

**TITLE: DEPRESSION AMONG MOTHERS WITH
PREMATURE INFANTS AND THEIR STRESS-COPING
STRATEGIES**

by

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Declaration

"I declare that the dissertation hereby submitted to the University of the North for the degree of Masters of Arts in Clinical Psychology has not previously been submitted by me for a degree at this or any other university; that it is my own work in design and in execution, and that all material contained therein has been duly acknowledged."



Johannes Jacobus Roos

May 2003

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Abstract

This study examined depressive symptoms and ways of coping among those mothers with premature infants. The study was conducted at the Pretoria Academic Hospital (South Africa). Fifty mothers with premature infants and fifty mothers with full-term infants were tested for depressive symptoms and ways of coping, these by means of the Edinburgh Post-natal Depression Scale and the Ways of Coping Questionnaire. Additionally, a questionnaire with demographic information containing questions regarding maternal age, marital status, residence, previous children, type of birth, socio-economic status and education was also completed with the mothers.

No significant difference was found in the level of depression between the two groups. The overall level of depression found with both combined groups, was 2-3 times higher than those suggested in literature. This finding was in line with that of a previous study done in Khyalitsha (South Africa). A positive correlation was found between the "Seeking Social Support" coping strategy and higher levels of depression among mothers of premature infants. A positive correlation was also found among mothers of full-term infants who used the "Accepting Responsibility" coping strategy and higher levels of depression.

In conclusion, it is important to report, that the high number of mothers in this study who were identified as suffering from a depressive illness of varying severity, raises concern. A clear need for professional help among this population is emphasized. Future research in this area is needed in order to better understand and subsequently effectively address this problem.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Chapter 1 is an introduction to the dissertation. Discussions in this chapter also focused on, among others, the research problem, aim of the study, objective of the study and scope of the study.

Historically, the connection between childbirth and psychiatric illness has been well-recognized. In 460 BC, Hippocrates described "puerperal fever" theorizing, that suppressed lochial discharge was transported to the brain, where it produced "agitation, delirium and attacks of mania" (Thurtle, 1995). The 11th century writings of the gynecologist Trotula of Salerno speculated that: " if the womb is too moist, the brain is filled with water, and the moisture running over to the eyes, compels them to involuntarily shed tears." Attempts to describe and classify post-partum mental illness, became more systematic in the mid-19th century, when Esquirol wrote of the " mental alienation of those recently confined and of nursing women." Additionally, accounts of puerperal psychosis and depression are specifically delineated by Marce in his 18th century Treatise on Insanity in Pregnant and Lactating Women (Steiner, 1990).

Nonetheless, while more common than gestational diabetes, pre-eclampsia, and pre-term delivery, post-partum depression has received much less attention in contemporary medical literature, training, and clinical practice. Although both the academic and lay press have recently increased the focus on post-partum depression, this condition remains a frequently overlooked illness despite its potentially devastating consequences. Debate continues about its cause, definition, diagnostic criteria, and even its existence as a distinct entity (Apgar & Johnson, 2002). The birth of a baby several weeks pre-term can be a traumatic event for the whole family, and may necessitate a great deal of medical intervention so as to ensure both the health of the mother and the survival of the infant (Affleck & Tennen, 1993).

Advances in perinatal and neonatal care are associated with improved survival rates for those premature infants born before 37 completed weeks' gestation (Picard, Del Dotto & Breslau, 2000). Premature birth, however, remains a risk factor for poor developmental outcome (Botting, Powls & Cooke, 1997). It is now recognized, that the risk is not only biological-medical in origin, but also social-environmental (Miceli, Goeke-Morey, Whitman, Kolberg, Miller-Loncar & White, 2000). The recognition of socio-environmental influences on the outcome of premature infants, has led clinicians and researchers to implement and evaluate more sensitive caring practices during the newborn period, early intervention strategies, post-discharge for the infant, and supportive parent programs to complement infant-focused interventions (Ramey, Campbell & Ramey, 1999).

Many variables may influence maternal adjustment following a premature birth. Folkman and Lazarus (1988) argued, that the way in which people cope with the demands of stressful events, affect their emotional response to the event. In this model, coping is seen as a mediator of emotion. The importance of coping as a contextual process, has been acknowledged in several studies concerned with parental adjustment following the premature delivery of a child (Thompson, Oehler, Catlett & Johndrow, 1993). Affleck, Tennen, Rowe, Roscher and Walker (1989), found, that coping strategies discriminated those mothers who benefited most from intervention. Cobiella, Mabe and Forehand (1990) suggested, that some pre-term mothers alter the way they appraise the premature delivery and/or infant stay in intensive care situations, so as to maintain a sense of psychological equilibrium and control. Thompson et al., (1993) found, that the use of emotional-focused coping methods relative to adaptive coping methods (that is, efforts to regulate stressful emotions versus efforts to alter source of the stress), contributed significantly to distress.

To date, little progress has been made in identifying mothers of premature infants who may be at particular risk for psychological difficulties. Previous studies have found little relationship between maternal age, education level or family socio-economic status,

while mothers reported emotional distress following premature birth. Comparisons of mood states of mothers of pre-term versus full-term infants suggest that worry about an infant's health may contribute negative emotionality, but studies of premature infants have reported mixed results on the importance of medical complications to mothers psychological adjustment (Thompson et al., 1993). Knowing how mothers cope in a "high-stress" situation may provide a guide towards how we as health professionals can better assess families while the infants are still in hospital (Davis, 1999).

The area of the study is post-natal depression and the coping strategies mothers of premature infants use to cope with this stressful life event. A need for this study was identified by the pediatrician at the maternity ward of Pretoria Academic Hospital, where the researcher is busy with an psychology internship.

1.2 Problem statement

While more sensitive caring practices during the newborn period have improved the neurodevelopmental outcomes of premature children (Als & Gilkerson, 1997), less attention has been given to maternal adjustment. For mothers coping with the premature birth of their infant, the hospitalization and subsequent home care of a medically fragile infant, are emotionally distressing experiences (Affleck, Tennen, Rowe & Higgins, 1990). Consequently, it is argued, that mothers of premature infants are also at risk of poorer adjustment outcomes. Indeed, an increased risk of depression post-partum has been identified in research that has examined the relationship between premature birth and maternal health (O'Brein, Asay & McCluskey-Fawcett, 1999).

Pre-term delivery has been found to be a risk factor for the onset of maternal depression. 10 to 15 percent of all women develop some form of post-natal depression lasting more than two weeks (Kumar & Robson, 1984). More than half of these women

develop severe depression where treatment is considered necessary (Association for Post-Natal Illness 2002).

Coping with the premature birth of an infant can be a difficult and distressing experience for parents (O'Brien et al., 1999). In particular, the emotional adjustment of the mother may be compromised and in this way, result in negative consequences for the infant (Tracey, 2000). Alternatively, personal qualities such as coping style and knowledge of infant development, may buffer parents against adverse adjustment outcomes. This study is concerned with how maternal post-partum adjustment (in this instance depressive symptoms) may be influenced by potentially positive individual characteristics that mothers bring to parenthood, like coping style.

The literature suggests, that mothers of premature infants experience greater levels of depression than mothers with full-term infants. It is difficult for a person to accept that they may be suffering from Post-Natal Depression, but it is necessary to accept it in order for it to be treated. The question this research would like to answer, is: What is the significance of this problem? Is there really a need for professional help, and if so, how great is this need? From the perspective of a clinical psychologist working in the hospital environment, it will be of importance to know how significant the need of these premature mothers is, compared to that of full-term birth mothers. Early intervention strategies for babies have been widely researched and implemented, but the need of the mother has often been neglected. Premature babies are at greater than usual risk for child abuse (Kaplan & Sadock, 1998) and the early identification of high levels of depression of the possible "problem mothers", may also contribute to solving this problem. How women deal with stress during pregnancy and after giving birth, is strongly associated with fetal and infant development, according to data presented at APA's 1999 Annual Convention, Aug. 19-24 in Boston (Azar, 1999).

The specific coping strategies mothers use, may play an important role in the way they cope and consequently, on their levels of depression. Determining a mother's coping strategy, will also be very useful in the treatment of such patients.

1.3 Aim

The aim of this study is to investigate mothers' responses to the premature birth of an infant, specifically their psychological functioning and coping responses. This study aims to assist in filling the current void in research on mothers' emotional response to, and coping with their premature babies.

1.4 Objectives

The objectives of this study are as follows.

- Determine levels of depression of mothers with premature infants as compared to those mothers with full-term infants.
- Determine coping strategies of mothers with premature infants as compared to those mothers with full-term infants.
- Determine if there are any correlation between coping strategy and level of depression.

1.5 Concluding remarks

This chapter has introduced the topics of discussion in this dissertation. Discussions in this chapter also focus on, among others, the research problem, aim of the study, objective of the study and scope of the study.

CHAPTER 2: THEORETICAL CONCEPTS

2.1 Introduction

This chapter will focus on the theoretical concepts of the dissertation, which include the definitions and theoretical concepts used in this study.

At first the focus will be on defining a few vital concepts that play an important part in this study. Subsequently theoretical concepts of post-natal depression and coping, are discussed in greater detail.

2.2 Definitions

Premature Infant. An infant is considered premature, if he or she is born before 37 weeks of gestation and weighs under 2,500 g (Feldman, Miller, Gordon & Hendricks-Munoz, 2000).

Very low birth weight infant. A very low birth weight infant, is defined as a child born weighing under 1,500 g (Feldman et al., 2000).

Coping with stress. Coping refers to one's cognitive and behavioural efforts to manage stress (Lazarus & Folkman, 1984).

Coping Strategies. Coping strategies serve to manage and alter stress or regulate one's emotional response to stress (Feldman et al., 2000).

Depression. Could refer to a symptom (subjective feelings of sadness), a mood (sustained and pervasive feeling of despair), or to a clinical syndrome (in which the presence of a depressed mood is accompanied by severe additional symptoms, such as fatigue, loss of energy, sleeping difficulties, and appetite changes). (Oltmanns & Emery, 1998).

2.3 Post-natal Depression

The etiology of post-natal depression remains illusive, with general consensus upon complex interactions among biological, psychological, and social factors, although for any given individual, one factor may be more important. Post-partum depression seems to have biological roots within the rapidly shifting hormonal milieu; however, there is no clear evidence that gonadal hormones, cortisol, prolactin, or thyroid hormones are in any way directly linked (Misn, 2002). For the purpose of this study, the focus area of post-natal depression will be (mainly) on the psychological contributions.

2.3.1 Psychological Factors

The three main theoretical approaches to depression following childbirth, can be summarised by the follow three theories (Littlewood & McHugh, 1997).

2.3.1.1 Psychotherapeutic Approach

Psychotherapeutic approaches to maternal distress and depression, have a relatively long history and are concerned with the role the woman's early childhood experiences, particularly her experience of her own mother's mothering. Price (1988) and Raphael-Leff (1993) utilise insights derived from psychotherapeutic approaches to delineate the range of the more usual responses to pregnancy and childbirth. Price considers pregnancy and childbirth to be major psycho-social transitions during which women review their experiences of their own mother and mothering. Such a review often entails a consideration of potentially distressing material that the woman had previously "filtered out" of her consciousness. Obviously, the more difficult and painful such material is to deal with, the more difficult the individual woman's transition will be. However, Price is optimistic concerning the eventual outcomes of such a review for most mothers. She argues that the process, while potentially distressing, eventually

involves the development of a deeper understanding of the actual nature of motherhood as a “lived in” experience rather than an ideal, or not so ideal, “type” (Price, 1988).

However, this is not to say that the nature of some material reviewed during pregnancy and childbirth, may not be profoundly distressing and/or injurious to the woman’s subsequent mental health. For example, Rhodes and Hutchinson (1994) describe the labour experiences of survivors of childhood sexual abuse. The women in their study reported both “forgetting” and “remembering” the relevant abusive incidents and described their labour sensations as reminiscent of sexual abuse. Rhodes and Hutchinson suggest, that styles of labour associated with past experiences of sexual abuse, involve the woman fighting, taking control, surrendering and retreating. The style of laboring to considered by Rhodes and Hutchinson to be an extreme of woman’s reactions to labour in general and to be directly linked to the development of Post Traumatic Stress Disorder (PTSD).

Raphael-Leff (1993) also considers the review of previous experiences of mothering in her work. She argues, that women carry their experiences of “mother” within them and may actively respond to any imperfections they perceive in terms of their own interaction with their babies:

“Each mother differs in the degree to which she has come to terms with imperfections of early experience and the mother she carries within herself. More emotionally mature women, content to be “good enough” mothers, have found ways of resolving unrealistic idealisation or resentful derogation of their mothers, while others still maintain old resentment and skewed expectations about motherhood and are determined to be different to or better than their own mothers. Young mothers oscillating between insecurity and over-compensatory self-confidence may be categorised as being over-indulgent, over-solicitous, over-protective and/or perfectionistic” (Raphael-Leff, 1993, p121).

In a later study by Raphael-Leff, she expands upon a system of beliefs that underpin what she refers to as “parental orientation”. Table 1 summarises the parental orientation she identifies.

Table 1. Parental orientation and system of beliefs

Parental Orientation			
Belief system	Facilitator	Reciprocator	Regulator
Adjustment to new baby	Mother adapts	Negotiation	Baby adapts
Basis of adjustment	Baby knows best	Inter-subjectivity	Detachment
Beliefs about the baby	Sociable	Different levels of alertness	A-social; pre-social
Role of mothering	Processing	Interaction	Socialization
Goal of mothering	To secure mature independence	To secure lifelong interdependence	To secure independence
Unconscious attribution	Baby is ideal self	Baby is a person	Baby is repudiated self
Fears/ acceptance	Fear of hating	Acceptance of ambivalence	Fear of loving

Adapted from Raphael-Leff (1993)

Raphael-Leff’s work shares similarities with Klein’s (1942) observations concerning human development in general. Klein suggests that all babies develop from viewing mothers as “all good” or “all bad” towards maintaining what she called the “depressive position”, which involves the ability to tolerate the ambivalence inherent in all human relationships. Furthermore, reciprocator mothers share similarities with Winnicott’s (1965) conceptualisation of “good enough” mothers - mothers who, Winnicott believes, help the babies’ “true self” (rather than a “false self” designed to please others) to emerge.

