

PARENTS' PERCEPTIONS OF ENVIRONMENTAL STRESSORS
IN THE SPECIAL CARE NURSERY

By

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Abstract

This descriptive comparative and correlational study was designed to determine the degree of environmental stress perceived by mothers and fathers during the first week of their infant's admission to a Special Care Nursery (SCN) and to determine the differences in their perceptions. In addition, the variables of gestational age, birth weight and paternal attitude toward caregiving were investigated for their relationship to the perceived degree of environmental stress. A convenience sample of 31 sets of parents was selected from a tertiary level SCN in a large urban children's hospital. Both parents completed the Neonatal Intensive Care Unit Parental Stress Scale and an information sheet; fathers also completed the Paternal Attitude Scale. Overall, mothers and fathers perceived the SCN environment as a low source of stress. Mothers were moderately stressed by their altered parental role. In addition, mothers were significantly more stressed by the environmental aspects of SCN and the total SCN experience than were fathers. Environmental stress arising from staff communications and relations was significantly negatively related to birth weight and gestational age. No significant relationship was found between paternal attitude toward caregiving and the fathers' perception of environmental stress.

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CHAPTER 1

Introduction

Background to the Problem

Clinical observation, as well as common sense, indicates that the emotional response of parents to the birth of a premature infant is different from the reaction of parents to the birth of a full-term infant (Selby, Calhoun, Vogel, & King, 1980). The birth of a premature infant is a significantly more stressful and unpleasant situation for the parents than the birth of a full-term infant (Caplan, 1960; Caplan, Mason & Kaplan, 1965; Hancock, 1976; Klaus & Kennell, 1982; Rapoport, 1962). Not only must the parents deal with the normal adjustments associated with the addition of a new family member, they must also deal with the birth of a small or sick infant. A multiplicity of variables may be considered as sources of stress for the parents of a premature infant. Beckwith and Cohen (1978) list some of the stresses experienced by a family of a premature infant: separation from the infant, depression over the failure to produce a normal infant in the normal manner, reluctance to become attached to a child who might not survive, delay in carrying out natural caregiving functions, overwhelming hospital bills, and inability of the premature infant to interact with his/her parents in the normal way. The often unexpected delivery, the concern about

the sick infant and the uncertainty about the infant's survival and subsequent development are also identified sources of stress for the parents (Blackburn, 1986; Johnson, 1986a; Klaus & Kennell, 1982; Mercer, 1977; Richards, 1983; Selby et al., 1980; Siegel, Gardner and Merenstein, 1985).

Another potential stressor is the admission of the infant to a Special Care Nursery (SCN) with its advanced medical technology and aura of criticality (Miles, 1986; Siegel et al., 1985). This environment; with its heat, noise, and monitoring equipment; with its crowds of nurses, physicians, support personnel and critically ill newborns; is often overwhelming to parents. The size, appearance, intensity and technology of the SCN, the physical appearance of the premature infant and the lack of privacy inherent in the SCN environment may generate or add to the stress experienced by the parents (Blackburn, 1986; Lissenden, 1984; Miles, 1986; Parente, 1982).

In addition, parents are often required to communicate with a large number of health care providers during the infant's stay in SCN (Mercer, 1977; Miles, 1986) and they receive an enormous quantity of information (Macnab, Sheckter, Hendry, Pendray, & Macnab, 1985). Nurses, physicians and social workers all have a different kind of information to share with the

parents and this may generate confusion and stress for the parents.

Another source of stress for the parents may be the infant's size. It has been observed that maternal anxiety varies inversely with the size of the infant: the smaller the infant, the greater the anxiety (Choi, 1973; Prugh, 1953). Anxiety related to the infant's size stems from the very real problem of survival (Mercer, 1977). Neonatal mortality rates are highest among premature infants and these rates increase as birth weight and gestational age decrease (Korones, 1986). Therefore, the gestational age and birth weight of their premature infant may be sources of stress for parents.

One further factor which may potentiate the stress response in parents is the often difficult task of being a parent in SCN. The parents are forced into a passive role of becoming secondary caregivers and have minimal control over their infant and his/her care (Blackburn, 1986; Richards, 1983). The process of defining and establishing the role of mother or father is complicated by the physical environment of the SCN and the physical condition of the infant, which work to inhibit natural caregiving (Cohen, 1982). As a result the parents are unable to fulfill the usual parenting role and are often unsure of their role as the parents of a sick infant.

Numerous changes in attitudes and conceptions of family roles and functions have taken place over the past two decades (Bigner, 1977). The current trend appears to be an increased awareness by fathers of their role within the family and an increased willingness to participate and share childrearing responsibilities with the spouse (Boyd, 1981). Research (Jeffcoate, Humphrey & Lloyd, 1978) has established that the disruption in the maternal caregiving role is a source of stress for mothers with an infant in the SCN. What remains unclear is whether or not fathers' attitudes are such that they expect to participate in infant caregiving and if deprived of the opportunity to do so, this becomes a source of stress for them.

These stresses, singly or in combination, may lead to parental difficulties over identity with the infant, a lack of desire to interact with the infant and a perception of the infant as "different" or "abnormal". In vulnerable individuals these difficulties may produce inadequate parenting, family breakdown and even child abuse (Macnab et al., 1985).

Retrospective studies show that a greater percentage of abused or neglected children are born prematurely than can be accounted for by chance (Elmer & Gregg, 1967; Klein & Stern, 1971). A prospective study of 225 premature and ill newborns discharged from a neonatal intensive care unit showed a high level of maltreatment in the first postnatal year (Hunter,

Kilstrom, Kraybill & Loda, 1978). A high incidence of premature births is also reported in studies of children who fail to thrive (Hannaway, 1970; O'Callaghan & Hull, 1978).

An important role for neonatal nurses is to assist parents to cope with this stressful situation in order to facilitate the development of a healthy parent-child relationship. However, specific sources of parental stress and their intensity need to be identified in order to plan appropriate nursing interventions.

A number of authors have documented parents' reactions to the SCN environment (Blackburn, 1982; Lissenden, 1984; Parente, 1982; Siegel, 1982). However, the majority of this documentation has been descriptive, has not been scientifically tested and has not identified specific sources of environmental stimuli influencing the parents' reactions. Furthermore, the literature indicates that the birth of a premature newborn imposes a severe stress on the mother (Barnett, Liederman, Grobstein & Klaus, 1970; Caplan et al., 1965; Kaplan & Mason, 1960; Klaus & Kennell, 1976). Some investigators have found that the father's experience of stress differs from that of the mother (Benfield, Lieb & Reuter, 1976; Blackburn & Lowen, 1986; Jeffcoate et al., 1978). However, a review of the literature reveals that little research has been done investigating the differences in perception of

environmental stressors in SCN between mothers and fathers.

Statement of the Problem

The admission of a premature infant to a Special Care Nursery is a stressful experience for parents that may contribute to the development of a maladaptive parent-infant relationship in vulnerable individuals. To date the majority of research studies have concentrated on the mother's perceptions and responses to the birth of a premature infant and his/her admission to SCN. Research into the father's perceptions and responses has been sparse. As well, little research has focused on the parents' perception of environmental stressors: physical aspects of SCN, infant appearance, staff communication, and parental role alteration and no research has been done to investigate the possible interrelationships with the variables of gestational age and birth weight and paternal attitude toward caregiving.

Purpose of this Study

The purpose of this study was to determine the degree of stress related to the SCN environment as perceived by mothers and fathers during the first week of their infant's admission to SCN and to determine the differences in their perceptions. In addition, the study investigated the relationship of other variables, namely gestational age, birth weight and paternal attitude toward caregiving to the perceived degree of

environmental stress.

Conceptual Framework

The conceptual framework used for this study is Miles and Carter's (1983) framework which was developed to understand, describe and assess sources of potential parental stress in the pediatric intensive care unit (ICU) (see Figure 1). In addition, role theory is pertinent to the explanation of differences in the mother's and father's perception of stressors.

Miles and Carter (1983) have based their framework on four theories that relate to stress and illness: Selye's theory on stress; Lazarus' cognitive-phenomenological theory on stress and coping; Roy's model of nursing; and Moos' theory on coping with illness (p. 354). The common denominator of all these theories, as identified and built upon by Miles and Carter, is the concept that the response to stress is the result of a complicated interaction between a number of variables.

