evident that there is more symmetry in the interaction and emotions.

The following three quotes from the same participant illustrate this progression.

“I was just trying to think of him because he can’t talk, and I had to think for him, to speak up for him. I was aware of him.”(P4)

This described an incident later in the relationship. An extract from the description of bonding at four months:

“...and I knew what he wanted and that was me.”(P4)

An extract from the description of bonding at four months:

*“There is a natural communication. A natural bond...no matter how I treat him...No matter what I do, he will still look for where I am. **The chatting makes a very strong bond.**” (P4)*

A strong theme of physical connection enhancing emotional connection was evident. Breastfeeding and prolonged contact after birth were the two factors in this study which appeared to enhance interaction.

4.2.3.3. Knowing

The recurring theme of “knowing” was defined for this study as an assured belief and moment of enlightenment and belonging between mother and baby (see appendix H). This was something participants acknowledged often happened straight after birth. An example of this was in this participant’s words.

“I really, really loved her and felt totally in awe...I felt more in awe than anything else. That this baby was actually mine felt quite wonderful...and I couldn’t wait to know her more...” (P7)

This “assured belief and moment of enlightenment and belonging” was a mutual concept and this mother described this of her baby.

“When they put him on my chest... and he was looking at my face and just staring...it was like he knew that this was his mom.”(P1)

The physical separation of mother and baby (when the baby is cared for in the hospital nursery) appears to diminish “knowing” and this only reappeared when mother and baby were together for prolonged time.

“... It took a while for us...I mean to get to really know him and to feel I could do it for him. I think the part in the hospital was...starting like that didn’t help us get to know each other.” (P8)

PPD affects mother-child interaction as previously discussed. This participant, who was being treated for depression, described the lack of connectedness and belonging and even questions whether the baby knows that she is the mother.

“...she definitely recognizes H’s voice when he comes home at night. She looks for him.... she definitely looks for him...and it made me feel a bit sad ‘cos it made me think that I don’t think she knows that I am her mom. I think she sometimes thinks H is her mom, and my mom is her mom...because between the three of us we spend the majority of time with her...I don’t know if she knows the difference between the 3 of us.”(P2)

Mothers instinctively communicated with their infants without fully understanding the importance of this. They reported singing to the infant, using exaggerated actions and higher pitched voice and facial expressions to communicate. It was evident from the data that mothers had an idea that interaction improved social and behavioural outcomes. The importance of mother-child interaction was described by participants in the following statements.

“...it is really important, it helps him socially....he learns to communicate.”(P3)

“It helps his speech and his hearing...he imitates you.” (P1)

“The chatting makes a very strong bond.”(P4)

4.2.4 Theme 4-“We reflect each other’s feelings”

Participants described an echo of feelings between mother and baby. This is discussed in depth in the next chapter as empathy, the ability to understand the feelings of another, and relies on maternal sensitivity and the ability to respond appropriately to infant cues (Pfeifer, Iacoboni, Mattiotta and Dapretto, 2008). Participants reported that their infants felt what they were feeling and that they empathised to such an extent that they took on their infants’ emotions as their own.

A participant illustrated this when she said *“He was fussingand I was anxious”* and again when she was describing a visit to the clinic she said:

“...when they ignore him it is like ignoring me-though he is the patient...” (P5).

She also explained how her baby responded when he understood her feelings.

“He knows when I’m irritated or exhausted and he will smile at me to try and make me smile.”(P4).

In the following extract the participant described the emotions reflected between herself and her baby. The way she reports this demonstrates that she was unsure whether mother was echoing baby's emotion or vice versa.

"Then he was happy and I was also happy. So I don't know if me being happy makes him happy but...now I know him and we know who he is." (P8)

Participants described mother-child interaction as a system of reciprocity and they described a capacity for imitation and turn taking. The participants in this study commonly ascribed meaning to communication from the baby and said that the baby initiated interaction.

"...that was when he started speaking...when he started making sounds...this wasn't crying but just using his voice...talking to us." (P7)

"He wants to talk and if you don't talk back ...well, I think he would be confused...maybe cry...think "why are they not talking to me?"(P8)

Participants ascribed intentions to the actions of the baby. Ascribing intention to certain actions of the baby commonly overlapped with participants ascribing feelings with certain actions of the baby, in this study. An illustration is this participant's account of her baby at the clinic at 6 weeks of age.

"He was grabbing at my clothes because he wanted me to pick him up..." (P4)

The two participants, who were being treated for depression, described how their infants were sensitive to their lowered affect.

"...and I started getting very tense...and she definitely was "niggly." I then went onto medication, I calmed down...she calmed down. We had a very bad patch at about a month or 6 weeks. I was tense, and she was tense, and it was horrible."(P2)

This participant described how her baby responded to her un-smiling face and low affect.

"A number of times he has done this... I am down and I can't smile....and then he looks at me and I look at him and he suddenly bursts out crying (pause)...and I end up feeling worse."(P6)

4.2.5 Theme 5-“That helped/hindered our interaction”

Facilitation is defined for this study as any factor that eased the fluency of the mother-child interaction (see Appendix H). Participants described how facilitation of the interaction begins before the birth of the baby as emotional and physical preparedness for labour and the new relationship ease the transition.

4.2.5.1 Facilitation by Partner and Family

In this study, facilitation by partners varied. Participants report that partners were a source of support and they describe the physical presence and emotional support of partners at the time of the birth. They also relied on partners for sharing the care of the infant.

“...Support? My husband ...he was with me the whole time.”(P7)

In the case of this participant, PPD resulted in shared parenting of their baby. She described how her partner went to the clinic with her as she needed support.

“...so H came with me. He has come for every clinic visit...I would not have coped...he is very involved in her care.”(P2)

For some partners being supportive was difficult, especially if they had limited experience of the hospital environment. Unexpected Caesarean Section and seeing a partner in pain was a cause of great distress to the father. Participants in this study reported that partners would have benefitted from help in adjustment to their new role. This participant’s account of her husband visiting her in hospital illustrated this.

“...because I started picking up...when his father came to visit me, it’s like he just stared at him in the crib. It’s like he is too scared to pick him up.”(P4)

Living in an extended family offered many opportunities for support for a new mother, according to the participants in this study. They described having seen mothering in their own home, and reported physical help with caring for the baby and being mothered by other women within the family, as being helpful and relieving stress. Where the father of the baby was not involved, mothers sometimes found support in extended family

“...the rest help me because the dad is too busy for us.” (P1)

2.5.2 Facilitation by Health Professionals

Health professionals in the hospital had a key role to play in facilitation of mother-child interaction. Support, empathy, and communication skills were reported in this data as factors that relieved parental stress and enhanced mother-child interaction. Physical help and emotional support in labour, literal hand-holding and allowing the mother prolonged contact with her baby in the hours following birth were also cited as facilitating dyadic interaction.

Hospital policy and routine can be a hindrance to mother-child interaction. Nurses that did not separate mother and baby and encouraged parenting tasks by the mother are cited as easing dyadic interaction. The data indicated that even the most unexpected birth outcomes were improved by empathetic nurses and health professionals. Some mothers experienced extreme anxiety as a result of being separated from the baby.

The following account demonstrates how physical support, empathy and skin-to skin contact of mother and baby after birth, helped the participant who was scared at the prospect of having a Caesarean Section.

“And then one nurse was holding my hand also...she was helping me, calming me...and she was wiping my face because I was crying...ja, she was wiping my face because I was crying the whole time...all that crying stopped once I had him and he was ok. (Mother laughs)... they didn't take him away. They kept him there with me for long...on me.”(P7)

In contrast, this participant was not able to have her baby with her for three days, as she had to lie flat after a spinal procedure. Later in the interview she described guilt, and stated that she felt as though she had abandoned her baby. This data describes non-facilitation by health professionals.

“I was scared...really scared. I didn't feel too bad after the Caesar...but I wasn't really able to look after him. I had to stay laying flat for three days.... and it is really difficult to feed and change him while flat. I think the part in the hospital was... (Pause) um, starting like that didn't help us get to know each other.”(P8)

Facilitation of mother-child interaction should happen during visits to the well-baby clinic and ideally, at every communication opportunity with nurses. For many mothers

the clinic visits are associated with immunisation and pain for the infant. Facilitation of mother-child interaction at a well-baby clinic is described in positive terms by this participant, who felt well supported and describes visiting the well-baby clinic.