Welldon (1988), in commentating upon an earlier version of Raphael-Leff's observations concerning "regulator" versus "facilitator" parental orientations, was concerned, given the nature of her psychotherapeutic practice, with extreme parental orientations. Specifically, she speculates as follows.

"It seems to me that in women with severe psychopathology, the facilitator mother who welcomes the infant's intense dependence on her and the exclusive intimacy of their symbiosis, is prone, when severely disturbed, to be the mother of transvestite, fetishistic or transsexual boys. On the other hand, the regulator mother could be more prone, again in extreme cases, to be the mother of battered babies" (Welldon, 1988, p. 32).

To rephrase Welldon's comments in terms of maternal distress, facilitator mothers are likely to be distressed by signs of their baby's independence and regulator mothers are likely to be distressed by evidence of their infant's continued dependence. However, Raphael-Leff's work is far more broadly based than an analysis of extreme cases and she identifies a range of potentially distressing losses that she associates with the experience of pregnancy and childbirth in general. She points out that, during pregnancy, many women begin to ascribe characteristics to their babies and actively to anticipate how they will mother this baby. This fantasy or imaginary baby is inevitably lost upon the arrival of the real baby and this in itself, may be a source of maternal distress, as the woman seeks to accommodate a real baby who may differ markedly from her fantasy child. Raphael-Leff (1993, p156) is quoted as follows.

"Precipitating factors of post-natal depression differ according to each woman's maternal orientation. Distress may result not only from external imposition but from an internal mismatch. A woman's self-esteem may be jeopardised as she feels herself torn between the orientation she has anticipated pre-natally, and the materialisation of her capacities as a mother".

Furthermore, the three parental orientations described by Raphael-Leff are not fixed personality traits, and an individual woman may have orientated herself differently to her subsequent children depending upon her intra-psychic state. In short, Raphael-Leff described a situation that is fluid and open to change. Given the situation she describes, there are many factors that may be taken to indicate an elevated risk of developing post-natal depression. The factors she identified, are as follows.

1. Conflicted pregnancy, which include the following.

- Unplanned pregnancies.
- Untimely pregnancies.
- “Wrong” mother, father or baby.
- Acute ambivalence associated with a pregnancy.
- Bipolar conflict associated with extreme “facilitator” and “regulator” orientations.
- Psychosomatic discharge.

2. Emotionally sensitising experiences of the mother, including the following.

- Post-infertility pregnancy.
- A family history of perinatal complications.
- Borderline personality disorder in the mother.
- Neurotic defenses in the mother.
- A previous psychiatric history.

3. Complications arising during the pregnancy, including among them, the following.

- Physical condition of the mother.
- Other stressful life events associated with the pregnancy.
- Socio-economic support.
- Lack of emotional support.

Price (1988) adopts a perspective upon parental orientations similar to that of Raphael-Leff and argues strongly, that nothing is more harmful to a mother and her

baby's emotional future than early feelings of failure in mothers who judge themselves and are being judged by others in terms of cultural fantasies rather than as ordinary "good enough" mothers. Price indicates that, for many mothers, anything short of perfection begins to feel like a terrible failure. According to Price, these mothers rapidly become caught up in a downward spiral of trying ever harder to achieve the unachievable, and then feel increasingly guilty over what they see as the worst and most unforgivable failure of their whole lives.

From Price's perspective, depression can result from anger being turned against the self rather than aimed at the person who has caused it. She notes, that the negative sides of motherhood rarely receive a cultural airing and, consequently, many women are left unprepared for experiences of anger and anxiety following the birth of their baby. Price is of the opinion, that anger is a disquieting emotion but that anxiety is one of the most powerfully emotionally wearying experiences of all.

Psychotherapeutic explanations of post-natal depression and maternal distress, are relatively common in relevant literature. As Giblet (1992) points out, they add much to our understanding of neuroses, but there is unfortunately little evidence to suggest that psychotherapy itself is an effective form of treatment during pregnancy or immediately after childbirth. Nevertheless, the adoption of this perspective would indicate, that pregnancy and childbirth are transitions that have a major impact upon the intra-psychic world of the mother. Furthermore, if the woman's intra-psychic world has been damaged in the past in any way, the transition to motherhood may not be a smooth one, irrespective of issues such as duration of labour or type of delivery.

2.3.1.2 Attachment theory and mother-infant bonding

Whilst psychotherapeutic perspectives are primarily concerned with intra-psychic conflicts that have their origins in childhood, the work of John Bowlby is rather more

concerned with the development of attachment between mothers and babies (Littlewood & Mc Hugh, 1997).

Attachment theory incorporates an evolutionary perspective, along with a psychodynamic perspective. The theory rests upon an appreciation of instinctive attachment and response mechanisms. It also rests upon the hypothesis, that a child's attachment to his or her mother is mediated by a number of instinctive response systems. Bowlby believed, that all relationships of physical and emotional significance are built around the same general pattern; that is, the one that was first developed between mother and baby. To put the theory very simply, a mother's absence provokes certain instinctive responses such as anxiety, protest and searching, whilst a mother's presence terminates these. Bowlby believes that this behavior is part of our evolutionary heritage as social animals for whom separation from the group could result in physical danger. Furthermore, humans attach themselves to one person (monotropic bonding) rather than to the group as a whole. In these circumstances, it is the loss of one particular person rather than of the group as a whole, which is the source of distress. Consequently, the presence in the immediate environment of the mother is believed to be of vital importance to the development of her child. Furthermore, at least as the theory was initially expounded, since human infants only bond with one person (that is, their mothers), a substitute adult simply will not do. From this perspective, any disruption of the early relationship between mother and child, particularly disruption involving separation, is seen to be a potential source of development difficulty for the child and to result in lifelong disruption of an individual's ability to make and break affective bonds (Littlewood et al., 1997).

Bowlby's work has also had a less than positive effect upon women. The notion of instinct and bonding has proven particularly problematic, when translated via lay literature to popular culture. Whilst ideas about maternal instinct certainly did not originate from Bowlby's work, his work did give some further credence to the notion that mothering comes "naturally" to women. Furthermore, the term "instinct" can be taken to

imply that a woman can mother without any recourse to cognition (always assuming that she has been appropriately mothered herself). Consequently, experience, learning and reflection are all devalued by a biological discourse that asserts the primacy of “instinctive” behavior. Furthermore, mothering is portrayed as an easy, a pre-programmed rather than an acquired skill. Pity the self-esteem of the woman who finds her “instincts” have let her down (Littlewood et al., 1997).

A similar overly deterministic view emerged concerning the starting point of attachment behavior, that is, the mother-infant bonding. Klaus and Kennell (1976) initially thought that “bonding” had a “critical period” (a time when it was particularly easy) of between 6 and 12 hours after birth. They further argued, that skin-to-skin contact between mother and baby was extremely important in terms of facilitating the process of mother-infant bonding. They found differences in infant behavior lasting 2 years, when they compared the development of infants who had “routine hospital access” to their mothers with the development of infants who had routine and extra access to their mothers. Whilst their work was effective in changing hospital access policies for women and their babies, the work also raised, via its emergence in “lay” literature, maternal anxieties over the long-term consequences for their infants of a “failure” to bond.

Robson and Kumar (1980) indicate, that such feelings are quite common, but that these usually last only for a few days. Alternatively, Niven (1992) argues that a cultural myth of bonding is already in place and that many women expect to experience “bonding” as part of the “normal” reaction following childbirth. Niven is of the opinion, that a woman’s contact with her baby should be determined by the mother’s needs and feelings rather than by notions regarding the necessity of “bonding” within a given period of time.

Alternatively, Brady-Fryer (1994) has noted, that multiparas of pre-term infants showed both an understanding of bonding and distinct variations in their beliefs about it.

“The term bonding and attachment have been used in the professional and lay literature since the 1960’s. Study mothers were familiar with the lay interpretation of the concept and compared their developing relationships with their pre-term infants to those established with their previous children” (Brady-Fryer, 1994, p. 72).

Some mothers in Brady-Fryer’s study feared bonding with the pre-term infant (in case the baby died); others felt, that they bonded easily with their infants and still others felt uncertain as to whether or not their babies had bonded with them. Their study would seem to indicate that a woman’s early relationship with her baby is a multifaceted one; one which is dependent upon a number of cues and is not dependent on skin-to-skin contact occurring at a particular time.

Sluckin, Herbert and Sluckin (1983) are particularly scathing about bonding periods.

“No mother should be forced through a ritual bonding period if she is not initially interested in her baby. It may seem far-fetched, but one can well imagine a situation in which mother and baby bonding becomes a timetable hospital procedure - the clinical reductio ad absurdum of a compelling but unproven theory” (Sluckin et al., 1983, p. 44).

Eyer (1992) goes further and cites “bonding” as an example of “scientific fictionalising”. Whilst Eyer does not imply, that bonding researchers fabricated their data, it is argued that these studies were limited by both inadequate research traditions and ideological assumptions about women.

“Perhaps the most profound influence of all on the construction and acceptance of bonding was a deeply embedded ideology regarding the proper rope of woman” (Eyer, 1992, p. 330).

Overall, the attachment theory has indicated the importance of the quality of relationships that babies have with their caregivers and has been successful in

changing hospital practices that previously restricted access between woman and their children. However, lay notion of “maternal instinct” and “bonding” may be counterproductive, in as much as an expectation of instinctive homogeneity may overlap patterns of individual variation. The importance of individual variation is one of the central tenets of cognitive approaches to psychology in general and maternal distress and depression in particular.

2.3.1.3 Cognitive orientation to depression and distress

Cognitive orientation to depression and distress all focus, to a greater or lesser extent, upon the importance of understanding the meaning and interpretation that different people put on the same events. An early example of such a theory, is Kelly's (1955) Development of Personal Construct Theory. Kelly was of the opinion, that a person's 'self' or personality may be seen in terms of a system of interrelated constructs that inform the individual's attempt to make sense of the external world.

“Through transparent patterns or templates which he creates and then attempts to fit over the realities of which the world is composed..... Let us give the name constructs to these patterns which are tried on for size. They are ways of construing the world” (Kelly, 1955, p. 13).

According to this theory, constructs are interrelated systems and the sum total of a person's construct system, is that person's self. The fundamental postulate of the theory is, that 'person's process are psychologically channeled by the ways in which they anticipate events'. From this perspective, people react to the past in order to reach out to the future while being actively engaged in a process of perpetual validation that involves checking to see just how much sense their 'self' has made out of the world in terms of how well they can anticipate future events. In short, Kelly's theory indicates the importance of people attempting to impose subjective meaning on the world.

Consequently, people develop their own view of the world (that is, a theory concerning what they think it is and how they think it works), their own expectations concerning what is likely to happen in certain situations (hypotheses based upon subjective probabilities), and constantly experiment through their behavior with life.

Kelly's theory has an associated technique (repertory grid technique) that may be used to delineate aspects of any person's internal world. For example, the repertory grid technique could be used to identify and monitor changes in a woman's internal representations of her mother, herself and her actual or fantasy baby. Obviously such a technique could be of assistance in anticipating any problems that may arise.

In the context of losses associated with the human immunodeficiency virus (HIV), George (1992) criticises the existing accounts of reactions to situations of loss, as being overly prescriptive timetables that provide no insight into the unfolding patterns of individual loss and no help in planning care. George's recommendation for more effective counseling, combines a systems approach with a personal construct theory. This type of approach offers some structured insight into meaning that a particular event has for a specific person.

However, whilst the personal construct theory focuses upon meaning at an individual level, Beck, Ward, Mendelson, Mock and Erbaugh (1961) have focused upon meanings associated with, in particular, depression. Consequently, Beck's approach to cognitive therapy deals specifically with cognitions associated with depression. From this perspective, faulty thoughts lead directly to biases in perception, which in turn leads into depression. Beck argues that negative thoughts based upon previous experience, exist in the form of schemata that are activated when similar events are experienced, thus influencing the interpretation of current events.

These cognitive 'errors' and 'automatic' negative thoughts lead to negative evaluations of the self, the world and others, eventually leading to depression. Cognitive 'errors' include the following.

- Arbitrary influences.
- Selective abstraction.
- Overgeneralisation.
- Magnification.
- Minimalisation.
- Personalisation.
- Dichotomous thinking.

Cognitive therapy aims to change these 'automatic' negative thoughts and so help to lift depression. The focus upon the ways in which different individuals interpret the same event is a valuable one, given the nature of post-natal depression and distress.

Rotter (1966) introduces the concept of 'locus of control' into the relevant literature. The concept of locus of control represents another attempt at defining people and may interpret the same event in different ways. This concept indicates, that an individual's locus of control is an enduring personality quality that transcends the immediate situation and includes the expectation, that a person with certain personality characteristics will act in a certain way.

Locus of control comprises a person's perception regarding development over many experiences, and what causes things to happen in their lives. The locus of control may be external, when the person tends to blame others or the environment when things go wrong, or it may be internal, when a person blames himself/herself or assumes responsibility for events that may befall him/her. Dimitrovsky, Perez-Hirshberg and Itskowitz (1987) define locus of control as follow.

- Internal locus of control - a person perceives life events as resulting from his own behavior.
- External locus of control - events relate to factors beyond personal control, for example chance or the influence of others.

Dimitrovsky et al., found, that women with an external locus of control tended to be more emotionally changeable than are women with an internal locus of control. They suggest, that the vulnerability they found in this group of women, pre- and post-partum, may lie less in a predisposition to depression than in a tendency to be affected in a more extreme way by the events to which they are exposed.