Miles and Carter's conceptual framework has applicability for understanding parental stress in the SCN due to the similarity of the experiences for parents in the SCN and the Pediatric intensive care unit. Admission of a child to an intensive care unit and admission of a premature infant to a SCN are both stressful experiences for parents. The parents are often unprepared for the sudden unexpected delivery of a premature infant

UNDERSTANDING PARENTAL STRESS IN THE INTENSIVE CARE UNIT

POTENTIAL SOURCES OF STRESS (STRESSORS)

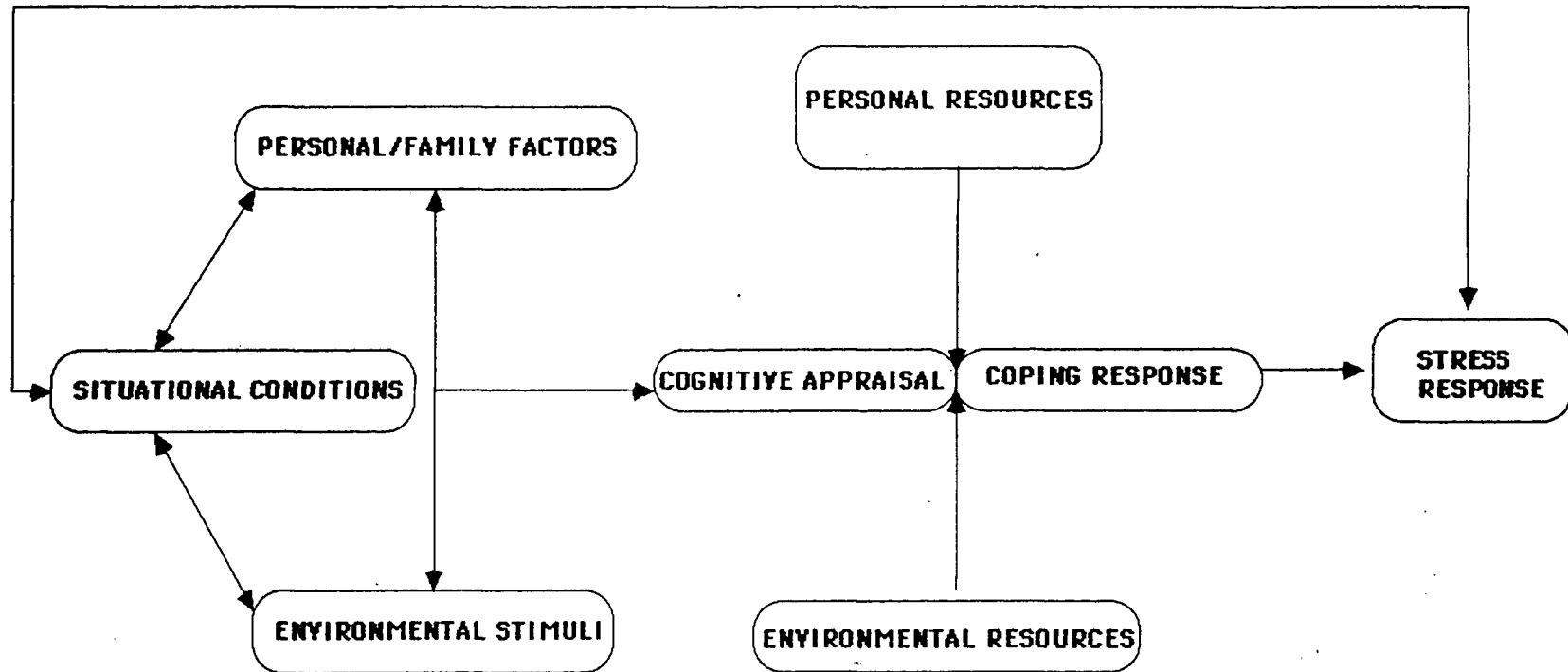


Figure 1. Conceptual Framework for Understanding Parental Stress in Pediatric Intensive Care Units

Note. From "Assessing Parental Stress in Intensive Care Units" by M. S. Miles and M. C. Carter, 1983

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or the sudden critical illness of their child. In both cases, the outcome for the infant or the child may be uncertain. In addition, the environment of the intensive care unit and the environment of the SCN are strange and overwhelming and filled with a sense of urgency. Therefore, this conceptual framework was chosen as having utility to help order, clarify and systematize selected variables related to parental stress in the SCN.

According to the Miles and Carter framework, potential stressors that affect parents whose child is in an ICU arise from three sources:

(a) personal/family background factors which are the past and present personal factors that a parent brings into the illness episode, (b) situational conditions which are defined as threats experienced by having a seriously ill child, and (c) environmental stimuli which arise from the physical and psychosocial environment of the ICU. These three sources of stressors are mediated by cognitive appraisal of the situation, coping responses and resources available. Cognitive appraisal refers to the continuously changing set of judgments made by the parents about the significance of the child's illness and the child's admission to ICU.

Coping behaviours affect the parents' perception of the stressors and their overall response to stress. The parents' coping behaviours may be

appraisal-focused, for example, attempting to understand the situation; may be problem-focused, for example, seeking information and help; and/or may be emotion-focused, for example, attempting to maintain emotional equilibrium.

The overall stress response of the parents is further mediated by the availability of resources from the environment or from the parents' personal network of resources. Environmental resources include staff interventions, physical amenities of the ICU, and the potential support of other parents. Personal resources include support of relatives and friends, financial resources and personality factors such as positive self-esteem.

The parents' response to stress is viewed as a changing phenomenon being influenced by changes in the variables and in turn influencing the parents' perception of the stressors. The overall stress response may be adaptive or maladaptive.

Role theory provides a theoretical basis for understanding the influence of the mother/father role on the perception of stressors following the admission of their premature infant to SCN. Roles are based on role expectations defining what individuals in a particular situation should do in order to meet their own or another's expectations of them (Friedman, 1986). Societal role expectations are modified or refined as a result of an

individual's exposure to role models and his or her personality characteristics such as capacities, temperament, attitudes and interests. The outcome of an individual's role modification is his/her actual role behaviour (Friedman, 1986). Therefore, role expectations influence the mother's/father's perception of the situation and as such they form part of the individual's personal/family factors within Miles and Carter's conceptual framework.

Robischon and Scott (1969) state "roles are learned through the process of socialization, which has been defined as the process by which individuals learn the ways of social groups in order that they can function within the groups" (p. 52). Becoming a parent involves learning a new role. In the past a clear set of roles was prescribed for males and females, with child care being assigned almost exclusively to the mother while the father's role was to support the mother as she nurtured the child (Parke, 1979). Recently, however, changing definitions of masculinity and femininity and changing occupational demands in Western society may have confused contemporary young males as to what they should and should not be as fathers (Eversoll, 1979). Eversoll (1979) found that sons expected fathers to be more involved in the "nurturing" role dimension which she defined as the expected father role behaviours related to providing for the emotional needs and the

physical-care needs of the child.

The focus of this study was on the three potential sources of stress as identified by Miles and Carter (1983): personal/family factors, situational conditions, and environmental stimuli. Paternal attitude toward infant caregiving was considered a personal/family factor because attitude is a personality characteristic that contributes to the father's actual role behaviour. Gestational age and birth weight were considered situational conditions because of their association with neonatal mortality. In keeping with the Miles and Carter conceptual framework, sights and sounds in the unit, the infant's appearance and behaviour, staff communications and relations and parental role alterations were considered environmental stimuli.

Research Questions

The present study was designed to answer the following research questions:

1. What is the degree of environmental stress perceived by mothers with an infant in SCN?
2. What is the degree of environmental stress perceived by fathers with an infant in SCN?

3. What is the difference between mothers' and fathers' perception of the degree of environmental stress?
4. Is there a relationship between paternal attitude toward caregiving and the degree of environmental stress perceived by fathers?
5. Is there a relationship between gestational age and birth weight and the degree of environmental stress perceived by mothers and by fathers?

Significance to Nursing

A major part of nursing care of a premature infant is the enhancement of the parent-infant relationship. Nurses assist and guide parents from the initial introduction to the SCN through the preparation and planning for discharge. Most parents of premature infants are in a state of shock and are ill-prepared for this experience. Knowledge obtained from this study of the stress related to the SCN environment as perceived by mothers and fathers would be useful in counselling and providing support to parents whose infant is admitted to SCN. This knowledge could be used in preparing parents for the SCN experience, both before the infant's admission and during the infant's stay in SCN. This knowledge would also be useful to nurses

teaching students about parents' reactions to the birth of a premature infant. In addition, this study would contribute to further establishing the reliability and validity of the instruments Neonatal Intensive Care Unit Parental Stress Scale and Paternal Attitude Scale.

Definition of Terms

Gestational age is the number of completed weeks which have elapsed between the first day of the last menstrual period and the time of delivery of the infant. In this study, gestational age of the infant at birth is the parents' perception of gestational age.

Environmental stressor is a potential stimulus or eliciting factor arising from the sights and sounds of the SCN, the infant's appearance and behaviour, staff communications and relations, and parental role alterations. In this study, these stressors were measured by using the Neonatal Intensive Care Unit Parental Stress Scale (Miles, 1985).

Paternal attitude is the father's feeling toward a fact or state. In this study, paternal attitude toward infant caregiving was measured by the Paternal Attitude Scale (Boyd, 1980).

Premature infant is an infant born before 37 completed weeks of gestation.

Stressor is a stimulus or eliciting factor that arouses stress.

Assumptions

The assumptions of this study are:

1. The birth of a premature infant is a stressful situation for the parents.
2. The environment of the SCN is a source of stress for the parents.
3. Mothers expect to be able to care for their own infant after birth.

Limitations

Generalizability of the study results are limited by confining the study to one SCN setting and by using a convenience sample rather than a random sample of parents.