“...at the clinic they helped me...they do help you a lot... they tell me lots of stuff.....and she asked me how I am coping...because the father is very busy...so she asked me “Is the father involved? Is he there for you?” and I said “Yes, he is” ... ’cause he is not with me ...so she wanted to know all about the support I am getting...” (P1)

This same participant was anxious at the prospect of visiting the clinic. She felt protective, scared and also vulnerable, and knew that her baby anticipated something because of her anxiety.

“I am nervous and feel bad and scared because I am not used to it...and I want to look after him...then he (the baby) will look at me and he will have a different kind of look...it’s like “okay...I know something is going to happen now”(P1)

In this study, participants frequently cited the lack of available time as being the reason that facilitation by nurses was not evident. The participants described the nurses as “busy” (P2), “unfriendly” (P3), “the very first nurse said I was asking too much questions” (P4) and “...had a lot of people waiting” (P5). Nurses that spent time with the participant were seen to be caring for them as the following extract illustrates.

“It was actually a male sister....was nice. He was good and cared. He spent time....did not rush me” (P8).

Data indicated that interaction between mother-child dyad and nurses did not always go smoothly. The benefits of breastfeeding are widely advertised at clinics and the participants described being aware that breastfeeding was best for their babies. This created guilt for those who had not exclusively breastfed their infant. The following extract illustrates that the participant felt unvalued by health professionals in the clinic because she was not breastfeeding.

“They did not really check how I was doing. And surely I am quite important too? I felt like if I wasn’t breastfeeding I was a terrible mother.... It was as if when I stopped breastfeeding I lost something (Pause)... And I felt ... they lost interest once I was bottle feeding...” (P6)

Anxiety around being judged for partial bottle-feeding kept this mother away from the clinic until she had to go for the 6 week injection.

“I was really nervous. This was for two reasons...I did not want him to be hurt by the needles and...I did not really feel like getting a scolding for the bottles. I just stayed away.....then the second time... that sister was very cross with me...like the only thing I must do as a mother is breastfeed him. It was not working and they don't know that I nearly died when I had him!”(P8)

The emphasis in primary health care training on breastfeeding and the assessment of physical growth parameters may have led nurses to overlook positive mother-child interaction, and the need for supportive counselling. Participants in this study describe the emphasis on weight gain as a factor which induced guilt, and had a negative effect on mother-child interaction.

“Moms are given too hard a time I think. They only want to know about weight and feeding...quickly...She did not gain enough weight ...and now you are a bad mother.”(P2)

Supportive counselling can be time consuming and difficult to conduct in a facility that does not have a private area for this. The first data piece illustrates this and the following two, which were concluding comments of the interviews conducted for this study, indicate the extent to which the participants enjoyed having time to talk about their experiences.

“They don't seem to want to know. They don't ask “are you doing ok?”, “are you doing fine?” how's it going with the baby?”...so I didn't know if I could ask anything...so I just read magazines or books.” (P3)

*“It is the first time I have talked about some of these things.”(P8)
“I actually thoroughly enjoyed talking about my experiences.”(P5)*

Facilitation of mother-child interaction occurs easily where there is a healthy rapport between mother and primary health care professional. Personal attributes of the nurse and good communication skills created an environment conducive to facilitation of mother-child interaction for participants.

“I didn't really want to go to the clinic, it is such a long wait...But she (the nurse) was really very friendly. She speaks to me...and him. She loves having conversations...She would ask...um, how am I coping with her? ...and...How am I feeling? Am I breastfeeding her? Bottle-feeding? How is it going? ... Does she smile?Do we talk with one another? ...all stuff like that.”(P5)

In this study the five main themes from the data describe how mother-child interaction develops from before birth, and progresses toward integrated and engaged interaction. These findings from the participants' descriptions around mother-child interaction will be discussed in the following chapter and will be compared to existing literature which addresses concepts around these themes. The discussion will include the practical implications of the findings.

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Chapter 5

Discussion and Conclusion

The discussion in this chapter is built on the findings and the emergent themes from the previous chapter, and will incorporate a review of literature which is related to the findings of this study. It will also address strengths and limitations of the study. This chapter will conclude with a brief review of the study and how the approaches used met the aims set out for the study.

The findings will be discussed under four main headings:

- Mother-child interaction-Descriptions by participants in the context of theoretical frameworks.
- Expectations and mother-child interaction.
- Evolving society and mother-child interaction.
- Factors that ease the fluency of mother-child interaction

5.1 Mother-Child Interaction

5.1.1 Descriptions by Participants in the context of Developmental Theories

Participants in this study describe mother-child interaction as a continuum which began during their pregnancy and progressed towards a more integrated interaction. The findings show that the mothers experienced an intense connectedness around the birth which wanes on separation of mother and child. The intense connectedness following birth, which was described by participants, is in keeping with Porges' "Polyvagal Theory". This theory introduced new concepts of how autonomic function relates to behaviour, and how phylogenetic shifts in mammalian nervous systems cause changes in vagal pathways. The resultant neuro-physiological mechanisms allow behavioural changes in order that physical and psychological space between individuals is minimised. In this study participants describe an innate desire not to interrupt the physical space between mother and infant. According to Porges' theory, specific neural circuits evaluate

risk in the environment on a subconscious level and make adaptations in social behaviour and security strategies. For the mother and infant, safety, feeding and interaction are basic survival strategies. Factors which interrupt these survival strategies such as separation of mother and baby are associated with increased levels of stress, measured in both mother and infant (Porges, 2007).

This theory provides a framework of understanding of how early physical closeness enhances emotional connectedness. In this study, participants reported an instinctual need and desire to be close to the infant. Participants who did not experience prolonged separation of mother and baby following birth described engaged mother-child interaction, whereas separation of mother and baby appeared to cause disconnectedness in participants who had experienced separation after the birth. Participants reported that this disconnected interaction improved when mother and baby were together again, though the interaction took time to re-establish. Due to the separation of mother and infant after birth, the mother's maternal instinct was interrupted, which in turn meant the mother had to "learn about her baby"(Participant 8). Words and phrases used by participants suggest that they were learning from others about interacting with their infant and that they no longer interacted on a purely instinctual level.

The first few hours after birth are a critical period for mother-child interaction. As early as 1970, doctors specialising in infant mental health proposed that separation of mother and baby after birth was unnecessary for infection control, and had potential long-term negative consequences for the relationship (de Chateau, 2007). Hospital policy of caring for the infant in the nursery is still practiced by some institutions, but more recently skin-to-skin holding or KMC is infiltrating nursing practice, even in neonatal intensive care nurseries.

Participants described how physical connection enhanced emotional connection. The data shows that breastfeeding with its obvious physical closeness contributed to engaged interaction. One data piece likens the connection of the umbilical cord with the connection experienced with the baby on the breast. Participants describe prolonged

contact of mother and baby, and skin-to-skin contact after birth as the beginning of integrated interaction. This agrees with results of a number of studies in which KMC was compared with standard incubator care for premature infants. The KMC mother-baby cohort demonstrated better mother-infant interaction, decreased maternal stress, increased infant communicative abilities and responses, and increased maternal sensitivity (Talandini and Scalembra, 2006; Feldman and Eidelman, 2003; Feldman, Weller, Sirota and Eidelman, 2002).

The improved mother-infant interaction is known to continue beyond the neonatal period. In a controlled trial, unlimited early post-natal contact in mother-child dyads was compared with routine 3-hourly contact in the control group (this was standard care at the hospital). The early integrated interaction in the unlimited-contact group correlated closely with engaged mother-child interaction at a year. In addition, the mothers in the unlimited-contact group breastfed their infants longer (de Chateau, 2007). Several other studies investigating care-giving around the time of birth have indicated that this period is of special importance for the development of the mother-infant relationship. One participant who had an emergency Caesarean Section described how her baby was not taken to the nursery but allowed to stay with her, and maintained that this factor promoted mother-child interaction and eased her distress. A participant, who had very little contact with her baby for the first three days after birth, described her sense of loss and guilt, and how the early separation impacted negatively on her interaction with her son.