Seligman (1976) argues that human depression may be explained in terms of what he called 'learned helplessness'. Learned helplessness is the result of an original state of trauma-induced anxiety being replaced by depression if the person believes that she can neither control nor avoid the trauma. In such a situation, coping behavior becomes inhibited and the person or animal enters a phase of withdrawal and inaction. Abramson, Seligman and Teasdale (1978) modified Seligman's original laboratory based findings, which involved the administration of actual trauma, to include belief about the control of events. In 1980 Peterson and Seligman identified a particular type of attribution of control over events that they associated with depression in women. According to them, when women are depressed, bad events are attributed to causes that are believed to be internal, stable and global, whilst good events are attributed to causes, are external, unstable and specific. In an edited collection, Gross (1990) cites a particular type of attribution of control over events associated with depression in women.

Another area of research that indicates the importance of a sense of control, is life events research. In an early piece of work, Holmes and Rahe (1967) introduced the Social Readjustment Rating Scale. The basic assumption underlying the scale is, that stress is created by all events that require change, irrespective of whether the actual

event is deemed desirable or undesirable. The Social Readjustment Rating Scale allows the amount of life stress a person has experienced in a given amount of time (for example, 6-12 months) to be measured numerically. Some items from the rating scale are given underneath. Whilst all changes are considered stressful from this perspective, it has been suggested, that it is changes that are perceived to be uncontrollable which are associated with the development of depression. Brown (1989) also points out, that it is the perceived uncontrollability of change which makes it so stressful.

Gross (1990) reports upon an adaptation of Rotter's (1966) locus of control scale which included a life events scale. They found, that life events stress was more closely related to psychiatric symptoms (especially depression and anxiety), where people rated highly on an external locus of control when compared with those who rated highly on an internal locus of control. It would seem that, if our previous points are accepted, women might be expected to be particularly at risk of developing anxiety or depression in response to life events stress.

Table 2. Examples from the Social Readjustment Rating Scale

Rank	Life event	Mean Value
1	Death of Spouse	100
12	Pregnancy	40
13	Sex difficulties	39
14	Gain of a new family member	39
16	Change in financial state	38
26	Partner begins or stops work	26
28	Change in living conditions	25
29	Revision of personal habits	24
34	Change in recreation	19
36	Change in social activities	18
38	Change in sleeping habits	16

Data from Holmes and Rahe (1967).

However, whilst pregnancy and childbirth are clearly life-event stressors in themselves, they are rapidly followed by others. For example, the Social Readjustment Rating Scale given in table 2, gives pregnancy a mean value of 40. However, the pregnancy may have resulted in personal illness or injury (53), caused sex difficulties (39), resulted, more often than not, in the gain of a new family member (39) and caused a change in financial state (38). Immediately following these changes, a change to a different line of work may be experienced (36), a "wife" may restart or stop work (26), personal habits may have to be revised (24), a change in work hours or conditions may be experienced (20), and changes in recreation (19) and social activities (18) may be associated with an almost certain change in sleeping habits (16). It would be difficult to conclude, that pregnancy and childbirth do not represent a major life stress for women. Furthermore, the stress would appear to be present and require adjustments for a long period of time.

2.3.2 Sociological factors

- Additional burden of care is concerned with additional burdens of care associated with the social context within which pregnancy and childbirth occurred. It was suggested that pregnancy and childbirth are extremely stressful psychological transitions in themselves, and furthermore, it is suggested, that any additional stressor would greatly add to an individual woman's propensity toward experiencing depression (Whiffen, 1988).
- Motherhood and loss are concerned with the overwhelming feelings of loss that associated with the successful bearing of children. It is argued that, whilst the woman is left feeling different and irrevocably changed, exactly what it is she is supposed to change into is, in cultural terms, blurred and somewhat intangible. Given that childbirth in certain psychological terms is alleged to represent the 'core of feminine identity', it would appear to be the case that the 'core' of this particular

experience is frequently felt to be something more akin to a black hole into which one has fallen, rather than a self-affirmatory experience that one grew out of. It is suggested, that the cultural proscriptions and prescriptions regarding which women might be considered eligible to become mothers, did little more than add to the distress of what appears to be an inherently distressing situation for many women (Richardson, 1993).

- Motherhood of oppression is concerned with the relationship between oppression and depression. It is suggested that a certain degree of maternal distress may be associated with an understanding of the extent to which women are systematically oppressed under the patriarchy. The role of labeling theory is addressed here, and the extent to which post-natal depression might be considered in terms of an entirely explicable reaction to the oppression of the patriarchy (Ussher, 1991).

2.3.3 Biological model

Dalton (1985) has developed an organic model of post-natal depression in which the role of progesterone is of paramount importance. She is of the opinion, that some women are particularly sensitive to hormonal changes and, consequently, find the sudden alteration of hormonal levels difficult to accommodate after having given birth. It is these women who are at risk of developing post-natal depression. Dalton (1985) suggests, that the post-natal “blues” that are experienced by many women, may represent a milder, and in most instances transitory, reaction to the sudden changes in the level of progesterone (Dalton, 1985).

According to Hibbeln (2002), mothers selectively transfer docosahexaenoic acid (DHA) to their fetuses to support optimal neurological development during pregnancy. Without sufficient dietary intake, mothers become depleted of DHA and may increase their risk of suffering major depressive symptoms in the post-partum period (Hibbeln, 2002).

During pregnancy, the total serum cholesterol concentration rises up to 43%, followed by a rapid fall after delivery. Mild depressive symptoms are a common complication of the puerperium and affect 30-85% of women in the early post-partum period. Based on these observations, it has been suggested, that the sudden fall in cholesterol levels after delivery could serve as a 'natural model' to test the suggested association between cholesterol and mood (Troisi, Moles, Panepuccia, Russo, Palla & Scucchi, 2002).

2.4 Coping

Coping strategies refer to the specific efforts, both behavioral and psychological, that people employ to master, tolerate, reduce, or minimize stressful events. Two general coping strategies have been distinguished: problem-solving strategies are efforts to do something active to alleviate stressful circumstances, whereas emotion-focused coping strategies involve efforts to regulate the emotional consequences of stressful or potentially stressful events. Research indicates, that people use both types of strategies to combat most stressful events (Folkman & Lazarus, 1980). The predominance of one type of strategy over another is determined, in part, by personal style (e.g., some people cope more actively than others) and also by the type of stressful event; for example, people typically employ problem-focused coping to deal with potential controllable problems such as work-related problems and family-related problems, whereas stressors perceived as less controllable, such as certain kinds of physical health problems, prompt more emotion-focused coping.

An additional distinction that is often made in literature on coping, is between active and avoidant coping strategies. Active coping strategies are either behavioral or psychological responses designed to change the nature of the stressor itself or how one thinks about it, whereas avoidant coping strategies lead people into activities (such as alcohol use) or mental states (such as withdrawal) that keep them from directly

addressing stressful events. Generally speaking, active coping strategies, whether behavioral or emotional, are thought to be better ways to deal with stressful events, and avoidant coping strategies appear to be a psychological risk factor or marker for adverse responses to stressful life events (Holahan & Moos, 1987).

Broad distinctions, such as problem-solving versus emotion-focused, or active versus avoidant, have only limited utility for understanding coping, and so research on coping and its measurement have evolved to address a variety of more specific coping strategies.

Coping strategies also refer to the set of behaviours and attitudes that a person may use to mediate difficult internal and external demands. The way in which people cope with the day-to-day stress of living, varies widely across individuals and situations. According to both physiological and psychological stress theories, adverse health effects produced by the exposure to chronically stressful conditions, largely depend on the result of an individual's coping process. Coping strategies which tend to correlate in conceptually meaningful ways, can be grouped in clusters. This study will make use of the clusters identified by Lazarus and Folkman (1984), namely problem-focused coping and emotion-focused coping, which can be measured by the Ways of Coping Checklist (Lazarus & Folkman, 1984).

The way an individual copes with a stressful event, has been shown to be an important variable in his or her adjustment to that event. The cognitive-behavioural model of stress and coping, is the theoretical framework to be used for this study and posits that distress is a result of the interaction of the stressful event, the cognitive appraisal of the stressor, one's personal resources for coping, and coping strategies (Feldman et al., 2000).

According to the cognitive-behavioural model of stress and coping, successful coping requires a match between the stressful situation and an appropriate coping response

based on the appraisal of the stressful event. Thus, there are no good or bad coping strategies; rather, the effectiveness of the strategy is situation-dependent (Feldman et al., 2000).

One of the most important aspects of the care-giving environment, is the quality of the interaction between parent (mainly the mother) and infant. There is evidence, that the nature of the interaction between mothers and their premature infants differ from that between mothers and their full-term infants (Grieve, 1990).

2.5 Concluding remarks

It is clear, that post-natal depression is indeed a very complex concept. It can be conceptualized from the psychological, social and biological framework. Because the focus of this study falls upon the psychological contributions to post-natal depression, it is discussed in more detail. The various views on the subject of coping were also discussed to try and get a clearer understanding of this concept.

CHAPTER 3: LITERATURE REVIEW

3.1 Introduction

In the previous chapter the focus was on the theoretical concepts of post-natal depression and coping. This chapter will focus on reviewing current literature on these concepts.

Firstly, major depression in women will be discussed. Post-natal depression, premature infants and coping, are then discussed in more detail. Lastly, the hypotheses of this study will be formulated.

3.2 Major Depression in women: A review of the literature

Depression is an exceedingly common disorder, affecting 15% to 25% of the population in the United States of America, and representing a yearly economic burden of \$44 billion (Yonkers & Chantilis, 1995). Overall, depression is frequently undetected; indeed, fewer than 25% of patients suffering from mental illness are actually under the care of a mental health specialist (Steiner, 1990). Depression is twice as common in women as it is in men, with its peak incidence during the primary reproductive years (25 to 45). The link between reproductive status and depressive illness is further evidenced by the high frequency of depression during the premenstrual phase, the perimenopausal period, and the immediate post-partum period (Yonkers et al., 1995).

The most reliable predictors of Post Partum Depression are a prior history of MD (post-partum or non-puerperal) and an absence of social support. These two factors can double the risk of developing PPD (Cooper, Murray, Hooper & West, 1996). Prior PPD was associated with a 50% to 62% increased risk of subsequent post-partum

episodes, and prior non-puerperal MD was associated with a 30% risk of subsequent post-partum episodes (O'Hara & Swain, 1996).

Evidence to support a biologic basis for PPD is lacking. Changes in the reproductive hormonal milieu associated with pregnancy, particularly the post-partum decrease in estrogen concentration, may contribute to the onset of depressive symptoms. Studies of the potential role of other biologic factors -- including prolactin, oxytocin, cortisol, and β -endorphins, have failed to identify a single specific etiology. Therefore, the combination of a rapidly changing hormonal environment, biologic vulnerability, and psycho-social factors, may contribute to the development of this affective illness (Altshuler, Hendrick & Cohen, 1998).

The similarities between symptoms of MD, PPD, and the normal sequelae of childbirth (such as sleep and appetite disturbances, weight loss, loss of energy, diminished concentration, and indecisiveness) often complicate the diagnosis of PPD (Llewellyn, Stone & Nemeroff, 1997). The Edinburgh Post-natal Depressive Scale (EPDS), a simple brief, 10-item self-rating inventory, has been shown to be an effective tool in diagnosing PPD (Cooper et al., 1996). In a large community study, the EPDS had a specificity of 92.5% and a sensitivity of 88%, indicating its validity as a screening tool for PPD (Murray & Carothers, 1990).

Management of PPD includes both psychotherapy and pharmacotherapy. Psychotherapy, such as cognitive behavioral therapy and interpersonal psychotherapy, has been used successfully in PPD. Cognitive behavioral therapy has been shown to be as effective as fluoxetine, and interpersonal psychotherapy has been used mainly to treat acute episodes of PPD. Pharmacotherapy may include hormonal therapy (transdermal estrogen and progesterone therapy), nortriptyline, or one of the SSRIs, usually sertraline or fluoxetine. The antidepressants studied thusfar, have been found to be excreted in breast milk, but no deleterious effects have been reported (Llewellyn et al., 1997). Women with PPD should remain on the initial dosage of antidepressants

for about 2 weeks before their dosages are adjusted. Most patients show signs of clinical improvement within 2 to 4 weeks (Epperson, 1999). Prophylactic antidepressant treatment immediately after delivery can dramatically reduce relapse rates (Wisner & Wheeler, 1994).

By 2020 the World Health Organization has estimated that major depression, of which post-natal depression is a subgroup, will be the second highest cause of death and disability in the world. As such, depression will become an increasing drain on resources, and healthier systems will focus attempts on ensuring that fewer people suffer from chronic forms of the illness (Adcock, 2002).

3.3 Post-natal depression

The birth of a baby is a major life event, involving both individuals' psychological adjustment on part of the parents and changing family role and relationship. Despite the stresses of such changes, becoming a parent is part of the normal development process, and, as such, is experienced as a positive event in most families. When an infant is born prematurely, however, the normal process of adjustment to parenthood is interrupted, often with little warning, and new parents must cope with additional stresses involving their infant's medical condition and extended hospitalisation (O'Brien et al., 1999). The premature birth of an infant is a life crisis (McCluskey-Fawcett, O'Brien, Robinson & Asay, 1992).

Until recently, post-natal depression was not considered to be a psychiatric disorder that warranted a separate categorization under the World Health Organization's International Classification of Diseases (ICD). According to ICD 10, mental disorders that occur around the time of childbirth, can only be classified as puerperal if no other classification can be applied. ICD 10 specifies, that a puerperal-related diagnosis must be related only to an illness commencing within the first 6 weeks after birth, where

there is not sufficient evidence available to reach an alternative diagnosis or where there are pertinent clinical features that make an alternative diagnosis inappropriate (Littlewood et al., 1997).

The Diagnostic and Statistical Manual IV (DSM IV), unlike its predecessors, has now included a new specifier with post-natal onset, the intention being to reflect evidence that this prognosis and diagnosis have a certain degree of validity (Littlewood et al., 1997).