Description of the Following Chapters

This thesis is comprised of five chapters. In Chapter 2, selected literature is reviewed under three headings: personal/family factors-paternal attitude; situational conditions-gestational age and birth weight; and environmental stimuli. Chapter 3 describes the research methodology, including a description of the sampling procedure, design, instruments, data collection methods and statistical procedures. Chapter 4 is a report and discussion of the findings of the study. Chapter 5 contains the summary and conclusions and discusses implications for nursing

practice and recommendations for further research.

CHAPTER 2

Review of the Literature

Introduction

The purpose of this chapter is to review literature pertinent to this study. The literature review is discussed under headings identified from the conceptual framework as being potential sources of stress for parents: personal/family factors, situational conditions and environmental stimuli.

Personal/Family Factors-Paternal Attitude

Personal/family factors are all the past and present personal factors that a parent brings into the illness episode (Miles & Carter, 1982). These include the biopsychosocial characteristics and significant life events of the family; the adequacy and appropriateness of the parent's and family's coping mechanisms; the parent's levels of self-esteem and self-concept; concurrent events that may be sources of stress; and past experiences with an intensive care unit, death or illness of the child (Miles & Carter, 1983). In addition, role expectations and attitude towards that role is something that the parents bring with them. An unknown variable at this time is whether or not fathers' attitudes are such that they expect to participate in infant caregiving and if deprived of the opportunity to do so, whether this becomes a source of stress for them. Therefore, paternal attitude toward

infant caregiving was the personal/family factor studied in this research.

Role behaviour or performance is what a person actually does within a position in response to role expectations (Friedman, 1986). Johnson (1986b) defines role expectations as "the anticipation of certain actions and qualities within a role" (p. 390). As well, the attitudes of an individual regarding the parenting role, how it should be conducted and the conceptions of role functions are usually considered to be important antecedents that influence actual role performances (Bigner, 1977).

Recently, the role expectations of fathers in Western society have been changing. Kunst-Wilson and Cronenwett (1981) suggest that some fathers are becoming increasingly discontent with their role as a secondary, indirect contributor to the infant's life. Palkovitz (1986) states "a major social change seems to have occurred within a relatively short span of time in reference to attitudes and expectations concerning paternal involvement in childbirth" (p. 40). These recent social changes have led to increased participation by fathers in early childbirth experiences and greater father-infant interaction (Wieser & Castiglia, 1984).

In the past decade researchers have devoted considerable attention to the concept of father-infant "bonding" (Jones, 1981; May, 1982; Palkovitz, 1985; Rodholm, 1981) and the essential participatory role of fathers in

child-rearing (Cronenwett, 1982). Murphy (1986) suggests that prenatal and delivery room experiences shared by both parents have helped to foster positive paternal attitudes and have increased fathers' willingness to participate in child care activities.

Klaus and Kennell (1976) have identified that the caregiver role is essential to the development of an adaptive relationship between parents and infant. Parents need to take care of the infant in order to feel they are parenting (Oehler, 1981). Parents of a premature infant usually cannot begin looking after their own infant immediately but have to give up the infant's care to nurses and physicians. One study found this situation to be extremely stressful for mothers but not fathers (Jeffcoate et al., 1978). The authors explained their results by stating "in the U. K., where the majority of babies are born in hospital, the father would not expect to be involved in performing caregiving tasks in the early period following birth" (Jeffcoate et al., 1978, p. 144). No equivalent North American research has been published that assesses the father's expectations regarding the caregiver role following the admission of his premature infant to SCN.

Humenick and Bugen (1987) carried out a study to determine how closely a group of new parents' ($n = 33$) anticipated roles matched their actual involvement in parenting, as measured by the amount of time spent in

various activities with their infants. Both parents recorded their expectations regarding their interactions with their new baby, which were compared with their own reports about their interactions when the child was three weeks old. The investigators found that mothers expected to spend more of their available time with their three-week old infants than did fathers. A significant correlation was found between actual versus expected interaction time for both mothers ($r = .78, p = .001$) and fathers ($r = .51, p = .001$). Mothers actually spent more time than expected caring for their newborns while fathers spent less time than expected. The investigators concluded that for these families the early assumption of parent roles did not go as expected for either partner.

Bigner (1977) conducted an investigation to determine the presence of an association between attitudes toward fathering and degree of father-child activity. His sample consisted of 77 fathers of preschool-aged children who were enrolled in the Human Development Laboratories program at Colorado State University. The subjects were asked to complete a questionnaire packet that contained background information, the Attitudes Toward Fathering Scale and the Father-Child Activity Scale. Bigner found a low positive but significant association ($r = +.21, p < .05$) between attitudes toward fathering and degree of father-child activity. This finding indicates

that as attitudes toward fathering scores increased, there was a related increase in degree of father-child activity scores.

Fathers of an infant born prematurely may be experiencing disruption of the expected paternal role in infant caregiving. This change in role expectations may be contributing to the overall stress response of fathers with an infant in SCN. Therefore, in this study, fathers' attitudes toward infant caretaking were assessed and then analysed to determine if a relationship existed between them and degree of environmental stress.

Situational Conditions-Gestational Age and Birth Weight

Situational conditions are defined as threats experienced by having a seriously ill child (Miles & Carter, 1982). Examples of this kind of stressor are the child's illness itself and uncertainties regarding the child's chances of survival, the child's appearance and level of functioning in the future and the duration of the child's illness and hospitalization (Miles & Carter, 1983). Given that gestational age and birth weight affect the infant's chance of survival, the infant's appearance and level of functioning and his/her length of stay in SCN, the variables of gestational age and birth weight of the infant were situational conditions considered in this study.

Both birth weight and gestational age are associated with neonatal mortality. At any given birth weight, mortality increases as gestational age

diminishes; at any given gestational age, mortality increases as birth weight diminishes (Korones, 1986). Mortality rates are highest among premature infants and these rates increase as birth weight and gestational age decrease (Korones, 1986). In the Special Care Nursery at the B. C. Children's Hospital in 1985, no infants admitted to SCN weighing less than 500 grams survived (1985 BCCH/SCN Statistics). In the birth weight cohort weighing from 500 to 749 grams, 15 of the 28 infants admitted to SCN died (mortality rate 53%). In contrast, all 74 of the infants admitted with a birth weight of 1750 to 1999 grams survived. By gestational age cohorts, 24 of the 43 infants admitted with a gestational age of 22 to 25 weeks died (mortality rate 56%). Infants admitted with a gestational age of 26 to 27 weeks had a mortality rate of 25% (16/63 died). In the gestational age cohort of 28 to 36 weeks, the mortality rate was 6% (29/492 died). In 1985 the SCN had an overall mortality rate of 9.6%.

Gestational age and birth weight affect the infant's appearance and level of functioning. The earlier the infant's gestational age and the lower the birth weight, the greater the differences in appearance and behaviours between the premature infant and the expected full-term infant. The premature infant's characteristic thin body and uncoordinated behaviours are often bothersome to the parents (Harrison & Twardosz, 1986). Premature

infants are often unresponsive, provide few opportunities for eye-to-eye contact, and have exaggerated behavioural responses such as startles, jerky movements, and tremors that are disconcerting to parents who may feel they are frightening or hurting their infant (Johnson & Grubbs, 1975).

Gestational age and birth weight also affect length of the infant's stay in SCN. The earlier the gestational age and the lower the birth weight, the longer the infant's stay in SCN. For example, infants with a birth weight of 500 to 749 grams ($n = 28$) had an average length of stay of 81.9 days in SCN (1985 BCCH/SCN Statistics). In contrast, infants with a birth weight of 1250 to 1499 grams ($n = 172$) stayed an average of 27.2 days while infants with a birth weight of 2500 to 2999 grams ($n = 68$) stayed only an average of 7.57 days.

Prugh (1953) has made a series of sensitive and insightful observations of the mothers of premature infants. He identified two prominent emotions in these mothers: anxiety and guilt. He notes that, in general, maternal anxiety varies in inverse ratio to the size of the infant. Prugh states "the moderate anxiety experienced by any mother, particularly with her first baby, may thus be intensified in the face of a premature baby's helplessness and small size" (p. 461).

Choi (1973) has documented a relationship between birth weight and

gestational age and the degree of anxiety and depression in mothers of premature infants. Using a quasi-experimental design, she tested the hypothesis that mothers of premature infants are more depressed and anxious in the early postpartum period than are mothers of full-term infants. Twenty mothers of premature infants were matched with 20 control mothers of term infants. Three to five days following delivery a questionnaire measuring anxiety and depression in the puerperium was administered verbally to each mother. The author found a statistically significant difference between the degree of anxiety and depression in mothers of premature infants and mothers of term infants. Moreover, in the group of mothers of premature infants, a significant correlation was found between birthweight and degree of anxiety and depression ($r = -.75$). Anxiety and depression decreased in proportion to increased birth weight for this group of mothers. As well, in the study group of mothers of premature infants, a statistically high correlation between gestational age and maternal anxiety and depression was found ($r = -.72$). The author concluded that birth weight and gestational age appeared to be significant forces influencing the mothers' reactions to their premature infants.

Because the literature indicates that birth weight and gestational age may be sources of stress for parents (especially mothers) of a premature

infant, these two variables were considered situational conditions in this study.