Participants in this study described how, as mothers, they understood the feelings of their babies. The ability to understand the intentions and emotions of another person is the basis of social interaction. The mirror neuron system plays an important role in social interaction and demonstrates a neural mechanism by which the actions, intentions, and emotions of other people can be understood (Pfeifer, Iacoboni, Mattiotta and Dapretto, 2008). The mirror neuron system theory proposes that the neural circuits are activated when observing actions of another which are then interpreted as the observer's first-hand experience. This forms the basis of imitation and observational learning (Oberman,

Pineda, & Ramachandran, 2007; Rizzolatti and Craighero, 2004). Imitation is seen a few hours after birth as infants are able to imitate facial expressions involving tongue protrusion (Field et al, 1982; Nagy and Molnar, 2004; Jones 1996).

Extending this same logic to the understanding of emotions and sensations of others, there is evidence that mirror neurons use a shared circuit and single mechanism for interpreting the actions of another and the feelings of another (Keyser and Gazzola, 2006). This provides a neural basis for the development of social interaction and empathy, the ability to share and understand the emotional experiences of others. Participant-mothers in this study reported that their babies understood their feelings and emotions.

Empathy is a feature observed in both the mother and the baby. Empathy in the mother is associated with maternal insightfulness, a “capacity to consider the motives underlying their children’s behaviors and emotional experiences” (Koren-Kari et al, 2002, p. 534) and maternal sensitivity (an ability to respond appropriately to infant cues). This was described in the data as an “echoed” or “reflected emotion”. A common finding was how the infant and mother understood each other’s emotion to such an extent that they began to feel the emotion for themselves.

Understanding feelings leads to the understanding of actions. The participants describe how they interpret actions in the infant which they share and understand. They describe actions as being intentional and done with a purpose in mind. Earlier research by psychologists, Feldman and Reznick (1996), demonstrated that the degree to which mothers see the actions of four month old infants as being intentional and purposeful, corresponds to the degree of maternal sensitivity and is evident in healthy mother-child interaction. This was illustrated by a participant who said her six week old infant who was grasping at her clothes was doing this because he wanted to be picked up. She interpreted his clenched fists as a need for security.

The infant not only imitates the mother, but has the ability to initiate a “conversation” with the mother. This is also a goal directed and intentional activity and is correlated with the mother’s responsiveness. Participants used words such as “spoke”, “talks”, “conversation” when describing baby initiated interaction.

Sensitive mother-child interaction, which involves appropriate responses to the infant’s cues, is thought to be the basis of the development of empathy within the child. Empathy in turn is important for long term psychological health (Koren-Kari et al, 2002). The importance of mother-child interaction was understood on an intuitive level by some participants who demonstrated an innate communicative behaviour. Only one participant in this study was able to state that interacting with her baby resulted in improved bonding and secure attachment.

Although this was a small sample, two of the eight participants reported having PPD. This, co-incidentally, corresponds with the general population statistics. The negative consequences of PPD on mother-child interaction make the recognition and treatment of PPD a priority when dealing with mother-child dyads. The descriptions of mother-child interaction by participants in this study who had PPD is not necessarily representative of mothers with PPD in general, but it is interesting to note that the descriptions offered by participants with PPD differed from the other participants.

Maternal depression is associated with decreased maternal sensitivity and insecure infant attachment (Mills-Koonce, Gariepy, Propper, Sutton, Calkins, Moore and Cox, 2007). Depression during this period has been shown to be associated with emotional withdrawal, reducing the functionality of the mother, and affecting her parenting practices, particularly those related to playing with and talking to her baby (McLearn, Minkowitz, Strobino, Marks and Hou, 2006). One participant with PPD described the need for solitude in the weeks following the birth, instead of which she had the constant presence of her baby. The same participant demonstrated very detached interaction while being interviewed.

Lowered affect during the postpartum period often goes unreported by the mother and unrecognised by her significant others and also by health professionals with whom she has contact (Halbreich and Karkun, 2006). Although depression following childbirth is a common phenomenon in many cultures, it is mostly not classified as an illness but a state of unhappiness which is best remedied by support from partner and family in the home (Oates, Cox, Neema, Asten, Glangeaud-Freudenthal, Figueiredo, Gorma, Hacking, Hirst, Kammererer and Klier, 2004).

A participant who was being treated for PPD described disengaged interaction with her baby and that she was only just starting to understand the needs of her infant who was 4 months old. Another depressed participant described how she felt horrified and guilty on first seeing her baby after birth. This mother's loss of a step-father during her pregnancy had interfered with her emotional preparation resulting in distress at the first interaction. Bereavement in pregnancy can cause unresolved and incomplete mourning. Suppression of grief may lead to a sense of being emotionally cut off and impair bonding with the new baby (Lewis, 1979). This same participant stated that the baby may not know that she is the mother, indicating insecure attachment.

Early recognition of problems around mother-child interaction and facilitation in this area demonstrate that it is possible to improve maternal sensitivity and facilitate secure attachment even in depressed mothers (Nylen, Moran, Franklin and O'Hara, 2006). By targetting interventions involving mother-child interaction, mothers who may not admit to being depressed due to perceived stigma, or may not understand depression as an illness can be helped.

5.2 Expectations and Mother-Child Interaction

The experience of mother-child interaction is related to expectations. Chambers 20th Century Concise Dictionary defines the word "expect" as "to look forward to as likely to happen" and "the prospect of future good" (1985, p. 339). To be expecting is also a colloquial term used for being pregnant.

Childbirth generates powerful positive emotions but women at this transition are also vulnerable to developing symptoms of depression, anxiety, and trauma. In the years following the Second World War the primary aim of childbirth was safety of mother and baby. In the decades which followed, advances in obstetric practice resulted in few maternal and infant deaths. Sandelowski (1994), researcher and midwife, states that the desire for safety in childbirth has been overtaken by the desire for satisfaction and fulfilment in the birth experience.

de Chateau (2007), who was an early pioneer in the field of infant mental health, states that prenatal emotional state, social circumstances and the mother's own relationship with her parents are all factors which contribute to an anticipatory process. These expectations will affect the mother's early interactive behaviour with her infant. Participants in this study describe how the anticipatory process or expectation influences early mother-child interaction. Expectations that were met or exceeded for participants were commonly associated with early feelings of connectedness and healthy mother-child interaction.

Adverse birth events and unmet expectations can affect mother-child interaction. In a longitudinal cohort study in Sweden, the prevalence and risk factors associated with negative birth experiences were examined. Unexpected medical problems which required intervention, and poor support were factors associated with adverse birth experience (Waldenstrom et al, 2004; Ayers, 2004)). This finding is replicated by Hunker et al (2004), who maintain that unexpected adverse events in childbirth can result in disruption of maternal functioning and the result can be guilt, loss, anger and depression.

An example of this was the description of loss and guilt as expressed by the mother who only began processing the unmet expectations around her birth experience after she left the hospital and she expressed the need to apologise to her baby.

The emotional state following unexpected and traumatic birth experiences has been compared to post-traumatic stress disorder, and mothers describe intense fear, lack of control and experience labour as being life threatening. A quantitative study examining

the incidence of acute trauma symptoms following childbirth revealed that one woman in every three described her birth as being traumatic (Creedy, Shochet and Horsfall, 2000). The implications of this for mother-child interaction are vast. One data piece described her birth in terms of a near death experience, and reported that this had consequences for early interaction. A study done in the United Kingdom, exploring evidence around the practice of post-natal debriefing, suggested that giving women who perceive they have had a traumatic experience, the opportunity to discuss this experience was effective in diminishing stress symptoms. The opportunity for discussion differed from formal debriefing and was as effective (Rown, Bick and Bastos, 2007).

5.3 Changing Society and Mother-Child Interaction

Mother-child interaction is influenced by rapid cultural and social change, and in recent years, a deteriorating economic climate and financial stress.

