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PARENTAL STRESS IN A NEONATAL INTENSIVE CARE UNIT IN AN ACADEMIC HOSPITAL IN JOHANNESBURG

Liti Kitemangu - Mvungi

A Research Report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg in partial fulfilment of the requirements for the Degree
of
Master of Science in Nursing

Johannesburg, 2009

DECLARATION

I, Liti Kitemangu - Mvungi, declare that this research report is my own work. It is being submitted for the Degree of Master of Science (Nursing) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University



Liti Kitemangu - Mvungi

May Day of 28th, 2009

DEDICATION

To my darling husband Dr Robert Mvungi for allowing me the opportunity to complete my studies successfully with his unreserved support. To my children Asseri, Muna and Ester, I am deeply thankful for your love; and to my dearest mother Tatu R. Kitemangu, with appreciation and affection.

In loving memory of my father,
Muna Hussein Kitemangu, who was the source of my inspiration

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation and gratitude to the following people who made this study possible:

- Dr Adele Tjale, my supervisor, for her expertise, patience, encouragement and untiring support.
- My co-supervisor Professor Ballot, for the support and guidance during data collection.
- Dr P. Becker and Mr Musenge, from the South Africa Medical Research Council, for the statistical guidance throughout the study.
- My researcher assistant Mrs Sayinile Dlamini for her tireless effort during Zulu version data collection.
- Hospital management and neonatal intensive care unit for their co-operation during the period of data collection.
- Professor J Bruce, Head of the Department of Nursing Education for your time and support.
- To GOD, my rock and my fortress.

ABSTRACT

Parents of infants admitted to the neonatal intensive care unit (NICU) are believed to experience increased fear, anxiety and depression, which consequently develop into stress. This increasing stress has been associated with multiple factors including the stressful nature of NICU environment, physical and emotional isolation from their infants as well as normal parenthood stress where the parents have to deal of having a critically ill infant. There is a paucity of literature emanating from developing countries on parental stress in NICU. The purpose of this study was to investigate the parents whose infants are admitted with respiratory-distress syndrome in NICU. The objectives were to identify the source of stressors by using the PSS NICU instrument; to determine how the interaction between staff and the parents of admitted infants contribute to parental stress; and to identify the implications of the research findings to the nursing staff in NICU.

This was a non-experimental prospective descriptive study conducted using mothers and fathers (sample n = 115) of the infants admitted in NICU with respiratory distress syndrome, weighing 2kg and below. Every parent or both parents of the infant meeting the criteria were included on the list. Then systematic sampling selection of respondents was performed, and every second parent on the list was selected. Data were obtained from two groups of participants, Zulu respondents (n = 34) and English respondents (n = 81).

The overall results on three subscales demonstrated positive contribution on higher level of stress to the majority of the parents. Sight and sound predominated in 61% of the

parents. Highly educated parents were found to be more stressed with this subscale compared with the less educated parents. Parental role and interaction with the infant scored 96%, which showed that the parents were stressed. However, the study found that Zulu version respondents were more stressed than the English version respondents. Staff behaviour and communication scored 28% – a low level of stress experienced by the parents, which revealed the positive contribution of the parents who scored a low level of stress in this setting. Moreover, the findings demonstrated that older parents were less stressed compared with younger parents. English version respondents were less likely to be stressed than Zulu version respondents in relation to staff behaviour and communication.

The identified stressors in this study formed a foundation for knowledge and skills development for future prevention strategies of parental stress in the NICU. The inherent limitations of the study limit the general applicability of the findings to other NICU settings, there is a useful need for large-scale prospective studies to be conducted to further explore and to validate the findings of this study in the South African context.

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CHAPTER ONE

ORIENTATION OF THE STUDY

1.1 Introduction

In this chapter a broad overview of the study is presented. The background and general effects of stressors on parents with infants in NICU are discussed. This chapter further outlines the background of the study, problem statement, purpose, and objectives of the study including significance and definition of terms used.

1.2 Background of the study

The inspiration to conduct this research developed over two months of working in NICU. My interest grew after noticing that most parents often looked worried, and always verbalised their feelings of hopelessness and concerns about their inability to provide their infants with the basic care. I realised that management of a critically ill infant is different from other paediatric units. In NICU the parents are not allowed to sleep over with their infants, for several reasons, including the concerns regarding introduction of infection. Parents are often devastated and hopeless knowing that they cannot provide the normal parental role for their critically ill infants who are suffering alone in a scary environment in NICU (Lyons-Ruth & Spielman, 2004; Miles & Holditch-Davis, 1997).

The experience of having an infant in NICU is always unexpected and often thwarts the dreams of joy expected by most of the parents when the mothers are pregnant. Experience of being pregnant always brings strong emotions that are positive. Parents'

expectations are always over-warm, focusing on having a healthy infant, with the intent of being together with the infant soon after delivery.

This experience provides an event which highlight memories that often remain forever (Lundgren, 2005). And the joy of having a new-born infant who is healthy is something that is shared by the whole family (Hodnett, 2002). However, when the women give birth to an infant suffering from an acute illness such as Respiratory Distress Syndrome, it is immediately admitted to the NICU. This condition has been documented world wide as the most common condition among many, necessitating admission of the infant into NICUs (Behrman, Kliegman & Jenson; 2004). The same condition was found to dominate admission of infants in 2006 – 2007. This study was conducted among 371 infants admitted, of whom 300 were diagnosed with Respiratory Distress Syndrome and, among them, 222 infants weighed 2 kg and below. Acute illness such as this in early life separates the parent from the infant who needs critical care attention.

Separation creates distance between parents and infant, which evokes feelings of grief and fear from the parents. This fear is associated with thoughts of survival compounded by the inability of their infants to verbalise their needs. This worsens the parents' emotional feeling and leads to disappointment. The parents experience failure and loss of self esteem, (Linda, 2005; Franck, 2005). The feelings become even more difficult for the parents to handle when restrictions are placed on them regarding the care of their sick infants. Under these circumstances, the parents fail to establish bonding owing to their inability to perform their role.

Parental role starts while the foetus is still in the uterus, for example the pregnant woman improves her nutritional intake in order to provide good nutrition to the foetus. Furthermore, mothers' stop and reduce habits that might harm unborn baby, such as smoking and alcohol. Some mothers would begin the habit of reading books for antenatal care. Listening to foetal movement is a joy that connects two individual human beings and this relationship continues throughout labour and immediately when the baby is born. At birth parental role is initiated through cuddling, touching and providing of basic care. During breast feeding mother and infant have face-to-face interaction, leading to the establishment of parental identity. However, when the infant is admitted into NICU, the situation creates a barrier and the parents cannot perform the normal parental role. This result in a delay in the initiation of the attachment process: which exposes the infant to the challenges of delaying growth and development, (Feidman, Eidelman, Sirota & Weller, 2002; Poehlmann & Fiese, 2001).

When the parent depends on others for everything regarding the care of their sick infant in the NICU, the authority and power often shifts from the parents to the expertise of the highly specialised nurse, who seems to come between parents and infant causing a detachment of social engagement between the mother and infant.

When social engagement is detached in this way, child-parent relationship is lost. This often causes fear, which causes parents to respond by distancing themselves from their infants, (Nystrom & Axelsson, 2002). Distance between parent and infant interrupts early parental contact and delays development of a relationship which should not be interrupted

during this important time of the infant's life. The journey of parenting, especially for the mother, becomes threatened, which impairs the maternal adaptation to infant signals and social engagement with the infant, (Tu, Grunau, Petrie-Thomas, Hayer, Weinberg & Whitfield, 2007; Singer, Salvator, Guo, Collin, Lilien & Bailey, 1999; Miles & Holditch-Davis, 1997).

The nurses in the NICU are often expected to bridge the gap because they are key to the successful and possible good outcome of their infant care. Support and love from the family members also adds a positive perception of comfort to the parents during this period (Feidman et al., 2002). Effective communication from both the staff and family members to the parents can contribute effectively to decreasing the levels of parents' response to stress (Holditch-Davis & Miles, 2000: 15).

1.3 Problem statement

The parenting role starts as soon as the baby is born. During this period, the mother tries by all means to make sure that the foetus is protected from habits that might harm her unborn baby such as smoking and alcohol and mother provides good nutrition to the foetus by eating well. These protective behaviours continue throughout antenatal into labour period. These provides a foundation of bonding between mother and unborn baby before even baby is born. Parents always become closer to the infant when born, physical attachment is voluntarily and naturally established. Parents make sure that the infant is protected due to the total dependability of the infant on the parents' for nurturing and hygiene. When the parents perform their role effectively during this time, a

relationship is recognized and bonding is established. However, if it happens that the infant is born with acute illness that necessitates admission of the infant to an NICU soon after birth, parental role is disrupted leading to concerned about the life of the infant being threatened. Parental intuitive response to any threat to the life of their infant is protection. Failure to provide protection in this early stage of their infant's life provokes disappointment which leads to stress.

1.4 Purpose of the study

The purpose of this study is to investigate the stress experienced by parents of infants admitted into NICU using the parental stressors scale in the NICU (PSS: NICU) questionnaires. The study was conducted on parents of infants admitted with respiratory distress syndrome (hyaline membrane syndrome) weighing 2 kg and below and ventilated for at least two days and admitted to the NICU in an academic hospital in Johannesburg.

1.5 Study objectives

The objectives of the study were to:

- Identify the source of stressors using the PSS: NICU instrument for the parents of infants admitted into NICU with respiratory distress syndrome.
- determine how the interaction between staff and the parents of admitted infants contributes to parental stress.
- Describe other experiences encountered by the parents during hospitalization of their infant in NICU.
- determine how the implications of the study will benefit the nursing staff in

NICU.

1.6 Research questions

- What are the stressors of parents whose infants are admitted to NICU?
- How do staff and communication contribute to parental stress?
- What are the other experiences encountered by the parent during stay of their infant in NICU?
- What are the implications of research findings to the nurses in NICU?

1.7 Definition of terms

1.7.1 Infant

An infant is a premature who born before the 37th week of pregnancy. Common symptom of an infant is often very under weight and lacking self sufficient organ function (Harrison, 2007: 161).

1.7.2 Neonate

Neonate is a term used to refer to a newborn baby from birth to one month or 28 days of life (Harrison, 2006: 27).

1.7.3 Neonatal intensive care unit (NICU)

The NICU is a specialised and monitored health care unit provided for critically ill and post-operative new-born babies from birth to one month old. Care is provided by a

specialist multi-disciplinary team in a specifically designed hospital unit (Nick & Barbara; 2002: 186).

1.7.4 Parent:

The parent is a biological mother or father of an infant.

1.7.5 Stressors:

Stressors are defined as physical and psychological elements of a situation that impose demands on individuals, which can lead to stress reaction (Dudek-Shriber, 2004: 510).

1.7.6 Parental stress

Parental stress is defined as aversive emotional reaction by an individual parent either can be father or mother to the demands of occupying child care and child socialization roles (Crnic & Low, 2002: 243).

1.7.7 Higher education:

Higher education in this study is defined as education beyond secondary level, which means the education provided by the colleges or university. According to the South African Higher Education Amendment Act, 2008, higher education means qualification higher than Grade 12.

1.7.8 Infant Respiratory Distress Syndrome:

Infant Respiratory Distress Syndrome is a condition of surfactant deficiency and

physiologic immaturity of the thorax. It is seen almost exclusively in premature who born before the 37th week of pregnancy (Hockenberry & Wilson, 2007).

1.8 Significance of the study

It is hoped that the information gained from this study will provide scientific evidence needed to inform clinical practice and to equip nursing staff in NICU with the knowledge and skill on parental stress. Knowledge and skills gained from this study will enable the nurses to narrow the gap caused by lack of scientific evidence for the purpose of implementing techniques important according to identified stressors. For example provision of education support to the parent before and after discharge of an infant will enable the parents to be familiar with the NICU environment and understand better about appearance of their infant when admitted. This will empower the parents to be realistically about some of stress identified that can be changed. This may have a positive influence on the early establishment of maternal attachment to the infant, which is necessary for the foundation of a life-long relationship between the parents and infants.

1.9 Conclusion

In this study, an overview of parental stress has been outlined in relation to the background of the problem. The description of parental stress, a problem statement and significance of the study is explained. The following chapter will review current literature related to parental stress when an infant is admitted into the NICU.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature on parental stress. The important areas in the literature were delineated in relation to the objectives of the study. Descriptions of general stress and parental stress are given. The consequences of parental stress are explained in detail. No theoretical or conceptual frameworks were used to guide this research. This study is descriptive and does not have its roots in neither a theory nor a conceptual model (Polit & Beck, 2004:18). However, the concepts stress, parental stress and its consequences, and neonatal ICU as context for the sick infant, are discussed in this chapter.

2.2 Stress

Stress is widely experienced in different disciplines and in everyday life situations. In daily life, stress exists when the individual, together with other factors such as daily hassles, is in a stressful environment or distressing event (Cummings, Davies & Campbell, 2003). Any kind of changes that may evoke stressful reactions at an extra level, and which affect the feelings of an individual, is referred to as someone having stress. However, in the ordinary use of the term stress, it operates on the emotional level, which may affect the individual wellbeing, resulting in a negative change in the individual's personality (Cummings, Davies & Campbell, 2003).

An early definition of stress refers to the body's response to a stimulus that is placed upon it (Cannon, 1932:97). Any thing or situation that causes tension in an individual is called a stimulus. When the body or part of the body reacts to a stimulus placed upon it, it is termed a response (Sheu, Lin & Hwang, 2002). More recently, however, the word stress is defined as the condition that causes interactions between people and their environment (Kuczynski, 2003). Stress can be positive or negative depending on several factors including the nature of the stimulus, potential resources to support the individual, ability of the individual to cope with the stimulus and individual coping style, which is influenced by the culture and belief of the individual (Bracht, Kandankery, Nodwell & Stade, 2002). All these factors have either a bad or a good influence on an individual's perception of stress. Positive stress is when human beings cope with the demand that is placed upon them. Negative stress is when the human coping mechanisms exceed the limit of the normal coping process. Failure to adapt leads to either physical or psychological stress (Keil, 2004).

Physical response to stress is primarily an external response that appears in a normative change that can be measured. These include increased muscle tension, increased blood pressure, pulse rate and galvanic skin response. Psychological response to stress is an internal response of the human mind towards stimulus, which brings about changes in the balance of hormones. This results in changes to an individual's personality by increasing negative behaviours such as mood change (Cummings, Davies & Campbell 2003).

However, the study investigates the stress of parents of infants admitted into NICU. This discussion provides the insight and basic foundation which applies in different professional fields concerned with stress, including parental stress.

2.3 Parental stress

Parental stress is defined as an aversive emotional reaction by an individual parent; either father or mother; to the demands of occupying child-care or child-socialization roles (Crnic & Low, 2002:243). For example, parents having an infant with health problems have a higher level of pressure associated with the demands of taking care of an infant who requires special needs. Pressure such as decreased health and wellbeing, which is characterised by increased psychological changes to the parent arise because the cost of taking care of infants with special needs is high compared with taking care of normal healthy infants (Holub, Kershaw, Ethier & Lewis, 2007).

Taking care of an infant in neonatal intensive care requires considerable social, financial and health-care resources Kilburn & Wolfe, (2002); Halfon, Olson & Inkelas, (2000), failure to provide all the resources needed by the infant when admitted results in a feeling of hopelessness, fear and anxiety (Lee, Chen, Wong & Chen, 2007: 166).

It has been shown that many parents with infants who are healthy at home have difficulty paying for basic child-needs. For parents with an infant in NICU, it is even worse because they may have difficulty obtaining the adequate social and financial resources

they need to visit their infants every day in the hospital. This is costly and needs sufficient funds (Young, Davis & Schoen, 1998; Halfon, Olson & Inkelas, 2000).

2.3.1 Consequences of parental stress

Parental health has a strong influence on infant health and development of the infant. When the parents are healthy, they will be able to focus and take care of their infant financially, and make use of health-care resources (Kilburn & Wolfe, 2002).

Failure to obtain adequate access disrupts the confidence and competence of the parents. Evidence shows that lack of competence from parents does not stop after the infant's discharge. It carries through later, and presents as increased worry about parenthood, which may affect the normal course of adjustment in relation to the responsibility of being parents, (Lee, Chen, Wong & Chen, 2007).

Parents who experience higher stress during the early stage of an infant's life may present with decreased likelihood for optimal maternal adjustment during the parenthood period, (Dawson, Ashman, Panagiotides, Hessl, Self & Tamada, 2003).

Stress in parents overrides the buffers, resulting in decreased health. Increased psychological and physical changes cause a response in the parents' behaviour. Tension increases, which contributes to negativity, resulting in poor quality of attention to the infant and lack of concentration. This has a negative effect on the early establishment of

the parental role, (Holub et al., 2007; Ostberg, Hagekull & Hagelin, 2007 and Sepa, Flodi & Ludvigsson, 2004)

Failure to establish parental role early increases tension in the parents, and presents with energy depletion toward the infant care, and isolation may result (Holditch-Davis & Miles, 2000:18).