Environmental Stimuli

According to Miles and Carter's (1983) conceptual framework, environmental stressors arise from the physical and psychosocial environment of the ICU and include sights and sounds in the environment, procedures done to the child, the child's appearance, the child's behaviour and emotional responses, staff communication, staff behaviour and inability of parents to perform their parental role. This study considered four aspects of the SCN environment as stressors: sights and sounds of the unit; the infant's appearance and behaviours; staff communications and relations; and parental role alterations. Literature pertinent to each of these four aspects will be discussed.

Sights and Sounds

The concept that environmental stimuli may contribute to psychological stress experienced by families with a member in an intensive care unit is supported by West (1975). He identified the environment of the adult intensive care unit as an essential factor contributing to fear and anxiety felt by the families of ICU patients. King and Gregor (1985) state that stress for families of a critically ill patient results from "an

environment of unfamiliar caregivers, equipment, procedures, rules and regulations, and smells and sounds" (p. 48). Sammons and Lewis (1985) have identified that the parent's reaction to the SCN usually centers on three elements: the effects on the infant; the effects of the physical environment on themselves; and the effects of the emotional environment on themselves. These authors state "many parents feel that the NICU [neonatal intensive care unit] is something out of science fiction: flashing lights, machines everywhere, strange noises, beeping alarms, sudden prolonged mechanical screams when someone arrests or a lead disconnects, a small space, and too many people" (p. 94). Sammons and Lewis write that interaction of the physical and psychosocial environment creates an overall emotional atmosphere in the SCN that has the potential to be highly stressful to parents.

Ross (1980) suggests that while some parents find the life-saving equipment reassuring, others see it as frightening; and the presence of other sick infants frequently increases parental concern for their own child. She cites Harper, Sia, Sokal & Sokal's (1976) retrospective study which investigated parental reaction to the SCN environment. In this study, parents of infants who stayed in a neonatal intensive care unit two weeks or longer during 1974 were sent a questionnaire which assessed, along with other factors, the parents' attitude toward the supportive equipment in use on

other infants and the parental reaction to the other infants in SCN. Based on the responses ($n = 91$), the investigators found that 30% of the parents had negative reactions to the other infants and 23% reacted with fear to the equipment being used on other infants. Only 36% were reassured by the sophisticated intensive care equipment used on their infants.

Miles (1986) studied the influence of environmental stimuli on 53 parents with infants in SCN. Parents were asked to complete three questionnaires: the Neonatal Intensive Care Unit: Parental Stress Scale (NICU:PSS), Spielberger's State Trait Anxiety Scale and a personal-situational questionnaire. The NICU:PSS was adapted from an earlier instrument, the Parental Stressor Scale: Pediatric ICU, used in studies of parental stress in the Pediatric ICU by Miles and Carter (1982). The NICU:PSS was designed to measure parental perception of stress arising from four aspects of the SCN environment: sights and sounds of the unit, staff communications and relations, parental role alterations, and the infant's appearance and behaviours. Her findings from this descriptive study indicate that sights and sounds of the unit correlated highly with State Anxiety Scores. In addition, Miles found that sights and sounds of the unit was the least stressful aspect of the SCN environment ($M = 2.4$). Differences between maternal and paternal scores were not reported. Miles cautioned that these results be considered in

light of the small sample size and the collection of data from parents when the infant was nearly ready for discharge.

Infant's Appearance and Behaviour

The unique physical and behavioural characteristics of premature infants may be a source of stress for parents. The premature infant's appearance and behaviour is different from a full-term infant's appearance and behaviour and is unlike what the parents pictured for their infant (Johnson, 1986a). The premature infant's head is large, the extremities thin, movements are jerky and respirations are irregular and laboured (Klaus & Kennell, 1982). The infant is usually left undressed in an incubator and is attached to a complicated series of wires and tubes. Parents are shocked by the appearance of this tiny infant and often describe him/her as looking like a frog, rat, baby gorilla, skinned monkey or little old man (Harrison & Twardosz, 1986; Jeffcoate et al., 1978; Mercer, 1977). Mercer (1977) states that a mother's prebirth fantasy of her child is usually one of a fully clothed baby about six months old, which is a marked contrast to the small premature infant.

Miles' (1986) study mentioned previously found that the parents' perception of the infant's appearance and behaviour correlated highly with State Anxiety Scores. Her findings indicated that the infant's appearance and

behaviour caused parents the highest stress ($M = 3.7$).

The first sight of the SCN and the infant is often shocking and overwhelming to the parents (Mercer, 1977; Thornton, Berry & Dal Santo, 1984). Therefore, some Special Care Nurseries offer the parents a tour of the unit before their baby is born. The tour allows parents the opportunity of seeing infants of the same gestational age and size as theirs and of observing the kinds of care available (Hawkins-Walsh, 1980; Thornton et al., 1984). Taylor and Hall (1979) state that this visit to the unit where their infant may spend some time intrigues parents and decreases anxiety in most.

Because of the effect of gestational age and birth weight on the infant's appearance and behaviours, this study investigated whether a relationship existed between gestational age, birth weight and the degree of environmental stress perceived by mothers and fathers.

Staff Communications and Relations

Several authors have pointed to the need for good communication between parents and staff (Hawkins-Walsh, 1980; Jeffcoate, 1979; Klaus & Kennell, 1982; Korones, 1986; Oehler, 1981; Mercer, 1977; Taylor & Hall, 1979). Most parents want to know exactly what tests, procedures and medicines are being used for their infant and the reasons for their use. As much as possible they need to feel involved in decision-making and not simply

informed after the event (Jacques, Hawthorne Amick & Richards, 1983). However, the quantity of information is enormous and most parents can only absorb it gradually (Macnab et al., 1985).

Oehler (1981) mentions the importance of the parents receiving the same messages from the staff in order to avoid conflicting explanations which can generate misunderstanding, confusion and mistrust. Confusion in the parent's minds and misunderstandings between parents and staff arising from garbled communications may result in interactions ranging from unproductive to counterproductive to destructive (Taylor & Hall, 1979). As Bogdan, Brown and Foster (1982) state "neonatal units are more complex and intense than most other settings in which professionals talk to clients" (p.13).

Mahan, Perez, Ratliff and Schreiner (1981) conducted a study to examine parental perceptions of the manner in which the family was supported at the time of the death of their newborn in a neonatal intensive care unit (NICU). They reported parental perceptions of a variety of experiences surrounding the birth, illness and death of their newborn. Parents whose infant died in the NICU were sent questionnaires to be completed individually by the mother and father. The sample comprised 23 parent pairs and was equally divided among families whose baby was

premature and those whose baby was full-term. Questions were grouped into prenatal, intrapartum, neonatal and post death periods. Questions regarding neonatal contact with the baby prior to death included level of information in hospital and helpfulness of regional hospital staff. In response to the level of information in hospital, 15 mothers felt well informed (65%), 2 mothers felt some information was withheld (9%), one mother felt uninformed (4%) and 5 responses are listed as other/blank. No paternal responses to this question are reported. The following responses were reported for the question regarding helpfulness of regional hospital staff: not helpful, 2 mothers (9%); slightly helpful, 2 mothers (9%) and 5 fathers (22%); helpful, 11 mothers (48%) and 11 fathers (48%); very helpful, 4 mothers (17%) and 4 fathers (17%); not answered, 4 mothers (17%) and 3 fathers (13%). The authors offered no conclusions regarding these results other than remarking that hospital staff were seen in a positive sense by most mothers and fathers.

In the Harper et al. (1976) retrospective study described earlier, the parents' ($n = 91$) response to the hospital personnel and facilities was assessed. The authors reported that when the parents came to the unit, only 7% expressed dissatisfaction with the professional personnel.

Blackburn and Lowen (1986) carried out an exploratory survey to examine the feelings, perceptions and experiences of 50 parents of premature

infants. A questionnaire developed by the authors was mailed to each parent who had indicated an interest in participating. Content validity of the questionnaire was evaluated by expert review and consistency with the literature. Other aspects of validity and reliability were not tested. One section of the questionnaire asked the parents to identify their sources of information about the premature infants and their problems as well as which sources were most and least helpful. The most frequent sources of information reported by mothers ($n = 36$) were doctors (89%), parents of prematures (86%), nurses (83%) and magazines, books (69%). The most frequent sources of information reported by fathers ($n = 14$) were nurses (86%), doctors (79%), parents of prematures (64%), and magazines, books (57%). Mothers reported that the most helpful sources of information were parents of prematures (47%) and nurses (33%) while fathers answered nurses (57%) and doctors (29%). Mothers reported that the least helpful sources of information were doctors and the infant's grandmother. None of the fathers indicated a least helpful source of information.

Miles (1986) found in her study described previously that parents perceived that staff communications and relations was a source of moderate stress ($M = 2.9$).

This literature appears to indicate that parent/staff communication in

SCN may at times be less than optimal and may be a source of stress for parents. Therefore, this study investigated the degree of parental stress arising from staff communication within the first week of the infant's admission to SCN.