Up to 10-15 percent of new mothers in South Africa (an estimated minimum of 50 000 mothers per year) are clinically ill with depression or anxiety disorders (Post-Natal Depression South Africa, 2002). Post-partum depression can range from a sense of "let down" to clearcut clinical disorder. Symptoms of depression can be viewed as cues to difficulty in coping and adaptation. Mothers of premature infants may be particularly prone to anxiety and depression (Logsdon & Davis, 1997). The experience of the parents includes high levels of anxiety related to dealing with complex medical terminology and technology, as well as separation from the infant. These experiences, as well as anxiety about the long-term consequences of a premature birth, may cause parents' concern for a long time to come (Guldenpfennig, 2000).

Depression affects 5-22% of women after childbirth. Some women with post-natal depression will experience a prolonged or relapsing illness that may last until their children enter school. It has adverse effects upon the coping abilities of women, their relationships with their infants, partners and social networks and may adversely affect the education attainment and behavior of their children. Since many more women are now active in the workforce, the effects of post-natal depression have obvious economic consequences both for their families and their employers (Richards, 1990).

Post-natal depression in the developing world has received little attention, and its association with disturbances in the mother-infant relationship, is unknown. On national level the problem of post-natal depression has also been grossly neglected. No reliable

statistical data concerning the problem in the South African context are available. In a South African study, the rate of post-partum depression in Khayelitsha was around three times greater than that in a British post-partum samples (Cooper, Tomlinson, Swart Woolgar, Murray & Molteno, 1999).

As one of the major physical, psychological, and social stressors of a woman's life, childbirth is gaining growing recognition as a major risk factor in the development of mental illness. Early descriptive studies have been bolstered by a series of reports, that document the temporal relationship between psychiatric admissions and childbirth (Thurtle, 1995). Using data from more than 35,000 deliveries with sequential 90-day intervals over a 2-year period preceding and following the delivery, Kendell and colleagues clearly demonstrate a sevenfold increase in the risk of psychiatric hospitalization in the first 3 months after delivery (Kendell, Wainwright, Hailey & Shannon, 1976). In this study, the risk of psychosis was 22 times higher than the pregnancy rate, and the calculated relative risk (RR) of childbirth for the development of psychosis was 16. However, 87% of the admissions were for affective disorders, with the majority of diagnoses being major depression (Kendell, Rennie, Clarke & Dean, 1981).

This significant incidence of depression and the remarkable peak in the number of new cases diagnosed shortly after delivery, make it clear that the puerperal period is unique in the development of mental illness. It is estimated, that of the approximately 4 million births occurring annually in this country, 40% are complicated by some form of a post-partum mood disorder (O'Hara, 1995).

Only one in four cases of post-natal depression are diagnosed and treated. Sufferers often believe they will recover, given time, while physicians are hesitant to prescribe drugs, fearing breast milk contamination. However, it is vital that something is done to curb the crisis: the World Health Organization estimates, that depression will become the second biggest cause of death and disability by 2020 (Adcock, 2002).

Numerous epidemiological studies from all over the world have concluded, that between 10-15% of all new mothers meet the criteria for post-natal depression in the three-month subsequent to giving birth; however, research has suggested, that only 25% of all patients who suffer from post-natal depression, are ever diagnosed (Adcock, 2002).

As such, 75% of all patients suffer in silence, which means that the depression has the potential to become a chronic and recurring illness. Aside from the health of the mother, studies have also illustrated the negative effect that post-natal depression has on the development of infants (Adcock, 2002).

This lack of effective diagnosis and treatment presents a huge danger to the potential mental health of women suffering from post-natal depression. As childbirth is one of the major physical, social and psychological stresses of a woman's life, research has focused on determining whether it is a predictor for an increased risk of other psychiatric illnesses (Adcock, 2002).

Such analyses has drawn alarming conclusions. The risk of developing psychosis in the post-natal period, is estimated to increase by 14.5 times, whilst a study of 35,000 births in the US discovered that patients had a sevenfold increased risk of a psychiatric hospitalization (87% were for affective disorders) within the three-month period following childbirth (Adcock, 2002).

Real efforts concerning the problem of post-natal depression in South-Africa have been made by Post-Natal Depression South Africa. The 1st International South African Conference on Post-natal Depression was held in Cape Town during 5-7 April 2002.

According to Roos and Vlok (1988), the parents' skill in dealing with the baby is not of prime importance to the child's development of trust and self-esteem within the first two

years of his/her life. They point instead to the parents' underlying emotions, motives and attitudes.

Maternal depression is of concern not only in relation to the woman's well-being, but also because depression has been shown to influence cognitive and social development in infants. Although all infants may be vulnerable to the effects of maternal depression, the premature infants may be at greater risk, due to his/her decreased responsiveness and increased needs for stimulation (Field, 1995).

3.3.1 Impact on parenting and child outcome

There have been several recent prospective studies of samples of women with post-natal depression and their children (Murray & Cooper, 1997). They indicate a definite association between the maternal mood disorder and impaired infant cognitive development. Thus, in Cambridge a community sample of children of mothers who had had post-natal depression, were found to perform significantly less well on cognitive tasks at 18 months than did children of well-mothers, especially the boys (Murray, Fiori-Cowley, Hooper & Cooper, 1996). Two London studies of more socio-economically disadvantaged populations, found that this effect still is obtained when the children were 4-5 years old (Sharp, Hay, Pawlby, Schmucher, Allen & Kumar, 1995). Similarly poor emotional adjustment has been shown to be associated with post-natal depression. Thus, most studies that have systematically examined infant attachment in the context of post-natal depression, have found a raised rate of insecure attachments (Teti, Gelfand, Messinger & Isabella, 1995).

There is evidence, that these emotional problems persist. A follow-up of the Cambridge cohort, found that the 5-year-old children of mothers who had had post-natal depression were significantly more likely than were the controls, to be rated by their teachers as being behaviorally disturbed (Sinclair & Murray, 1998). One major

conclusion from these studies is, that the mechanism mediating the association between post-natal depression and adverse child developmental outcome, is the impaired pattern of communication occurring between the mother and her infant (Murray et al., 1997).

3.3.2 Epidemiology and course

Epidemiological studies of puerperal samples have consistently shown, that the prevalence of a non-psychotic major depressive disorder in the early weeks after delivery, is about 10% (O'Hara, 1997). Although this rate does not represent an elevation over the non-post-partum base rate (Troutman & Cutrona, 1990), the inception rate for depression does seem to be raised in the first three months post-partum compared with the following nine months (Cooper, Murray & Stein, 1991). The duration of post-natal depression is similar to that of depressions arising at other times; that is, episodes typically remit spontaneously within two to six months. Some residual depressive symptoms are common up to a year after delivery (Cooper, Campbell, Day, Kennerley & Bond, 1988).

3.2.3 Aetiology

There is little evidence to support a biological basis to post-partum depression (O'Hara, 1997). Despite extensive research into steroid hormones in women during the puerperium, no firm evidence has emerged linking these hormones to the development of post-natal depression (Harris, 1993). It has been suggested, that in a small subgroup of those experiencing post-natal depression, there might be a thyroid dysfunction (Harris, 1994). Although this hypothesis merits attention if substantiated, it remains possible that the thyroid dysfunction could be secondary to immunological changes brought about by stress (Cooper & Murray, 1998).

The presence of maternity blues in the period immediately post-partum, has been found to be related to the subsequent development of post-partum depression, but no hormonal basis to this association has been identified (O'Hara, 1997). Obstetric factors are important in a vulnerable subgroup of women: among those with a history of depressive disorder, complications during delivery are associated with a raised rate of post-natal depression (Murray & Cartwright, 1993).

The consistent finding of the epidemiological studies carried out to date, is that the major factors of aetiological importance are largely of a psychosocial nature (O'Hara, 1997). So, the occurrence of stressful life events in general and unemployment in particular, the presence of marital conflict, and the absence of personal support from spouse, family, and friends, have all consistently been found to raise the risk of depression post-partum (Cooper et al., 1998).

A psychiatric history is also commonly reported to be a risk factor for post-natal depression, especially a history of depressive disorder. This latter association has recently been clarified in a five-year follow-up of a cohort of primiparous women who had had a post-partum depression as a recurrence of previous non-post-partum mood disorders and a cohort for whom the post-partum depression was their first experience of affective disturbance (Cooper & Murray, 1995). The first group were found to be at greater risk for subsequent non-postpartum depression, but not to be at risk for depression after a subsequent delivery. Conversely, the second group were found to be at greater risk for subsequent post-partum depression, but not for subsequent non-post-partum depression. This suggests, that for a subgroup of those with post-partum depression, the puerperium carries specific risk, for either biological reasons or psychological ones surrounding the demands of infant care (Cooper et al., 1995).

3.3.4 Prediction

Although several studies have reported on antenatal factors associated with post-natal depression, all but one have been based on samples that were too small to derive a reliable predictive index. The single large-scale predictive study to be conducted, revealed that the most reliable predictors of post-partum depression (such factors as the absence of social support and a history of depression) each approximately double the odds over the base rate risk (Cooper et al., 1996). The predictive index derived from this study of several thousand women, is of some use: at a cut-off score with a sensitivity of 75% the specificity is 52%, and at a cut-off score with a specificity of 75% the sensitivity is 44%. It is unlikely, that there could be much improvement on the positive predictive value of this instrument using only antenatal factors (Cooper et al., 1996).

Prediction of post-partum depression could be improved if account were to be taken of certain post-partum factors. Thus, in a recent study of the impact of neonatal factors on the course of maternal mood, it was found, that over and above the predictive contribution of antenatal factors, both a high score for "maternity blues" and certain neonatal factors (irritability and poor motor control) were significantly related to the onset of post-natal depression. Since both the blues and the neonatal factors contribute predictively over and above the predictive antenatal variables, the positive predictive value of the collective critical antenatal factors could be augmented by taking account of both these post-partum variables (Murray, Stanley, Hooper, King & Fiori-Cowley, 1996).

3.3.5 Detection

Post-partum depression is often missed by primary care teams (Seeley , Murray & Cooper, 1996). Its detection does not, however, present any special problem. The

clinical features of the disorder are not distinctive, and its assessment is straightforward (O'Hara, 1997). Indeed, a simple brief self-report measure, the Edinburgh Post-natal Depression Scale (EPDS) has been developed as a screening device. It has sound psychometric properties. A large community study has revealed a specificity of 92.5% and a sensitivity of 88%. The questionnaire is easy to administer, simple to interpret, and could readily be incorporated within the routine services provided to all post-partum women. Sensitive clinical inquiry in high scorers would be sufficient to confirm the presence of depression (Cox, Holden & Sagovsky, 1987).

3.3.6 Treatment

3.3.6.1 Drug treatment

There has been little systematic research on the drug treatment of post-natal depression. Although progesterone treatment has been advocated, there has been no systematic evaluation of its clinical usefulness (Dalton, 1985). The efficacy of oestrogen treatment has, however, recently been evaluated in a placebo controlled trial. In a sample with severe and chronic post-partum depression, the mood improved in both groups, but significantly more so among those receiving oestrogen than among those receiving placebo. The appropriateness of this form of treatment in more typical samples of postnatally depressed women, remains to be evaluated (Gregoire, Kumar, Everitt, Henderson & Studd, 1996).

There has been only one controlled trial of an antidepressant drug. In a factorial design involving the use of fluoxetine and counselling, both the drug and the psychological treatment showed a significant antidepressant effect. However, there was no additive effect of the two treatments, and the drug treatment was not superior to the psychological treatment. It is notable, that less than half of those invited to take part in

the study, agreed to do so, mainly because of "reluctance to take the medication" (Appleby, Warner, Whitton & Faragher, 1997).

3.3.6.2 Psychological treatment

There have been three controlled trials of psychological treatment of post-partum depression. Holden et al., found, that women visited by health visitors trained in non-directive counselling - an average of nine visits over 13 weeks - showed substantially greater improvement in maternal mood than did the control group receiving routine primary care (Holden, Sagovsky & Cox, 1989). Similarly, a significant benefit in terms of remission from depression has been found for six-weekly counselling visits by child health clinic nurses in Sweden (Wickberg & Hwang, 1996). Finally, a recent controlled evaluation of three brief, home-based, psychological forms of intervention (including a session of non-directive counselling) found, that they improved the maternal mood (Cooper & Murray, 1997).

3.3.6.3 Treatment and the mother-infant relationship

Few studies have examined the impact of treating post-natal depression on the quality of the mother-infant relationship and child development. One controlled trial of psychological treatment found, that the intervention was associated with significant improvement in maternal reports of infant problems, both immediately after treatment (four to five months post partum) and at 18 months post-partum (Cooper et al., 1997). In addition, early remission from depression, itself significantly associated with treatment, was related to a reduced rate of insecure infant attachment at 18 months. Similar benefits have been reported in a study of health visitors' practices. When training was provided to all the health visitors working in one NHS sector, a cohort study was conducted, with assessments made of the health visitors' clientele, both

before and after training. Treatment significantly improved both maternal mood and the quality of the mother-infant relationship (Seeley et al., 1996).

It seems, that the adverse child outcome arising in the context of post-natal depression is driven by disturbances in the mother-child relationship, which begins in the early post-partum weeks (or days). This highlights the importance of early detection and treatment by primary care teams. It also suggests, that preventive interventions might prove particularly profitable (Cooper et al., 1998).

3.4 Premature Infants

Parents of premature babies often have feelings of resentment or guilt about not having everything running smoothly, being cheated out of their preparation time and having this happening to them (Bernbaum & Hoffman-Williamson, 1992). The guilt may result in feelings of failure and insecurity about parenting skills. According to Miles and Holditch-Davis (1997), the most commonly reported emotional responses are anxiety, helplessness and loss of control, and fear, uncertainty and worry about the outcome for the infant. Parents also commonly report guilt and shame, depression and sadness, and a sense of failure and disappointment. Mothers of premature infants exhibit higher rates of depression than mothers of full-terms (Gennaro, York & Brooten, 1990). The literature suggest, that a number of parents of premature infants were either ambivalent towards their infants or so depressed, that normal care-taking could not be expected (Friedman & Sigman, 1992). Dr Stern of the University of Albany and her colleagues find, that parents and health-care providers develop a stereotyped view of premature babies that affects the way in which these parents treat infants. It may have adverse effects on cognitive development (Azar, 1999).