Isolation brings a sense of personal responsibility, increases psychological stress by reducing ability to stand stress, and results in withdrawal from social interaction (Franck, Cox & Winter, 2005). Ineffective social interaction between the parents and nurses was found to cause poor attention from staff, which may result in poor concentration from the parent due to the inability to share concerns (Miles & Holditch-Davis, 1997; Holditch-Davis & Miles, 2000).

Poor quality of attention and lack of concentration from the parents may result in delaying parental identity. This affects the ability of the parents to read the infant's message, to regulate arousal and to socially engage the infant, which is often less than optimal in terms of a lower maternal adaptation to infant signals (Bialoskurski, Cox & Hayers 1999:74). However, when the parents fail to relate to the infant, it leads to a delay in maternal attachment by decreasing maternal touch, vocalisation and gaze. This also exposes the infant to a range of development that exhibits low cognitive and motor skills that persist into later childhood (Miles & Holditch-Davis 1997: 256; Feidman et al., 2002).

Delayed maternal attachment associated with hospitalisation of the infant; also expose the infant to low cognitive developmental and poor motor skills (Feldman et al., 2002). Parental stress may act indirectly through maternal behaviour, or may affect the infant's cognitive processes directly (Poehlmann & Fiese, 2001). Knowing the consequences of parents being stressed and the effects on the infant, it maybe concluded that an understanding and identification of the factors that influence parents' response to stress should be taken into account. This is important for the wellbeing of the parents and a positive outcome on an infant who is admitted into intensive care. It is important, too, for the care of health providers and interests of the South Africa community. The purpose of this study therefore, was to investigate the stress experienced by parents of infants admitted into NICU.

2.4 Parental stress in NICU

Awareness of parental stress in NICU has evolved as a leading issue since the 1980's. In 1982, Magnusson's was the first author in a nursing field to discuss about stress of the parent with an infant in NICU. Since then other nursing authors have been built on what it is already known about stress in NICU from Magnusson (Miles, funk & Carlson, 1993; Holditch-Davis & Miles, 2000).

Stressors in NICU identified as the physical and psychological elements of a situation that imposes demands on parents when their infant is admitted to NICU. These stressors can cause parents to respond to stress physically due to the environment, and

psychologically due to their having a sick infant admitted into NICU under the influences of other factors such as: (a) Pre-existing and concurrent family factors; (b) prenatal and perinatal experience; (c) the infant illness appearance and treatment; (d) concerns about outcome; (e) loss of parental role; and (f) interaction with the providers (Holditch-Davis & Miles, 2000). More of these factors will be discussed under the following heading.

2.5 NICU environment

The NICU environment is documented as a physical element that imposes a demand due to technological devices in the unit, and machines surrounding the infant, which are not well-known to the parents.

Physical elements of the NICU environment are: Being surrounded by strange bright lights all over the unit and the bright light on the infant bed; noise of the life-support machine system, for monitoring the infant's breathing; monitoring equipment attached to the infant in order to measure the vital signs; seeing the equipment such as wires, and tubes such as drips and a nasal gastric tube put into their infant; and loud sounds and unpleasant sights. These can provoke stress to the parents (Franck, Cox, Allen & Winter, 2005; Miles, Carlson & Funk, 1996).

The nature of the environment, surrounded by health-care professionals and different procedures being done to their infant, causes concern to the parents about the outcome of their infant. This is because the infant is alone in the strange environment and the parents cannot help their infant, (Franck et al., 2005; Cox, Allen & Winter, 2004).

The interaction between the parents and the NICU environment is perceived as stressful, which threatens the wellbeing of the parents, and leads to a stressful reaction (Keil, 2004). Parents who are familiar with the NICU environment were found to respond positively to the stress compared with those who were not familiar. This was found to happen more with the educated parents who appear to be less stressed compared with less educated parents, when their infant is admitted into NICU, (Dudek-Shriber, 2004).

2.6 Having a sick infant

Having a sick infant soon after delivery is always unexpected, and is associated with emotional feelings caused by changes in the balance of hormones in the body. The parents experience changes in mood, decreased health-promoting behaviour and increased negative supportive behaviour. These are characterised as psychological stress (Keil, 2004).

Admission of an infant is always surprising, because parents expect to have a healthy infant. This starts when the mother is pregnant, and the expectation increases even more when the mother is in labour. These expectations lead to mixed feelings of joy, struggle and pain, which may result in stress (Olin & Foxelid, 2003: 154).

The birthing process is traditionally known as the most painful process (Barclay, Everitt, Rogan, Schmied & Wyllie, 1997; Holldorsdottir & Karlsdottir; 1996). Usually, mothers forget this experience immediately and try to adapt and respond positively to the

emotional strain undergone during the birthing process soon after having a healthy infant (Hodnett, 2002).

However, giving birth to birthing of a sick infant distracts the normal nature of positive adaptation of emotional strain which leads to direct stress in the parent – more so when the infant is admitted into NICU (Doering, Moser & Dracup 2000; Pineli, 2000). Parents with a premature infant experience a significantly higher incidence of psychological stress compared with parents of the full-term infant during hospitalisation (Miles & Brunssen, 2003).

Although parental expectations differ from parent to parent on what they dreamed of during pregnancy and labour, the parents' response to stress also differ depending on their ability to handle stress, contributed by an individual social and cultural background and outlook on life, (Franck et al., 2005).

However, when the infant is admitted into NICU, it appears that parents do come to terms with changing needs. This leads to a higher response to stress, due to the inability of their infants to verbalise needs, and being very sick under critical medical attention which they as parents cannot provide (Dyson, 1993; Roach, Orsmond & Barratt, 1999; Nystron & Axelsson, 2002).

Nystron and Axelsson (2002) conducted a study in Sweden on the different physiological stresses in relation to parental role. They discovered that mothers of sick infants

experienced psychological stress, but felt confident in parenting roles compared with mothers of healthy infants. This was because, somehow, they coped with their infants who are more difficult to care for. However, according to this and previous discussion, we can conclude that it is not the case when the infant is admitted into NICU. Confidence about parental roles is disrupted, which is often associated with parents being unable to perform normal parenting tasks as they had expected when at home, due to technical devices surrounding their infant (Hunter, 2001; Dudek–Shriber, 2004).

Many studies have shown that researchers are concerned about whether there is more stress in the mother or in the father of an infant. According to previous studies, both were found to experience equal stress (Board & Ryan-Wenger, 2003; Nystron & Axelsson, 2002). Admission of the infant brings with it special challenges to both parents. It involves feelings of helplessness, confusion and misunderstanding, since they cannot protect their infant from harm and harmful procedures performed in the NICU (Hunter, 2001; Dudek–Shriber, 2004).

The levels of stress in mother and father were found to be different, being more stressful for the mothers. They are usually the primary care givers, in the infant care (Fisher, 1994). Additionally, even the way mothers and fathers cope with the stressors when their infant is admitted were found to be different (Pineli, 2000).

Mothers were found to be more engaged than fathers in the care of the infant during visits in the hospital (Jackson, Ternestedt & Scholin, 2003). Mothers encounter higher anxiety

and fear caused by separation from their infants than fathers, because of the extreme physical maternal attachment mothers have with the infant (Franck & Spencer, 2003).

Fathers were found to be more involved with receiving information and more engaged with the staff than mothers (Lindberg, Axelsson & Ohrling, 2007). The information about what is happening to their infants seems to be more important to fathers than to mothers when their infant is admitted (Board & Ryan-Wenger, 2000).

These findings are supported by Aldridge (2005) from the Texas at Austin Hospital, who conducted a study on decreasing parental stress in paediatric intensive care units. He concluded that mothers and fathers differ in the way they perceive stress even though both find the experience from labour to admission of the infant as a whole equally stressful.

Although, both experience stress equally, mothers were found to have significantly higher anxiety and poorer adjustment than the father when their infant is admitted (Doering, Moser and Dracup, 2000; Dudek-Shriber, 2004).

Previous research has identified secondary sources such as low social economic status and absence of social support that contribute to the parent's response to stress when their infant is admitted into NICU (Keil, 2004; Mistry, Steevens, Sareen, De Vogli & Halfan, 2007).

These contributing sources are seen as something negative or unwanted, which create certain conditions that predispose the parents to stress (Keil, 2004: 662). Factors such as poverty have been demonstrated to cause stress to the parents when their infant is admitted into NICU, due to limited resources or insufficient funds to cover their infant's health care (Grand, Okoo, Davis, Roache, Poindexter & Armstrong, 2000).

Young parents and socio-economically disadvantaged, low-income, low-education, unemployed and single parents with more children and with poor social support, had more stressful life events. They are therefore more likely to be stressed when compared with parents without these characteristics (Horwitz, Briggs-Gowan, Storfer-Isser & Carter, 2007: 688).

Parents who are single with critically ill infant in NICU found to be significantly more stressed compared to the parents who are married or who had partners due to an inability of single parent to share their emotional concerns with the person who have exactly the same feeling toward their infant. This causes an emotional reaction which leads to stress, (Shields-Poe and Pinelli, 1997: 32). The experience leads to mood change, resulting in parents distancing themselves from their infants, and even from the professionals involved in the infant's care, (McKenzie, Murray, Matheson, Higgon & Sinclair, 1999a: 9).

2.7 Conclusion

The literature reviewed for this study provides insight into parental stress and parenting stress in general. Factors contributing to parental response to stress are described. It also clarifies the consequences of parental stress to the parents themselves as well as the infants. In the next chapter the research methodology used for this study will be addressed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

A quantitative research approach is used to investigate stress experienced by parents of infants admitted into NICU. The study setting, the design, population and sampling procedures are clarified. The data collection instrument, data collection procedures and the pilot study are described. Ethical considerations, validity, reliability and data analysis are explained.

3.2 Research design

A non-experimental descriptive design was used to meet the objectives of the study. A quantitative descriptive study was used. Burns and Grove (2001:808) describes a quantitative research as a formal, objective, systematic process that describes, tests relationships, and examines causes and effects of interactions among variables. A descriptive study focuses on describing the phenomenon as it naturally happens without introducing any intervention (Burns & Grove, 2003:202).

3.3 Research setting

The research setting was an academic hospital in Johannesburg. Only one hospital was used. It was selected on the basis of the admission volume. The NICU has 8 beds and the admission averages 52 infants each month. The collection of data was done in a natural setting in the NICU. Data were collected in one of the private rooms in the neonatal

intensive care department.

3.4 Target population

The target population comprised parents aged above 18 years, whose infants had been admitted to a NICU. Approximately nine parents were interviewed each week until a total of 115 parents had been interviewed. The data collection took approximately three and a half months, which exceeded the research time-line.

3.5 Sample and sampling method

Parents aged above 18 years were chosen whose infants were admitted to NICU with respiratory distress syndrome, weight of 2 kg and below, and where the infant was ventilated for at least two days. Parents interviewed had to have visited their neonates at least twice whilst in NICU. Parents had to be willing to participate and who are able to understand, read and write one of either English or Zulu language in order to be included in the study. If both parents of an infant (father and mother) visited the infant together, they were still considered separately. The name of each parent (respondent) was written down. Respondents were selected using systematic random sampling; every second parent on the list was selected. One hundred and fifteen parents participated in the study. More than fifteen questionnaires were excluded from the data analysis due incomplete of twelve questionnaires and three did not have demographic data information which left the sample of 100 parents.

3.6 Eligibility criteria for the sample

The eligibility criteria for the sample in this study were divided into two parts because it involved the parents as well as the infants in NICU. Infants less than one month who met the criteria were selected before their parents were considered for eligibility in the study, however, the age of the parents also were taken into account and choice of two different language were provided in order to give equal opportunity to all parents selected in the study. Please refer to 3.5 above with the regard to the selection criteria for both infants and parents.

3.7 Data collection procedure

When an infant was admitted in NICU, the researcher read the infant's file to find out if the infant met the criteria, i.e. age: below one month, weight: 2 kg and below, and whether the infant had been ventilated for at least two days. If the infant met the criteria, their parents were considered for the study although parents also needed to meet their criteria in order to have a chance to participate in the study. See 3.6 eligibility criteria for the sample.

Information was given to the parents selected and appointment for interview was conducted by the researcher.

Mother and father were both interviewed separately to avoid influencing each other's responses. It was assumed that each parent had a different perception and response to the stress of having an infant in NICU.

Data collection took place in one of the private rooms at NICU and the procedure took approximately 30 minutes to complete. During data collection the researcher and the researcher's assistant observed for any signs related to crying, any discomfort, and or refusal to complete the questionnaire.

Only one mother was referred for counselling and, according to her explanation, this was her second experience of having a child admitted to an intensive care unit. The appointment was cancelled until she had had three days of counselling. Thereafter, the mother asked the nurse who was taking care of her infant to make an appointment with researcher so that she could participate in the study.

The researcher informed the respondents that the research findings would be made available on request. Postal and e-mail addresses were supplied to each respondents. The names of respondents were replaced with code numbers to ensure confidentiality.

3.8 Data collection technique and instrument

Data were collected from January to April 2007. The questionnaire used to collect the data consisted of three parts. The first part involved 29 closed-ended questions, which consist of four main subscale, sight and sound, infant appearance and behaviour, parental role and option subscale staff behaviour and communication where the parents were asked to tick the column which described their experience of having an infant in an intensive care unit. The responses to the PSS: NICU scale were scored on a 4-point scale

on which the parents had to rate the level of stress for each item from 0 = no experience, to 3 = extremely stressed (Appendix 1). The parents were considered stressed when they scored 2 to 3 and not stressed when they scored 0 to 1 while the overall score from each subscale rated depend on the number of items scored higher level of stress divided by total number of the items in the scale multiply by hundred to get the percentage of each subscale.

The second part was self-administering questionnaire used to collect the data consisted of the same questions asked of each parent. However, the main disadvantage of this tool is that it did not give the parents an opportunity to elaborate, or expand and clarify their answers. This has slight potential for bias in presenting findings if it is used on it is own, because it does not give the parents an opportunity to express and describe other feelings encountered during their infant's stay in NICU (Parahoo, 1997: 263). In order to minimize the chances of bias, additional data was collected using an open ended question in which parents were asked to express their feelings about the hospitalization of their infant in NICU. The objective of this part of the questionnaire was to gather more information and to identify other stressors apart from the ones mentioned in the PSS: NICU instrument. These questions focused on the theoretical knowledge relating to how parents felt, having an infant in NICU. The instrument was translated into Zulu in order to accommodate all the participants in the study and to make sure that all parents got an equal opportunity to participate. The third part of the information was demographic data, (Appendix 2) used in order to assess different between participants and to assess if they are any association between; education, marital status, age and gender of the parents

in relation to parental stress. The questionnaire consists of four sub-scales that measures stress related to:

(a) Sight and the sounds of NICU (6 items);

(b) Appearance of the neonates (13-items);

(c) Parental role and interaction with the baby (7-items); and optional subscale

(d) Staff behaviour and communication with the parents (13-items).

The optional sub-scale staff behaviour and communication with the parents, aimed at meeting the second objective of the study on how to determine the interaction between staff and the parents of admitted infants contribute to parental stress while sub-scale a, b, c and d aim to meet the first objective of the study on identify the source of stressors using the PSS: NICU instrument for the parents of infants admitted in NICU with respiratory distress syndrome. Self-administering questionnaire intended to answer third objective on other experienced encountered by the parent during their infant stay in the hospital. Furthermore the fourth objective will depend on the research findings from both first, second, and third objectives.

3.9 Pilot study

The questionnaire was piloted at the academic hospital from 5th to 20th December 2006 utilizing 10 parents. Six respondents who could communicate and understand English filled the English version and other four respondents were those who could communicate and understand Zulu. The purpose of the pilot study was to identify the strength and weakness of research instrument; and whether the respondents understood the questions

(Burns & Groves, 2003). Eight respondents gave answers all the questions asked except questions 27, 28, 30 and 33. Only two questionnaires were fully completed and the rest came back without answering questions 27, 28, 30 and 33.

The result of the pilot study revealed that all these questions 27, 28, 30 and 33 were asked in a negative statement however, other questionnaire in subscale staff communication and behaviour also presented in negative behaviour changes of these question from negative to positive statement requested after consulting the senior researcher in the unit. Questions were rephrased in positive for local understanding in order to which does not change anything on rating stress level for example, staff explanation of the procedure was good. If the parents rate on not experienced means the parents were not stress on explanation from the staff however, if the parent rate on moderate stress level it means the parents were stressed with the staff explanation. The following changes were effected:

E.g. Question 27 Was: Staff explain things too fast.

Now: Staff explanation of the procedure was good.

Question 28 Was: Staff using words I don't understand.

Now: Staff using simple words to make me understand.

Question 30 Was: Not telling me enough about tests and treatment being done to my baby.

Now: Staff gave me information about tests and treatments being done to my baby.

Question 33 Was: Difficulty in getting information or help when I visit or telephone the unit.

Now: Easy to get information and help when I visit or telephone the unit.

The following questions were added to the scale:

38. I may visit my baby any time I wish staff allows me.

39. Staff asked for permission for everything they did to my child.

The reviewed instruments were re-tested with six parents. The instrument was found to be clear, and elicited the information required to meet the objectives of the study. The stability of the instrument was confirmed in both the English and Zulu version of the PSS: NICU. The six questionnaires were later included in the main study since no changes were made.