Parental Role Alterations

Transition into parenthood is a difficult experience for many married couples and some experience it as a major life crisis (Kunst-Wilson & Cronenwett, 1981). Becoming a parent involves learning a new role. As Richards (1983) states "parents do not appear *de novo* the day their child arrives, but are people who have gone through a long period of anticipation and preparation for this event" (p. 11). A premature birth not only cuts short any process of preparation for parenthood but any separation after the birth may delay the development of the parental relationship. The birth of a premature infant and his/her admission to the SCN interferes with the parent's ability to fully assume their new roles as mother and father. The parent's expectations of these roles and their attitudes towards them could be expected to influence their reaction to the situation.

Richards (1983) writes "admission of a baby to a neonatal unit carries the implicit message that the mother (and father) are incapable of looking after their own child" (p.14). Because nurses act as primary caretakers

parents often have difficulty feeling a sense of responsibility for their infants. The staff appears to be efficiently in charge while the parents play a subordinate role (Blackburn, 1986; Jacques et al., 1983; Prugh, 1953).

Harrison (1983) notes that lack of privacy may be a problem for many parents. She states "while full-term babies and their parents go through the trial-and-error stage of getting acquainted at home, mothers and fathers of premies have their parental behavior on public display. Under the watchful eyes of the nursery staff, they may become too nervous and inhibited to relate to their baby spontaneously" (p. 32).

A parallel situation has been described by Rennick (1986). She writes that the admission of a child to an intensive care unit is one of the most frightening and stressful experiences parents may ever encounter. During this time, parents are forced to abdicate their roles as primary caregivers and to adopt the new roles of parents to an acutely ill child. Steele (1987) writes that parents of a premature infant must revise their fantasized parenting roles. She states that because nurturing, caretaking and protective behaviours are limited and because staff often assume some parenting roles, parents feel confused about what is expected of them in the context of the SCN. Steele suggests that roles must be redefined and revised to allow parents to function within the limitations imposed by medical necessity.

The experience of having an infant in SCN is "a frightening time for parents. They feel as totally dependent on the doctors and nurses as their infant is, yet they feel that now that they are parents they should be more responsible for the care of their child" (Sammons & Lewis, 1985, p.75).

Role perception and response to stress in fathers and mothers following preterm delivery has been studied retrospectively by Jeffcoate et al. (1978). Two groups of 17 families each were interviewed: a group of parents of preterm infants and a control group, matched for parity, of parents of full-term infants. Using a semi-structured interview schedule, the investigators asked the parents to describe their expectations, experiences, feelings and reactions during the course of the pregnancy, at the time of the birth, during hospitalization of mother and baby and following the discharge of both. Their results indicated that in the short-term, the preterm birth of a baby produced additional strain for both parents (compared with a full-term birth), in the form of emotional disturbance, delayed or inadequate maternal attachment and undue problems in caring for the baby at home. Also, the number of negative emotions, such as sadness or depression, disgust, disbelief or horror, shame or failure, guilt, anger, fear, anxiety, helplessness and inadequacy, expressed by mothers of preterm infants was significantly greater than fathers of the preterm infants. The authors suggested that the

preterm birth affected mothers more than fathers because of their differing parental role expectations.

In the Jeffcoate et al. (1978) study, parents were asked what they saw as the most important aspect of their role. The majority of the mothers' responses fell into two main groups: "caring" (49%), for example, giving love, understanding, showing patience, tolerance and "nurturing" (42%), for example, feeding, washing, changing, always being there to see to the child's needs. Whereas fathers, although also mentioning "caring" (35%), saw several more diverse aspects as part of their role: "responsibility", as provider and protector; "discipline", setting and maintaining standards for the family; and "teaching" in its widest sense of socialization. The authors concluded that when mothers of the preterm infants were deprived of the opportunity to carry out their expected "nurturing" role due to the infant's admission to SCN, they experienced greater emotional stress than fathers.

Another finding from the Jeffcoate et al. (1978) study was that mothers in the preterm and the control group differed significantly in response to the question 'When did you first feel the baby was yours?'. All but one of the control group mothers felt their baby belonged to them within the first few days while half (nine out of 17) of the preterm group could not feel this until after they had taken the baby home (chi square 10.08, d.f. = 3,

$p < .02$). There was no corresponding delay for the father. The authors suggested that these results indicated that mothers of infants in SCN perceive that they are not really in charge of their own babies.

In the Blackburn and Lowen's (1986) exploratory study mentioned previously, one section of the questionnaire listed feelings and emotional responses identified in the literature as experienced by parents of premature infants. The respondents were asked to indicate if they had experienced any of the responses or feelings listed and to rate how intensely they had experienced each response on a scale ranging from one (did not experience feeling) to five (experienced very intensely). Two of the items in this section were related to disruption in role expectations with regard to infant caregiving: forced into passive role and uneasy caring for baby. On the item "forced into passive role", mothers ($n = 36$) scored a mean intensity of 3.5 while fathers ($n = 14$) scored 3.1. Mothers and fathers scored an identical mean intensity of 2.5 on the item "uneasy caring for baby". The authors provided no further statistical analysis of the results. However, it appears that mothers and fathers were equally affected by the disruption in the caregiving role.

In the Miles' (1986) study mentioned previously, parents' perceptions of parental role alterations correlated highly with their State Anxiety Scores.

In addition, the environmental stress dimension causing the second highest stress scores was parental role alteration ($M = 3.2$).

As identified in the above literature, parental role alteration appears to be a major environmental stressor for parents with an infant in SCN. Because expectations and attitudes are important antecedents of role performance, these may logically influence the parents when there are alterations in the normal circumstances, setting and role performance of mothers and fathers such as occurs in the SCN. As well, role expectations and attitudes may influence the stress perceived by parents in this altered situation. Therefore, the relationship between paternal attitude toward caregiving and environmental stressors which included parental role alterations was assessed in this study.

Summary

The birth of a premature infant and his/her subsequent admission to a SCN is a very stressful experience for the parents. The literature indicates that the parents may be encountering stress from a multitude of potential sources. Research indicates that particular environmental factors in the SCN are seen as stressors such as sights and sounds of the unit, the infant's appearance and behaviour, staff communication and relations and parental role alterations. Although these stressors have been identified, no research

has been conducted to determine the differences between mothers' and fathers' perception of these stressors within the first week of the infant's admission to SCN. Research on mothers and fathers supports the expectation that a difference in perception of these stressors exists.

Interaction between the three sources of stress (personal/family, situational and environmental) is alluded to in the literature. From research the situational conditions of birth weight and gestational age are known to be significantly related to the stress experienced by mothers with a premature infant. However, the relationship between birth weight and gestational age and environmental stressors has not been studied. In addition, no research has been carried out to investigate the relationship between the parents' attitudes and their perception of stress arising from environmental stimuli in SCN.

CHAPTER 3

Methodology

This study used a descriptive correlational and a descriptive comparative design. The data were gathered by means of a questionnaire. The sample, setting for the study, instruments, data collection procedure, ethical review process and the approach to data analysis will be described in this chapter.

Sample

A convenience sample of 31 sets of parents was chosen for the study.

Subjects included in the study met the following criteria:

1. Parents with an infant less than 37 weeks gestational age.
2. Parents whose infant had been in the SCN no longer than 7 days.
3. Both parents were able to visit the infant in the SCN.
4. Parents whose infant did not have congenital anomalies.
5. Parents who did not have a previous infant admitted to a neonatal intensive care unit.
6. Both parents were able to read and write English.
7. Neither parent worked in a critical care hospital setting.
8. Both parents agreed to participate in the study.

All parents with an infant admitted to the SCN were screened by the

researcher to determine if they met the sample criteria. Only three parents refused to participate in the study when approached and six did not complete the questionnaires. Five parents of twins completed the questionnaire. However, because of the possibility of confounding the results these five subjects were replaced with five parents with a single infant. A final total of 31 subjects was obtained for the study.

Setting

The study took place in the SCN of a large children's hospital in western Canada. The SCN is a 60-bed tertiary level referral center for premature and sick newborns. Infants are admitted either directly from the high-risk delivery suite in an adjacent maternity hospital or they are transported by air and/or ambulance by members of an infant transport team from the referring hospital. In 1985, the SCN admitted 790 infants. The average length of stay for infants in SCN during 1985 was 25 days with a range of 1 to 501.

Data Collection Instruments

The following instruments were used in the study: (a) the Neonatal Intensive Care Unit Parental Stress Scale, (b) the Paternal Attitude Scale and (c) an Information Sheet. Each instrument will be discussed in some detail.

Neonatal Intensive Care Unit Parental Stress Scale (NICU:PSS)

The NICU:PSS (see Appendix A) was used to measure the degree of environmental stress perceived by mothers and fathers with an infant in SCN. This instrument was developed by Miles (1985) to measure parental perception of stressors arising from the physical and psychosocial environment of the neonatal intensive care unit. The instrument contains four dimensions: the Sights and Sounds of the Unit (5 items), the Infant's Appearance and Behaviour (19 items), Staff Communications and Relations (11 items) and Parental Role Alteration (11 items) plus a final item that asks the parent to indicate how stressful in general the total SCN experience has been for him/her. The parent is asked to rate the levels of stress engendered by the items on a 5-point Likert-type scale. In addition to these rated items, a question at the end of the instrument asks the parent to list and explain anything else that was stressful for him/her during the time that the baby was in SCN.