In certain cases, the cause of pre-term birth will be unknown. Furthermore, relatively few women will have any amount of time to anticipate the fact that they will give birth prematurely. Babies who are born pre-term, have a high risk of dying or suffering from

a physical and/ or mental impairment as compared with babies who are born at full-term. Consequently, maternal anxiety is characteristically high. Taylor and Littlewood (1993) considered pre-term birth passages to be so atypical from normal deliveries, that they developed a different model of the 'passage' from one state to another in the instance of pre-term birth. This alternative model is given in table 3 below.

Table 3. Pre-term birth as an abnormal transition

Passage	Pre-term maternal experiences
1 Separation (mother and child)	Unlike full-term birth, pre-term birth occurs at no particular time Often considered to be an emergency rather than a 'normal' sequence of events
2 Transition (labour)	Increased shock and anxiety No planning for labour Unsafe delivery The baby may be taken away
3 Re-incorporation (from hospital to community)	Experience on post-natal ward may be absent or upsetting Mother may go home without the baby No celebrations because of concern about the condition of the baby

Taylor and Littlewood (1993)

Given a traumatic delivery and concern over the future health of her baby, the most characteristic feelings associated with mothers of pre-term babies, are shock, disorientation and acute anxiety. Any taken-for-granted understanding of the process of pregnancy and childbirth the woman may have had, is likely to be severely violated by her actual experience.

If the baby is admitted to an NNU, anxiety may be compounded by loss. The 'ideal' baby the woman may have expected to have, is lost (Sherr, 1989) and the anticipated role of primary caregiver has also been lost (Kennel, Slyter & Klaus, 1970). Furthermore, the specialist and highly technical nature of the care given on NNU's, has

been shown to make mothers feel both incompetent and superfluous in terms of their perception of their abilities to care for their babies (Gottlieb, 1978).

As Stainton (1985) indicates, contact with and caring for the baby facilitate a sense of the maternal competence, as does the baby's responsiveness to care-giving. When a baby is born pre-term and hospitalized on a NNU, the mothering role is difficult to realize, so maternal activities that focus on 'getting to know' the baby is severely inhibited.

Brady-Fryer (1994) looked at multiparous women who experienced a pre-term birth, and identified the following sources of distress:

- Pre-term birth
- the initial appearance of the baby
- Shock at the high levels of technology used to support the infant
- Feelings of disempowerment
- Difficulties in relating to NNU staff
- Discharge from hospital.

The mothers in Brady-Fryer's study, sought a cause for giving birth pre-term. The overwhelming feeling following pre-term birth, was frequently one of failure. The initial appearance of the baby also gave mothers cause for concern.

The NNU itself may be found to be intimidating and shocking. The high level of technology needed to support some babies, coupled with the high levels of expertise required to manipulate it, left many mothers feeling disempowered, as stated by Brady-Fryer (1994, p. 203).

"It's such a feeling of helplessness and frustration, of futility and uselessness, standing there and being no earthly use to your own baby".

In such a situation , expressing breast milk to feed their babies was shown to minimize the mother's sense of frustration (Brady-Fryer, 1994; Taylor & Littlewood, 1994).

Many mothers experience difficulties in relating to hospital staff after pre-term birth (Brady-Fryer, 1994; Taylor, 1992). Furthermore, the discharge of the mother, in some instances without her baby, was also experienced as a source of anxiety and distress.

3.5 Coping

Affleck and Tennen (1991) were among the few researchers to empirically examine the relation between specific coping strategies employed by mothers following the birth of their premature infants. Their emphasis was on the predictive nature of specific coping strategies. They examined the relation between coping strategies employed by mothers during their child's neonatal intensive care unit (NICU) hospitalization, indexes of maternal adjustment, and their children's development up to 18 months later. They found, that mothers who used escape-avoidant coping during their child's hospitalization, were less optimistic about their child's development and, in fact, had children who developed less optimally. Moreover, mothers who used escape-avoidant coping while in hospital, had less positive moods and experienced more depression at 6 months after discharge. A puzzling result of their study, was that mothers who made use of the plan-full problem solving coping during the infant's hospitalization, were associated with greater psychological distress, especially those mothers whose children were diagnosed as having a developmental disability at 18 months after discharge (Feldman et al., 2000).

3.6 Hypotheses

In this study, the following hypotheses are formulated.

1. Mothers of premature infants are more depressed than are mothers of full-term infants.
2. Higher levels of depression already exist within the first week after the birth of the infants among those mothers with premature babies, than among those with full-term babies.
3. Coping strategies contributing to depression among mothers with premature babies will be different from those contributing to depression among mothers with full-term babies.

3.7 Concluding remarks

Reviewing the literature concerning post-natal depression and coping, provides an excellent background concerning the topic of this study. Hypotheses were formulated to illustrate what this study will attempt to prove or disprove.

CHAPTER 4: METHODOLOGY

4.1 Introduction

The previous chapter focused on the literature review of the topic under discussion in this research. In this chapter, the methodology used, was discussed.

The methodology discussed, aimed to provide a clearer understanding of. the subjects, instruments and procedures used in this study. The statistical methods used to analyze the data, also received attention.

4.2 Research design

The research was both quantitative and quasi-experimental.

4.3 Subjects

The participants were drawn from mothers with new-born infants at the Pretoria Academic Hospital. All the mothers who participated in this study, fell in the low socio-economic group.

A sample of 50 mothers with premature and very low birth-weight new-born infants and a sample of 50 mothers with full-term new-born infants were selected for the study.

Because of the nature of the study and the time constraint, mothers were selected according to the availability sampling method. The sample was from an existing population.

4.4 Measuring Instruments

All the questionnaires were administered in English.

4.4.1 Demographic information

Demographic measures were obtained by using the following questions (See Appendix A).

How old are you ?

Marital status (married/single/co-habitation).

Residency (Rural/City).

How many children do you have ?

Type of birth (Normal/Caesarian).

Is your baby premature (under 2500g/before 37 weeks) ?

Is your baby a very low birth weight infant (under 1500g) ?

Family's monthly income falling in R (0-2000/ 2001-5000/ 5001-7000/7001<).

Education level.

4.4.2 Edinburgh Post-natal Depression Scale (EPDS)

The EPDS is a widely accepted measure of symptomatology of post-natal depression. It was developed at health centers in Livingston and Edinburgh. It consists of ten short statements. The mother underlines which of the four possible responses is closest to how she has been feeling during the past week. Most mothers complete the scale without difficulty in less than 5 minutes (Cox et al., 1987). (See Appendix B).

This scale is aimed at identifying the presence of depressive symptoms. It is based on earlier depression scales, such as the General Health Questionnaire and the Zung

Depression Scale and derives specific non-somatic items from the Irritability, Depression and Anxiety Scale (Snaith, Constantopoulos, Jardine & McGuffin, 1978), Hospital Anxiety and Depression Scale (Zigmound & Snaith, 1983) and Anxiety and Depression Scale (Bedford & Foulds, 1978). It has four response categories for each of the 10 items. These are scored 0 for "no presence" of the symptom through to 3 for "marked presence/change" in usual state.

The measure was developed specifically for use with puerperal women, but none of the 10 items is specific to the post-natal experience. The principle feature of the scale which designates it as a "post-natal" scale is that it does not include somatic items, because of the possibility of confounding somatic symptoms of depression with normal physiological symptoms at this time. This feature of the scale was a major factor in its selection for this study which aimed to measure depression during the post-partum period.

Additionally, the simplicity and brevity of the scale make it suitable for inclusion in a postally administered, self-completion questionnaire. The study of Murray and Carothers (1990) administered the questionnaire postally and both found the measure to be very acceptable to respondents, producing high completion rates, with little evident response error (Misn, 2002). The sensitivity of the EPDS (i.e. the proportion of genuine cases of depression identified) ranged from 86% (using a cut-off score of 12 or greater) to 95% (using a cut-off score of 13 or greater). The split-half reliability of the scale was found to be 0.88, and standardized α -coefficient was 0.87 (Cox et al., 1987). The α -coefficient of this study was 0.72.. The maximum score on the Edinburgh is 30 and higher scores indicated more negative feelings. For the purpose of this study, a cut- off score of 13 was used to identify patients suffering from a depressive illness of varying severity.

4.4.3 Ways of Coping Questionnaire (Folkman, Lazarus & Richard, 1988)

The researcher used the questionnaire to investigate the components and determinants of coping. The Ways of Coping Questionnaire assesses thoughts and actions individuals use, to cope with stressful encounters of living. The questionnaire consists of statements of means of coping with stress. Respondents were asked to think of the most stressful situation they had experienced in the previous week and to rate each of the means of coping on a scale of 0 to 3, 0 being "does not apply or not used" and 3 being "used a great deal". Respondents were scored on eight scales, representing eight different styles of coping: 1) confrontive; 2) distancing; 3) self-controlling; 4) seeking social support; 5) accepting responsibility; 6) escape-avoidance; 7) planful problem solving; and 8) positive reappraisal (Folkman et al., 1988). Folkman and Lazarus (1988) reported internal consistency reliability coefficients that ranged from 0.68 to 0.79 for these subscales. For this study, the internal consistency coefficient ranged from 0.46 to 0.64 for six of the eight subscales (Cronbach Alpha). The Accepting Responsibility and Distancing subscales had coefficients of 0.34 and 0.36 respectively.

The Ways of Coping Questionnaire consists of 66 items, describing possible cognitive and behavioural strategies that one might use in dealing with a stressful event. Prior to completing the specific items, the participants write about the nature of a specific stressful event in terms of who was involved, where it took place, and what happened. However, for the purpose of this study, participants were asked to choose a stressful event that occurred as a result of the birth of their present baby. Participants were asked to use the stressful event as the stimulus material when answering the 66 items that will ask them to identify which coping strategies they used during the stressful time (Lazarus et al., 1984).

As the definitive coping measure, the Ways of Coping Questionnaire (WAYS) measures the style of the respondent's coping. The WAYS can assess and identify

thoughts and actions that individuals use to cope with the stressful encounters of everyday living. It measures coping processes, not coping dispositions or styles. In a variety of studies, researchers used it to investigate the components and determinants of coping (Folkman & Lazarus, 2003). (See Appendix C).

The eight coping factors measured by the Ways of Coping Questionnaire, are summarized as follows. (Folkman & Lazarus, 2003).

1. **Confrontive Coping.** This describes aggressive efforts to alter the situation and suggests some degree of hostility and risk-taking.
2. **Distancing.** This describes cognitive efforts to detach oneself and to minimize the significance of the situation.
3. **Self-Controlling.** This describes efforts to regulate one's feelings and actions.
4. **Seeking Social Support.** This describes efforts to seek informational support, tangible support, and emotional support.
5. **Accepting Responsibility.** This acknowledges one's own role in the problem with a concomitant theme of trying to put things right.
6. **Escape-Avoidance.** This describes wishful thinking and behavioral efforts to escape or avoid the problem. Items on this scale contrast with those on the Distancing Scale, which suggest detachment.
7. **Planful Problem Solving.** This comprises deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem.
8. **Positive Reappraisal.** This describes efforts to create positive meaning by focusing on personal growth. It also has a religious dimension.

4.4.4 Prematurity

Prematurity and birth-weight of the infants were established by using the information supplied in the patients' hospital files. Any infant born before 37 weeks or weighing under 2500g, was considered premature. Because the questionnaires were completed within two days after birth, all the premature infants were still in the NICU at that stage.

4.5 Procedure

Permission to conduct the study, had already been obtained from the Ethics Committee of the Medical Research Foundation of South Africa and the Pretoria Academic Hospital (See Appendix D). Further permission had also be obtained from the School of Social Sciences, University of the North Research and Ethics Committee (See Appendix E). The participants completed the questionnaires before they were discharged from hospital. They were informed about the purpose of the research and confidentiality and anonymity were be assured. All participants completed a consent form as prescribed by the Medical Research Foundation of South Africa (See Appendix F). All participants could at any stage, without prejudice, withdraw her consent and participation in the study.

In respect of the emotional arousal, the participants might experience following the completion of the questionnaires, the following precautions were made. Each participant was provided with the contact information of the Pretoria Academic Hospital's clinical psychologist and the social worker of the unit, should they need any help in dealing with any emotional problems. The researcher had made arrangements with these professionals before the study commenced, to provide assistance to the participants that might contact them.

4.6 Methods of data analysis

This study made use of quantitative data analysis and the computerized Statistical Package for Social Science (SPSS) program was used to analyze the data. The data in this study will comprise of nominal scales (premature mothers and full-term mothers, and the eight different coping strategies) and an ordinal scale (level of depression). Numbers, tables and graphs were used to help the researcher in describing, explaining and exploring data. Multiple regression was used to analyze the data. In addition, correlation between depression/ coping style and several demographic measures were examined in exploratory analysis aimed at elucidating the relationship between them.

4.7 Concluding remarks

This chapter explained the methodology used in this study. The themes of subjects, instruments, procedure and statistical methods used to analyze data, were discussed.

CHAPTER 5: RESULTS

5.1 Introduction

In the previous chapter, the methodology used to obtain the data of this study, were discussed. This chapter will focus on presenting the results found after analyzing the data. Frequency and mean score tables are first of all presented and the hypotheses made in chapter 3, are then tested. The data of this study were analyzed by using the Statistical Package for Social Sciences Program (SPSS).

5.2 Frequency and Mean scores tables

The tables below contains the data of participants in this study.

5.2.1 Demographic Data

Table 4 contain the demographic data of all participants in the study.

Table 4. Demographic data

	Mothers of Premature Infants	Mothers of Full-term Infants
Mean Age in years	29 (SD = 6.02)	28 (SD = 6.17)
Marital Status		
Married	28	13
Single	6	22
Co-habitation	16	15
Residence		
Rural	12	10
City	38	40
Number of previous children		
Had no children	16	14
Had previous children	34	36
Type of birth		
Normal Birth	30	31
Cesarean Operation Birth	20	19

From this table, it is evident that the data on the two groups are very similar except in respect of marital status. In this sample population, it is to be noted, that more mothers with premature infants were married, as compared to mothers with full-term infants, where the majority were single.