3.10 Validity and reliability of the instrument

3.10.1 Validity

The validity of the instrument refers to the degree to which an instrument measures what it is supposed to measure (Burns & Grove, 2001: 276). Validity of the instrument has a number of difference assessment approaches including content and construct validity.

Construct validity of an instrument is a measure of how well the instrument reflects the construct or concept being examined (Burns & Grove, 2001: 277).

3.10.1.1 Content validity

Content validity examines the extent to which the method of measurement includes all the major elements relevant to the construct being measured, (Burns & Groves, 2001: 400). The content validity in this study was assured by addressing the extent to which the instrument measured the domain defined in the study. Content validity was ensured by subjecting the instrument to specialist paediatric intensives.

3.10.2 Reliability

Reliability meant the degree of consistency or accuracy with which an instrument or the attribute is designed to measure (Burns & Grove, 2000: 266). The PSS: NICU instrument was reliable to use in this study because it measured consistence the occurrence of the stress for one parent to another from each item and overall stress from each subscale (Appendix 1).

According to the degree of consistency and accuracy which the instrument design to measure correlation test among four subscale were performed in order to make sure that all these subscale measures what it suppose to (see Table 3.1 and results on 3.10.3).

Then, the consistency and accuracy of the instrument was tested and re-tested in the form of the pilot study. Several characteristics were considered such as stability whereby the

Cronbanch's Alpha Coefficients for both Zulu and English instrument, PSS: NICU and Zulu version of PSS: NICU were measured, because of the slight changes made by the researcher in order to measure the stability of the instrument before it was used in the main study. For the entire scale in English, the reliability coefficient was 0.82, tested using 43 numbers of items in the scale. For the Zulu version of the instrument, the reliability coefficient was 0.78, which is quite low compared with English instrument. This is because the test rejected question No 27, due to the fact that all 30 Zulu respondents gave the same answer. Another possible reason is that the numbers of Zulu version respondents was small in comparison with the number of English version respondents.

Last part was inter-rater reliability for the purpose of maintaining consistency of data collection between the two instruments, a research assistant was employed for Zulu version. The researcher developed a data-collection pattern to be followed to minimize chances of occurrence of type II error during data collection. The researcher's assistant was trained to take note of any deviation from normal during the data collection process. Nothing was noted so far during data collection that means no type II irregularities were noted during in Zulu or in English data collection (see appendix 3).

Table 3.1 Correlation among four sub-scales of PSS: NICU.

Number	Parental stressor Scale in neonatal intensive Care unit it	Sight and sound	Infant appearance	Parental role	Staff behaviour
1	Sights and sounds	1.0000			
2	Infant appearance and behaviour	0.4344* 0.0001	1.0000		0.2709* 0.0064
3	Parental role and interaction with the infant	0.4344* 0.0001	0.4845* 0.0001	1.0000	0.0224 0.8252*
4	Staff behaviour and communication with parents	1.0768 0.4475			1.0000

3.10.3 Correlation of the score between subscales in PSS: NICU

The strength of the relationship between subscales in PSS: NICU calculated using Pearson's chi-square (pr) and p-value. (See table 3.1 above). The majority of score correlations demonstrated statistical significance; the infant behavior and appearance, sights and sounds p-value was 0.001; the infant behavior and appearance, staff behavior and communication with parents the p-value 0.01; the parental role and sights and sounds p – value of 0.01; the parental role and interaction, infant appearance and behavior p-value 0.001; the parental role and staff behavior and communication p-value 0.0224; except, the staff behavior and sights and sounds, wasn't statistically significant p-value 0.46

Although the sub-scale 'parental role and interaction with the infant' was loaded more strongly on all other three sub-scales (sights and sounds; infant appearance and behavior;

and staff behavior and communication), 'infant appearance' was loaded more strongly on two sub-scales (sights and sounds; and staff behavior and communication). 'Staff behavior' was loaded more weakly on 'sights and sounds' and not loaded to any of other items because more than two-thirds of the parents were not experiencing stress with regard to staff behavior and communication with the parents. This means that staff at NICU have nothing to do with the sights and sounds in the unit. The same result was found in the sights and sounds, which was not loaded to any of the sub-scales because it has got nothing to do with the infant appearance and behavior; and parental role and interaction with the infant.

3.11 Data analysis

The collected data were analysed using descriptive statistics analysis (mean, percentage and frequency distribution). Content analysis had to be carried out first by the researcher to extract meaning from responses to open-ended questions. To identify the source of stressors on parents, responses to the PSS: NICU were scored on a 4-point scale where parents rated the level of the stress for each items. From 0 to 1, parents were not considered stressed, and from 2 to 4 the parents were considered stressed. The analysis was done utilizing Microsoft Excel, and a statistician was consulted.

3.12 Ethical consideration

In order to ensure the adherence to the ethical issues, to protect the human rights of the subjects and to meet the standards of any scientific enquiry, certain procedures were followed both before and during the course of the study.

Ethical clearance from the Human Research Ethics Committee (Medical) of the University of the Witwatersrand was requested and granted (Appendix 4).

The research proposal was presented to the Postgraduate Committee of the University of the Witwatersrand, Faculty of Health Sciences for their perusal. Permission to conduct the study was granted (Appendix 5).

Permission to conduct the research in the NICU was requested in writing from the Chief Executive of Johannesburg Hospital (Appendix 6), and permission was granted (Appendix 7). In addition, verbal consent from the ward Manager was requested and obtained.

Written permission to use research instrument PSS: NICU was requested in writing and telephonically to make sure that the owner received the letter (Appendix 8). Permission was granted verbally followed by an e-mail (Appendix 9).

All respondents were provided with essential information verbally and in writing. The information sheets were given to the respondents in order to give them the opportunity to ask questions and understand the research process (Appendix 10). The following points were clarified in the information sheet: the purpose of the study; the fact that participation in the study was voluntary without coercion, and there was no risk in responding in the study. Parents had the opportunity to withdraw from the study at any time without

penalty.

There was a benefit for those respondents who showed the signs and symptoms of the stress reactions in that they would be referred to a professional counsellor. Consent forms were given to the parents to sign prior to handling the questionnaire (Appendix 11).

To ensure confidentiality, questionnaires were given to parents in one of the private rooms in the unit (Appendix 1). The appointments between researcher or researcher assistant and respondents were secretly scheduled, or sometimes arranged telephonically. In this way, no one could know when the parent was interviewed. This method was followed because of the irregular visits of the parents to the intensive care unit.

To ensure privacy and anonymity, code numbers instead of respondents' names were used on the questionnaire.

3:13 Conclusion

In this chapter, the methods and procedures for achieving the purposes of the study have been presented. The sampling method of data collection and the instruments have been discussed. The validity and reliability of instruments used have also been discussed. In the following chapter the analysis of the data and research findings will be presented.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Introduction

In this chapter the findings will be presented according to the response of variables, and associations will be performed. The data generated by the questionnaire was analysed using descriptive statistics. The approach to the data analysis will be presented in four sections.

4.2 Approach to data analysis

Data was gathered using a self-administered questionnaire that incorporated closed-ended questions, which consisted of 39 items. There were also open-ended questions that asked participants to recount other experiences they had during hospitalisation of their infants in NICU. One open-ended question was brought in for the purpose of gathering in-depth information about other experiences encountered apart from the ones that were mentioned in the instrument. The objectives of this study guided the study throughout.

Data obtained from the sample (n=100) was manually recorded before being entered into a Microsoft Excel program for analysis. Measurement of collected data was ordinal and nominal in nature; the descriptive statistics were used to identify frequency distributions and percentage in each item as well as overall score in each subscale. Data was presented in table form and diagrams. The correlation analysis between the variables in the demographic data together with the subscales and items in PSS: NICU were analyzed to

determine influences on research findings. The significance of the relationship between selected variables was determined using the Fisher exact test and Chi-square. The level of significance was set at 0.05.

4.3 Study findings

The findings are broadly grouped and presented as followed:

- The demographic data which involved age, marital status, education level, gender and two languages for communication.
- Association of the relationship between variables.
- Findings of closed-ended questions using the PSS: NICU instrument.
- Other experiences encountered by the parents during hospitalisation of their infant in NICU.

4.3.1 Demographic data

This set of data was intended to describe demographic variables of the sample and to assess their possible effects or any influences on the research findings. The demographic data consisted of the following differences in the participants:

- age ranges
- marital status
- education
- gender
- language (Zulu and English)

4.3.1.1 Age differences of study respondents

The age variable in the literature is associated with stress and therefore important. All one hundred parents (100%) responded to the questions 1-39. Thirty-seven of the parents (37%) were aged between 18 and 21 years, forty-one of the parents (41%) were aged between 22 and 32 years, which constituted the bulk of the sample, and thirty-two (32%), were aged between 33 and 42 years. The majority of participants (78%) were predominantly young age below 32 years and no participant was above 43 years of age. (See Figure 4.1 below)

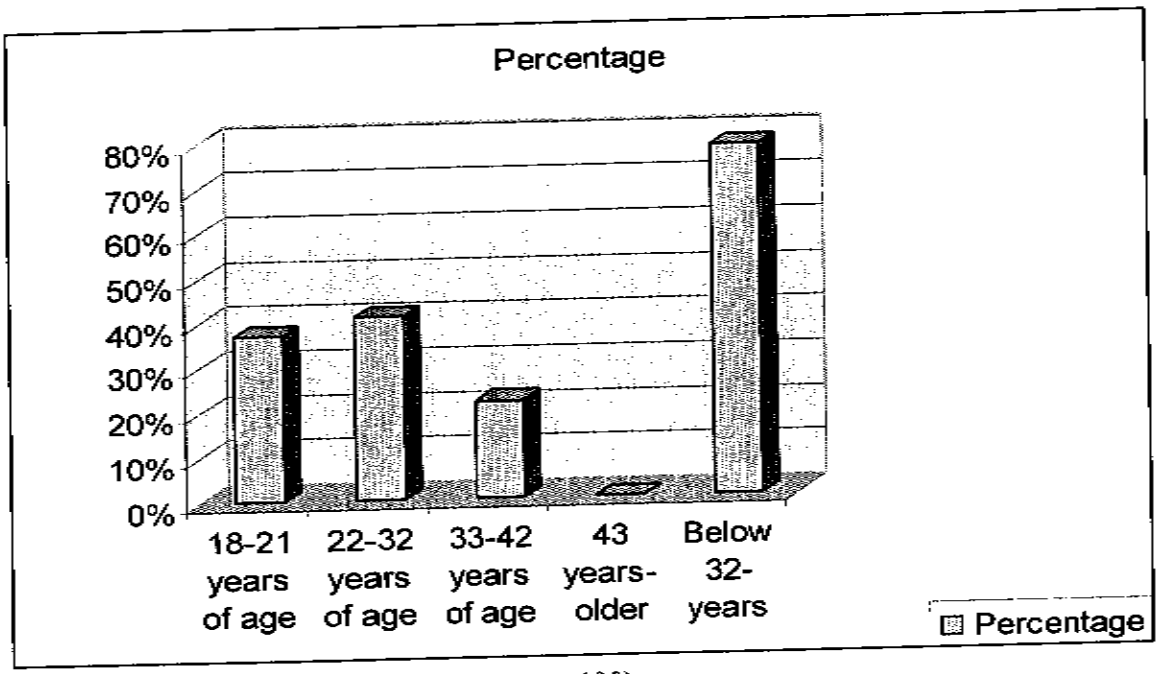


Figure 4.1 Age range of respondents (n = 100)

This result reflected the trends in the admission books where this study was conducted. The records showed that 90% of all deliveries in 2006-2007 were to mothers below 34 years of age.

4.3.1.2 Marital status

Parents were asked to give their marital status by placing a tick next to the relevant option provided (Single, married, divorced and living together). All parents (n = 100) responded to the question. The reason for the inclusion of this question was to assess if there was any relationship between marital status and stress. Results showed that 43% (n = 43) of single mothers were stressed. Thirty two percent of parents lived with their partners, 22% (n = 22) were married and only 3% (n = 3) were divorced (See figure 4.2 below).

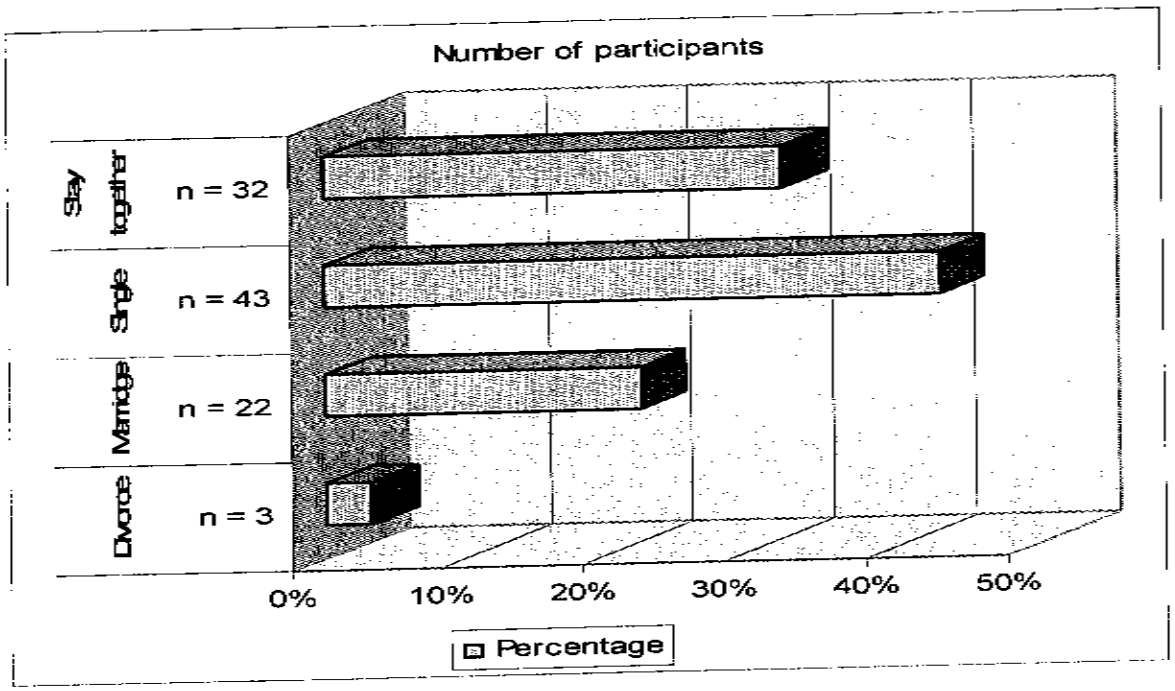


Figure 4.2 Marital status of the respondent (n = 100)

According to Shield-Poe and Pinelli (1997: 35), being single and without support from a partner can be associated with parents' response to stress. The inability to share concerns with spouses may potentially cause an emotional reaction, leading to stress.

4.3.1.3 Level of education

The results showed that 35% of respondents (n = 35) had completed grade 10. 32% of parents (n = 32) had completed grade 12, 19% (n = 19) had completed higher education, (post matriculation education and diplomas), 14% (n = 14) had completed grade 7, see figure 4.3 below. The majority of the parents 81% (n = 81) were below higher education and none had attained university degree (See figure 4.3 below).

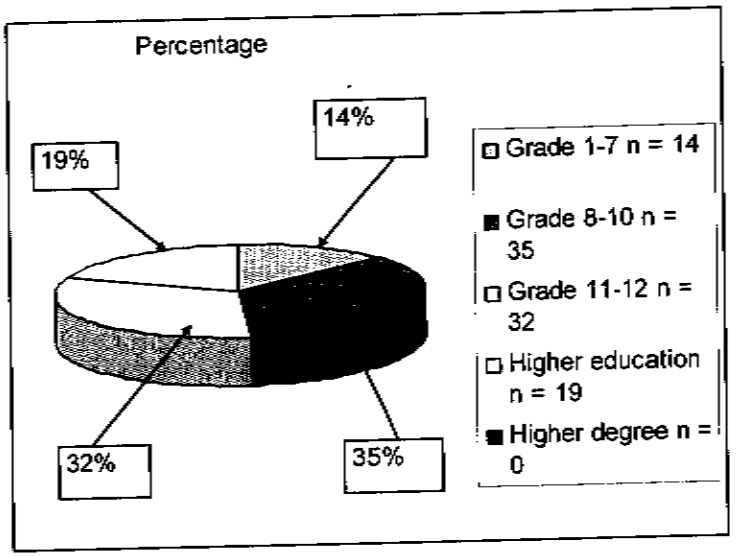


Figure 4.3 Education status of the respondents (n = 100)

In Table 4.1, results generally show a higher level of stress provided by the educated parents. Of the 19 respondents with the highest education, 16 (84.3%) were stressed compared with those lower levels of educated parents (See table below). This result is consistent with those of Dudek-Shriber (2004) who found out that the level of education can influence the parent's response to stress. Dudek-Shriber (2004) argues that the tendency of highly educated parents to familiarise themselves with the condition of their infant and to explore the clinical outcome of their infants may influence parent's response to stress.

4.3.1.4 Language used in the questionnaire, and the gender of the respondents

The questionnaire for this study was constructed in English and translated into Zulu in order to accommodate all participants in the study. The purpose was to make sure that all parents had an equal opportunity to participate in the study and that the questionnaire was representative of all parents with infants admitted into intensive care.