In many cultures the significant event of childbirth changes the status of a woman and is accompanied by a rite of passage. This guides the new mother in expected behaviour and provides her with the social support needed for the transition to motherhood. Medical anthropologists have suggested that the high status of motherhood, expected code of behaviour and the social support within traditional cultures may be protective against maternal emotional problems and encourage connected mother-child interaction (Oates et al, 2004). As inter-cultural marriages have become more common, many of the traditions which defined the role of motherhood have been lost. A community cohort study in Pakistan demonstrated that rapidly changing traditional and family practices may increase the risk of maternal mental health problems and the consequent disengaged dyadic interaction (Rahman, Iqbal and Harrington, 2003).

Although this was a small study, those who were from cultures where they had experienced the support of the extended family had observed mother-child interaction within the extended family home and were assisted in traditional methods of mother and baby care had more realistic expectations.

Societal changes have also resulted in people moving away from community living and the extended family to living in nuclear family units. Greenfield describes a rural to urban shift, and a shift from most learning happening in the home to most learning happening in schools. Social relations were life-long and interdependent, but because of societal changes they have become fleeting and independent (Greenfield, 2009). These changes have left the mother without the role models from whom to learn about mother-child interaction, and without support systems which served to share emotional and practical aspects of baby care. Ammantini, (1991) demonstrated that early mother-infant interaction is influenced by the expectations a mother has during pregnancy of herself as a mother.

These expectations are influenced by family, society and culture. This was described by a participant who had physically moved away from her extended family. When her aunts and cousins visited, she was aware that the birth of a baby had different implications for the mother, according to generation and culture.

Poor economic growth trends seem to have resulted in women returning to work very soon after the birth of a baby. The mother-child relationship is disrupted by early return to work, the longer workday, competition for jobs and extra time spent commuting between home and work. Anticipation of mother-child separation can be a cause of anxiety and distress, long before the separation happens. This was illustrated by the data piece describing the participant's own distress and that of her baby when she returned to work and was separated from the baby. For some mothers returning to work may be because of societal expectations. Gender equality has led to increased opportunities for women, and the proportion of mothers who are in the workforce has climbed steadily over the past several decades (Schor, 2003). The value of connected mother-child interaction is frequently in conflict with the necessity to be the family bread-winner or the status achieved by being a working woman.

5.4 Factors which Eased the Fluency of Interaction

Supportive partners were most commonly mentioned as facilitating the mother-child interaction, although participants reported that for some partners the hospital environment was stressful. The care of the partner is often overlooked, Fletcher (2009), demonstrating that supporting father-infant interaction has a knock on effect in supporting mother-infant interaction and parenting.

Poor emotional support is associated with decreased maternal sensitivity and subsequent disengaged mother-child interaction (Gunning, Conroy, Valoriani, Figueredo, Kammerer, Muzik and Glatigny-Dallay, 2003). Recent research involving fathers was done by Goodman. She describes how the experience of having a child requires major adjustments for men as well as for women. The father can also experience PPD and partners are at higher risk of this when the mother is depressed (Goodman, 2004).

Facilitation happens naturally in extended families. Participants described support, sharing of physical and emotional care of the baby and they also described being mothered themselves. Mothers in extended families have role models and in this study, this appeared to result in more realistic expectations. In a qualitative, cross-cultural study new mothers and significant family members cited partner and family support as being the most important factor in reducing morbid unhappiness following childbirth and thereby promoting mother-child interaction (Oates et al, 2004).

Childbirth is a major life transition and unexpected Caesarean Section or a traumatic birth may increase the need for debriefing or counselling. Non-directive counselling may be an effective means of reducing the prevalence of post traumatic stress disorder and PPD related to unmet expectations. A randomised controlled trial evaluating the effectiveness of counselling as an intervention following traumatic birth demonstrated that a single debriefing session while in the post-natal ward proved unhelpful, but women reported that having the opportunity to express feelings about the birth was helpful in facilitating recovery (Gamble, Creedy, Webster and Moyle, 2002). Although the purpose of the interviews conducted for this study was not aimed at therapy or counselling for the

participants, some participants reported in the closing stages of the interview that it was the first time they had had the opportunity to talk to someone about the birth. Facilitation following traumatic delivery did not happen either in the hospital or following discharge for the participants in this study.

Separation of the mother-child dyad was a factor which hindered mother-child interaction. Participants described how nursing practice which allowed unlimited mother-baby contact during the hospital stay, facilitated mother-child interaction. Existing evidence has already been discussed showing how separation increases anxiety in both mother and child. Hospital policy and routine can be a hindrance to mother-child interaction and nurses cannot always be held accountable for this non-facilitation. Positive facilitation in the hospital was related to emotional support and empathy. This was a literal and figurative hand-holding, as was described in one data piece.

Facilitation by health professionals in the clinics was described positively by participants who report how health professionals understood the mother in the context of her support system and birth experience. One data piece described how the participant felt she would have been treated more sympathetically if her birth circumstances had been known. Participants positively described health professionals who acknowledged or spoke to the baby and spent time asking questions which gave context to the mother-child dyad. Friendliness and a non-judgmental approach were also valued by mothers.

The data described that interaction between mother-child dyads and nurses did not always go smoothly. Time was cited as being a crucial element in this interaction not going well. An over-burdened team of nurses who do not understand the long-term benefit of healthy mother-child interaction may not see value in spending time discussing adaptations and emotions associated with mother-child interaction. One participant expressed the opinion that clinic nurses “did not want to know” about the well being of mother and baby. This may be because nurses do not necessarily have the expertise in counselling for adequate facilitation.

Most participants associated fear and anxiety with clinic visits. The anxiety, according to participants in this study was related to immunisations and judgements about the feeding practices and weight gain of the infant. One data piece described how the health professionals lost interest in the mother once she stopped breastfeeding.

Information regarding the emotional state of a mother is important for the support of mothers with PPD, and vital in the comprehensive care of the infant. As previously discussed, the focus on PPD is because it is strongly associated with disengaged mother-child interaction and has long-term developmental consequences for the child and a high prevalence in South Africa. Routine screening for PPD is not done at well-baby clinics or at the post partum examination. It is seldom formally taught, either as part of the teaching of primary level health professionals or midwives, although the Edinburgh Postnatal Depression Scale (EPDS) has been validated for use in low-income countries and as a tool demonstrates good sensitivity (Regmi et al, 2002). Early recognition of PPD is important for early intervention as the first few months following birth present a critical phase for mother-child interaction. Routine screening could detect dyads at risk of poor interaction.

A finding in this data was that the weight of the baby was the primary concern of the health professionals. Where weight gain was slow participants describe feeling guilty and judged by health professionals, demonstrated by the evidence of a participant who avoided going to the clinic. Existing literature shows that interventions in low income countries which target mother-child interaction, demonstrate improved weight gain in NOFTT infants (Patel et al, 2004).

In this study, support for participants within the home was limited to the partner and family, as home visits of new mothers by nurses or midwives is not currently practiced in South Africa. A recent controlled trial conducted in a deprived community in South Africa, showed significantly improved mother-child interaction and more secure attachment, where the intervention was support and parent guidance carried out by lay women (Cooper et al, 2009). This has significant implications for new approaches in the facilitation of mother-child interaction.

5.5 Recommendations for Practice

Recommendations for practice relate to the ante-natal period, the birth and the post-natal period as mothers described mother-child interaction as a continuum which began during the pre-natal period.

5.5.1 Norms and Standards for Practice

The practice recommendations for the ante-natal period include giving realistic and adequate information in a form which can be understood, so that mothers have less of a gap between expectations and reality. Antenatal visits at clinics tend to address physical health of the expectant mother and do not assess mental health. Intervention for ante-natal anxiety and depression improves post-natal outcomes (Wisner, Hanusa, Peindl and Perel, 2004). Mental health assessments should also be incorporated into post-natal clinic visits. The data describes how unmet expectations and adverse birth events were associated with dissociated mother-child interaction, as was PPD.

Following birth, the implications for practice involve changing approaches which separate mother and baby at this period, which is known to be critical in terms of mother-child interaction. The recent trend in some hospitals of keeping mothers and babies together facilitates mother-child interaction. This must be practiced in particular following Caesarean Section and traumatic delivery, where the first hours of mother-child interaction may ameliorate the effects of the trauma for both mother and baby, and even (or especially) in the case of premature birth. The practice of skin-to-skin holding should be encouraged for prolonged periods both in the hospital and following discharge from hospital, where mother-child interaction has been disrupted.