5.2.2 Data on Depression scores

The depression scores mothers obtained in the Edinburgh Post-natal Depression Scale, are graphically displayed in Graph 1 and in Table 5 below.

Graph 1. Depression scores

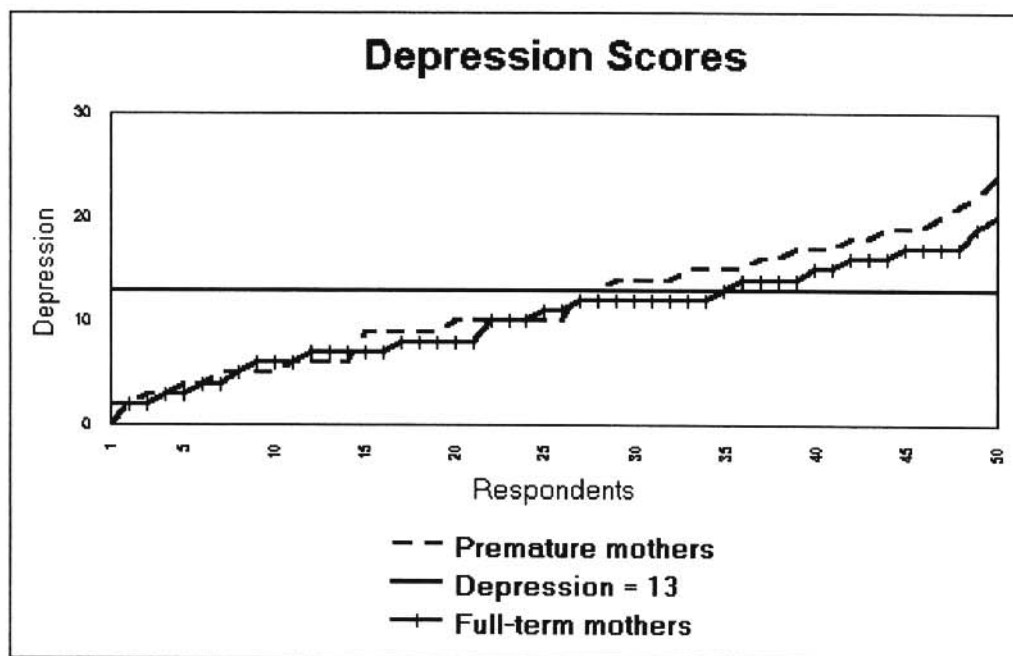


Table 5. Post-natal Depression

	Premature	Full-Term
Mean	11.6	10.4
Standard deviation	5.90	4.66
Low depression (< 13)	26 (52%)	34 (68%)
High depression (≥ 13)	24 (48%)	16 (32%)
Total	50	50

The mean depression scores of the two groups seem to be very similar. A cut-off score of 13 was used to identify patients suffering from a depressive illness of varying severity. The table shows, that 24 mothers of premature infants and 16 mothers of full-term infants, scored above the threshold of 13. Table 5 also illustrates that a total of 40 mothers experienced high levels of depression after birth.

5.2.3 Data on Coping styles

Data regarding the coping styles mothers used in this study, are displayed in Table 6.

Table 6. Coping styles

Coping Style	Groups	N	Mean	Std. Deviation	Std. Error Mean
Confrontive Coping	Premature	50	7.7400	3.52142	0.49800
	Full-term	50	9.2000	3.83326	0.54210
Distancing	Premature	50	9.1400	2.41602	0.34168
	Full-term	50	10.6200	2.88479	0.40797
Self-Controlling	Premature	50	10.1400	4.28576	0.60610
	Full-term	50	10.1400	3.82799	0.54136
Seeking Social Support	Premature	50	11.1600	3.18389	0.45027
	Full-term	50	10.8200	3.77797	0.53429
Accepting Responsibility	Premature	50	6.0800	2.40611	0.34028
	Full-term	50	6.6800	2.43646	0.34457
Escape-Avoidance	Premature	50	8.9600	4.66844	0.66022
	Full-term	50	9.5000	4.51867	0.63904
Planfull Problem Solving	Premature	50	9.7800	3.06588	0.43358
	Full-term	50	10.1800	3.02162	0.42732
Positive Reappraisal	Premature	50	12.8600	3.15588	0.44631
	Full-term	50	14.1000	3.07226	0.43448

Table 6 shows the mean scores on the Ways of Coping Questionnaire. The highest mean score was obtained with the "Positive Reappraisal" coping style, and the lowest score with the "Accepting Responsibility" coping style. This indicates respective higher and lower levels of use of these coping styles.

5.3 Test of hypotheses

Hypothesis 1. Mothers of premature infants are more depressed than are mothers of full-term infants.

Table 7 indicates whether there is a significant difference between the depression levels of mothers with premature infants and mothers with full-term infants.

Table 7. Independent t-test table comparing depression levels of mothers with premature infants and those of mothers with full-term infants.

	t test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Equal variances Assumed	1.174	98	0.243	1.3000	1.10779	-0.89838	3.49838

The t-test indicates, that there is no significant difference between the depression scores of mothers with premature infants and mothers with full-term infants ($t=1.174$, $df=98$, $p>0.05$). Mothers of premature infants are not more depressed than mothers with full-term infants (mean score for mothers with premature infants = 11.6, mean score for mothers with full-term infants = 10.4).

Hypothesis 2. Higher levels (≥ 13 score) of depression already exist within the first week after birth of the infants among those mothers with premature infants, than among those with full-term infants.

Table 8 illustrate the association between the two groups in respect of higher levels of depression.

Table 8. A Chi-Square table testing an association between the two groups (premature, full-term) and high levels of depression.

	High depression (≥ 13)
Pearson Chi-Square	2.667
df	1
Sig (2-sided)	0.102
N	100

According to table 8, the hypothesis that higher levels (depression ≥ 13 score) of depression within the first week after the birth of the infants exist more among mothers with premature babies than among those with full-term babies, is rejected.

Hypothesis 3. Coping strategies contributing to depression among mothers with premature babies will be different from those contributing to depression among mothers with full-term babies.

Table 9 and 10 show the coping strategies that contribute to depression among mothers of premature and those of full-term babies.

Table 9. Multiple Regression (stepwise) Analysis among mothers with premature babies.

Variables Entered/ Removed^a

Model	Variables Entered	Variables Removed	Method
1	Seeking Social Support		Stepwise (Criteria: Probability -of-F-to-enter $\leq .050$, Probability -of-F-to-remove $\geq .100$).

a. Dependent Variable: Depression Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.417 ^a	0.174	0.156	5.687

a. Predictors: (Constant), Seeking Social Support

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	326.249	1	326.249	10.086	0.003 ^a
	Residual	1552.631	48	32.346		
	Total	1878.880	49			

a. Predictors: (Constant), Seeking Social Support

b. Dependent Variable: Depression Score

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.636	2.959	0.417	0.891	0.378
	Seeking Social Support	0.810	0.255		3.176	0.003

a. Dependent Variable: Depression Score

Excluded Variables^b

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Confrontive	0.245 ^a	1.900	0.064	0.267	0.981
	Distancing	-0.031 ^a	-0.233	0.817	-0.034	0.987
	Self-Controlling	0.193 ^a	1.447	0.155	0.206	0.947
	Responsibility	0.266 ^a	1.958	0.056	0.275	0.883
	Escape-Avoidance	0.260 ^a	2.008	0.050	0.281	0.965
	Problem Solving	0.143 ^a	1.083	0.284	0.156	0.989
	Reappraisal	0.198 ^a	1.524	0.134	0.217	0.989

a. Predictors in the Model: (Constant), Seeking Social Support

b. Dependent Variable: Depression Score

Table 10. Multiple Regression (stepwise) Analysis among mothers with full-term babies.

Variables Entered/ Removed^a

Model	Variables Entered	Variables Removed	Method
1	Accepting Responsibility		Stepwise (Criteria: Probability -of-F-to-enter \leq .050, Probability -of-F-to-remove \geq .100).

a. Dependent Variable: Depression Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.290 ^a	0.084	0.065	4.639

a. Predictors: (Constant), Accepting Responsibility

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.825	1	94.825	4.406	0.041 ^a
	Residual	1032.955	48	21.520		
	Total	1127.780	49			

a. Predictors: (Constant), Accepting Responsibility

b. Dependent Variable: Depression Score

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.566	1.932		3.399	0.001
	Accepting Responsibility	0.571	0.272	0.290	2.099	0.041

a. Dependent Variable: Depression Score

Excluded Variables^b

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Confrontive	-0.181 ^a	-1.284	0.205	-0.184	0.949
	Distancing	0.187 ^a	1.328	0.191	0.190	0.950
	Self-Controlling	-0.142 ^a	-1.014	0.316	-0.146	0.968
	Social support	-0.103 ^a	-0.694	0.491	-0.101	0.874
	Escape-Avoidance	-0.086 ^a	-0.609	0.545	-0.089	0.979
	Problem Solving	-0.122 ^a	-0.819	0.417	-0.119	0.868
	Reappraisal	-0.194 ^a	-1.292	0.203	-0.185	0.838

a. Predictors in the Model: (Constant), Accepting Responsibility

b. Dependent Variable: Depression Score

Table 9 shows that the “Seeking Social Support” coping strategy contributes to depression among mothers with premature babies, while table 10 shows that the “Accepting Responsibility” coping strategy contributes to depression among mothers with full-term babies, therefore hypothesis 3 is accepted.

In table 9, using the stepwise regression analysis, the only independent variable, included in the model, was the "Seeking Social Support" coping strategy among mothers with premature babies. This was the only coping strategy included in the model; the Pearson correlation coefficient ($r=0.417$) shows positive correlation between depression and the " Seeking Social Support" coping strategy. According to the coefficient of determination ($r^2= 0.174$) 17.4 % of the variation in depression can be attributed to the "Seeking Social Support" coping strategy.

In table 10, using the stepwise regression analysis, the only independent variable, included in the model, was the "Accepting Responsibility" coping strategy among mothers with full-term babies. This was the only coping strategy included in the model; the Pearson correlation coefficient ($r=0.290$) shows positive correlation between depression and the "Accepting Responsibility" coping strategy. According to the coefficient of determination ($r^2= 0.084$) 8.4 % of the variation in depression can be attributed to the "Accepting Responsibility" coping strategy.

CHAPTER 6: DISCUSSION

6.1 Introduction

In the previous chapter only the results concerning the various hypotheses were presented. This chapter will discuss the results in relation to the literature review and other factors. After discussing the results in relation to the literature review and other factors, this chapter will also remark on the limitations of the study, recommendations and conclusion.

6.2 Discussion

According to the results obtained from this research, mothers of premature infants are not more depressed than are mothers with full-term infants. These findings do not concur with results found in other studies. Thompson et al. (1993) compared mood states of mothers with pre-term with mothers with full-term infants and suggested, that worry about an infant's health may contribute to negative emotionality. Kumar & Robson (1984) also found pre-term delivery to be a risk factor for the onset of maternal depression. An increased risk of post-partum depression has also been identified in research which examined the relationship between premature birth and maternal health (O'Brein et al., 1999). The fact that both groups in the present study experienced relatively high levels of depression, may be a possible explanation for the similar results found between the two groups. It is possible that the population, because of their low socio-economic status, already experienced high levels of depression before birth. Low socio-economic status normally leads to more stressors and lesser resources to deal with them.

This study did not find higher levels of depression among mothers with premature infants as compared with those with full-term infants within the first week after birth.

When considering the previous studies discussed in the first paragraph under discussion, it is clear, that the results found in this study, contradict them. The most apparent explanation for this, would be the different time frames in which the studies were conducted. The fact that this study was conducted in a very short time after delivery, may explain the similar results found between the two groups of mothers. It is thus possible, that mothers experience the same emotional reactions shortly after birth and then recover at different rates. How mothers adjust, must then be considered. Most premature infants will have to stay behind in the Neonatal Intensive Care Unit of the hospital when the mother is discharged. This may put an additional burden on the mother to cope with the premature infant. Denial among mothers with premature infants, may also play a role in their levels of depression.

The results of this study indicate, that using the "Seeking Social Support" coping strategy, contributed to higher levels of depression among mothers with premature infants and the "Accepting Responsibility" coping strategy, contributed to higher levels of depression among mothers with full-term infants. Many variables may influence maternal adjustment following a premature birth. Folkman and Lazarus (1988) argued, that the way in which people cope with the demands of stressful events, affect their emotional response to the event. Thompson et al. (1993) found, that the use of emotional-focused coping methods contributed to post-natal distress. This finding contradicts the results found in this study. A person who uses the " Seeking Social Support " coping strategy, will describe efforts to seek information support, tangible support, and emotional support (Folkman & Lazarus, 2003). Mothers of premature infants who use this coping strategy may be experiencing higher levels of depression than their full-term counterparts. This may be because mothers of premature infants have an increased need for information and support in dealing with an "ill" infant, than do mothers with full-term infants. Because this increased need is not currently being met sufficiently, it causes higher levels of depression among mothers with premature infants. A person who uses the "Accepting Responsibility" coping strategy, will acknowledge his/her own role in the problem with a concomitant theme of trying to put

things right (Folkman & Lazarus, 2003). A possible reason why mothers of full-term infants experience higher levels of depression using this coping strategy, may be because, while still in hospital, they are more directly involved and responsible in the well-being of their infants, whereas mothers with premature infants have to depend on hospital staff to handle the well-being of their infants.

As seen in table 5 this study finds, that 48% of mothers with premature infants experienced high levels of depression after birth. According to Matron Van Schalkwyk of the maternity ward at the Pretoria Academic Hospital, they had 901 premature deliveries in 2002. If the findings of the study are applied to this, it would mean that a total number of 378 mothers of premature infants experienced high levels of depression during the year. This study also illustrates the problem of post-natal depression among mothers with full-term infants. Table 5 indicates that 32% of this group experienced high levels of depression. The number of full-term deliveries at the Pretoria Academic Hospital during 2002, was 3819. This mean that a total number of 1126 mothers with full-term infants experienced high levels of depression. When combining the results just discussed, it adds up to a total number of 1504 mothers with newborn infants, who experienced high levels of depression during the 2002 period.