The NICU:PSS was originally adapted by Miles from the Parental Stressor Scale: Pediatric ICU (PSS:PICU) developed by Carter and Miles (1982) to measure parental perception of stressors arising from the physical and psychosocial environment of the intensive care unit. The pediatric instrument was changed in a number of ways because of the differences in a

neonate's appearance and behaviours, changes in the parental role that differ for parents of sick neonate, and the differences in the routines and environment of the neonatal intensive care unit (NICU). Observations made in the NICU, interviews with parents, consultation with a parent self-help group and an extensive search of the literature provided support for the changes in the content of the instrument.

Content validity was assessed by 10 professionals (neonatal nurses and doctors) and 20 parents of infants recently discharged from a NICU. The 73 item neonatal instrument was then used in a pilot study involving 58 parents of infants hospitalized in one of two neonatal intensive care units. Parents completed the instrument as well as the Spielberger State-Trait Anxiety Inventory. The content of the NICU:PSS was then altered based on the data analysis from this pilot study and the input of additional content experts (experienced NICU nurses and a Maternal Child nursing educator), a professional editor, and a psychometrician. In item analysis, items that had a high number of zero's (not experienced) and had relatively low means along with items with a poor spread of scores were either eliminated or combined; combinations were based on conceptual similarity of the items and on high inter-item correlations. In addition, the internal consistency reliability coefficients for each of the dimensions were examined and items that tended

to lower the coefficient alpha were either removed or combined with other items. As well, items considered important by the additional professional staff were evaluated for relevancy. In all, five new items were added and 31 were combined or eliminated resulting in a 47 item scale.

Miles (1986) obtained the following internal consistency reliability (Cronbach's Alpha) for the four dimensions: Sights and Sounds .67 (4 items), Infant's Appearance and Behaviour .85 (17 items), Staff Communications and Relations .92 (10 items), and Parental Role Alteration .89 (10 items). An overall alpha for the instrument was .89. In this study the internal consistency reliability (Cronbach's Alpha) for the four dimensions was: Sights and Sounds .82, Infant's Appearance and Behaviour .85, Staff Communications and Relations .80 and Parental Role Alteration .87. An overall alpha for the NICU:PSS of .92 was obtained in this study.

In evaluation of the construct validity of the scale, Miles hypothesized that the perceived level of environmental stress would correlate positively with anxiety. Pearson correlation coefficients computed between each of the NICU:PSS dimension scores and State Anxiety scores were significant ($p < .01$) for three of the four dimensions: Sights and Sounds .48; Child's Appearance and Behaviour .43; and Parental Role Alteration .43. No significant correlation was found between State Anxiety and Staff Communications and

Relations. The correlation between the total NICU:PSS score and State Anxiety was .42.

Paternal Attitude Scale (PAS)

The PAS (see Appendix B) was used to measure paternal attitude toward infant caregiving. This instrument was developed by Boyd (1980) to measure the attitudes of fathers toward participation in infant caregiving activities. The Paternal Attitude Scale consists of 38 items rated on a five-point Likert-like scale from strongly disagree to strongly agree.

Content validity was provided by seven experts in the areas of parent-child nursing, child development and research who examined 60 statements and rank ordered them from one to 60 according to which best measured the father's attitude toward participation in parenting behaviours. Those 10 items which were rated consistently low were then discarded. In addition, slight changes were made on five other items as a result of comments by these experts. Initial reliability of the PAS was examined by administering the 50 item form to 119 fathers. The alpha reliability coefficient was 0.93.

Further item analysis was done to determine which items best discriminated between fathers with high scores and fathers with low scores and which items had the highest item-total correlation. According to these

criteria, 12 more items were eliminated. The final form of the scale contains 38 items that cover a wide range of parent-infant activities which comprehensively reflect the attitudes of fathers toward participation in parenting activities.

The 38 item PAS was used in an experimental study ($n = 44$) examining the effects of the father's involvement in the behavioural assessment of his infant on his attitude toward and participation in parenting activities (Boyd, 1980). The alpha coefficient was 0.91. In the present study an alpha reliability coefficient of .90 was obtained.

Information Sheet

An information sheet (see Appendix C) was devised by the researcher to elicit demographic data about each parent and their infant. It included demographic variables which were pertinent to the study such as sex of infant, birth weight, gestational age at birth, number of days infant had been in the SCN, reason for infant being in the SCN, parent's age, number of other children and whether or not the parent toured the SCN before the infant's birth.

Data Collection Procedure

After choosing subjects that met the selection criteria, the researcher informed the physician caring for the infant of her intent to ask the parents

to participate in the study. The researcher left an information letter (see Appendix D) at the bedside of infants whose parents met the sample criteria. The bedside nurse then gave the letter to the parents the next time they visited the infant. The information letter contained an explanation of the purpose, nature and implications of the study plus a request for their participation in the study. The letter also contained a statement that the researcher would be contacting them within one or two days to find out their decision regarding participation in the study. The researcher then contacted the parent(s) directly in the mother's postpartum room at the maternity hospital or by phone if the mother had been discharged from hospital. If the subjects indicated a willingness to participate in the study, their written consent (see Appendix E) was obtained. They were each given a questionnaire with instructions that it be completed on the same day and without collaboration with the spouse. An opportunity to question the researcher about the study or the questionnaire was given at this time. The subjects completed the questionnaire at a time convenient to them and returned the completed questionnaire to the SCN receptionist the next time they visited their baby.

Ethical Review Process

Permission to conduct this study was obtained from the research

screening committees of both the university and the hospital.

A verbal and written description of the study and the researcher's expectations of the subjects were given to the subjects prior to obtaining their written consent to participate. A copy of the written material is provided in Appendix D and Appendix E.

Data Analysis

Data from the questionnaires were coded, placed on a computer file and then analyzed using the SPSS-X computer program. Descriptive statistics were used to analyze the data with frequency distributions, measures of central tendency and dispersion being most frequently employed. In addition, two nonparametric statistical tests were used for the comparative and correlational data analysis. Nonparametric tests were chosen because: (a) the sample was a convenience one rather than a random one and therefore the distribution free nature of the sample could not be assured (Siegel, 1956) and (b) nonparametric tests require only a nominal or ordinal scale of measurement whereas parametric tests require at least an interval scale of measurement (Knapp, 1978). The scale of measurement for both the instruments used in this study was at an ordinal level; the distances between any two numbers on either scale were not of known size.

The two nonparametric tests used in this study were the Wilcoxon

matched-pairs signed-ranks test and the Spearman rank correlation coefficient. The Wilcoxon matched-pairs signed-ranks test was employed to establish the magnitude of the difference between the mother's and father's perception of the degree of environmental stress. To establish whether a relationship existed between birth weight, gestational age and the degree of environmental stress perceived by mothers and fathers, the Spearman rank correlation coefficient was used.

A minimum level of significance of .05 was chosen for this study.

CHAPTER 4

Presentation and Discussion of Results

The findings of this study are reported in this chapter. The demographic characteristics of the sample, the results related to each of the five research questions and a discussion of the findings are presented.

Demographic Characteristics of the Sample

Thirty-one sets of parents constituted the sample for this study. The demographic characteristics of the sample are as follows:

Characteristics of Parents

Fathers' ages ranged from 19 to 44 ($M = 31.2$) years and mothers' ages ranged from 18 to 37 ($M = 27.9$) years (see Table I). Fathers were approximately 3.5 years older than mothers.

Parents' occupations were categorized by the researcher for convenience. Twelve mothers were homemakers, eight were secretaries/office workers, four were in professional/managerial positions with the remaining six being either unemployed, technicians or manual workers. Fathers were primarily technicians (12), manual labourers (9), professional/managers (4) or office workers (2). One father was unemployed. Occupation was not listed by one mother and two fathers and was described as various by one father.

Table I

Parents' Age

Age	Mothers	Fathers
15-19	2	1
20-24	5	2
25-29	13	8
30-34	6	11
35-39	5	7
40-44	0	2
Total	31	31

The great majority of mothers (90.3%) and fathers (83.9%) had achieved at least a high school education. Only three mothers and five fathers had less than a high school education. Of the 11 mothers with more than high school education eight had a partial college education, two were university graduates and one had a graduate degree. Thirteen fathers had a partial college education and three had graduate degrees.

Seven fathers and four mothers indicated that they had toured the SCN prior to their infant's birth. The smaller number of mothers touring SCN

may reflect the fact that antepartally many high-risk pregnant women are confined to bedrest. The low total number of mothers and fathers touring the SCN may be due to the often rapid, unanticipated labour and delivery of a premature infant with no chance to make arrangements to tour SCN.

Characteristics of Infants

The parents in this sample had 16 male and 15 female infants for whom birth weights ranged from 620 grams to 2950 grams ($M = 1370$ grams, $SD = 633$) (see Table II).

Table II

Infants' Birth Weight

Birth weight (grams)	Frequency	Percent
500-999	13	41.9
1000-1499	6	19.3
1500-1999	7	22.6
2000-2499	4	12.9
2500-2999	1	3.2
Total	31	100.0

The infants' gestational ages ranged from 25 weeks to 35 weeks

($M = 29.3$ weeks, $SD = 3.2$) (see Table III).