This small study illustrated how perceived traumatic birth experience impacted on dyadic interaction. Nurses who interact with mother-child dyads should be able to recognise maternal distress, perceived traumatic birth experiences, PPD and disconnected mother-child interaction. Training in the area of counselling, and the development of counselling models as well as training in facilitation of mother-child interaction would help nurses, who may avoid this because of lack of expertise.

The timing of any intervention is important. Existing research has demonstrated that counselling done in the 4-6 week period following the birth is effective (Gamble, Creedy, Webster, Moyle, Mc Allister and Dickson, 2005). The implications for the South African context are that as a first step, non-directive counselling or providing an opportunity for mothers to talk could be integrated into the existing framework of well-baby clinic visits at 6, 10 and 14 weeks. Ideally, because early mother-child interaction has implications for the future health outcomes of the infant, it could be argued that home-visits by nurses or community workers trained in supportive counselling may be a cost effective method of supporting child health.

5.5.2 Education of Nurses and Midwives.

In well-baby clinics any change challenges already over-burdened health workers. The new knowledge around the importance and long term benefits of healthy mother-child interaction must be incorporated into formal teaching programmes of child nurses and midwives. Continuing education programmes must educate nurses already practising as primary health workers, so that the newly graduated nurses are not discouraged from putting this knowledge into practice.

Proper support of the mother-child dyad necessitates that the mother and baby must be understood in context and this also requires new approaches. Whereas counselling for PPD, may stigmatise the mother, intervention which centres on mother-child interaction can be an entry point for informal counselling. Including other family members in an intervention which targets mother-child interaction and infant development could create a better support system for the mother and child. Primary-level workers need to be equipped with these skills to be effective in this area.

5.6 Strengths and Limitations of the Research

The literature review and discussion chapters have demonstrated an abundance of existing research by psychologists assessing mother-child interaction in simulated home environments. Neuro-scientific researchers have shown the neurological mechanism of interaction and the development of these nerve pathways. The strength of this research lies in the fact that the words and thoughts of mothers have been recorded and these findings serve to illustrate in a practical way, and concur with, the findings of the neuroscientists and the behavioural psychologists. In addition, mothers described the interaction from birth until four months which allowed the reader to gain a sense of the continuum of the interaction, and in some cases the resolution from disconnectedness to integrated interaction.

In all qualitative research the number of participants is small, and this study was no exception, as only eight participants were interviewed for the study. This may be a limitation as these findings may be representative of a specific group of mothers. However, the findings may be recognisable to a different and larger population as mother-child interaction is a universal entity.

These participants were sampled purposively following the participant's response to an advert placed in public facilities. This may be a limitation as more curious and outgoing mothers would have responded to the advert. The advert was placed in a limited geographical area, and although the respondents came from further afield, they were similar with regard to socio-economic status. None of the participants included experienced poverty but some of the participants reported financial stress. This factor eliminated the additional problems associated with poverty such as malnutrition and co-existing illnesses, abuse and crime.

The interview was in English as this is the home language of the researcher. This was a limitation but this decision was made so as to eliminate the loss of subtleties in the translation.

5.7 Conclusion

This study used a phenomenological approach and offers an understanding of mothers' perceptions of mother-child interaction in the neonatal period and the factors which facilitate this interaction. A brief description of the content of the five main themes that emerged is as follows:

- Mother's expectations around the birth and first interaction with her baby.
- Mothers' concerns around the interaction, feelings and adaptation to motherhood.
- Mothers' descriptions of factors leading to physical connectedness and emotional connectedness.
- Mothers' descriptions of how feelings are echoed between mother and baby and how empathy is developed.
- Factors which facilitate interaction around the mother-child relationship.

The first four themes had a sense of resolution as mothers described varying dyadic connectedness which gained fluency toward an inextricable mutual belonging. The last theme described factors which facilitate mother-child interaction, and as such relate to the preceding four themes. The findings of this study concur with research evidence related to mother-child interaction and PPD.

In this study, factors which influenced mother-child interaction included pre-natal events, birth events and experiences in the neonatal period. Negative prenatal life-events disrupted mother-child interaction as this interfered with emotional preparation for the birth. Unmet expectations of the birth, and traumatic events around the birth as described by the mothers, impacted negatively on mother-child interaction. Separation of mother and baby shortly after birth due to illness of the mother, hospital policy or other reasons disrupted the dyadic interaction further. Mothers in this study reported that they did not have the opportunity to talk over the events with health professionals as they found the health professionals in clinics did not have sufficient time. They were not offered supportive counselling either formally or informally.

Factors which facilitated mother-child interaction by nurses, partner and extended family were described by mothers. In this study, data confirmed that immediate interaction after birth, even after Caesarean Section, usually resulted in a deep connectedness. This diminished if mother and baby were separated and took time to be re-established. Physical connectedness in skin-to skin contact and breastfeeding enhanced emotional closeness. Mothers described how feelings were echoed between mother and baby. This concurs with findings of behavioural scientists that mirror neurons are the basis of the development of empathy necessary for mental health.

Support from a partner and being part of an extended family or involved in a traditional, cultural community helped mothers in this study to adjust to their new role and therefore helped the mother-child interaction.

The study findings confirmed that mothers have an idea that dyadic interaction improves socialisation, but participants did not understand the extent to which disengaged mother-infant communication affects emotional, cognitive and behavioural development. Nurses working in well-baby clinics may have knowledge of the importance of mother-child interaction but according to these findings there was little evidence of this knowledge in their practice.

This research has provided descriptions by mothers which concur with earlier research around mother-child interaction in the first four months. This may add evidence toward adopting new approaches in caring for mother-child dyads at primary level.

In summary, this qualitative study has met the objectives laid out:

It has recorded mothers' experiences of mother-child interaction.

It has determined the importance the mother ascribes to this interaction.

It has explored factors within the family structure and health services which help or hinder this interaction.

This knowledge can be incorporated into teaching modules for midwives and all health professionals who have contact with mother-child dyads and their families.

Reflections on the Study

*Mother's arms are made of tenderness,
And sweet sleep blesses the child who lies therein.
Victor Hugo (1802-1885)*

During the process of this study I became aware that my practice as a nurse-practitioner working in a well-baby clinic was undergoing change. I realized that mothers enjoyed telling their story and, in fact, found it therapeutic. I established rapport with mothers whom I had not met before, by inviting them to tell me about their pregnancy and labour.

From this rapport I was able to gather information about the relationships in their lives without specifically asking about support systems. I was also able to assess what their expectations around their birth and having a baby were, and how their expectations differed from the reality of being a mother. This communication gave me information about the mother's potential for PPD.

I found my approach changed from focusing on the infant's physical growth and milestones, to having the focus on mother-child communication. Encouraging this relationship and acknowledging the baby as a person with capacity for feeling and communication, appeared to facilitate mother-child interaction. The area of adaptation to being a parent was addressed with both parents (if possible). In this, losses and gains were discussed, and frequently guilt over what they thought they should be feeling was replaced with relief that the feelings they had were commonly voiced by other mothers.

I started using more open ended questions, especially at the beginning of an interview. I found that this approach was less threatening than a string of questions and gathered as much information. Some boundaries around the time spent with the mother and baby had to be made for practical reasons, but the extra time spent in initial consultations was recuperated later as these mothers developed a sense of self-confidence and self-trust. All these discoveries have added a dynamic that improved my understanding of people, and enjoyment of interacting with mothers and their babies.

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Appendix A

Explanation of Appendices

Appendix B -Information Sheet for Participants

This information sheet was given to participants a few days before the interview. This was in order to give them time to discuss participation with family and ask the researcher any questions related to their participation in the study before they signed consent for participation.

Appendix C- Informed Consent Form

This form was signed by participants before the interview and describes consent for participation in the study, as well as for the recording of the interview and for the findings of the study to be published. The signing of this consent was witnessed by 2 independent witnesses.

Appendix D – Advert for participants

This advert was placed in various public and private facilities for the recruitment of participants.