From the previous discussion it is clear that a total of 1504 women were in need of professional (psychological) help during 2002. This is a alarming number of people in one hospital and surely, warrants the need for a permanent psychologist in this ward. At present, there is no psychologist working in this ward. It is also evident, that maternal depression is of concern, not only in relation to the women's well-being, but also because depression has been shown to influence the cognitive and social development of infants.

6.3 Limitations of the study

Because all respondents in this study fell in the low socio-economic category, it was impossible to investigate whether the socio-economic status of the mother has an influence on her level of depression.

The fact that the data in this study were gathered from only one hospital, may be viewed as a limitation of this study. Another limitation of the study, is the relative short time-frame in which the data were collected.

Considering the large number of births the hospital deal with on a yearly basis, the fact that the sample of this study only included 50 mothers of premature infants and 50 mothers of full-term infants, may also be viewed as a limitation of the study.

In this study, the level of depression of the mothers was determined only after childbirth. Considering the occurrence of high levels of depression in this study, it would have been valuable to have measured the mothers' levels of depression before their children's birth, in order to allow a comparison with their scores after childbirth.

Although the study was able to establish a link between post-natal depression and coping, it was impossible, to conduct an in-depth investigation within the framework of this study. Qualitative studies to investigate the specific causality of the alarming high post-natal depression level in South Africa, can make an important contribution in combating this problem.

Another limitation of the study, is the problem experienced with relevant norms and cutting points on a foreign instrument, like the Edingburgh Post Natal Depression Scale. This is a difficulty facing research in South Africa.

6.4 Conclusion

In conclusion, the results of the study indicate no significant difference between levels of depression experienced by mothers with premature infants and those with full-term infants. The only coping style that contributed to depression, was the "Accepting Responsibility" coping style. The study did, however, identify the magnitude of the problem of post-natal depression in South African contexts.

6.5 Recommendations

Recommendations that will be made after reviewing the results of this study will focus on possible steps that could be taken to help prevent and treat the problem of depression amongst new mothers.

An instrument such as the Edinburgh Post-natal Depression Scale, could be used very effectively to screen for possible "problem" mothers while they are still in hospital. Most new mothers will be able to complete this questionnaire within 5-10 minutes. This will ensure, that the problem is detected at an early stage and that immediate steps can then be taken to address the problem.

A clear need for information, tangible and emotional support have been established among mothers with premature infants, who use the "Seeking Social Support" as a coping strategy. The high levels of depression that have been identified in this study, indicate that this need is not met currently. Important role players in dealing with this problem should include government, hospital management, and hospital staff. Because a patient's family will play a very important role in providing support, psycho-educational programs will be very beneficial for patients and their families. These programs could be presented in hospitals before the mothers and infants are discharged. Support groups can also play an important role. Although support groups

for post-natal depression already exist within the community, these are very few and not always accessible to the community as a whole. Community leaders should be timeously informed of the problem, in order for them to contribute to the solution.

Although using the "Accepting Responsibility" coping strategy may be beneficial in many areas of life, in the context of this study, it led to increased levels of depression among mothers with full-term infants. Due to the complexity of this problem, any short term interventions are hampered. The possibility for a longer term intensive counseling and therapy must be investigated in order to deal more effectively with this problem.

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APPENDIX A

Demographic Information

Age: _____

Marital Status: Married Single Co-habitation

Residency: Rural City

No of previous Children: _____

Type of Birth: Normal Caesarian

Is your baby premature: (Under 2500g or Before 37 weeks) Yes No

Families combined family income monthly: R 0- R2000/ R2001-R5000/
R5001- R7000/ R7000<

Education level: _____

APPENDIX B

Edinburgh Postnatal Depression Scale (EPDS)

Instructions for users:

1. The mother is asked to underline the response which comes closest to how she has been feeling in the previous 7 days.
2. All ten items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others.
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.
5. The EPDS may be used at 6-8 weeks to screen postnatal women. The child health clinic, postnatal check-up or a home visit may provide suitable opportunities for its completion.

Name: _____

Address: _____

Baby's Age: _____

As you have recently had a baby, we would like to know how you are feeling. Please **UNDERLINE** the answer which comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

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

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

2. I have looked forward with enjoyment to things.

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

3. * I have blamed myself unnecessarily when things went wrong.

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

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

No, not at all

Hardly ever

Yes, sometimes

Yes, very often

5.* I have felt scared or panicky for not very good reason.

Yes, quite a lot

Yes, sometimes

No, not much

No, not at all

6.* Things have been getting on top of me.

Yes, most of the time I haven't been able to cope at all

Yes, sometimes I haven't been coping as well as usual

No, most of the time I have coped quite well

No, I have been coping as well as ever

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

Yes, most of the time

Yes, sometimes

Not very often

No, not at all

8.* I have felt sad or miserable.

Yes, most of the time

Yes, quite often

Not very often

No, not at all

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

Yes, most of the time

Yes, quite often

Only occasionally

No, never

10.* The thought of harming myself has occurred to me.

Yes, quite often

Sometimes

Hardly ever

Never

Response categories are scored 0, 1, 2, and 3 according to increased severity of the symptoms. Items marked with an asterisk are reverse scored (i.e. 3, 2, 1, and 0). The total score is calculated by adding together the scores for each of the ten items.

APPENDIX C

Scoring the Ways of Coping Questionnaire

Raw Scores

To score the Ways of Coping Questionnaire, add the raw score for each item on the scale to get a total score. There are four possible responses 0, 1, 2, and 3. These are also the weights that should be used to get the raw score. Note that not all 66 items are scaled.

# of items	Item in the scale	Scale
6	6, 7, 17, 28, 34, 46	Confrontive Coping
6	12, 13, 15, 21, 41, 44	Distancing
7	10, 14, 35, 43, 54, 62, 63	Self-Controlling
6	8, 18, 22, 31, 42, 45	Seeking Social Support
4	9, 25, 29, 51	Accepting Responsibility
8	11, 16, 33, 40, 47, 50, 58, 59	Escape-Avoidance
6	1, 26, 39, 48, 49, 52	Planful Problem Solving
7	20, 23, 30, 36, 38, 56, 60	Positive Reappraisal

Raw scores describe the coping effort for each of the eight types of coping. High raw scores indicate that the person often used the behaviors described by that scale in coping with the stressful event.

Relative Scores

Relative scores describe the proportion of effort represented for each type of coping and are expressed as a percentage that ranges from 0 to 100. A high relative score on a scale means that the person used those coping behaviors more often than they used other behaviors.

To calculate the relative scores:

1. Calculate the average response per scale by dividing the total raw score by the number of items in the scale. For example, if the raw score for Confrontive Coping is 15 then the average response is 2.5 because there are 6 items on this scale.
2. Sum the average responses per scale across all the scales. For example, take the eight averages derived from 1 above and sum them.
3. Divide the average score for each scale (from 1) by the sum of the of the averages (from 2 above) for all 8 scales. This value is the relative score for the scale.

0 = Does not apply or not used 1 = Used somewhat 2 = Used quite a bit 3 = Used a great deal

- | | | | | |
|--------------------------------------------------------------------------------------------------------|---|---|---|---|
| 1. I just concentrated on what I had to do next – the next step. | 0 | 1 | 2 | 3 |
| 2. I tried to analyze the problem in order to understand it better. | 0 | 1 | 2 | 3 |
| 3. I turned to work or another activity to take my mind off things. | 0 | 1 | 2 | 3 |
| 4. I felt that time would have made a difference –
the only thing was to wait. | 0 | 1 | 2 | 3 |
| 5. I bargained or compromised to get something positive
from the situation. | 0 | 1 | 2 | 3 |
| 6. I did something that I didn't think would work,
but at least I was doing something. | 0 | 1 | 2 | 3 |
| 7. I tried to get the person responsible to change his or her mind. | 0 | 1 | 2 | 3 |
| 8. I talked to someone to find out more about the situation. | 0 | 1 | 2 | 3 |
| 9. I criticized or lectured myself. | 0 | 1 | 2 | 3 |
| 10. I tried not to burn my bridges, but leave things open somewhat. | 0 | 1 | 2 | 3 |
| 11. I hoped for a miracle. | 0 | 1 | 2 | 3 |
| 12. I went along with fate; sometimes I just have bad luck. | 0 | 1 | 2 | 3 |
| 13. I went on as if nothing had happened. | 0 | 1 | 2 | 3 |
| 14. I tried to keep my feelings to myself. | 0 | 1 | 2 | 3 |
| 15. I looked for the silver lining, so to speak;
I tried to look on the bright side of things. | 0 | 1 | 2 | 3 |
| 16. I slept more than usual. | 0 | 1 | 2 | 3 |
| 17. I expressed anger to the person(s) who caused the problem. | 0 | 1 | 2 | 3 |
| 18. I accepted sympathy and understanding from someone. | 0 | 1 | 2 | 3 |
| 19. I told myself things that helped me feel better. | 0 | 1 | 2 | 3 |
| 20. I was inspired to do something creative about the problem. | 0 | 1 | 2 | 3 |
| 21. I tried to forget the whole thing. | 0 | 1 | 2 | 3 |
| 22. I got professional help. | 0 | 1 | 2 | 3 |

Go on to next page

0 = Does not apply or not used 1 = Used somewhat 2 = Used quite a bit 3 = Used a great deal

- | | | | | |
|----------------------------------------------------------------------------------------------------------------|---|---|---|---|
| 23. I changed or grew as a person. | 0 | 1 | 2 | 3 |
| 24. I waited to see what would happen before doing anything. | 0 | 1 | 2 | 3 |
| 25. I apologized or did something to make up. | 0 | 1 | 2 | 3 |
| 26. I made a plan of action and followed it. | 0 | 1 | 2 | 3 |
| 27. I accepted the next best thing to what I wanted. | 0 | 1 | 2 | 3 |
| 28. I let my feelings out somehow. | 0 | 1 | 2 | 3 |
| 29. I realized that I had brought the problem on myself. | 0 | 1 | 2 | 3 |
| 30. I came out of the experience better than when I went in. | 0 | 1 | 2 | 3 |
| 31. I talked to someone who could do something concrete
about the problem. | 0 | 1 | 2 | 3 |
| 32. I tried to get away from it for a while by resting or taking a vacation. | 0 | 1 | 2 | 3 |
| 33. I tried to make myself feel better by eating, drinking,
smoking, using drugs, or medications, etc. | 0 | 1 | 2 | 3 |
| 34. I took a big chance or did something very risky
to solve the problem. | 0 | 1 | 2 | 3 |
| 35. I tried not to act too hastily or follow my first hunch. | 0 | 1 | 2 | 3 |
| 36. I found new faith. | 0 | 1 | 2 | 3 |
| 37. I maintained my pride and kept a stiff upper lip. | 0 | 1 | 2 | 3 |
| 38. I rediscovered what is important in life. | 0 | 1 | 2 | 3 |
| 39. I changed something so things would turn out all right. | 0 | 1 | 2 | 3 |
| 40. I generally avoided being with people. | 0 | 1 | 2 | 3 |
| 41. I didn't let it get to me; I refused to think too much about it. | 0 | 1 | 2 | 3 |
| 42. I asked advice from a relative or friend I respected. | 0 | 1 | 2 | 3 |
| 43. I kept others from knowing how bad things were. | 0 | 1 | 2 | 3 |
| 44. I made light of the situation; I refused to get too serious about it. | 0 | 1 | 2 | 3 |

Go on to next page

0 = Does not apply or not used 1 = Used somewhat 2 = Used quite a bit 3 = Used a great deal

- | | | | | |
|---------------------------------------------------------------------------------------------------------|---|---|---|---|
| 45. I talked to someone about how I was feeling..... | 0 | 1 | 2 | 3 |
| 46. I stood my ground and fought for what I wanted..... | 0 | 1 | 2 | 3 |
| 47. I took it out on other people. | 0 | 1 | 2 | 3 |
| 48. I drew on my past experiences; I was in a similar situation before. ... | 0 | 1 | 2 | 3 |
| 49. I knew what had to be done, so I doubled my efforts
to make things work..... | 0 | 1 | 2 | 3 |
| 50. I refused to believe that it had happened. | 0 | 1 | 2 | 3 |
| 51. I promised myself that things would be different next time. | 0 | 1 | 2 | 3 |
| 52. I came up with a couple of different solutions to the problem..... | 0 | 1 | 2 | 3 |
| 53. I accepted the situation, since nothing could be done. | 0 | 1 | 2 | 3 |
| 54. I tried to keep my feeling about the problem from interfering
with other things..... | 0 | 1 | 2 | 3 |
| 55. I wished that I could change what had happened or how I felt. | 0 | 1 | 2 | 3 |
| 56. I changed something about myself. | 0 | 1 | 2 | 3 |
| 57. I daydreamed or imagined a better time or place
than the one I was in..... | 0 | 1 | 2 | 3 |
| 58. I wished that the situation would go away or somehow
be over with. | 0 | 1 | 2 | 3 |
| 59. I had fantasies or wishes about how things might turn out..... | 0 | 1 | 2 | 3 |
| 60. I prayed..... | 0 | 1 | 2 | 3 |
| 61. I prepared myself for the worst. | 0 | 1 | 2 | 3 |
| 62. I went over in my mind what I would say or do. | 0 | 1 | 2 | 3 |
| 63. I thought about how a person I admire would handle
this situation and used that as a model. | 0 | 1 | 2 | 3 |
| 64. I tried to see things from the other person's point of view..... | 0 | 1 | 2 | 3 |
| 65. I reminded myself how much worse things could be. | 0 | 1 | 2 | 3 |
| 66. I jogged or exercised. | 0 | 1 | 2 | 3 |

Stop Here.