Seventy percent (70%) of the respondents were parents who understood and could communicate in English. Thirty percent (30%) of respondents preferred the Zulu version because they could understand and communicate in the Zulu language. Zulu is the most commonly spoken and understood language in Gauteng province (Regar & Barry, 1998). In both groups, the participants were asked to indicate their gender by placing the tick next to the relevant option provided (see Figure 4.4 below).

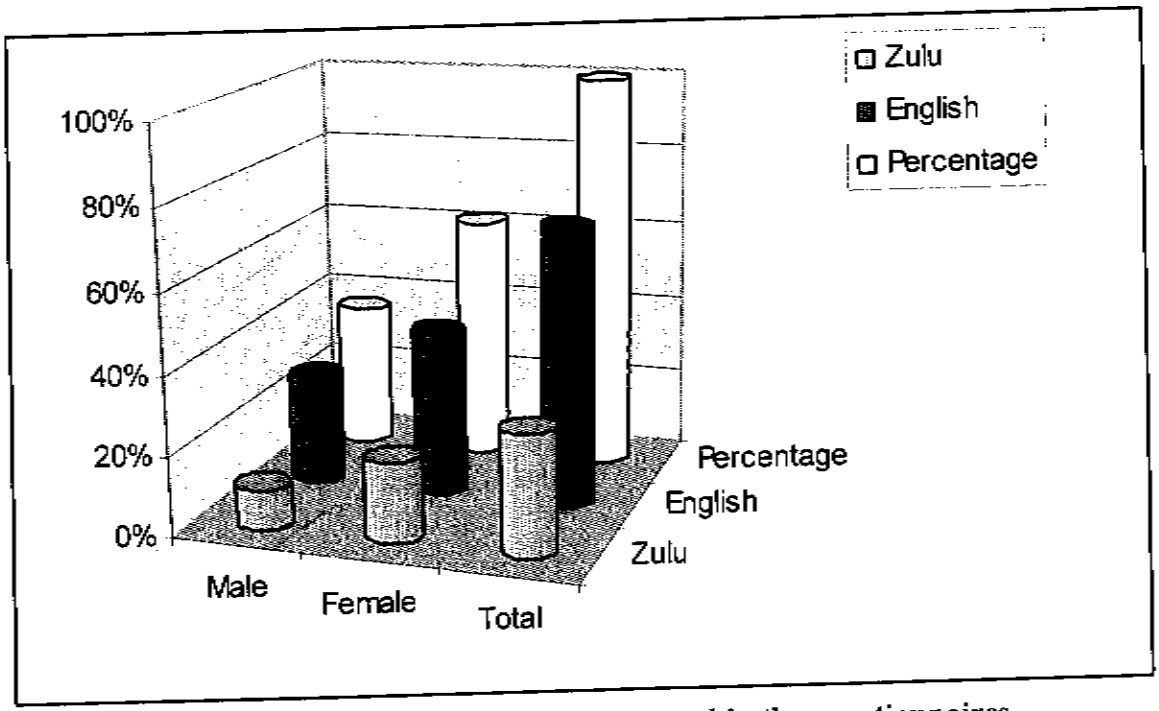


Figure 4.4 Respondents' gender and languages used in the questionnaires.

The results indicate that the majority of the parents 62% (n = 62) were female parents and 38% were male parents. The above findings could be because female parents have been observed visiting their infants more frequently than male parents. According to Franck & Spencer (2000), who conducted their research on parents visiting and participation in infant care in NICU, 85% of the mothers visited more frequently and for a longer stay.

4.3.2 Relationship between demographic data and subscale of PSS: NICU. Investigation using cross-tabulations and multiple logistic regression tests

Cross-tabulations were used to determine relationship between parental stress and the four sub-scales of PSS: NICU, namely;

- sights and sounds;
- infant appearance and behaviour;
- parental role and interaction of the infant; and
- staff behaviour and communication.

The multiple logistic regression models were fitted into this study to determine which factors influence parental response to stress. The factors considered were language used by participants, age, educational level, marital status and gender of the parent. Some of these factors were found to be statistically significant in the model, but some were found to be insignificant due to sample size. It was difficult for the model to detect a significant difference between the sub-groups

4.3.2.1 Association between parent's age and stress regarding staff behaviour and communication

Table 4.1 shows that there is no evidence of a significant differential association between the age of parents and stress regarding three sub-scales of parental stressors scale (sights and sounds, infant appearance and behaviour, and parental role and interaction with infants). Both parents of different ages, whether older or younger, seemed equally likely to be stressed in these three sub-scales of the parental stress scale mentioned above.

Differential association was found to exist between parent's age and the subscale staff behaviour and communication, Table 4.1 shows strong evidence on 2 d f ($p = 0.002$) denoting that older parents, aged from 33-45 years, were three times less likely to be stressed with staff behaviour and communication compared with the young parents aged below 21 years. This result has an impact on whether staff behaviour and communication contribute to the parents' response to stress. See more discussion in Chapter 5.

4.3.2.2 Association between parent's gender and stress regarding the four sub-scales in PSS: NICU.

Male and female seem equally likely to be stressed due to sight and sound, infant appearance, parental role; and staff behaviour and communication. This is shown by the results in Table 4.1 below, which indicated that there is no evidence of an association between parent's gender and stress regarding the subscale in PSS: NICU.

4.3.2.3 Association between parent's marital status and stress regarding the four sub-scales in PSS: NICU

There were no statistically significant associations between different groups of marital

status and stress regarding sight and sound, infant appearance, parental role and staff behaviour in the NICU. Both groups experienced stress equally in all sub-scales in PSS: NICU.

4.3.2.4 Association between parent's education and stress regarding the four subscales in PSS: NICU

The results show the correlation between education level and stress regarding three sub-scales of PSS: NICU (sights and sounds, infant appearance and behaviour, and staff behaviour and communication with the parents). They reveal marginal statistical significance (p-value = 0.085), and evidence that the level of education of parents can contribute to the parents' response to stress, with these three sub-scales of PSS: NICU.

The study found that there is a strong relationship between education level and infant appearance and behaviour when infants are admitted to the NICU. Parents with education level beyond grade 12 were more stressed with infant appearance and behaviour than were parents of grade 12 and below (p-value 0.025). However according to Dudek-Shriber (2004) the education level found to have strong relation with the sight and sound in NICU. Parent with higher education found to have more stress with the sight and sound. Dissimilarity of these two studies might be attributed to the fact that the studies were conducted in two different settings with different social and cultural backgrounds perception between the parents on how stresses them is likely to results (Helman, 2000). See more discussion in Chapter 5.

4.3.2.5 Association between groups of respondents and stress regarding the four

subscales in PSS: NICU

The findings revealed different responses between the two groups of respondents to parental stress of two sub-scales in PSS: NICU namely parental role and interaction with infants, and staff behaviour and communication. Respondents in the Zulu-version were more likely to be stressed with parental role and interaction with infants; and staff behaviour and communication, compared with English-version respondents. The statistically significant values were: p-value = 0.003 and p-value = 0.019 respectively. See Table 4.1 below.

There is a single observation found by this study, namely that, whenever two different languages are involved in one setting, a different perception of parent's response to stress is likely to result because of informed respondents (Lee at el, 2005). Some of the respondents who filled the Zulu version questionnaire were not Zulu's by birth some instead they were parents from different ethnic groups who could understand and Zulu but limited in understanding the English language.

Table 4.1 Association between Demographic information and stress regarding sub-scales in PSS: NICU.

Demographic Information	Overall stress scores regarding subscale in PSS: NICU			Cross-tabulations and multiple logistic regression test regarding stress between the demographic information and subscale in PSS:NICU			
	Stress	*Non-stress*	*Total participants*	*Sight/Sound*	*Infant appearance*	*Parental Role*	*Staff behaviour*
Participants							
Zulu	17	13	N = 30	Pearson chi 2(2) =2.2242 Pr = 0.329 Fisher's exact= 0.371	Pearson chi 2(2)=0.9275 Pr = 0.629 Fisher's exact=0.695	Pearson chi 2(1)=8.8435 Pr = 0.003 Fisher's exact=0.003	Pearson chi 2(1)=6.26 Pr = 0.019 Fisher's exact=0.0123
English	52	18	N = 70				
Participants age				Pearson chi 2(2)=1.9031 Pr = 0.386	Pearson chi 2(2)=1.4555 Pr = 0.483	Pearson chi 2(2)=3.1181 Pr = 0.483	Pearson chi 2(2)=10.3681 Pr = 0.006 Fisher's exact=0.002
18 – 21years	25	12	N = 37				
22 – 32years	28	13	N = 41				
33 – 45years	16	6	N = 22				
46 – older	0	0	N = 0				
Gender							
Male	26	12	N = 38	Pearson chi 2(1)=0.0323 Pr = 0.857	Pearson chi 2(1)=2.2720 Pr = 0.123	Pearson chi 2(1)=1.3601 Pr = 0.244	Pearson chi 2(1)=1.1807 Pr = 0.277
Female	43	19	N = 62				
Marital status							
Single	32	10	N = 42	Pearson chi 2(3)=3.5668 Pr = 0.312 Fisher's exact=0.222	Pearson chi 2(3)=3.5668 Pr = 0.312 Fisher's exact=0.176	Pearson chi 2(3)=3.5668 Pr = 0.312 Fisher's exact=0.731	Pearson chi 2(3)=3.5668 Pr = 0.312 Fisher's exact=0.312
Marriage	15	7	N = 22				
Divorce	2	0	N = 2				
Stay together	20	14	N = 34				
Education level							
Grade 0 - 7	6	8	N = 14	Pearson chi 2(3)=6.3357 Pr = 0.096 Fisher's exact=0.085	Pearson chi 2(3)=7.382 Pr = 0.0623 Fisher's exact=0.025	Pearson chi 2(3)=3.1521 Pr = 0.369 Fisher's exact=0.085	Pearson chi 2(3)=0.9990 Pr = 0.801 Fisher's exact=0.085
Grade 8 - 10	25	10	N = 35				
Grade 11 – 12	22	10	N = 32				
Higher Education	16	3	N = 19				
Higher degree	0	0	N = 0				

4.3.3 Findings of the stressors identified by the parents in NICU

This section demonstrates the source of the stress using PSS: NICU, as identified by the parents in this study who were contributors to the response to parental stress. Questions asked in this scale consisted of four main headings:

- Sights and sounds;
- Infant appearance and behaviour;
- Parental role and interaction with the infant; and
- Staff behaviour and communication.

The frequency and percentage of responses to each question were measured, a score from 0-1 in each question was considered not stressed, and 2-3 considered stressed (see findings in Tables 4.2a, b, c and d below). Also, the overall stress in each sub-scale of PSS: NICU was measured by the addition of the total percentage of items asked, divided by the number of items in each sub-scale in order to get the total score of a sub-scale. See presentation of the findings in Tables 4.2 below.

Table 4.2a: Score levels of stress regarding items in PSS: NICU - Sight and sound

Question	Subscales in PSS:NICU	English participants stressed		English participants Non stressed		Zulu participants stressed		Zulu Participants Non-stressed		Total Zulu / English participants Stressed		Total Zulu/English participants Non stressed	
No	**Sight and sound** (Items)	f N=N - 70	% 100%	f N=N - 70	% 100 %	f N=30	% 100%	f N=30	% 100%	f N=100	% 100%	f N=100	% 100%
1	The presence of monitors and equipment	41	58.6%	29	41.1%	13	43.2%	17	56.7%	54	54%	46	46%
2	The constant noises of monitors and equipment	35	50%	35	50%	13	43.3%	17	56.7%	48	48%	52	52%
3	The sudden noises of monitors and alarms	50	82.9%	12	17.1%	20	66.7%	10	33.3%	78	78%	22	22%
4	The other sick babies in the room	37	52.9%	33	49.1%	12	40%	18	60%	49	49%	51	51%
5	The larger number of people working in the unit	23	32.9%	47	67.2%	18	60%	12	40%	41	41%	59	59%
6	Having a machine (respiratory) breathe for my baby	65	92.9%	5	7.1%	30	100%	0	0%	95	95%	5	5%

f; frequency, %; percentage.

Table 4.2b: Score levels of stress regarding items in PSS: NICU - Infant appearance and behaviour.

Question	Subscales in PSS:NICU	English participants stressed		English participants Non stressed		Zulu participants stressed		Zulu Participants Non-stressed		Total Zulu / English participants Stressed		Total Zulu/English participants Non stressed	
No	**Infant appearance and behaviour** (Items)	f N=70	% 100%	f N=70	% 100 %	f N=30	% 100%	f N=30	% 100%	f N=100	% 100%	f N=100	% 100%
7	Tubes and Equipment on or near my baby	46	65..7%	24	4.3%	22	73.3%	8	26.7%	68	68%	32	32%
8	Bruises, cuts or incisions on my baby	51	72.9%	19	27.1%	15	50%	15	50%	66	66%	4	4%
9	The unusual colour of my baby (example looking pale or yellow jaundiced)	43	61.4%	27	38.6%	29	96.7%	1	3..3%	72	72%	18	18%
10	My baby's unusual or abnormal breathing patterns	62	88.6%	8	11.4%	30	100%	0	0%	92	92%	8	8%
11	The small size of baby	47	67.1%	3	32.7%	25	83.3%	5	16.7%	72	72%	28	28%
12	The wrinkled appearance of my baby	26	37.1%	44	62.9%	14	46.7%	16	53.3%	27	27%	63	63%
13	Seeing needles and tubes put into my baby	42	60%	28	40%	7	23.3%	23	76.7%	49	49%	51	51%

f; frequency, %; percentage.

Continuing...

Table 4.2b: Score levels of stress regarding items in PSS: NICU - Infant appearance and behaviour.

Question	Subscales in PSS:NICU	English participants stressed		English participants Non stressed		Zulu participants stressed		Zulu Participants Non-stressed		Total Zulu / English participants Stressed		Total Zulu/English participants Non stressed	
No	**Infant appearance and behaviour** (Items)	**f** N=70	**%** 100%	**f** N=70	**%** 100 %	**f** N=30	**%** 100%	**f** N=30	**%** 100%	**f** N=100	**%** 100%	**f** N=100	**%** 100%
14	My baby being fed by intravenous lines or nasal gastric tubes	50	71.4%	20	28.6%	22	73.3%	8	26.7%	72	72%	28	28%
15	When my baby seemed to be in pain	50	71.4%	20	28.6%	20	66.7%	10	33.3%	54	54%	46	46%
16	When my baby looked sad	43	61.4%	27	38.6%	16	53.3%	14	46.7%	59	59%	41	41%
17	The limbs and appearance of my baby	55	78.6%	15	21.4%	28	93.3%	2	6.7%	66	66%	34	34%
18	Jerky or restless movements of my baby	45	64.3%	25	35.7%	13	76.7%	7	23.3%	68	68%	32	32%
19	My baby not being able to cry like other babies	59	84.3%	11	15.7 %	29	96.7%	1	3.3%	88	88%	12	12%

f; frequency, %; percentage.

Table 4.2c: Score levels of stress regarding items in PSS: NICU - Parental role and interaction with the infant.

Question	Subscales in PSS:NICU	English participants stressed		English participants Non stressed		Zulu participants stressed		Zulu Participants Non-stressed		Total Zulu / English participants Stressed		Total Zulu/English participants Non stressed	
No	**Parental role and interaction with the infant** (Items)	**f** N=70	**%** 100%	**f** N=70	**%** 100 %	**f** N=30	**%** 100%	**f** N=30	**%** 100%	**f** N=100	**%** 100%	**f** N=100	**%** 100%
20	Being separated from baby	69	98.6%	1	1.43	30	100%	0	0%	99	99%	1	1%
21	Not feeding my baby myself	68	97.1%	2	2.86	30	100%	0	0%	98	98%	2	2%
22	Not being able to care for my baby myself (for example diapering, bathing	65	92.9%	5	7.14	30	100%	0	0%	95	95%	5	5%
23	Not being able to hold my baby when I want to	69	98.6%	1	1.43	30	100%	0	0%	99	99%	1	1%
24	Feeling helpless and unable to protect my baby from pain and painful procedures	65	92.9%	5	7.14	30	100%	0	0%	95	95%	5	5%
25	Feeling helpless about how to help my baby during this time	65	92.9%	5	7.15	30	100%	0	0%	95	95%	5	5%
26	Not being able to be alone with baby	59	84.3%	11	15.7	30	100%	0	0%	89	89%	11	11%

f; frequency. %; percentage.

Table 4.2d: Score levels of stress regarding items in PSS: NICU - Staff behaviour and communication with the parents.