Appendix E- Interview Schedule

This served to guide the interview process. It consists of 3 main questions and probing questions.

Appendix F-Verbatim Transcription for Interview no 4

In this transcription no text was excluded. This was included as an example of an interview.

Appendix G-Example of Analysis Process

This example takes 2 excerpts from the verbatim transcription and demonstrates to the reader how the text was examined and analysed.

Appendix H- Categories- Definitions and Explanations

This gives a description of each category. It helps the reader to understand decisions taken by the researcher.

Appendix I- Analysis Audit Trail Example

This demonstrates to the reader the researcher's steps in decision making in the analysis.

Appendix J- Approval from Ethics Committee, University of Cape Town

A copy of this document is included to show that approval of the Research Ethics Committee of the University of Cape Town was granted.

University of Cape Town

Appendix B-Participant Information Sheet



Sr. Penny Barnard
226 Main Road, Claremont, 7700
Tel: +27 (0) 21 7613408
Cellular: 082 2977766
E-mail: pennyb@intermail.co.za

INFORMATION ABOUT THIS STUDY

Division of Nursing and Midwifery
School of Health & Rehabilitation Sciences
University of Cape Town
Penny Barnard-0822977766(cellular)
021-7613408 (office)

Dear Participant,

As a post-graduate student at the University of Cape Town I am undertaking a research project as part of a Masters of Science in Nursing degree. The title of my research project is: Beyond the feeding relationship: Mothers' descriptions of interaction within the mother- child dyad. I will be interviewing first-time mothers to gain their perspective of how mothers experience infant-mother communication and how health professionals encourage this.

If you agree to participate, I will ask you to come to my office in Claremont at a time that is convenient to you. The interview will last about 30 minutes and I will reimburse you for travel costs up to R100. Participation will consist of one interview of approximately 30 minutes, which will be taped. Your baby is welcome to be with you during the interview.

I will ask whether I can audiotape the interview. This will help me to remember the information within the interview, but I undertake not to use your or your baby's name in this so there will be no way to link your name to the interview. Your participation is entirely voluntary and no one at your clinic or practice will know that you participated. It will therefore not be able to influence the care you or your baby receives there. You may stop the interview at any stage without giving a reason.

The study has been developed under supervision and complies with the 2000 Helsinki Declaration of ethical standards (Goodyear, Krieza-Jeric and Lemmens, 2007). The findings of the study will be published to help health professionals have better understanding of infant-mother communication and what encourages it.

Yours truly,
Penny Barnard

For additional information you may contact:
Faculty of Health Sciences Research Ethics Committee
E52- 23 Old Main Building,
Groote Schuur Hospital, Observatory, 7925
Tel: 27 21 4066492, Fax: 27 21 4066411

Appendix C
Consent for Participation

I, _____ mother of _____

confirm that I have read the information set out above and agree to participate in the research project.

I am participating voluntarily. I have had the opportunity to ask questions related to my participation in the study and time to consider my decision. I understand that my rights to confidentiality will be protected at all times and my identity will not be revealed.

In addition, I give consent for the interview to be recorded. I also give consent for the findings of the study to be published.

I understand that I may stop the interview at any time, without having to give the researcher a reason for this.

SIGNED: _____ DATE: _____

RESEARCHER: _____

WITNESSES: _____

Appendix D
Advert for Participants

Looking for first time mothers!

As a researcher in the area of mother and child health,
I would like to know about your experiences
of interacting with your baby.

This will involve a once-off 30 minute confidential interview

Participation is entirely voluntary

Your baby is welcome to be with you during the interview.

If your baby is between 3 and 4 months old, was born at full term,
& if you would like to be part of this study
please phone me for more information.

Sister Penny Barnard

Cell: 0822977766

Refreshments are provided
and travel expenses reimbursed.

Appendix E

Interview Schedule

Section 1- Information on Mother-child interaction

I am interested in hearing about how you and your baby communicate. Could you tell me about how you and your baby have communicated since his/her birth?

Probing questions:

Can you tell me about your experiences straight after birth? When did you first start interacting?

Can you tell me more about eye contact, smiling, crying, baby making sounds (vocalizing)?

I am interested in how you understand your baby and how you think your baby understands you?

I am interested in if you think your baby knows what you are feeling?

Section 2- The importance and developmental benefits of mother-child interaction

Tell me from your experience of mother-child interaction, how you think communicating with your baby benefits your baby?

Section 3- Questions regarding facilitation of mother-child interaction

Think back to your visits to the clinic. Can you remember anything that the nurse did that enhanced interaction between you and your baby?

Can you tell me about anything else that made you and your baby feel more connected?

Can you think of any other factors that may have helped or hindered your interaction with your baby?

Appendix F

Verbatim Transcription of Interview 4

This is included as an example of an interview. The transcription includes some incorrect English grammar and some colloquialisms as these were the actual words spoken by the participant. The interviewer's words are printed in blue, and the participant's words in black.

INTERVIEW NO 4

Thanks for agreeing to talk to me. I am just interested in mums and babies...how you connect with your baby and how you communicate, get messages across to each other and things like that. Perhaps you could start off by telling me a little bit about...your birth. I am interested in what it was likeand how you felt straight after the birth.

Ok...um...with the birth...it was supposed to be a natural birth. I was planning on that...but things didn't work out like that...

Yes.

And then um...they had to do a caesarian.

Ok.

When they took him out everything went quick...I wasn't expecting that... and I just could not get used to him being there. But the amazing part was...when they put him on my chest... and he was looking at my face and just staring...it was like he knew that this was his mom.

Ja, ja...

They then put him on this one (*she points to her right breast*) my right breast, and he was sucking and sucking and sucking away. It was like he didn't have a care in the world. He was... he was grabbing me. (*She demonstrates how the baby reaches towards her face*). And the way he is grabbing me still...

Yes

Look, he is grabbing me. (*Baby noises in the background*) And then they pushed me into the recovery ward, and then they pushed me into the ward. And then 2 days before I came home, the ward was entirely full, there were 3 others in the ward and everyday one of them went home. So by Sunday...it started hitting me....motherhood. Because I started picking up...when his father came to visit me, it's like he just stared at him in the crib. It's like he is too scared to pick him up. And if he does pick him up he will say "He's thirsty" and something.... and then just pass him on to me. So then the day I had to come home ...the evening before that ...I just burst out crying. I

don't know if that was post-natal depression. A lot of things went through my mind. Constantly, I was asking the nurse things... because they were bathing him. I had no time really with him. Just breastfeeding and then they took him away to the nursery. At that stage it was like I wasn't connecting with him.

(Pause)

So did he room in with you though?

No, he was with me but I preferred that they take him to the nursery...like...um... I couldn't connect with him yet. And then the day I had to go...to come home I felt this...it wasn't an anxiety attack, but it was just all these emotions...I wanted to cry, laugh, all those stuff.

(Pause)

Yes...

But I had to come home. And it only kicked in when I got home... the in-laws... they were here...but it's like there is somebody is in the room. *(Short pause)*. There is a little one in the room ...the tummy is gone...and I just had to adapt...immediately. But then I had a chat with my husband, and I said "Listen here, I don't know everything", although I read books and tried to do some research, and the gynae tried to help...."But it's a learning process for both of us. There is no right or wrong, and I am not going to criticize you if you do something wrong".

(Short pause)

Mmm...

But... I think that where the bonding part started was the breastfeeding.

Ok...

At the beginning it was a bit tough because I wasn't used to the breasts being so full and sore and it's tender. And he wants to just suck, suck, and suck all day. But I think that is where the bonding part started ...and even with the first bath I had, I gave him, I think that is also where the bonding started. Cos you had visitors, and people coming in and out, because... his first day I can tell you, the afternoon, there were too many people, coming in and out and he could not handle it. I mean he is not used to people that touch him and the voices and all that. Although in the nursery there was screaming of babies, and he just slept through everything, but his first day at home, late in the afternoon he was screaming, and he wouldn't take my breast, nothing. So I had to calm him down, and I eventually got that right.

Yes...

And I had read in a magazine about over-stimulating...so I had an idea of what he was going through...