Table III

Infants' Gestational Age

Gestational Age (weeks)	Frequency	Percent
25	3	9.7
26	7	22.6
27	1	3.2
28	3	9.7
30	4	12.9
31	4	12.9
32	4	12.9
34	4	12.9
35	1	3.2
Total	31	100.0

All infants were born at the adjacent maternity hospital and transferred to SCN immediately after birth. At the time that the parents responded to the questionnaire, the infant had been in SCN from one to seven ($M = 3.8$) days. All 31 infants were admitted to SCN because of

complications of prematurity.

Other Children in Family

Over half of the couples had no other children. Twelve couples had one other child. No couple had more than three other children.

Research Question 1: Mothers' Perception of Environmental Stress

Mothers' perception of the degree of environmental stress ranged from 21 to 127 ($M = 84.1$, $SD = 28.8$, item mean = 1.83) (see Table IV).

Table IV

Mothers' Total Scores on NICU:PSS

Total Score	Frequency	Percent
0-29	2	6.5
30-59	5	16.1
60-89	8	25.8
90-119	13	41.9
120-149	3	9.7
Total	31	100.0

Note. Maximum score possible = 230 (46 items x 5).

For the dimensions on the NICU:PSS (see Table V), the sights and sounds

dimension scores ranged from 4 to 19 ($M = 11.58$); the infant's appearance and behaviour dimension scores ranged from 4 to 59 ($M = 35.25$); the staff communications and relations dimension scores ranged from 0 to 27 ($M = 6.03$); and the parental role alteration dimension scores ranged from 13 to 48 ($M = 31.22$).

Table V

Mothers' Scores on NICU:PSS Dimensions

Dimension	Mean Score Per Dimension	SD	Mean Score Per Item
Sights and sounds (5 items)	11.58	3.9	2.32
Infant's appearance & behaviour (19 items)	35.25	15.8	1.86
Staff communications & relations (11 items)	6.03	6.6	0.55
Parental role alterations (11 items)	31.22	10.1	2.84

Note. Each item responded to on a scale of 0 to 5.

The mothers' responses to the final item of the NICU:PSS that asked in general how stressful the total SCN experience had been for them ranged from 1 (not at all stressful) to 5 (extremely stressful) ($M = 3.0$, $SD = 1.12$) (see Table VI).

Table VI

Mothers' Total SCN Experience

Response	Frequency	Percent
Not at all stressful	2	6.5
A little stress	9	29.0
Moderate stress	11	35.5
Very stressful	5	16.1
Extremely stressful	4	12.9
Total	31	100.0

In response to the closing question on the NICU:PSS that asked if there was anything else that was stressful for them during the time that their baby had been in SCN, mothers listed the following concerns: living out of town (2), being worried about their other children (2), being afraid the infant would not survive (1), being worried about the infant's future physical and mental development (2), being discharged from hospital without the infant (2), coping with the heat in SCN (3) and attempting to supply their breast milk to the infant (2).

Research Question 2: Fathers' Perception of Environmental Stress

Fathers' perception of the degree of environmental stress ranged from 27 to 105 ($M = 59.74$, $SD = 21.1$, item mean = 1.29) (see Table VII).

Table VII

Fathers' Total Scores on NICU:PSS

Total Score	Frequency	Percent
0-29	2	6.5
30-59	17	54.8
60-89	9	29.0
90-119	3	9.7
120-149	0	0.0
Total	31	100.0

Note. Maximum score possible = 230 (46 items x 5).

For the dimensions on the NICU:PSS (see Table VIII), the sights and sounds dimension scores ranged from 5 to 16 ($M = 8.67$); the infant's appearance and behaviour dimension scores ranged from 8 to 56 ($M = 26.38$); the staff communications and relations dimension scores ranged from 0 to 23 ($M = 6.1$); and the parental role alteration dimension scores ranged from

6 to 31 ($M = 18.58$).

Table VIII

Fathers' Scores on NICU:PSS Dimensions

Dimension	Mean Score Per Dimension	SD	Mean Score Per Item
Sights and sounds (5 items)	8.67	3.0	1.74
Infant's appearance & behaviour (19 items)	26.38	11.7	1.39
Staff communications & relations (11 items)	6.10	5.9	0.55
Parental role alterations (11 items)	18.58	7.5	1.69

Note. Each item responded to on a scale of 0 to 5.

Fathers' responses to the final item on the NICU:PSS which asked in general how stressful was the total SCN experience ranged from 1 (not at all stressful) to 5 (extremely stressful) ($M = 2.03$, $SD = 1.24$) (see Table IX).

In response to the closing question on the NICU:PSS that asked if there was anything else that was stressful for them during the time that their baby had been in SCN, fathers listed the following concerns: living out of town (1), being afraid the infant would not survive (2), being worried about the infant's future physical and mental development (2), and seeing the effect of the

experience on his spouse (1).

Table IX

Fathers' Total SCN Experience

Response	Frequency	Percent
Not at all stressful	14	46.6
A little stress	7	23.3
Moderate stress	5	16.7
Very stressful	2	6.7
Extremely stressful	2	6.7
Total	30 ^a	100.0

^aOne blank response.

Research Question 3: Differences in Mothers' and
Fathers' Perception of Environmental Stress

To compare whether differences existed between the mothers' and fathers' perception of the degree of environmental stress, the Wilcoxon matched-pairs signed-ranks test was employed. For each mother-father pair, this test was used to compare differences in the scores of the four dimensions, the total NICU:PSS score and the total SCN experience score.

Mothers' scores were significantly greater than fathers' scores for the sights and sounds dimension ($Z = -3.21$, $p = .001$), the infant's appearance and behaviours dimension ($Z = -2.34$, $p = .019$), the parental role alteration dimension ($Z = -4.26$, $p = .000$), the total NICU:PSS score ($Z = -3.60$, $p = .000$) and the total SCN experience score ($Z = -2.67$, $p = .007$) (see Table X). The difference between the mothers' and fathers' scores for the dimension of staff communications and relations was not statistically significant.

Table X

Comparison of Mothers' and Fathers' Mean Scores on the NICU:PSS

Dimension	Mothers' Mean Score	Fathers' Mean Score	Z	p
Sights and sounds	11.53	8.67	-3.21	.001
Infant's appearance & behaviour	35.25	26.36	-2.34	.019
Staff communications & relations	6.03	6.10	-.084	NS
Parental role alterations	31.22	18.58	-4.26	.000
Total environmental stress score	84.09	59.74	-3.60	.000
Stress of SCN experience	3.00	2.03	-2.67	.007

Research Question 4: Relationship Between Paternal
Scores on the PAS and the NICU:PSS

Fathers' scores on the Paternal Attitude Scale ranged from 141 to 188 ($M = 158$, $SD = 28.6$) (see Table XI).

Table XI

Fathers' Scores on the PAS

Score	Frequency	Percent
140-149	7	23.3
150-159	6	20.0
160-169	7	23.3
170-179	5	16.7
180-189	5	16.7
Total	30 ^a	100.0

Note. Maximum score = 190.

^a One questionnaire partially completed and not included.

A Spearman's rank correlation was performed between the fathers' total score on the PAS and the fathers' scores on the four dimensions of the NICU:PSS as well as the total NICU:PSS score. No significant correlation

was found between the PAS scores and any of the NICU:PSS scores.

Research Question 5: Relationships Between Gestational Age, Birth Weight and Environmental Stress for Mothers and Fathers

The variables of gestational age and birth weight were examined using Spearman's rank correlation to determine whether a relationship existed between them and the mothers' and fathers' scores on the four dimensions of the NICU:PSS as well as the total NICU:PSS score.

For mothers, a significant negative relationship was found between birth weight and staff communications and relations ($\rho = -.48$, $p = .01$). That is, the lower the birth weight the more stress was perceived by mothers related to staff communications and relations. No significant relationships were found between birth weight and the other dimensions of environmental stress or the total score.

A negative correlation was found between gestational age and the maternal scores on the infant's appearance and behaviours dimension ($\rho = -.34$, $p = .06$). High maternal stress scores on this dimension were associated with earlier gestational ages. No significant correlations were found between gestational age and the other dimensions of environmental stress or the total score.

For fathers, a significant negative relationship was found between

birth weight and staff communications and relations ($\rho = -.52, p = .00$).

The lower the birth weight the more stress was perceived by fathers related to staff communications and relations. No significant relationships were found between birth weight and the other dimensions of environmental stress or the total score.

A significant negative relationship was found between gestational age and the fathers' stress scores on the dimension of staff communications and relations ($\rho = -.39, p = .03$). The earlier the gestational age the more stress was perceived by fathers related to staff communications and relations. Statistical significance was not achieved for a relationship between gestational age and the fathers' stress scores on the other NICU:PSS dimensions or the total score.

Discussion of Results

Mothers perceived that overall the SCN environment caused them a low level of stress as evidenced by their total environmental stress score ($M = 84.1$, item mean = 1.83). However, maternal scores on the individual dimensions indicate that certain dimensions were more stressful than others.