Question	Subscales in PSS:NICU	English participants stressed		English participants Non stressed		Zulu participants stressed		Zulu Participants Non-stressed		Total Zulu / English participants Stressed		Total Zulu/English participants Non stressed	
No	**Staff behaviour and communication with the parents** (Items)	f N=70	% 100%	f N=70	% 100 %	f N=30	% 100%	f N=30	% 100%	f N=100	% 100%	f N=100	% 100%
27	Staff explanation of the procedure was good	13	18.6%	57	81.4%	0	0%	30	100%	13	13%	87	87%
28	Staff use simple words to help me to understand	11	16.7%	59	84.3%	0	0%	30	100%	11	11%	89	89%
29	Staff telling me different (conflicting) things about my baby's condition	14	20%	66	80%	0	0%	30	100%	14	14%	86	86%
30	Staff gave me information about tests and treatments being done to my baby	12	17.1%	58	82.9%	6	20%	24	80%	18	18%	82	82%
31	Staff not talking to me enough	7	10%	63	90%	2	6.7%	28	93.3%	9	9%	91	91%
32	Too many different people talking to me	11	15.7%	59	84.3%	9	30%	21	70%	20	20%	80	80%

f; frequency, %; percentage.

Continuing...

Table 4.2d: Score levels of stress regarding items in PSS: NICU - Staff behaviour and communication with the parents

Question	Subscales in PSS:NICU	English participants stressed		English participants Non stressed		Zulu participants stressed		Zulu Participants Non-stressed		Total Zulu / English participants Stressed		Total Zulu/English participants Non stressed	
No	**Staff behaviour and communication with the parents** (Items)	f N=70	% 100%	f N=70	% 100 %	f N=30	% 100%	f N=30	% 100%	f N=100	% 100%	f N=100	% 100%
33	Easy to get information and help when I visit or telephone the unit	17	24.3%	53	75.7%	9	30%	21	70%	26	26%	74	74%
34	Not feeling sure that I will be called about changes in my baby's condition	28	40%	42	60%	22	73.3%	8	26.7%	50	50%	50	50%
35	Staff looking worried about my baby	29	41.3%	41	58.6%	9	30%	21	70%	38	38%	72	72%
36	Staff acting as if they did not want parents around	5	7.1%	65	92.9%	0	0%	30	100%	5	5%	95	95%
37	Staff understood my baby's behaviour and special needs	56	80%	14	20%	25	83.3%	5	16.7%	81	81%	9	9%
38	I may visit my baby any time I wish staff allows me	59	84.3%	11	15.7%	6	20%	24	80%	65	65%	35	35%
39	Staff asked permission for everything to be done to my child	8	11.4%	62	88.6%	12	40%	18	60%	20	20%	80	80%

f; frequency, %; percentage.

4.3.3.1 Identification of stressors in NICU

Sight and sound

A significant level of stress was experienced by both sets of parents who responded in the English and Zulu questionnaires in this study. Parents were stressed, by the presence of monitors and equipment, the sudden noise of monitor alarms and seeing their infants breathing through a machine. The scores were 54% (n = 54), 78% (n = 78) and 95% (n = 95) respectively. See items 1, 3 and 6 in Table 4.2a.

All respondents revealed mixed perception in items 2, 4 and 5 as demonstrated in Table 4.2a. However the overall response revealed a low level of stress, caused by the presence of monitors and equipment, constant noise of monitors and equipment and seeing larger numbers of peoples working in the unit. The scores were 48% (n = 48), 49% (n = 49) and 41% (n = 41) respectively.

The total score of the sub-scale of sight and sound (see Table 4.3 below) showed that 61% (n = 61) of all parents were stressed. The three items of this subscale namely presence of monitors and equipment, sudden noise of monitor alarms and seeing their infants breathing through a machine scored high level of parental stress. This skewed the result to overall high level of parental stress in sight and sound.

This finding is similar to other studies (Reference) while the items that scored low levels of stress were inconsistent with previous studies (Miles & Holditch-Davis, 1997; Franck et al., 2005).

Infant appearance and behaviour

In this category the infant appearance and behaviour as the source of parental stress were identified in items 7, 8, 9, 10, 11, 14, 15, 16, 17, 18 and 19. Respondents demonstrated higher levels of stress by scoring 68%, 66%, 72%, 92%, 72%, 72%, 54%, 59%, 66%, 68%, and 88% respectively (see Table 4.2b). Parents were moderately or extremely stressed seeing tubes and equipment on or near their infant. Bruises cuts or incisions on their infants; unusual colour on their infants; infants' unusual or abnormal breathing patterns; the small size of their infants, and seeing the infants being fed by an intravenous line or nasal gastric tube, all contributed to parental stress. Furthermore, seeing the infant in pain, when the infant looked sad or weak, jerky movements of their infants and their infant not able to cry like other normal babies contributed to parental stress.

The total score of the subscale of infant appearance and behaviour elicited 100% of positive response from respondents, 68% (n = 69) of parents were stressed with items in this subscale compared with 32% (n = 32) who were not stressed, see Table 4.3. This finding is consistent with the studies conducted by Miles & Holditch-Davis, 1997; Holditch-Davis & Miles, 2000).

Eleven items out of thirteen in the subscale were identified as the source of stress by the parents in this setting. The other two scored low levels of stress and were not identified as the source of stress. (See, Table 4.2).

There was an interesting difference in stress response between English and Zulu respondents in item 13. Fifty one percent of all respondents were not stressed 28% out of 42% of English version respondents were not stressed, compared with a majority of Zulu respondents – 23% out of 30% were not stressed seeing needles and tubes put in their infants. This may mean that some parents were not exposed to any procedure during the time in the ward. This may be influenced by the fact that staff often spares the parents from observing painful procedures to the infant.

Parental role and interaction with the infant

The subscale of parental role and interaction of the infant as source of parental stress is identified in items 20, 21, 22, 23, 24, 25 and 26 in Table 4.2c. This subscale demonstrated extremely high levels of parental stress experienced by both English and Zulu version respondents, who scored between 89% - 99%.

The fact that parents were not able to feed and care their infants themselves resulted in them feeling helpless and unable to protect their infants from pain or painful procedures. The total level of parental stress score on this subscale was 96% (n = 96), see Table 4.2. This finding demonstrates a similar finding to that of Miles et al., (1997) and Holditch-Davis & Miles, (2000). All these show consistent stress levels for all seven items of parental role and interaction with the infant. This is despite the different geographical, cultural and socio-economic environmental settings, which may influence different responses to stress (Helman, 2000).

Staff behaviour and communication with the parents

Interesting findings were obtained in this subscale, which scored 50%, 81% and 65% of all respondents in item 34, 37 and 38 respectively (see Table 4.2d), which demonstrated higher levels of stress. Parents felt unsure as to the outcome of their infant's condition, and feared what they would be told about changes in their infant's medical condition. The items that scored higher levels of stress were consistent with the findings of Miles et al., (1997), but those items that scored low levels of stress were inconsistent with the findings of Miles et al., (1997), who found that all items in staff behaviour and communication contribute to the parents' higher response to stress.

In this subscale, items 27 to 36 and 39 scored low levels of stress as demonstrated in detail in Table 4.2d. Parents were reported either to have experienced no stress, or had mild stress owing to the explanations of the procedure by the staff, especially when staff used simple words to help them understand. Parents did not experience staff telling conflicting things about their infant's condition, or not talking to them enough or acting as if they did not want parents around. Furthermore it was easy for the parents to get information or help when visiting or telephoning the unit, and appreciated it when staff asked permission for everything to be done to their infant. Parents experienced mild stress having too many people talking to them and inexperienced staff looking worried about their infant's condition, see Table 4.2d below.

The overall score in this subscale was a low level of stress. Only 28% were stressed compared with 72% who were not stressed, (see Table 4.3 below). These findings may

be attributed to simple observation in the ward, which established that parents were more concerned about their infant's medical condition. This brings feelings of grief, fear and constant thoughts of survival lead to stress (Carter et al., 2005: 110). Therefore they become less aware of staff behaviour. This would lead to less stress caused by staff behaviour.

These results are consistent with those of Shield-Poe & Pinelli, (1997) and Dudek-Shriber (2004), who found the lowest stress level among the parents reaction to staff behaviour and communication. These results may be attributed to the parents' inability to appraise the staff behaviour honestly while their infant was still in NICU.

The reluctance to critique the staff maybe attributed to the fact that parents trusted the staff in the unit for better care and outcome of their infants. This finding will be discussed in detail in chapter 5.

Table 4.3 Overall scores of stress level regarding each sub-scale and scale PSS: NICU

Question Number	Subscale	Overall stressed Zulu/English		Overall non Stressed Zulu/English		General overall score in (%) of parents stressed and non-stressed(n = 100)	
		Zulu	English	Zulu	English	stressed	None stressed
1-6	Sights and sounds	18	43	12	27	61% (n = 61)	39%(n = 39)
7-19	Infant appearance and behaviour	21	48	9	22	69% (n = 69)	31%(n = 31)
20-26	Parental role and interaction with infant	30	66	0	4	96% (n = 96)	4% (n = 4)
28-39	Staff behaviour and communication	8	20	22	50	28% (n = 28)	72%(n = 72)
Overall 1-39	Scale PSS: NICU	-	-	-	-	69% (n = 69)	31%(n = 31)

4.3.3.2 Overall score of stress on the scale PSS: NICU and its subscales

The overall results of PSS: NICU indicated that 62 parents (62%) were stressed in all four sub-scales of PSS: NICU, compared with 38 parents (38%) who were not stressed, as demonstrated in Table 4.3.

Among the four sub-scales of PSS: NICU, the three subscales that showed high overall score levels of parental stress were: sights and sounds 61% (n = 61), infant appearance and behaviour 69% (n = 69), parental role and interaction with the infant 96% (n = 96).

Only one sub-scale (staff behaviour and communication), showed a low overall level of parental stress 28% (n = 28), this finding indicates that the majority of the parents, 72%, were not stressed with most of the items in staff behaviour and communication. Parents either did not experience stress, or had mild experience of stress resulting from staff behaviour and communication. This applies to all respondents.

Multiple regression tests, however, found that English-version respondents were less likely to experience stress with staff behaviour and communication compared with Zulu version respondents (see 4.3.2.5 above). The resulting findings cannot be reconciled conclusively due to limitations of this study in that Zulu and English version respondents were not originally English or Zulu people. Respondents were from different ethnic origins who could communicate in one of these languages.

4.3.4 Other experiences encountered by the parents during hospitalisation of their infant in NICU

In this section a qualitative interpretative analyses was used. The analysis of this question starts from simple to critical understanding. The analysis recorded the data of every experience and feeling encountered by the parents. Four themes were formulated in relation to the open-ended question where the parents described other experiences encountered. They were:

- Feeling of being outsider
- A sense of appreciation
- Helpfulness
- Experiencing Faith

Being outsider described by the parents as the feelings of not being involved with the care of infants. Not being able to sleep with the infant was considered a lack of commitment to the infant.

Parent said *"At one point I felt like an outsider, I would like to take my child home but cannot because I don't have a choice. My baby was very sick and I was very stressed not knowing what to do for her. I decided I have to build faith and trust in staff care and start to believe that my child is in good hands. However, I don't know for sure if the staff will protect my baby".*

A sense of appreciation was described by the parents as the feeling from some of the staff, of doing anything possible during the care of their infant which built their confidence.

Parent described *"The first time I visited my baby was not the same as the second and third*

time. I became more close to staff and familiar with the environment and my baby's condition. So I have started to appreciate the job that is done by the staff while I am not around."

Helpfulness was described by the parents as the feeling encountered from some of the staff, willingness and efforts to help the infant towards infant's recovery. Older staff members were reported to demonstrate an attitude of kindness and were happy to do anything needed to make it easier for parents. One parent explained:

"I felt that older staff members are more helpful and they have more experience in both medical treatment and the parental role routine of my infant. They are trustworthy compared with the young staff members."

Faith was described by the parents as the feeling of being confident about the infant care. This experience was expressed by those parents who had previously had an infant in NICU. Parents felt that having an infant for the second time in NICU contributed to a lesser response to stress as demonstrated below: .

"I was more stressed for my first child when admitted in NICU but this one is not that much because I believed the nurses and doctors completely for everything they are doing to my child".

According to the experience encountered by the parents in relation to stress response the study found that: Parents who had previous experience of having an infant admitted into NICU seemed to have less stress compared with the parents who experienced admission for

the first time (Dudek-Shriber, 2004).

Frequently visiting their infants proved to reduce day-to-day parent stress by being closer to the staff and familiarity to the environment (Franck & Spencer, 2000).

Longer stay of infant in NICU was found to reduce stress to the parents due to every day exposure to the environment and get use to daily activities provided by the nurses to their infant and get use to the nurses by open the door of communication between the parents and staff toward infant care leading to reduce the level of stress (Franck, Cox & Winter, 2005: 72).

4.4 Conclusion

In this chapter the results were presented, guided by the objective of study. Identification of the stressors was presented and it was evident that the parents were extremely stressed with the majority of the items in the three subscales: sight and sound; infant appearance and behaviour; and parental role and interaction with the infant. Subscale staff behaviour and communication scored low levels of parental stress which showed that the parents either did not experience stress, or had mild stress with most of the items. This revealed the positive contribution on the interaction between parents and staff.

The relationship between some of the variables and responses to stress were presented. The age of the respondents, education level and the use of different versions in the questionnaire were shown to have influenced parents' response to stress.

Four themes were formulated from open ended question where the parents experience being

outsider due to lack of commitment to their infant contribute to higher stress response; experienced helpfulness from some of the staff which lead them to be appreciative job well done while they are not around. This built faith towards the staff.

CHAPTER FIVE

DISCUSSION OF THE RESULTS, IMPLICATIONS TO THE UNIT LIMITATION, RECOMMENDATION AND CONCLUSION OF THE STUDY

5.1 Introduction

In the previous chapter the data was analysed. The results were presented in four sections following the format of the questionnaire. This chapter discusses the main findings in relation to the objectives of the study. The implication of the study, limitations, recommendation; and the conclusion of the study are presented.

5.2 Discussion of the results

This study set out to identify the stress experienced by the parents with the infant in NICU. One hundred and fifteen (115) parents voluntarily participated in the study. More than 15 fifteen questionnaires were excluded and dropped during data analysis because twelve (12) questionnaires were not completed fully and three (3) did not have demographic information therefore the final sample was 100 parents.

Sixty two percent of the parents in this study supported the previous studies that suggest stress exist when having an infant in NICU (Miles & Holditch-Davis, 1997; Holditch-Davis, 2000; Franck at el., (2005). The distribution of the score level of parental stress among females and males was similar. Sixty two percent of female parents were observed to visit their infant in the unit more frequently compared to male parents, and the reason might be supported by the discussion presented earlier in this study that female parents are the primary care giver, and perhaps may feel a greater responsibility for their infants due to extreme physical maternal attachment they had with the infant even before admission (Franck &

Spencer, 2003).

A strong relationship existed between languages used in this study in relation to parental stress. This study revealed respondents in the Zulu version were most likely to be stress with parental role and interaction with the infant than respondents of the English version (p-value = 0.003). In some African cultures parents usually perform cultural ritual to the newborns after delivery to protect them from the evil (Tjale & de Villiers, 2004). Failure of performing the cultural rituals when the infant is in NICU may interfere with parental cultural beliefs. It is difficult to draw conclusions from these findings because of the lack of supporting literature. No published study investigated the difference between these two respondents' groups in relation to the stress response.

Stress were not found to be directly related to any of the characteristics such as marital status and gender among participants or differentially influence the parents' response to stress in all subscales of PSS: NICU, namely sight and sound, infant appearance, parental role and interaction of the infant or staff behaviour and communication.

Characteristics such as education level and age of the parents were found to have a positive contribution to higher levels of stress. Majority of the respondents (80%) had achieved grade 12 and below, in response to the education level study found that the parents with higher education (education beyond grade 12) were more stressed with infant appearance and behaviour, than parents of grade 12 and below (p-value = 0.025). Educated parents have a tendency to familiarize themselves with their infants' condition and behaviour (Bradley, Jadaa, Brody et al., 2003: 1172). Knowing the possible clinical outcome and complications of their infants' illness during admission may contribute to the different emotions related to

stress. Those parents with a lower level of education may rely on information or explanation from the staff in the unit, who probably offered constant encouragement and hope for their infants condition outcome, hence parents stayed calm and positive about their infant condition and behaviour which lead to less stress.

Older parents aged 33-42 years, were times less likely to be stressed with staff behaviour and communication compared with the young parents aged 32 and below (p-value = 0.002). It has been shown that replacement of the parental role in neonatal intensive care unit by the nurses seems to confuse the young parents. Some find difficult to know what to do and according to Dudek-Shriber (2004:15), are less responsible regarding the parental role. This behaviour can cause parental stress even towards the professional staff. The older parents, who are matured, more experienced are more likely to handle stress compared to young parents (Passino & Whitman, 1993).

Stress levels differed significantly between respondents of the Zulu and English questionnaires. The Zulu version respondents were most likely to be stress with parental role and interaction with the infant while respondents of the English questionnaires were less likely to be stress with the staff behaviour and communication (p-value = 0.019). According to Lee et al., (2005) different cultural backgrounds can affect how messages are received. According to Iwaniel, (2004) individual's socio-cultural background may evoke a different influence on the parents' response to stress which was the case in this study.

5.2.1 Identified stressors

The first objective of the research was to identify the stressors which caused parental stress to the parents with infants in neonatal intensive care unit. The identification of the stressors and

overall findings of the subscales in this study was very important particularly for the nursing management because it forms a foundation of knowledge and skills on what to focus in development for future prevention strategies of parental stress in NICU. The intervention strategies and protocols can be developed to address the parent needs, to reduce stress and enhance their ability to cope with their sick infant while admitted in NICU, with medical condition, in regards to the different areas of stress measured by the PSS: NICU. The identified stressors will be discussed as followed.