(Short pause)

But it was tough in the first few days...with people coming in and out I had to calm him down, and I eventually got that right and I didn't want them to keep touching him, picking him up, doing this (*she demonstrates pinching the area around the mouth*)...

So, are you saying you felt quite protective of him at that stage?

Ja... That's the thing...I was just trying to think of him because he can't talk, and I had to think for him, to speak up for him. I was aware of him.

Just getting back to what you said about "he can't talk"...we know that he can't speak in words, but since coming home from hospital...I'm sure he allows you to know what he needs...

I had to learn...

Tell me about that...

I had to learn all that ...I was the first one to figure things out...to just know what he meant, to get to know the different cries, the nagging. Like the one will be "EHz", and "Ohm" (*she demonstrates infant vocalization*). And then even if he wants to burp, he is struggling with a wind, he gives me a certain sound...even now also. If you speak too loud, he will pull his lip...

(*She demonstrates a facial expression*).

And then the lip will go like that. But if it is a wind the lip will go from the top...

(*She demonstrates another facial expression*)

Baby is now becoming quite loud and a bit unsettled. Mother is standing and changing her position. Baby watches mother's face as she talks to me.

If he needs to feed or if you need a break we can stop for a while...

No, He just wants to stand up now. He likes to be on top and looking at me like this...and I must look at him too.

Ok... so are you saying that you have got to know the different things he is saying?

Yes, yes

And do you think he has started to understand what you are saying; do you think he perhaps picks up on your feelings?

Oh, yes, people laugh at me when I tell them, that when I speak to him he understands...

Ja...

Cos lately when I say, "Boy, it's time to go sleep now" and then he will turn his face and like do this... (*She demonstrates feeling his face*)

Rub his eye?

Ja... it's like he is telling me,"Ok, I am going to sleep just to please you". Like I know when he is tired...now he is getting tired...

Are you sure you don't want to have a break, and I can make you some tea?

No...he will let us know...

Can you tell me a bit about when he first started smiling?

Yes, he was just over a month, he was in his car seat...and I was playing a CD and, and I was chatting to him and then he just...and then I got a camera to capture that. And after a few more minutes he gave me another nice smile...

Fantastic...and then did he smile just at you? Or were there certain people that he smiled at?

Um ...it was like he was trying to get used to smiling at me first and before that he would look at me and follow me wherever I am. But, that day when he smiled...He was really listening to me talking and he smiled. After that When I touched his hands or did something that he liked and he could see my face then he smiled. Then he next smiled for his grandfather. The strange thing is that his grandfather never picked him up. It was like he was scared that he would hurt him. And then... after at me...his grandfather came in and he just smiled.

Can I just pick up on what you said that at birth that it was as if he knew you were his mother?

Ja, ja...

And then when you got back home you said you went through a... bit of a difficult stage... adjusting, is that right?

Ja..

And... (Pause) now? Would you say he knows that you are his mom?

Yes, definitely...it took a while .Now I am going back to work, I have been taking him over to my in-laws...this past week, an hour, two hours ,and then I will go over. He was constantly looking for where I am while I was away. Even when his dad is keeping him, he looks for me. And the first day...ah, shame, he was screaming his head off...then I got back, I took him over and then he was fine. He was screaming and I knew what he wanted and that was me. Also with his injections, the very first injection that he had...you know my mother in law always said that is for mommy to be with child.

Mmm...

And I had to experience that for myself. The very first injection... shame, I had to keep him down. But I was just looking at him and talking to him. He was crying, but he was fine after I picked him up and he was grabbing for me like this (*she demonstrates baby reaching for her face*). This is just because there is a special bond between us ...so he finds comfort in me.

Mmm... yes...

The last injection, the third visit was the worst... (*Pauses*)

Why do you think it was the worst?

It wasn't a nice visit...

Ok...

Sometimes they don't chat with you...um...They don't chat with him either...They don't ask how he was for the last month, or how he has been ...

Ja, did they ask how you were and whether you were being supported?

No nothing... Nothing (*pauses*) very cold.

Ja...

And that was the third nurse I have experienced. Um... The last one ...ja, they weighed him and then when I took him off the scale he was already fussing. And she said "dress him because after the injection it is easier to pick him up and go". He was screaming, and he was grabbing at my clothes just for me to pick him up. And...he was screaming and...she just carried on with the injection...while he was crying...

So you felt she wasn't really understanding of what was happening between you and within him?

No, no...I was trying to calm him down...and I thought she was going to wait, wait until he was calmed down and she was going and he was still crying. After that, I picked him up and he was like (*and she demonstrates deep sobs*).

Ah, shame, he was sobbing?

Ja... he was sobbing... (*Pause*)

And did she ask at any stage any questions about the two of you, his first smiles, if you understand his needs...

The last visit there were a lot of people, so she was rushing through...not very friendly. I had to ask questions about solids, when should he start, when I can expect him to sleep more at night, what I can do...um...The very first nurse said I was asking too much questions.

So you felt she didn't want you to ask?

No...but she did not ask either...she didn't know what was going on in our lives...

Can we think back to what you sad about his smiling and chatting etc...um do you think he picks up on your feelings? Do you think he would pick up if you were a bit frustrated...or cross?

Definitely... (*Pause*)

Do you think he would pick up if you were feeling a bit low and a bit down?

Ja...ja... definitely!

What do you think he would do...if you had no smile for him?

(*Mother laughs*) You know I try sometimes to just look at him like that (*she demonstrates a stern face*) and then he will just do that (*she shows him reaching*) and smile and start chatting (*she laughs again*). No matter how I try...He will always try to make me smile. There are days when I am irritated and exhausted. But I can't be exhausted with him; he knows what I am feeling and will just try to make me smile.

So, you are saying that he would try to make you smile if you were down?

Yes, yes...There are days when he wants to be on the arm, and I am just not in the mood, I also need to sleep... and then I get a bit irritated. And then when I put him down he starts nagging. Now this is just the nagging, it's not the crying, like I want something. I do get a bit frustrated.

Are you still ok to continue? We are nearly finished chatting.

(*Mother repositions herself and baby. She responds to his needs and has good eye contact with him*)

How important do you think it is for the mother and baby to connect in the way that you have been describing?

Um...yes it is very important...

I am interested in if you think this connection has helped his development? By the chatting and whatever goes between the two of you?

Yes, definitely...I...like with the bath... Now his dad has taken over the bath, and I feel sorry for him (The dad) 'cos he has really got wild...he loves the bath and gets so excited. But when I bath him, I will take my time...I sing to him and chat to him. He looks at me, and talks back and he loves it and moves his legs. But that time talking...there will always be a stronger bond between mother and child than between father and child....I just **know** him... (*pause*) besides the fact that we have more time with the baby there is a natural communication. The bonding started with the breast feeding...

(*Pause*)

A natural bond... (*Short pause*) no matter how I treat him ...or if I get cross and speak loud. If I tell him..."Stop it" he will start crying, pull his lip (*demonstrates facial expression*). No matter what I do he will still look for where I am. The chatting makes a very strong bond.

Ok, Thanks for that...

Would you like to comment on anything that happened at the clinic... things that could have helped you know your baby better...or helpful to another first time mom get to know how to connect with to her baby?

(Baby starts being very vocal and mother talks to him) “You don’t like to be ignored do you? We can talk to you as well, you know”.

Well, I had a lot of help from the hospital nurses. They gave advice and a lot of information. But I expected the clinic...to have better service. ‘Cos they know you’re a first time mom. It’s cold...there is no interaction, they don’t speak to you...they don’t speak to him...they just do this *(she clicks her fingers over his head)*.

Did you feel they knew how you were feeling?

I doubt it...they were ignoring him and that is also ignoring me. I felt ...ok it is the first time...but it’s no friendliness, I had to ask the questions. The second one was ok. She spoke to him. For me it is so important to communicate with him also. He is the patient, I am not getting the injection but it shouldn’t be only left to the mom to calm the child down. They could try sympathy. But the third one was really horrible.... And he was really crying.

When I pick him up he stops...I really know what he wants and when He wants it. His dad will say to him...what is it you want boy? But...his mom knows exactly how he feels.

Ok. Well thank you so much for chatting to me. It was very helpful to get a mother’s view of all this.