APPENDIX D

APPENDIX F

PATIENT INFORMATION LEAFLET AND INFORMED CONSENT

TRIAL TITLE

Depression among mothers of premature babies and their coping strategies.

INTRODUCTION

You are invited to volunteer for a research study. This information leaflet is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this leaflet, do not hesitate to ask the investigator. You should not agree to take part unless you are completely happy about all the procedures involved. In the best interests of your health, it is strongly recommended that you discuss with or inform your personal doctor of your possible participation in this study, wherever possible.

WHAT IS THE PURPOSE OF THIS TRIAL?

The purpose of this trial is to determine the levels of depression among mothers with premature babies and their coping strategies. Mothers with full-term babies will serve as the control group.

WHAT IS THE DURATION OF THIS TRIAL?

If you decide to take part you will be one of approximately 100 patients. The study will last for up to one hour. The investigator will visit you once before you are discharged from the hospital.

HAS THE TRIAL RECEIVED ETHICAL APPROVAL?

This clinical trial Protocol was submitted to the Research Ethics Committee and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki, which deals with the recommendations guiding doctors in biomedical research involving human/subjects. A copy of which may be obtained from the investigator should you wish to review it.

WHAT ARE MY RIGHTS AS A PARTICIPANT IN THIS TRIAL?

Your participation in this trial is entirely voluntary and you can refuse to participate or stop at any time without stating any reason. Your withdrawal will not affect your access to other medical care. The investigator retains the right to withdraw you from the study if it is considered to be in your best interest. If it is detected that you did not give an accurate history or did not follow the guidelines of the trial and the regulations of the trial facility, you may be withdrawn from the trial at any time.

IS ALTERNATIVE TREATMENT AVAILABLE?

Concerning the emotional arousal participants may experience following the completion of the questionnaires, the following precautions will be made. Each participant will be provided with the contact information of Pretoria Academic Hospital's clinical psychologist and the social worker of the unit, if they need help in dealing with any emotional problems. The researcher will make arrangements with these professionals, before the study commences, to provide assistance to the participants that may contact them.

SOURCE OF ADDITIONAL INFORMATION

The researcher of the trial is Mr. JJ Roos and he can be contacted at Tel 082 450 8244.

CONFIDENTIALITY

All information obtained during the course of this trial is strictly confidential. Data that may be reported in scientific journals will not include any information which identifies you as a patient in this trial.

In connection with this trial, it might be important for domestic and foreign regulatory health authorities and the Research Ethics Committee of the South African Medical Association, the Medicines Control Council, as well as your personal doctor, to be able to review your medical records pertaining to this trial. Therefore, you hereby authorise your investigator to release your medical records to domestic and foreign regulatory health authorities, the Medicines Control Council and the Research Ethics Committee of the South African Medical Association. You understand that these records will be utilised by them only in connection with carrying out their obligations relating to this clinical trial.

Any information uncovered regarding your test results or state of health as a result of your participation in this trial will be held in strict confidence. You will be informed of any finding of importance to your health or continued participation in this trial but this information will not be disclosed to any third party in addition to the ones mentioned above without your written permission. The only exception to this rule will be cases in which a law exists compelling us to report individuals infected with communicable diseases. In this case, you will be informed of our intent to disclose such information to the authorised state agency.

INFORMED CONSENT

I hereby confirm that I have been informed by the investigator, Mr JJ Roos about the nature, conduct, benefits and risks of the clinical trial. I have also received, read and understood the above written information (Patient Information Leaflet and Informed Consent) regarding the clinical trial.

I am aware that the results of the trial, including personal details regarding my

sex, age, date of birth, initials and diagnosis will be anonymously processed into a trial report.

I may, at any stage, without prejudice, withdraw my consent and participation in the trial. I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the trial.

Patient's name _____ (Please print)
Patient's signature _____ Date _____
Investigator's name J. J. Roos (Please print)
Investigator's signature [Signature] Date _____

I, Mr JJ Roos herewith confirm that the above patient has been informed fully about the nature, conduct and risks of the above trial.

Witness's name* _____ (Please print)
*Consent procedure should be witnessed whenever possible.
Witness's signature _____ Date _____

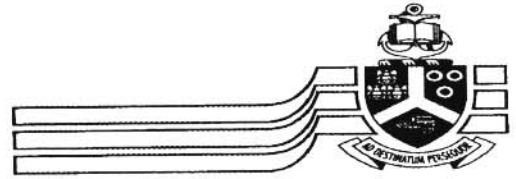
VERBAL PATIENT INFORMED CONSENT

(applicable when patients cannot read or write)

I, the undersigned, Mr JJ Roos, have read and have explained fully to the patient, named or his/her relative, the patient information leaflet, which has indicated the nature and purpose of the trial in which I have asked the patient to participate. The explanation I have given has mentioned both the possible risks and benefits of the trial and the alternative treatments available for his/her illness. The patient indicated that he/she understands that he/she will be free to withdraw from the trial at any time for any reason and without jeopardising his/her subsequent injury attributable to the drug(s) used in the clinical trial, to which he/she agrees.

I hereby certify that the patient has agreed to participate in this trial.

Patient's Name _____ (Please print)
Investigator's Name _____ (Please print)
Investigator's Signature _____ Date _____
Witness's Name _____ (Please print)
Witness's Signature _____ Date _____



University of Pretoria

Faculty of Health Sciences Research Ethics Committee

University of Pretoria

Tel (012) 339 8619

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E Mail dbehari@med.up.ac.za

Soutpansberg Road Private Bag x 385

MRC-Building Pretoria

Level 2 0001

Room 19

Date: 12/06/2002

Number : **S134/ 2002**

Title : **Depression amongst mothers of premature infants and their stress coping strategies**

Investigator : **J J Roos, Department of Paediatrics, Pretoria Academic Hospital**

Sponsor : **None**

This Student Protocol has been considered by the Faculty of Health Sciences Research Ethics Committee, University of Pretoria on 11/06/2002 and found to be acceptable.

Prof P Carstens	BLC LLB LLD (Pret) Faculty of Law
Dr J.E.Dafel	(female) MBChB: Hospital Superintendent
Prof A.P.du Toit	BA; DiplTheo; BA (Hons); MA; DPhil: Philosopher
Prof S.V. Grey	(female) BSc (Hons); MSc; DSc: Deputy Dean
Dr V.O.L. Karusseit	MBChB; MFGP (SA); M.Med (Chir); FCS (SA): Surgeon
Dr S.Khan	(female) MB.BCh.; Med. Adviser (Gauteng Dept.of Health)
Prof M Kruger	(female) MB.ChB.(Pret); Mmed.Paed.(Pret); Ph.Dd. (Leuven)
Miss B Mullins	(female) BscHons; Teachers Diploma;
Snr Sr J. Phatoli	(female) BCur (Et.AI) Senior Nursing-Sister
Prof H.W. Pretorius	MBChB; M.Med (Psych) MD: Psychiatrist
Prof P. Rheeder	MBChB; M.Med (Int); LKI (SA); MSc (CLIN.EPI): Specialist Physician
Dr C F Slabber	BSc (Med)MB BCh, FCP (SA) Acting Head; Dept Medical Oncology
Prof J.R. Snyman	MBChB, M.Pharm.Med: MD: Pharmacologist
Prof De K.Sommers	BChB; HDD; MBChB; MD: Pharmacologist
Dr R Sommers	(female) MBChB; M.Med (Int); MPhar.Med;
Dr TJP Swart	BChD, MSc (Odont), MChD (Oral Path) Senior Specialist; Oral Pathology
	<u>Student Ethics Sub-Committee</u>
Mrs E Ahrens	(female)B.Cur;
Prof S Meij	(female)BSc(Hons);MSc
Prof P. Rheeder	MBChB;M.Med(Int);LKI(SA);MSc (CLIN.EPI): Specialist Physician
Dr R Sommers	SECRETARIAT (female)MBChB; M.Med (Int); MPharMed;
Dr C van der Westhuizen	(female) D.Cur; M.Ed.
Mrs N Lizamore	(female) BSc(stell), BSc (Hons) (Pret),MSc (Pret) Dept. Anatomy

PROF J R SNYMAN

MBChB, M.Pharm.Med, MD: Pharmacologist
CHAIRPERSON of the Faculty of Health Sciences Research
Main Ethics Committee - University of Pretoria

PROF P. RHEEDER

MBChB; M.Med (Int); LKI (SA); MSc (CLIN.EPI): Specialist Physician
CHAIRPERSON of the Faculty of Health Sciences Research
Students Ethics Committee - University of Pretoria

APPENDIX E

UNIVERSITY OF THE NORTH ETHICS COMMITTEE

APPLICATION FOR HUMAN EXPERIMENTATION

(Completed forms, preferably typed, should reach the Chairperson of the Ethics Committee at least one month before the experimentation is due to start. Projects where the researcher only receives human material for analysis without actually being involved with collection from the experimental group must still register in the normal way. Researchers who are involved with projects which have been approved by Ethical Committees of other Institutions should provide this Committee with the necessary information and provide it with a shortened protocol for approval)

PROJECT TITLE: Depression among mothers with premature infants and their stress coping strategies.

PROJECT LEADER: Mr. JJ Roos

DECLARATION

I, the signatory, hereby apply for approval to execute the experiments described in the attached protocol and declare that:

1. I am fully aware of the contents of the Guidelines on Ethics for Medical Research, Revised Edition (1993) and that I will abide by the guidelines as set out in that document (available from the Chairperson of the Ethics Committee); and
2. I undertake to provide every person who participates in any of the stipulated experiments with the information in Part II. Every participant will be requested to sign Part III.

Name of Researcher: JJ Roos

Signature:

Date:

For Official use by the Ethics Committee:

Approved/Not approved

Remarks:

Signature of Chairperson:

Date:

PROJECT TITLE: Depression among mothers of premature infants and their stress coping strategies.

PROJECT LEADER: Mr. JJ Roos

APPLICATION FOR HUMAN EXPERIMENTATION: PART II

Protocol for the execution of experiments involving humans

1. Department: Psychology
2. Title of project: **Depression among mothers with premature infants and their stress coping strategies.**
3. Full name, surname and qualifications of project leader:
Mr. Johannes Jacobus Roos, BA Honours. Psychology.
4. List the name(s) of all persons (Researchers and Technical Staff) involved with the project and identify their role(s) in the conduct of the experiment:

Name:	Qualifications:	Responsible for
Mr. JJ Roos	BA Honours. Psychology	Project Leader
Mr. JJ Roos	BA Honours. Psychology	Researcher

5. Name and address of supervising physician: none
6. Procedures to be followed: Participants will complete questionnaires in a Hospital setting.
7. Nature of discomfort: Emotional discomfort may arise among mothers of premature infants.
8. Description of the advantages that may be expected from the results of the experiment:

A need for psychological support for mothers of premature infants can be determined.

Signature of Project Leader:

Date:

PROJECT TITLE: Depression among mothers of premature infants and their stress coping strategies.

PROJECT LEADER: Mr. JJ Roos

APPLICATION FOR HUMAN EXPERIMENTATION: PART II

INFORMATION FOR PARTICIPANTS

1. You are invited to participate in the following research project/experiment:

Depression among mothers with premature infants and their stress coping strategies.

2. Participation in the project is completely voluntary and you are free to withdraw from the project/experiment (without providing any reasons) at any time. You are, however, requested not to withdraw without careful consideration since such action might negatively affect the project/experiment.
3. It is possible that you might not personally experience any advantages during the experiment/project, although the knowledge that may be accumulated through the project/experiment might prove advantageous to others.
4. You are encouraged to ask any questions that you might have in connection with this project/experiment at any stage. The project leader and her/his staff will gladly answer your question. They will also discuss the project/experiment in detail with you.
5. Your involvement in the project.

Participants will be expected to fill in questionnaires (Edinburgh Postnatal Depression scale & Ways of Coping Questionnaire) in a hospital setting. Participation may arouse some uncomfortable emotions among mothers with newborn infants. However, participants who need counselling or psychotherapy there after, will have the opportunity of receiving such an attention from the project leader or a hospital counsellor. When the psychological need of mothers of premature infants are identified, it will help mental health workers in the identification and treatment.

UNIVERSITY OF THE NORTH ETHICS COMMITTEE

PROJECT TITLE: Depression among mothers of premature infants and their stress coping strategies.

PROJECT LEADER: Mr. JJ Roos

CONSENT FORM

I, _____ hereby voluntarily consent to participate in the following project: **Depression among mothers of premature infants and their stress coping strategies.**

I realise that:

1. The study deals with the subject of postnatal depression and stress coping styles.
2. The procedure or treatment envisaged may hold some risk for me that cannot be foreseen at this stage;
3. The Ethics Committee has approved that individuals may be approached to participate in the study.
4. The experimental protocol, i.e., the extent, aims and methods of the research, has been explained to me;
5. The protocol sets out the risks that can be reasonably expected as well as possible discomfort for persons participating in the research, an explanation of the anticipated advantages for myself or others that are reasonably expected from the research and alternative procedures that may be to my advantage;
6. I will be informed of any new information that may become available during the research that may influence my willingness to continue my participation;
7. Access to the records that pertain to my participation in the study will be restricted to persons directly involved in the research;
8. Any questions that I may have regarding the research, or related matters, will be answered by the researchers;
9. If I have any questions about, or problems regarding the study, or experience any undesirable effects, I may contact a member of the research team;

10. Participation in this research is voluntary and I can withdraw my participation at any stage;
11. If any medical problem is identified at any stage during the research, or when I am vetted for participation, such condition will be discussed with me in confidence by a qualified person and/or I will be referred to my doctor;
12. I indemnify the University of the North and all persons involved with the above project from any liability that may arise from my participation in the above project or that may be related to it, for whatever reasons, including negligence on the part of the mentioned persons.

SIGNATURE OF RESEARCHED PERSON

SIGNATURE OF WITNESS

SIGNATURE OF PERSON THAT INFORMED
THE RESEARCHED PERSON

SIGNATURE OF PARENT/GUARDIAN

Signed at _____ this _____ day of
2001_