Parental role

Severity of parent being stress was strongly on the parental role and interaction 96%, it has shown that parental role and interaction with the infants is significantly pre-occupied and artificial interruption occurs when the infant is admitted to neonatal intensive care unit. Almost all parents were stressed by items in subscale of parental role and interaction with the infants, this finding correlates strongly with previous published similar studies by Miles et al. (1997); Bialoskurski et al., (1999) and Miles et al. (2002), who showed that parents' perception of their parental role and interaction with their infants, may be similar across the world. Parents identified the stressors in relation to being separated from their infants; not being able to feed their infants by themselves; and not being able to hold their infants themselves. Additionally, parents were stressed by not being able to care for their infants, not being able to protect their infants during this difficult period as well as being unable to be alone with their infants (Fegram, Helseth & Slettebo, 2006; Melnyk, Feinstein and Gillis et al., 2006; Miles et al., 2002).

As it was documented in a previous discussion that parental role is vital for the parent-infant attachment, and the bonding between parent and infant (Bialoskurski et al., 1999: 71). Failure

of early maternal engagement with infant might lead to a postponed maternal attachment during the period of admission to NICU (Iwaniel et al., 2004). Preventive measure should be taken into the consideration before and after discharge in order to prevent decreasing maternal touch and vocalization which might affects the mental development of the infant in the late child hood, (Lam, Chang & Morrissey, 2006; Feidman, Eidelman, Sirota & Weller, 2002). Preventive measures will be discussed in detail in the implication of the study.

Sight and sound

The sights and sounds in the NICU were found to be over-stimulating. The parents demonstrated a high level of parental stress, particularly when they suddenly hear noises of alarms scored, notice monitors, machines and equipment in the unit and seeing their infant breath through respiratory machines and surrounded by tubes. This is similar to Holditch-Davis & Miles, (2000) and Franck et al., (2005); therefore the researcher concludes that despite the different NICU settings used by the previous and current study but NICU environment still will evoke stress in parents.

Most of the parents in this study believed that the NICU environment was correct environment for helping to keep their infants alive, for them seeing a number of people working in the unit, presence of monitors and equipment on their infant brought hope that increased the infant' chances to live (Dudek-Shriber, 2005).

Infant appearance and behaviour

Infant appearance and behaviour has shown to have strong attachment to parental perception and response to stress (69%). Parents were stressed by

- seeing tubes and equipment on or near their infant,

- bruises cuts or incisions on their infants,
- unusual colour on their infants,
- infants' unusual or abnormal breathing patterns,
- the small size of their infants,
- the infants being fed by an intravenous line or nasal gastric tube,
- their infants in pain, when the infant looked sad,
- a weak appearance of their infants,
- jerky movements of their infants and
- their infants not able to cry like other normal babies.

Other items in the NICU found to influences the parents low level of response to stress, depended on how and when the parents visited their infant. For parents who were not at the time exposed to seeing their infant experiencing painful procedures were demonstrated low level of stress by (57%). The restriction of the parents with the infant in NICU to witness the painful procedure when performed by staff influences less effective response to stress compared to those who did witness the procedure (Bhandari & Barnett, 2007).

5.2.2 Staff behaviour and communication

Objective two posed the question of how staff behavior and communication contribute to parental stress. Positive interaction between nursing professional and parents contributed to less stress, activities such as explaining the procedure was good and use simple words helped them to understand especially when gave them information about tests and treatment being done to their infant; and it was easy for them to get information or help when they are visit or telephone the unit. Parents were either not experience or were mild stress seeing staff look worried about their infant condition, when too many people were talking to them enough, non

of the staff telling them conflicting things about their infant condition and were not acting as if they did not want parents around and when the staff asked permission for everything to be done to their infant. Activities like these encouraged the parents about the care that has being done to their infant, lead to develop faith to the staff as it was experienced by majority of the parents in this study.

Parents found that it was uneasy to appraise the staff behaviour honestly, (Shield-Poe & Pinelli, 1997; Dudek-Shriber, 2004). This attributed by the parents entrusting the staff in the unit for better care and outcome of their infant health. Furthermore, because the parent confident decline over the staff, parent find difficult to be judgemental about staff behaviour knowing that staff understood their infant condition more than they do (81%). This cannot disapprove fear that they are decision might have impact of their infant care while the same staff were still taking care of their infants.

The feeling of being outsider as it was experienced by the parents towards the provision of care for the infant might contribute to higher level of parent response to stress but somehow influences parents to cope with the reality they face and compromise certain behavior from the staff and try to deal with their emotion and physical problem they face, especially when they found that the staff had a simple problem that could be overcome over their infant condition, Shield-Poe & Pinelli, (1997); Tomlinson, Thomlinson, Pedine-McAlpine & Kirschbaum, (2002); Newton, (2000). This caused by inability of the parents to have medical skills, which would help them to contribute to their infant's care (Fegram, Helseth & Slettebo, 2006). Inability of the parents to contribute lead the parents to distance themselves from the staff which become difficult for the parents to establish closeness to the staff while their infants are critically ill, in this case parents become uneasy to assess staff behavior openly

and faithfully when their infant are still under the care of the same staff in the unit, (Boxwell, 2000).

5.3 The Implications of the study to the unit.

The results provide the scientific evidence needed in this setting in order to support parents with an infant in NICU. The benefit of scientific evidence in this study will add to what was unknown from previous studies. In this study the findings shows that NICU unit were lack of parents nursing care, However the subscale staff behaviour and communication scored low level of stress from the parents, the nursing staff were more involved with the care of the infant and forget their parents who were also needs help and support. As the result parents were stress with the sight and sound in the unit, infant appearance and their role to their infants. The findings observed in this study will assist to develop parental stress intervention and clinical guideline in the unit to enable nurses to provide comprehensive care to the parents based on the knowledge gained and skills achieved from this study. The implication will discuss as followed;

Parents

The consequence of parental stress has been demonstrated to have negative effects on the parents themselves as well as the infants. Parents need help in mastering their stress related to the role adjustment (Wigert, Johansson, Berg & Hellstrom, 2006). The nursing intervention measures such as provision of education support on identified stressors during admission should be implemented. This will enable the parents to be familiar with the environment, which has the potential to decrease the level of stress.

Failure of early parental engagement with the infant lead to a postponed maternal attachment

and interaction with their infant contributed to more parental stress (Iwaniel et al., 2004), as has shown in this study as well. Preventive measures should be planned and undertaken after discharge in order to prevent abnormal behaviour that would affect the normal mental development of the infant later in childhood (Feidman et al., 2002).

The study demonstrated higher levels of stress in the area of infant appearance and behaviour. These findings suggested that there is a need to educate parents about the appearance of their infant while admitted and the features which might be found to the premature infant, will enable parents to understand better their infant's appearance and significantly reduce the level of response to stress.

Nursing practice

Stressors identified in the study may assist a basic knowledge for the nurses in the NICU to focus on planning a problem-solving approach. This will enable the staff to develop skills in the management of parental stress in the NICU. Knowing the sight and sound causes stress as it found in this study can help the nurses to diminished the sources of stress by focusing with the each stressors, for example study found suddenly noises of the alarm caused stress to the parent, Nurses should orientate the parents different types of alarm in order to get use to the machine as well as reduce the volume of the alarm if is around in order to reduce stress reaction from the parents

Knowledge provided by this study on the factors that influence parents' response to stress such as age of the parents, level of education and staff communication to the parents should be taken into consideration to help the nurses in the unit to execute nursing plans according to the patients' needs. This will also ensure that the quality of care provided in the unit meets

the values in the specific contextual situation in practice, (Draft chapter of nursing practice 2005: 47).

The items in the subscale staff behaviour and communication demonstrated low level of response to parental stress should be appraised in the implementation of the nursing care plan, because it has influence on provision of higher quality of nursing care in prevention parental stress in NICU. This will potentially facilitate positive coping mechanism for the prevention of stress on parents (A¨ari, Tarja & Helena, 2008).

As it was found by the previous study that the stressful life event on the parents does not end on discharge Olshtain-Mann & Auslander, (2008), Education for both parent (mother and father) of the infant should be given together on effect of stress to the infant who was admitted in NICU later after discharge in order to empower the parents and boost their confidence on their infant care lead to reduce the level of parental stress which would have positive impact on their infant development.

Social support from the family at this stage is also very important to accomplish intervention because it increases the sense of personal responsibility toward the infant's care. This gives parent confidence to share their concerns with other people, potentially decreasing the level of stress.

Management

What is known from this study and already known from previous studies will assist the management to review the work plan for the purpose of improving quality of care for both parents and nurses in the unit. This can be achieved by having continuous education and

training within the unit by incorporate parents needs from the stress identified then appropriate actions should be then implemented to ensure to ensure that the parent needs are met.

5.4 Limitations of the study

The study was limited to only one setting, with a small sample of 100 parents of infants diagnosed with respiratory distress syndrome, and infants weighing 2 kg and below.

The study limited generalization of the findings relating to the difference between Zulu and English version respondents in the parental response to stress. This was because these respondents were not Zulu and English by ethnic group they were parents who could communicate in either of these languages.

5.5 Recommendations for further research

Large-scale prospective studies need to be conducted to allow adequate plausible comparison between groups, taking into consideration the context of socio-cultural diversity in South Africa.

A future prospective study will help to establish the influence of language and cultural-social interaction on parental stress among parents with infants admitted to the NICU. The findings will contribute to the establishment of locally-based preventive strategy, addressing the specific parental needs, which could benefit both parents and staff in NICU.

5.6 Conclusions

Considering the stressors identified and other factors causing parents to experience higher levels of stress, the study provided evidence needed in this setting. This evidence is at

present lacking due to the paucity of local research in this country. Stressors identified by the parents in this study will enrich nursing staff with the knowledge and skills to assist them to better understand the parents' needs and expectations regarding parental stress in NICU. It will enable them to provide appropriate intervention strategies to improve the quality of care. The study provides nursing management with information to form a framework for providing long-term programmes and protocol development for the future prevention of parental stress.

REFERENCE

A¨ari, R.L., Tarja, s. & Helenaa, J.K. Competence in intensive and critical care nursing: *Journal of intensive and critical care nursing*, 2008; **24**: 78—89.

Aldridge, M.D. Decreasing parental stress in the paediatric intensive care unit: *Critical care nurse*, 2005; 25(6): 40-49.

Balling, K. & McCubbin, M. Hospitalized children with chronic illness: parental care giving needs and valuing parental expertise. *Journal of paediatric nursing*, 2001; 16 (2): 110 –119.

Barclay, L., Everitt, L., Rogan, F., Schmied, V. & Wyllie, A. Becoming a mother; Analysis of women's experience of early motherhood: *Journal of advanced nursing*, 1997; 25: 712-728.

Behrman, R.E., Kliegman R.M. & Jenson, H.B. *Nelson textbook of paediatrics*, 17th edition, Sounders Philadelphia Pennsylvania; 2004; 519: 573-575.

Bhandari, R.P & Barnett, D. Restrictive Parenting Buffers Head Start Students from Stress: Journal of infant and Young children, 2007; 20(1): 55-63.

Bialoskurski, M., Cox, C., & Hayers, J.A., The nature of attachment in a neonatal intensive care unit: *Journal of perinatal and neonatal nursing*, 1999; 13(1): 66-77.

Board, R., & Ryan-Wenger, N. State of the science on parental stress and family functioning in paediatric intensive care unit: *Paediatric critical care, 2000*; 9(2): 106-124.

Board R. & Ryan-Wenger, N. Stressors and stress symptoms of mother with children in the paediatric intensive care unit. *Journal of paediatric nursing*, 2003; 18: 1995-2002.

Boxwell, G. *Neonatal intensive care nursing*: Advance neonatal nursing 11 New Fetter Lane, London, 2000; 101-105.

Bracht, M., Kandankery, A., Nodwell, S., & Stade, B. Cultural differences and parental responses to the pre-term infant at risk: Strategies for supporting families. *Neonatal Network*, 2002; 21(6): 31-38.

Bracht, M., Kandankery, A., Nodwell, S. & Stade, B. *Parenting a preterm infant at risk for developmental disabilities*; can be a profoundly stressful experience, 2000: 31-38.

Bradley, B.J., Jadaa, D.A., Brody, J., Landy, S., Tallett, S.E., Watson, W., Shea, B. & Stephens D. Brief psycho-educational parenting program: An evaluation and 1-year follow-up. *J. AM. ACAD. Child adolescent, psychiatry*, 2003; 43(10): 1171-1178.

Brown, G.W. & Moran, P.M. Single mother, poverty and depression: *Psychological medicine,* 1997; 27: 21-33.

Bruce B., Letourneau N., Ritchie J., Larocque, S., Dennis C & Elliott MR. A multisite study of health professionals' perception: and practices of family-centred care. *Journal of family nursing,* 2002; 8: 408–429.

Burns, N., & Grove, S.K. Understanding nursing research: Saunders, Philadelphia, 2000: 602.

Burns, N., & Grove, S.K. *Understanding nursing research*: Saunders, Philadelphia, 2001: 276-288; 400.

Burns, N., & Grove, S.K. *Understanding nursing research*: Saunders, Philadelphia, 2003: 202.

Cannon, W.B. *The wisdom of the body*, 1932; Norton New York Cochrane data base of the systematic reviews (2000) in Cochrane collaboration: Cochrane library issue 3 up to date software Oxford.

Carter, D., Mulder, R., Bartram, F. & Darlow, A. Infants in a Neonatal Intensive care Unit parental response: *Arch Dis child fetal neonatal*, 2005; 90: 109-113.

Cox, S., Allen, A & Winter, I. Parental concern and distress about infant pain: *Arch Dis Child featal Neonatal* Ed; 2004; 89 F71-F75.

Crnic, K. & Low C. Every day stress and parenting: In M.H Bornstern (ed), Handbook of parenting; *practical issues in parenting;* 2002; 5: 243-267.

Cummings, E. M., Davies, P. T & Campbell, S. B. Development Psychopathology and Family Process; *Theory research and clinical implications:* 2003; New York, NY: Guilford Press.

Darbyshire, P. Parents in paediatrics: *Journal of paediatric nursing,* 1995; 7 (1): 8-9

Dawson, G., Ashman, S.B., Panagiotides, H., Hessl, D., Self, J. & Tamada, E. Preschool outcomes of children of depressed mothers: Role of maternal behavior, contextual risk, and children's brain activity. *Child development,* 2003; 74: 1158-1175.

Dirkzwager, A., Bramsen, I. & Van der Ploeg, H. Social support, coping life events, and posttraumatic stress symptoms among former peacekeepers. *Personality and individual differences,* 2002; 3: 1-15.

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

Dudek-Shriber, D. Parental stress in the neonatal intensive care unit; the influence of parental infant characteristics: *American journal of occupational therapy,* 2004; 58 (5): 509-519.

Draft chapter for nursing practice; 2005: 47.

Dyson, J. Response to the presence of a child with disabilities: Parental stress and family unfuctioning over time: *American Journal on Mental retardation,* 1993; 98(2):207-218.

Egerod I. Uncertain terms of sedation in ICU. How nurses and physicians manage and describe sedation for mechanically ventilated patients. *Journal of clinical nursing* 2002; 11:831-40.

Espezel H. & Canam C. Parent–nurse interactions: care of hospitalized children. *Journal of advanced nursing,* 2003; 44: 34–41.

Fegran, L., Fagermoen, M.S & Helsetch, S. Development of parent-nurse relationship in neonatal intensive care unit; from closeness to detachment, *Journal of advance nursing,* 2008; 64(4): 363-371.

Feidman, R., Eidelman, A.I., Sirota, L. & Weller, A., Comparison of skin to skin (kangaroo) and traditional care parenting outcomes and preterm infant development, *Journal of paediatrics,* 2002; 10(1): 16-23.

Fisher, M.D. Identified needs of parents in a paediatric intensive care unit: *Critical care nurse;* 1994; 14:82-92.

Franck, L.M. & Spencer, C. Parental visiting and participation in infant care giving activities in a neonatal unit: *Neonatology*, 2003; 30(1): 31-35.

Franck, S., Cox, s., Allen, A. & Winter, I. (2005). Measuring Neonatal Intensive Care Unit related parental stress. *Journal of Advanced Nursing*; 49 (6): 608-615.

Franck, S., Cox, S., Allen, A., and Winter I. Measuring Neonatal Intensive Care Unit related parental stress: *Journal of advanced nursing*, 2005; 49 (6): 608-615.

Grand, K.E., Okoo, J. H., Davis, T. H., Roache, N.A., Poindexter, L.A. & Armstrong, M. L. Protective factors affecting low-income urban American youth exposed to stress. *Journal of health adolescence*, 2000; 20: 388-417.

Halfon, N., Olson, L., Inkelas, M. at al., Summary statistics from the National Survey of Early childhood health. *Vital health statistics*; 2000:3: 15

Harrison, H. Care of the neonatal Nursing; *Journal of advances in neonatal care*, 2007; 7(3): 161-162

Harrison, D. Australian college of neonatal nurse, management of pain in sick hospitalized infant, neonatal; *paediatric and child health nursing;* 2006; 9(1) 27-29.