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Appendix G- Example of Analysis process

VERBATIM TRANSCRIPTION	MEANING UNIT (CONDENSED TEXT)	CODE	CATEGORY
<p>EXTRACT 1</p> <p>I am interested in if you think this connection has helped his development? By the chatting and whatever happens between the two of you, how it may have helped his development?</p> <p>Yes, definitely it does...like with the bath... Now his dad has taken over the bath, and I feel sorry for him (The dad) 'cos he (the baby) has really got wild...He loves the bath and gets so excited. But when I bath him, I will take my time...I sing to him and chat to him. He looks at me, and talks back and he loves it and moves his legs. But that time talking...there will always be a stronger bond between mother and child than between father and child.... (Pauses)...I just know him... besides the fact that we have more time with the baby there is a natural communication. The bonding started with the breastfeeding... A natural bond...no matter how I treat him ...or if I get cross and speak loud. If I tell him..."Stop it!" he will start crying, pull his lip (<i>demonstrates facial expression</i>). No matter what I do, he will still look for where I am. The chatting makes a very strong bond.</p>	<p>Definitely helped his development</p> <p>I sing to him and chat to him. He looks back and he loves it...</p> <p>always be a stronger bond between mother and child</p> <p>...I just know him</p> <p>There is a natural communication. The bonding started with the breastfeeding... A natural bond...no matter how I treat him...</p> <p>The chatting makes a very strong bond.</p>	<p>I know how he feels</p> <p>Strongly bonded</p> <p>Knowing my baby</p> <p>Breastfeeding-physical connection</p> <p>I know him</p>	<p>Emotionally connected</p> <p>Emotionally connected</p> <p>Knowing</p> <p>Physically connected ▶ Emotionally connected</p> <p>Knowing</p>
<p>EXTRACT 2</p> <p>What do you think he would do...if you did not smile at him? Can you tell me how you understand each other's feelings?</p> <p>(Mother laughs) You know, I try sometimes to just look at him like that.</p> <p>(She demonstrates a stern face) ...and then he will just do that (<i>she shows him reaching</i>) and smiles and starts chatting (<i>she laughs again</i>).</p> <p>No matter how I try...He will always try to make me smile. There are days when I am exhausted. But I can't be exhausted with him; he will just try to make me smile. He smiles and then it makes me happy</p>	<p>He will always try to make me smile. There are days when I am exhausted. But I can't be exhausted with him</p> <p>He will just try to make me smile.</p> <p>He smiles and then it makes me happy.</p>	<p>He knows what I'm feeling. Baby picks up my mood.</p> <p>Reciprocity.</p> <p>He is happy then I am happy</p>	<p>Empathy</p> <p>Reflected feelings</p> <p>Reciprocal relationship.</p> <p>Reflected feelings.</p>

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Appendix H

Explanation and Description of Categories

	Category	Definition
1	Expectations around the birth	The mother's expectations of the labour and birth.
2	Expectations around the first interaction.	The mother's expectations of first seeing her baby and first interaction with her baby.
3	Knowing	An assured belief and moment of enlightenment and belonging between mother and baby.
4	Emotional connections	Being part of or inextricably connected to each other. This is a mutual feeling of belonging.
5	Unwelcome feelings	Emotions that were not anticipated by mother and evoked a sense of unease or guilt in the mother.
6	New experiences and feelings	The adjustment to her new role as a mother and her new relationship with her baby.
7	Physical connections	Breastfeeding, touch, skin to skin contact and physical closeness between mother and baby.
8	Reciprocity	Complementary, alternating interchanges between mother and baby which have a sense of mutual benefit.
9	Reflected feelings	Mother and baby echo each other's emotions. This is seen at time when the mother empathizes with what the baby is experiencing and also imagines that her baby can understand her feelings.
10	Facilitation of interaction by partner, extended family and others in the community	Any factors which ease the fluency of the mother-child interaction by partner, family and community.
11	Facilitation by health professionals	Any factors which ease the fluency of the mother-child interaction by health professionals.

Appendix I

Analysis Audit Trail

Code	Category	Title of Theme	Brief Description	
NOT ACCORDING TO PLAN THINGS DIDN'T WORK OUT UNEXPECTED CAESAR	EXPECTATIONS AROUND THE BIRTH	"...what I expected"	Mothers' expectations around the birth and first interaction with her baby.	
NO TIME WITH MY BABY THEY TOOK HIM AWAY WHEN I FIRST SAW HIM / WHAT I THOUGHT WAS...				EXPECTATIONS AROUND THE FIRST INTERACTION
DAUNTED BY RESPONSIBILITY FEELING DISCONNECTED FEELINGS OF SEPARATION ANXIETY SCARED, TERRIFIED	UNWELCOME FEELINGS	"Isn't one supposed to feel...?"		
IT STARTED HITTING ME...MOTHERHOOD IT'S A LEARNING PROCESS I DID NOT KNOW IF IT WAS RIGHT OR WRONG	NEW EXPERIENCES AND FEELINGS			
LOOKING AT MY FACE AND JUST STARING HE KNEW THAT I WAS HIS MOM I JUST KNOW WHAT HE MEANS HOLDING ME	KNOWING	"Connecting with my baby"		Mothers' descriptions of physical connectedness and emotional connectedness
..THE BONDING STARTED WITH THE BREASTFEEDING HE WAS LYING ON MY CHEST	PHYSICALLY CONNECTED			

GETTING TO KNOW HIM	EMOTIONALLY CONNECTED	"Connecting with my baby"	Mothers' descriptions of physical connectedness and emotional connectedness
WHAT HE WANTED IS ME			
I KNOW EXACTLY HOW HE FEELS			
FINDS COMFORT IN ME			
HE WAS FUSSING-I WAS ANXIOUS	EMPATHY REFLECTED FEELINGS RECIPROCITY	"We reflect each other's feelings"	Mother's descriptions of empathy and how feelings are echoed between mother and baby
I WAS SCARED- HE WAS SCARED			
WHEN YOU IGNORE HIM IT'S LIKE IGNORING ME			
BABY PICKS UP MY MOOD			
BECAUSE HE CAN'T TALK, AND I HAD TO THINK FOR HIM, TO SPEAK UP FOR HIM.			
THEN I HAD A CHAT WITH MY HUSBAND	FACILITATION PARTNER, FAMILY AND COMMUNITY	"That helped/ hindered our interaction"	Factors which facilitate interaction around the mother-child relationship
TOO MANY VISITORS			
TAKING HIM OVER TO MY IN LAWS			
NOT TALKING TO HIM IS NOT TALKING TO ME- HE IS THE PATIENT	FACILITATION HEALTH PROFESSIONALS		
ACKNOWLEDGING HIM			
KNOWING WHAT IS GOING ON IN OUR LIVES			
TIME SPENT			

Description of the Process:

Step1: From meaning units in the text, codes were identified.

Step 2: Codes with commonality were arranged into categories.

Step3: Categories from the 8 interviews were explored and 5 themes emerged.

Step 4: The themes were given a description and the codes were rechecked to see that they fitted the theme description.

Appendix J

Approval from Research Ethics Committee, University of Cape Town

See Following page.

University of Cape Town



UNIVERSITY OF CAPE TOWN

Health Sciences Faculty
Research Ethics Committee
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09 December 2008

REC REF: 446/2008

Mrs P Barnard
School of Health & Rehab

Dear Mrs Barnard

PROJECT TITLE: BEYOND THE FEEDING RELATIONSHIP: MOTHER'S DESCRIPTIONS OF INTERACTION WITHIN THE MOTHER-CHILD DYAD.

Thank you for submitting your study to the Research Ethics Committee for review.

It is a pleasure to inform you that the Ethics Committee has formally approved the above mentioned study.

Approval is granted for one year until 12 December 2009.

Please will the researcher submit an annual progress report if the research extends beyond the approval period, or a final report which summarises the study's findings if completed before the expiry date.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the REC. REF in all your correspondence.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, HSF HUMAN ETHICS

This serves to confirm that the University of Cape Town Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

The Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

Federal Wide Assurance Number: FWA00001637.

Institutional Review Board (IRB) number: IRB000001938

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