Helman, C. *Culture, health and illness*: Butterworth-Heinemann, Oxford, 2001; 205-206.

Hill, Y.W. Children in intensive care: Can nurse-parent partnership enable the child and family to cope more effectively? *Intensive and critical care nursing*, 1996; 12: 155- 160

Hockenberry., J. M & Wilson, D: *WONG'S nursing care of infants and children* 8th edition, St Louis, missoul 63146: 2007:279-387.

Hodnett, E.D. Pain and women satisfaction with the experience of child birth: A systematic review; *American journal of obstetrics and Gynaecology;* 186: S160-S172.

Holditch-Davis, D. & Miles, M.S. Mothers' stories about their experiences in neonatal intensive care unit: *Neonatal network*, 2000; 19(3), 13-22.

Halldorsdottir S., & Karlsdottir, S. Journeying through labour and delivery, Perceptions of women who have given birth; Midwifery, 1996; 12: 48-61.

Holub, C.K., Kershaw, T.S., Ethier, K.A. & Lewis, J.R. Prenatal and parenting stress on adolescent maternal adjustment identifying a higher – Risk subgroup: *Journal of maternal and child health;* 2007; 11: 153-159.

Horwitz, S.M., Briggs-Gowan, M.J., Storfer-Isser, A. & Carter, A.S. Prevalence, Correlates, and persistence of maternal depression: *Journal of women's health,* 2007; 16 (5); 684-691.

Hunter, C. Neonatal intensive care unit: *Occupational therapy for children,* 4th ed, St Louis, 2001.

IwanieL D. *Children who fail to Thrive:* A practice Guide. John Wiley & Sons: London, 2004.

Jackson, K., Ternestedt, B.M, Scholin, J. From alienation to familiality: Experiences of mother and father of preterm infant. *Journal of advance nursing,* 2003:43 (2): 120-129.

Keatinge, D. & Gilmore, V. Shared care: a partnership between parents and nurses. *The Australian Journal of Advanced Nursing,* 1996; 14: 28–36.

Keil, R.M.K. Coping and stress conceptual analysis: *Journal of advanced nursing,* 2004; 45(6): 659-665.

Kilburn, M.E. & Wolfe, B.L. *Resources devoted to child development by families and society;* In: Halfon, N, McLearn, K.T, Schuster, M.A. *Child Rearing in America: Challenges facing parents with young children.* Cambridge, England: Cambridge University press; 2002: 21-49.

Kuczynski L. Beyond bidirectionality; *bilateral conceptual frameworks for studying dynamics in parent-child relations.* 2003; Kucyznski L (ed). Sage: Thousand Oaks, CA; 373-392.

Lam, L.M., Chang, A.M. & Morrissey,J. Parents' experiences of participation in the care of hospital children: *International Journal of Nursing Studies,* 2006; 43: 535–545.

Lee, M.Y., Chen, Y.C., Wong, H.S & Chen, D.R. Parental stress and related factors in parent of children with Tourrette syndrome; *Journal of nursing research,* 2007;15(3): 165-173.

Lee, S.Y., Lee, K.A., Rankin, S.H., Alkon, A. & Weiss, S.J. Acculturation and stress in Chinese-American parents of infants cared for in intensive care unit; *Advances in neonatal care*, 2005; 5(6): 315-328.

Linda S. Measuring neonatal intensive care unit-related parental stress: *Journal of advanced nursing;* 2005; 49(6):608-615.

Lindberg, B., Axelsson, K., Ohrling, K. The birth of premature infants: Experiences from the fathers perspective: *Journal of Nursing*; 2007: 13, 142-149.

Lundgren, I., Swedish women's experience of their childbirth experiences two years after the birth: *Midwifery*, 2005; 21:346-354.

Lyons-Ruth, K., & Spielman, E. Disorganised infant attachment strategies and helpless-fear full profiles of parenting: Integrating attachment research with clinical intervention; *Journal of infant mental health,* 2004; 25(4): 318-335.

Magnusson, D. *Situational determinants of stress:* an interaction perspective'. In: L. Goldberger and S. Breznitz (eds.), New York: The free press. 1982:231-253.

Marshall, M., Fleming, E., Gillibrand, W. & Carter, B. Adaptation and negotiation as an approach to care in paediatric diabetes specialist nursing practice: a critical review. *Journal of clinical nursing,* 2002; 11: 421–429.

McKenzie, K., Murray, G., Matheson, E., Higgon, J., & Sinclair, B. What is learning disability? Do you need to be reminded? *Journal of learning disability practice*, 1999a; 2 (1): 8 – 11.

Melnyk, B.M., Feinstein, N.F., Gillis, L.A., Fairbanks, E., Crean, H.F., Sinkin, A.R., Stone, P.W. & Cross, S.J. Reducing premature infant length of stay and improving parent mental health outcomes with the creating opportunities for parent empowerment (cope) neonatal intensive care unit program: American journal of academy of paediatrics, 2006; 118(5): e1415-e1427.

Miles M.S., Funk S.G. & Carlson J. (1993). Parental stressors scale: Neonatal intensive care unit. *Nursing search,* 1993; 42: 148-152.

Miles, M.S., Carlson, J. & Funk, S.G. Sources of support reported by mothers and fathers of infants hospitalized in a neonatal intensive care unit: *Neonatal network,* 1996; 15: 45-52.

Miles, M.S. & Holditch-Davis D. Parenting the prematurely-born child. Pathways of influence seminars; *Journal of Perinatal,* 1997; 21(3): 254-266.

Miles, S., Holditch-Davis, D., Brunssen, S., Burchinal, P. & Wilson, S. Perception of stress, worry and support in black and white mothers of hospitalized medically fragile infants: *Journal of Paediatric Nurse*, 2002; 17: 82-88.

Miles, M.B & Hurberman, A. M. *Qualitative data analysis* (2nd ed): 1994; Thousand, CA: Sage.

Miles, S. & Brunssen, S. Psychometric properties of the parental stressor scale infant hospitalization: *Journal of advanced neonatal care*, 2003; 3 (4):187-196.

Mistry R., Steevens, G.D., Sareen H., De Vogli R., & Halfan N. Parental Related Stress and Self-Reported Mental Health of Mother with young children, *American journal of public health*, 2007; 97(7): 1261-1268.

Newton, M. Family Centred Care: Current Realities in Parent Participation: *Paediatric nursing,* 2000; 26(2): 164–8.

Nick, P., & Barbara, M. *Paediatric nursing caring for children and their families:* Family-centered nursing care in the intensive care nursery, Delmar, United States of America, 2002; 186: 70-72.

Nystrom, K. & Axelsson, K. Mothers' experience of being separated from their newborns: *Journal of obstetric and gygncology and neonatal nursing,* 2002; 31(3): 273-283.

Olin, R.K., & Foxelid, E. Parents needs to talk about their experiences of child birth: *Scandinavian journal of caring science*, 2003; 17: 153-159.

Olshtain-Mann, O & Auslander, K.G. Parental of the pretem infants two month after discharge from the hospital: Are they still at (Parental) risk? Journal of health and social work, 2008; 33(4):299-308.

Ostberg, M., Hagekull, B., & Hagelin, E. Stability and prediction of parental stress: *Infant*

development, 2007; 16: 207 – 223. `

Oyserman, D., Bybee, D. & Mowbray, C. Influences of maternal mental illness on psychological outcomes for adolescent children; *Journal of Adolescent*, 2002; 25: 587-602.

Parahoo, A.K. *Nursing research principles process and issues*: Macmillan Press Ltd, London, 1997: 263.

Passino, A.W. & Whitman, T.L. Personal adjustment during pregnancy and adolescent parenting; *Adolescence*, 1993; 28: 97-122.

Pineli, J. Effect of the family coping and resources on family adjustment and parental stress in the acute phase of the neonatal intensive care unit experience: *Neonatal Network*, 2000; 19 (6): 27-37.

Polit, D.F & Beck, C.T. *Nursing research principles and methods;* Lippincott, William & Wilkins Philadaphia; 2004: 118.

Poehlmann, J. & Fiese, B.H. Parent-infant interaction as a mediator of the relation between neonatal risk status and 12-month cognitive development: *Infant behaviour and development*, 2001; 24: 171-188.

Regar & Barry. United Nations Education Scientific and Cultural Organisation (UNESCO): Capacity – uilding workshop on the implementation of the convention for the safe guarding of the convention of the irritable cultural heritage Pretoria-South Africa: 1998.

Orsmond, G.T & Baratt, M.S. Mothers and fathers of the children with Down syndrome; and involvement in child care; *American journal of mental retardation*, 1999; 104(5): 22-436.

Selye, H.J. *Stress in health and disease*: Butterworth Durban, South Africa, 1976: 5-16.

Sepa, A, Flodi, A & Ludvigsson. Psychological correlates of parenting stress, lack of support, confidence and security: *Scandinavian journal of psychology;* 2004: 45(2): 169-179.

Sheu, S., Lin, H.S. & Hwang, S.L. Perceived stress and physio, psycho-social status of nursing student during their initial period of clinical practice: The effect of coping behaviours. *International journal of nursing studies*, 2002; 39: 165-175.

Shields-Poe, D. & Pinelli, J. Variables associated with parental stress in neonatal intensive care units: *Neonatal Network*, 1997; 16 (1): 29-37.

Singer, T., Salvator, A., Guo, S., Collin, M., Lilien, L. and Bailey, J. Maternal psychological distress after the birth of very-low-birth weight infant. *JAMA*; (1999): 281 (9): 799-805.

South African nursing council: *Government notice regulation 2598 of November as amended*. Regulation related to the scope of practice of person registered or enrolled under the nursing Act, 1984.

South Africa Higher education Amendment Act 2008.

Tjale, A. & Villiers, L. *Health Cultural issues in Health and Health care*. Juta, Lansdowne; 2004.

Tomlinson P., Thomlinson E., Pedine-McAlpine C & Kirschbaum, M. Clinical innovation for promoting family care in paediatric intensive care: demonstration, role modelling and reflective practice. *Journal of Advanced Nursing, 2002;* 38: 161–170.

Tu, M., Grunau, R., Petrie-Thomas, J., Hayer., Weinberg, J & Whitfield. Maternal stress and Behavior Modulate Relationships between Neonatal stress, Attention, and Basal Cortisol at 8 Months in preterm Infants. Journal of *Developmental Psychobiology*, 2007; 49 (2): 150-164.

Watts R, Gardner H, Pierson J. Factors that enhance or impede critical care nurses' discharge planning practices, *Intensive critical care nursing*, 2005; 21:302—13.

Wigert, H., Johansson, R., Berg, M., & Hellstrom, H. Mothers' experiences having their newborn child in a neonatal intensive care unit. *Scandinavian Journal of Caring Sciences*, 2006; 20: 35-41.

Young, K.T., Davis K. & Schoen C. *The commonwealth fund survey of parents with young children*: New York, NY: Commonwealth Fund; 1998

APPENDIX 1

PART 1

PARENTAL STRESSORS SCALE IN NEONATAL INTENSIVE CARE UNIT PSS: NICU. Please tick the column which is the best describes your experience. Scale 0= "Not experienced" to scale 3= "Extremely stressful".

Item description	**0**	**1**	**2**	**3**
Level of stress	Not experienced	Mild stressful	Moderate stressful	Extremely stressful
Indicate your level of stress regarding this aspect of sight and sound in the neonatal intensive care unit				
1. The presence of monitors and equipment				
2. The constant noises of monitors and equipment				
3. The sudden noises of monitor alarms				
4. The other sick babies in the room				
5. The larger number of people working in the unit				
6. Having a machine (Respirator) breathe for my baby				

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Item description	**0**	**1**	**2**	**3**
Level of stress	Not experienced	Mild stressful	Moderate stressful	Extremely stressful
Indicate the level of stress regarding Infant appearance and Behaviour during the period of NICU				
7.Tubes and equipment on or near my baby				
8. Bruises, cuts, or incisions on my baby				
9. The unusual colour of my baby (for example, looking pale or yellow jaundiced)				
10. My baby's unusual or abnormal breathing patterns				
11. The small size of my baby				
12. The wrinkled appearance of my baby				
13. Seeing needles and tubes put into my baby				
14. My baby being fed by an intravenous line or nasal gastric tube				
15. When my baby seemed to be in pain				
16. When my baby looked sad				
17. The limp and weak appearance of my baby				
18. Jerky or restless movements of my baby				
19. My baby not being able to cry like other babies				

PARENTAL STRESSORS SCALE IN NEONATAL INTENSIVE CARE UNIT PSS: NICU. Please tick the column which is the best describes your experience. Scale 0= "Not experienced" to scale 3= "Extremely stressful".

Item description	**0**	**1**	**2**	**3**
Level of stress	Not experienced	Mild stressful	Moderate stressful	Extremely stressful
Indicate the level of stress regarding your parental role and Interaction with your baby in the neonatal intensive care unit				
20. Being separated from my baby				
21. Not feeding my baby myself				
22. Not being able to care for my baby for myself (for example, diapering, bathing)				
23. Not being able to hold my baby when I want to				
24. Feeling helpless and unable to protect my baby from pain and painful procedures				
25. Feeling helpless about how to help my baby during this difficult time				
26. Not being able to be alone with my baby				

PARENTAL STRESSORS SCALE IN NEONATAL INTENSIVE CARE UNIT PSS: NICU. Please tick the column which is the best describes your experience. Scale 0= "Not experienced" to scale 3= "Extremely stressful".

Item description	**0**	**1**	**2**	**3**
Level of stress	Not experienced	Mild stressful	Moderate stressful	Extremely stressful
Indicate the level of stress regarding the behaviour and communication of the staff in the neonatal intensive care unit				
27. Staff explanation of the procedure was good.				
28. Staff used simple words to help me to understand				
29. Staff telling me different (conflicting) things about my baby's condition				
30. Staff gave me information about tests and treatments carried out on my baby				
31. Staff not talking to me enough				
32. Too many different people(doctors, nurses, others) talking to me				
33. Easy to get information and help when I visit or telephone the unit.				
34. Not feeling sure that I will be called about changes in my baby's condition				
35. Staff looking worried about my baby				
36. Staff acting as if they did not want parents around				
37. Staff understood my baby's behaviour and special needs.				
38. Any time feeling visiting my baby staff allows me				
39. Staff asking for permission for everything being done to my child.				

40. Describe any other experience/feelings that you have encountered in the neonatal intensive care unit during the hospitalization of your baby

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I-APPENDIX 1-Part 2

INGXENYE YOKUQALA
IZINGA LOKUKHATHAZEKA KWABAZALI EGUNJINI LABANTWANA ABAGULA KAKHULU (PSS:NICU)
Gcwalisa leli fomu ngokufaka uphawu[x] kulokho okuchaza kahle ngesimo sakho. Isikeyili sihamba kanje: 0= Akwenzekanga 1= Okukukhathaze kancane 2=Okukukhathazile 3= Okukukhathaze kakhulu

Incazelo	**0**	**1**	**2**	**3**
Izinga lokukhathazeka	Akwenzekanga	Kukukhathaze kancane	Kukukhathazile	Kukukhathaze kakhulu
Khetha izinga lokukhathazeka ngokubonile, nokuzwile egumbini labantwana abagula kakhulu				
1.Ukuba khona kwamamonitha kanye nemishini esetshenziswayo.				
2. Imisindo yemamonitha kanye nemishini engami ngaso sonke isikhathi.				
3. Ukukhala kwemisindo yama-alamu okungalindelekile.				
4. Abanye abantwana abagulayo egunjini.				
5. Abantu abaningi abasebenza egunjini.				
6. Umshini wokuphefumula osetshenziswa enganeni yami.				

CHAZA IZINGA LOKUTWAZEKA OKUBONA EMNTWANENI, NOKUZIPHATHA EGUNJINI LABANTWANA ABAGULA KAKHULU				
7. Amapayipi kaye nemishini eseduzane noma esemntwaneni wami.				
8. Ukuhuzuka kanye nokusikeka okusemntwaneni wami.				
9. Umbala ongajwayelekile wesikhumba somntwana noma ijondisi.				
10. Ukuphefumula komntwana ngendlela engajwayelekile.				
11. Isisindo somntwana(ubuncane bomntwana wami)				
12. Ukushwabana kwesikhumba somntwana.				
13 ukubona izinaliti namapayipi emuntwaneni wami				
14 Ukudliswa komuntwana ngamapayipi nokuhlatshwa ngamanaliti okuxhuma idrip				
15 Uma kungathi umuntwana uzwa ubuhlungu				
16 Uma ingane ibukeka ikhathazekile noma inganeme				
17 Ukutubuzeka komuntwana				
18 Ukubinyabinyeka komntwana				
19 Ukungakwazi ukukhala komutwana, njengabanye				

CHAZA UKUKHATHAZEKA KWAKHO MZALI NGENDIMA OYIDLALAYO EMTTWANENI NGESI KHATHI ESEGUMBINI LABANTWANA ABAGULA KAKHULU				
20. Ukuhlukaniswa nomntwana wami.				
21. Ukungakwazi ukumfunza mina umntwana wami.				
22.Ukungakwazi ukunakekela umntwana ngokwami njengokumgeza kanye nokumshintsha inabukeni.				
23. Ukungakwazi ukuphatha umntwana wami ngesikhathi engifuna ngaso.				
24.Ukungakwazi ukuvikela umntwana wami ezinhlungwini uma kukhona abamenza khona.				
25. Ukungakwazi ukusiza umntwana wami ngelesi sikhathi esinzima				
26. Ukungakwazi ukuba ngedwa nomntwana wami.				

27. Abasebenzi bayichaza kahle inqubo ezolandelwa.				
28. Abasebenzi basebenzisa ulimi olululula futhi oluzwakalayo ukuze ngiqonde kahle abakushoyo.				
29.Abasebenzi bangitshela izinto eziningi ezingididayo mayelana nokugula komntwana wami.				
30. Abasebenzi bayangazisa mayela nokuhlolwa kanye nalokho okunye okwenziwe emntwaneni wami.				
31. Abasebenzi abakhulumi nami ngokwanele.				
32. Abantu abaningi abahlukahlukene (njengodokotela, amanesi nabanye) bakhuluma nami.				
33. Kulula ukuthola imininingwane kanye nosizo uma ngishaya ucingo noma nje ngivakashile egumbini.				

34.Ukungabi nasiqiniseko sokuthi ngizokwaziswa ngoshintsho olungabakhona ngesimo somntwana wami.				
35.Abasebenzi babukeka bekhathazekile ngesimo somntwana wami				
36.Ukubona sengathi abasebenzi abathandi ukuthi abazali babekhona egunjini lapho kugulela khona umntwana.				
37.Abasebenzi abaqondi ngokuziphatha kanye nezidingo zengane yami.				
38.Abasebenzi bayangivumela ukuzobona ingane yami noma ngasiphi isikhathi .				
39. Abasebenzi bacela imvume yokwenza noma yini emntwaneni wami.				

APPENDIX 2

PART 1: DEMOGRAPHIC INFORMATION
Kindly fill in the information using "tick" where appropriate.

39. Gender

A. Male

B. Female

40. Age

A. 18-21years

B. 22-32years

C. 33- 45years

D. 46years or older

41. Education

A. Grade 1-7

B. Grade 8-10

C. Grade 11-12

D. Higher education

E. Higher degree

42. Marital Status

A. Single

B. Marriage

C. Divorce

D. Stay together

APPENDIX 2-Part 2

INGXENYE YESIBILI: Ulwazi ngempilo kanye nohlobo lwakho Gwalisa leli fomu ngokufaka uphawu [x] endaweni efanele.

39. Ubulili
A. Owesilisa
B. Owesifazane

40. Iminyaka
A. Uphakathi kweminyaka eyi 18 kuya kwengama 21
B. Uphakathi kweminyaka engama 22 kuya kwengama 32
C. Uphakathi kweminyaka engama 33 kuya kwengama 45
D. Uneminyaka engama 46 noma ngaphezulu

41. Izinga lemfundo
A. Ibanga lokuqala kuya ebangeni le 7
B. Ibanga lesi 8 kuya ebangeni le 10
C. Ibanga le 11 kuya ebangeni le 12
D. Imfundo ephakeme
E. Iziqu zemfundo ephakeme

42. Okuphathelene nomshado
A. Awashadile
B. Ushadile
C. Uhlukanisile
D. Nihlala ndawonye

APPENDIX 3

DATA COLLECTION PATTERN

1. Maintain good interpersonal relationships with the parents by
   - Provide good rapport by great the parent and introduce yourself
   - Explain to them why you are here for

2. Explain the procedure to the parents on how are they going to fill in the questionnaire by reading items in the questionnaire one by one as it was written
   - Allow them to ask questions
   - Maintain the time not to make them tired

3. Give the parent questionnaire and allow sufficient time for reading
   - In order that the parent become familiar with the questions

4. Give the parents a chance to start answering the questionnaire if he is ready
   - Encourage the parents to fill in all questions asked in the questionnaire

5. Observe any sign and symptoms of stress reaction from the parents while filling in questionnaire, if any present stop the interview and send the parent to the department counsellor, then re-arrange for another interview after counselling if the parents is willing to do so. Signs and symptoms to observe are:
   - Whether the parent crying
   - Refusal to fill in the questionnaire
   - Being totally uncooperative

6. Minimize chances of occurrence of type 2 error during data collection, researcher must avoid the following.
   - Unnecessary conversation especially which is dealing with the infant
   - Avoid questions which might needs the answer which is asked in the questionnaire because it might influence the parent with his answer. Words like, 'what do you think,' or 'how do you feel,' might be used in order to make the parents to answer by herself.

APPENDIX 4

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/99 Kitemanga

CLEARANCE CERTIFICATE	PROTOCOL NUMBER M060903
PROJECT	Parental Stress in Neonatal Intensive Care Unit
INVESTIGATORS	Mrs L Kitemangu
DEPARTMENT	Dept of Nursing Education
DATE CONSIDERED	06.08.25
DECISION OF THE COMMITTEE*	APPROVED UNCONDITIONALLY

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 06.10.16 CHAIRPERSON _____
(Professors PE Cleaton-Jones, A Dhai, M Vorster, C Feldman, A Woodiwiss)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor : Mrs A Tjale

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10005, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of a yearly progress report.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

[redacted]

APPENDIX 5

Faculty of Health Sciences
UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

7 York Road PARKTOWN Johannesburg 2193 Telegrams WITSMED Telex 4-24655.SA
FAX 643-4318 TELEPHONE 717-2075/2076
E-MAIL healthpg@health.wits.ac.za

MRS L KITEMANGU
P O BOX 90817
BERTSHAM
JOHANNESBURG
2013

APPLICATION NUMBER 0402062G
STATUS (DEG 43) (MM033) PZZ

2006-11-23

Dear Mrs Kitemangu

Approval of protocol entitled Parental stress in a neonatal intensive care unit in an academic hospital in Johannesburg

I should like to advise you that the protocol and title that you have submitted for the degree of Master Of Science In Nursing (Full-Time) (Coursework) have been approved by the Postgraduate Committee at its recent meeting. Please remember that any amendment to this title has to be endorsed by your Head of Department and formally approved by the Postgraduate Committee.

Mrs. AA Tjale, Aspro DE Ballot has/have been appointed as your supervisor/s. Please maintain regular contact with your supervisor who must be kept advised of your progress.

Please note that approval by the Postgraduate Committee is always given subject to permission from the relevant Ethics Committee, and a copy of your clearance certificate should be lodged with the Faculty Office as soon as possible, if this has not already been done.

Yours sincerely

S Benn (Mrs)
Faculty Registrar
Faculty of Health Sciences

Telephone 717-2075/2076

Copies - Head of Department____Supervisor/s

APPENDIX 6



Private Bag X39, Johannesburg 2000, South Africa
Tel. +27 (0) 11 488 4911, Fax +27 (0) 11 640 1611
www.johannesburghospital.org.za



Gauteng Department of Health

Enquiries: M. Motjelele
(011): 488-3785
(011) 488-3753

11 December 2006

Liti Kitemangu
University of Witwatersrand
Department of Nursing Education
7 York Road
Parktown

Dear Ms. Kitemangu

RE: Permission to Undertake Research on Parental stress in a Neonatal Intensive Care Unit in JHB Hospital

Permission is granted for you to conduct the above research as described in your request provided:

1. The Gauteng Department of health will not in anyway incur or inherit costs as a result of the said study.
2. Your study shall not disrupt services at the study sites.
3. Strict confidentiality shall be observed at all times.
4. Informed consent shall be solicited from patients participating in your study.

Please liaise with the Head of Department and Unit Manager or Sister in Charge to agree on the dates and time that would suit all parties.

Kindly forward this office with the results of your study on completion of the research.

I wish you success in your studies.

Yours sincerely

Sagie Pillay
Chief Executive Officer

APPENDIX 7

Liti Kitemangu - Mvungi
The University of Witwatersrand,
Faculty of Health Sciences,
Department of Nursing Education
7 York Road
Park town 2193.
Johannesburg, South Africa

TO:

The Chief Executive Officer
Johannesburg Academic Hospital,
Private Bag x 39,
Johannesburg,
South Africa.

Dear Sir/ Madam

RE: PERMISSION TO CONDUCT RESEACH STUDY IN JOHANESSBURG HOSPITAL

I am a Student registered for MSc Nursing degree in the Department of Nursing Education, University of Witwatersrand Johannesburg. I am requesting permission to conduct research study in the neonatal intensive care unit. The aim of the study is to investigate stress experienced on parents whose infants admitted in the neonatal intensive care unit. The research proposal attached will be submitted to the Committee for Research on Human Subjects of University of the Witwatersrand for approval before the study begins. The study is expected to commence in October 2006 once ethical approval has been received. Participation to the study is voluntary; the name of your hospital and the participants of the study will not be disclosed in the report. A copy of the report will be provided to you.

Thank you in advance

Yours sincerely

Liti Kitemangu -Mvungi

APPENDIX 8

Liti Kitemangu - Mvungi
The University of Witwatersrand,
Faculty of Health Sciences,
Department of Nursing Education
7 York Road
Park town 2193.
Johannesburg, South Africa

TO:

The Chief Executive Officer
Johannesburg Academic Hospital,
Private Bag x 39,
Johannesburg,
South Africa.

Dear Sir/ Madam

RE: PERMISSION TO CONDUCT RESEACH STUDY IN JOHANESSBURG HOSPITAL

I am a Student registered for MSc Nursing degree in the Department of Nursing Education, University of Witwatersrand Johannesburg. I am requesting permission to conduct research study in the neonatal intensive care unit. The aim of the study is to investigate stress experienced on parents whose infants admitted in the neonatal intensive care unit. The research proposal attached will be submitted to the Committee for Research on Human Subjects of University of the Witwatersrand for approval before the study begins. The study is expected to commence in October 2006 once ethical approval has been received. Participation to the study is voluntary; the name of your hospital and the participants of the study will not be disclosed in the report. A copy of the report will be provided to you.

Thank you in advance

Yours sincerely

Liti Kitemangu -Mvungi

APPENDIX 9

To: *Liti K. Mvungi*

* University of Witwatersrand,*

*Faculty of Health Sciences, ** Nursing Department *

7 York Road, Park town 2193

Johannesburg, South Africa.

You have my permission to use my instrument, the Parental Stressor
Scale: NICU for your master's research project.
I send you wishes for success in completing your program.
Congratulations.

Sincerely,

Margaret S. Miles, RN, PhD, FAANk
Professor, School of Nursing,
The University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-7460

APPENDIX 10-Part 1

INFORMATION SHEET

Dear.....

My name is Liti Kitemangu, MSc Nursing student at the University of the Witwatersrand. I wish to interview you as part of my research study on admission of your infant in neonatal intensive care unit. You will be requested to share your experiences how are you feeling on admission of your infant in neonatal intensive care unit and relevant information that you wish to share with me. I kindly request you to complete the questionnaire (parental stress scale in neonatal intensive care unit PSS: NICU). This is the questionnaire designed specifically for the parent whose infants are admitted in neonatal intensive care unit. The questionnaire consist of number of the items you will be requested to tick the column which best describe your experience, from 0-No experience to 3-extremly stressful as well as one open ended question which need to describe your feeling apart from the items mentioned in the instrument. This will be done at your appropriate date and time within one of the neonatal intensive care unit room in order to maintain the privacy to the participants and will take approximately 30minutes. Your participation honourably appreciated, if you agree to take part in the study and then change your mind you can withdraw at any time without any penalty or disadvantage to you or your baby. Your name will not appear in the research report instead code number will used, therefore you will remain anonymous. The intension of the study is to cause less harm to the participants, then counselling will be offered for those candidate who will be over stressed during the study as well as information provided might enable the hospital management to provide necessary required support to the parents during admission of their infant in neonatal intensive care unit. Information collected will be destroyed after the completion of the study. Research findings will be offered for the participant who requested. If you agree to participate in the study, you will be asked to sign the consent form. Feel free to ask any questions concerning the study and your participation in the study through the following contacts, Phone: +27 072 5911263, or e-mail liti75@yahoo.co.uk. Thank for your time and help

Yours sincerely, Liti

ISITHASISELO 10-Part 2

Sawubona .....

Igama lami nguLiti Kitemangu. Ngifundela iziqu zeMSc Nursing e- University of Witwatersrand. Ngifisa ukukubuza ngokulaliswa komtwana wakho egunjini labantwana abagula kakhulu. Ngicela ungazise ngemizwa yakho ngokulaliswa komntwana wakho egunjini labantwana abagula kakhulu kanye nolunye ulwazi oluphathelene nalokhu ongafisa ukungazisa lona. Ngicela uphendule uhla lwemibuzo ephathelene nengcindezi efikela abazali abanabantwana abalaliswe egunjini labantwana abagula kakhulu (parental stress scale in neonatal intensive care unit, PSS: NICU). Lolu luhla lwemibuzo lwenzelwe abazali babantwana abalaliswe egunjini labantwana abagula kakhulu. Kukhona izimpendulo okufanele ukhethe eyodwa echaza kangcono imizwa yakho ngokuthi ufake isiphambano eduze kwayo.Lezi zimpendulo ziqala kuChabo ziye ku-3-Kunengcindezi kakhulu futhi kukunempendulo evulekile lapho ongachaza khona wenabe uma ukholelwa ukuthi izimpendulo ezinikiwe azishayi khona. Ukuphendula imibuzo kuyokwenziwa emagunjini angaphandle kwalawo okulaliswa khona izingane ezigula kakhulu ukuze kuqinisekiswe ukuthi uzizwa ukhululekile. Ukuphendula imibuzo kuthatha imizuzu engama-30. Ngiyabonga ngokubamba kwakho iqhaza futhi ngifisa ukukwazisa ukuthi uma ufisa ukuhoxa noma ngasiphi isikhathi wemukelekile ukwenza njalo. Ukuhoxa kwakho ngeke kube namthelela ekwelashweni kwengane yakho. Igama lakho ngeke libhalwe embikweni walolu cwaningo. Esikhundleni segama kuyosetshenziswa ikhodi emele igama lakho. Ngakho-ke akukho muntu oyokwazi ukuthi ungubani. Inhloso yalolu cwaningo akukhona ukulimaza imizwa yalabo ababambe iqhaza ocwaningweni kodwa ukuba ulwazi olutholakele lusetshenziswe ekutheni abaphathi bnesibhedlela benze ngcono izindlela abasekela ngazo abazali babantwana abalaliswe egunjini labantwana abagula kakhulu. Izimpendulo zakho ziyoshabalaliswa emva kokubhalwa kombiko walolu cwaningo. Imiphumela yalolu cwaningo iyonikezwa labo ababambe iqhaza uma beyicela. Uma uvuma ukubamba iqhaza kulo cwaningo, ngicela usayine ifomu lokuvuma ukuthi uzobamba iqhaza. Ukhululekile ukuibuza imibuzo ephathelene nalolu cwaningo ngokusebenzisa lezi zinombolo, Ifoni: +27 0725911263, noma i-email: liti75@yahoo.co.uk. Ngiyabonga ngesikhathi sakho nosizo lwakho.

Ozithobayo

ULiti

APPENDIX 11-Part 1

VOLUNTARY CONSENT FOR PARTICIPATION IN THE STUDY

INFORMED CONSENT

I ----------, have read the consent of the information sheet and given the opportunity to ask questions regarding the study, I understand that I will participate by filling parental stressors scale in neonatal intensive care unit which mentions relevant information on how I feel about admission of my infant in NICU and demographic data, also understand my participation is completely voluntary and I will be free not to participate or withdraw in the study any time without any penalty for me or my infant.
I here by consent to participate in the study

---------- ----------
Participant's Signature **Date**

I Liti Kitemangu have explained the study to the above subject and have sought his/her understanding for informed consent.

---------- ----------
Investigator Signature **Date**

I- APPENDIX 11-Part 2

IMVUME YOKUZINIKELA UKUBA YINGXENYE YALOLU CWANINGO

Mina ---------- ngifundile futhi ngathola ulwazi olwanele ngokuzimbandakanya kulolu cwaningo. Nginikeziwe futhi nethuba lokubuza imibuzo mayelana nalolu cwaningo. Ngiyaqonda ukuthi ukuba yingxenye yalolu cwaningo kusho ukuthi ngizogcwalisa isikeyili sabazali egunjini labantwana abagula kakhulu, esichaza ukuthi ngizizwa nginjani ngokwamukelwa komntwana wami kuleli gumbi elibizwa ngokuthi i NICU. Ngiyazi futhi ukuthi ngiyazinikela mina angiphoqiwe ukuba ngibe yingxenye yalolu cwaningo.Ngiyaqonda ukuthi nginalo igunya lokungabambi iqhaza kulolu cwaningo, kanye nokuyeka nje noma yinini ngaphandle kokuba ngijeziswe mina nomntwana wami.

Ngiyavuma ukubamba iqhaza kulolu cwaningo.

----------	**----------**
Ukusayina kobamba iqhaza	**Usuku**

Mina Liti K Mvungi ngimchazelile ngocwaningo lwami, ngaqiniseka ukuthi uyaqondisisa ngokunikeza imvume yokwenza lolu cwaningo.

----------	**----------**
Ukusayina komcwaningi	**Usuku**