Parental role alteration was perceived by mothers as causing the highest degree of stress ($M = 2.8$). Although rated as the highest source of

environmental stress, this dimension was less than moderately stressful to mothers. In comparison, Miles' (1986) reports a mean of 3.2 for this dimension in her study (see Table XII). It should be noted that Miles obtained her mean values from the combined scores of mothers and fathers for each dimension. A possible explanation for the present study's finding that parental role alteration caused mothers the highest degree of stress may be that mothers experience a discrepancy between their fantasized parenting roles and their actual role as a parent in SCN. Mothers are generally assigned the role of "first family nurturer" (Steele, 1987). Mothers expect to be able to provide the infant with protection and nurturance inherent in the maternal role. However, behaviours such as touching, holding, feeding and protecting may be restricted during hospitalization (Miles & Carter, 1982) especially during the acute phase of the infant's stay in SCN. Because nurturing, caretaking and protective behaviours are limited, and because staff often assume some parenting roles (Steele, 1987), mothers may initially feel anxious and confused about what is expected of them in the context of the SCN. The difference between this study's results and Miles' results may be partially due to the fact that Miles collected data when the infants were almost ready for discharge. Perhaps once the infants appeared well mothers were more anxious to

assume parenting roles.

Table XII

Comparison of the Present Study's and Miles' (1986) NICU:PSS Mean Scores

NICU:PSS Dimensions	Mean Per Item		
	Present Study <u>Mothers</u>	Fathers	Miles' Study
Parental role alteration	2.8	1.7	3.2
Sights and sounds	2.3	1.7	2.4
Infant's appearance and behaviour	1.8	1.4	3.7
Staff communications and relations	.55	.55	2.9

Sights and sounds was the second highest source of environmental stress for mothers ($M = 2.3$). Results indicate that mothers found this dimension less than moderately stressful. This finding is similar to Miles' (1986) finding that sights and sounds of the unit were less than moderately stressful ($M = 2.4$) (see Table XII). One possible explanation for the result of the present study is that mothers, instead of finding the sights and sounds of SCN overwhelming, were reassured that SCN was where their infant would receive the intensive care which he/she needed to survive. As one

mother in this study wrote "I found all the attention and hi-tech equipment around him quite comforting, knowing he was in good hands".

The infant's appearance and behaviour was the third highest source of environmental stress for mothers ($M = 1.8$). Mothers appear to have found that the items on this dimension caused them only a small amount of stress. This result is at odds with Miles' (1986) finding that the infant's appearance and behaviour caused the highest stress ($M = 3.7$) (see Table XII). A possible explanation for this difference in findings is that Miles collected data from the parents when the infant was nearly ready for discharge whereas in the present study the data collection was restricted to the first seven days of the infant's stay in SCN ($M = 3.8$ days). In this particular SCN the mean day of discharge was day 25. Insufficient time may have passed in the present study to allow parents to experience certain items in this dimension, for example, chest physiotherapy (clapping on their baby's chest for postural drainage), apnea (seeing their baby stop breathing) or changes in their infant's facial expressions (when their baby looked afraid or sad). In addition by the time the infants in the Miles' study were ready for discharge their physical appearance and behavioural capabilities would have changed dramatically and would have offered the parents a marked contrast to the infants' initial appearance and behaviour. Therefore, the mothers'

recollections of the components of the items in this dimension may be inflated due to their present knowledge of their infants' appearance and behaviours. Another possible explanation is that the SCN staff were careful to orient the parents to the unfamiliar appearance and behaviours of the infant and thereby reduced the parents' stress arising from this source.

Staff communications and relations caused the least degree of environmental stress for mothers ($M = 0.55$). This finding is very much at odds with Miles' (1986) reported mean of 2.9 for this dimension (see Table XII). The difference may be partially due to the fact that six mothers (almost 20%) had a summed score of zero. On the rating scale for the NICU:PSS zero indicated not experienced. Therefore, six mothers had not experienced any of the items in this dimension. Perhaps because over half of the mothers ($n = 17$) in the study had an infant in SCN for three days or less, insufficient time had passed to allow mothers to experience these items or perhaps it reflects excellent communication skills of the nurses, doctors and social workers in this unit.

Mothers' responses to the final item on the NICU:PSS that asked in general how stressful the total SCN experience had been for them indicate that they found the total experience moderately stressful ($M = 3.0$). In response to the closing question on the NICU:PSS that asked if there was

anything else that was stressful for them during the time that their baby had been in the SCN, mothers identified the following other sources of stress: living out of town, being worried about their other children, being afraid the infant would not survive, being worried about the infant's future physical and mental development and being discharged from hospital without the infant. Although mothers found the SCN environment a low source of stress, they were experiencing moderate stress from other sources.

Fathers perceived the SCN environment as a very low source of stress as evidenced by their total environmental stress scores ($M = 59.7$, item mean = 1.29). Generally, fathers experienced very little difference in the degree of stress resulting from each dimension with the exception of staff communications and relations which was considerably lower than the other dimensions.

The sights and sounds dimension caused the highest environmental stress scores for fathers ($M = 1.7$). However, the mean score indicates that fathers found the sights and sounds identified in this dimension caused them little stress. Miles (1986) found a similar result in that sights and sounds of the unit were not very stressful ($M = 2.4$) (see Table XII). The lower mean score obtained in this study may be explained by the fact that

seven fathers (22.5%) toured SCN before the infant was born thereby decreasing their anxiety about the sights and sounds of SCN once their infant was admitted (Taylor & Hall, 1979).

The second highest stress score was for parental role alteration ($M = 1.7$). Fathers appear to experience little stress in response to parental role alteration. Miles (1986) found that this dimension caused the second highest stress scores ($M = 3.2$) (see Table XII). The difference between this study's results and Miles' results may be partially due to the fact that Miles collected data when the infants were almost ready for discharge. Perhaps once the infants appeared well, fathers were more anxious to assume parenting roles.

The infant's appearance and behaviour was the third highest source of environmental stress for fathers ($M = 1.4$). The mean score indicates that the items in this dimension were of low stress to fathers. This finding is completely at odds with Miles' (1986) result that the infant's appearance and behaviours caused the highest stress ($M = 3.7$) (see Table XII). One possible explanation for the differences in results is that seven (22.5%) of the fathers in this study toured SCN before the infant was born. These fathers had the opportunity of seeing infants of the same gestational age and size as theirs and observing the kinds of care available and therefore

may have been much more comfortable with their infant's appearance and behaviour. Five of these fathers had scores lower than the mean score (26.38) for this dimension.

Staff communications and relations caused fathers the least degree of stress ($M = 0.55$). This finding does not agree with Miles' (1986) result that staff communications and relations caused moderate stress ($M = 2.9$) (see Table XII). This discrepancy may be explained by the fact that eight fathers (25.8%) had a score of zero for this dimension indicating that they had not experienced any of the items. Perhaps because over half of the fathers in the study had an infant in SCN for three days or less, insufficient time had passed to allow fathers to experience the components asked about in the items.

The fathers' total environmental stress scores ($M = 59.7$, item mean 1.29) generally corresponded to their responses to the final item on the NICU:PSS which asked in general how stressful was the total SCN experience ($M = 2.03$). Overall fathers found that the SCN experience generated a small amount of stress for them.

An interesting point is that the findings from the present study and those from the Miles' (1986) study differ in the order of perceived stress arising from each of the four environmental dimensions. Other major

differences were noted between the two studies in parents' perception of the infant's appearance and behaviour and the staff communications and relations dimension. The only similarity was that both studies found a comparable degree of perceived stress from sights and sounds and parental role alteration.

The finding of this study that mothers and fathers perceived the SCN environment to be a low source of stress for them was not expected by this researcher. This low level of stress originating from the environmental aspects of SCN may be due to the care taken by the SCN staff in orienting the parents to the unfamiliar environment and complex methods of care necessary for their infant. The SCN policies are such that parents may visit their infant or phone and talk to the nurse caring for their infant at any time of the day or night. The SCN staff encourage the parents to visit their infant and to participate wherever possible in their infant's care. Parents receive support in dealing with the SCN environment not only from the nursing and medical staff but also from the unit social workers and the SCN parent support group. The effect that touring the SCN before the infant's birth has on altering the parent's level of environmental stress is difficult to determine from the results of this study.

Another possible explanation for parents finding the SCN environment

not particularly stressful is that parents feel reassured seeing their infant in SCN. As one father wrote "contrary to being stressful, I have found that having my baby in the SCN unit to be comforting. Given his age and condition, there is nowhere that I would prefer that he be".

Maternal scores were significantly different from paternal scores for sights and sounds, parental role alteration, infant's appearance and behaviour, the total environmental stress score and the total SCN experience score. The higher maternal score for the sights and sounds dimension may indicate that women are not as comfortable with the advanced technology of SCN as men. Newman (1980) noted in her study of the sensory environment of low birth weight infants that the usual response of fathers was to seem very much at home in the SCN. She comments "it was another father who indicated that fathers seem more comfortable in the culture of technology, the work orientation, and space age sounds than they are in the female subculture of flowers and babies and nursing (in the normal nursery)" (p.188).

The higher maternal stress engendered by parental role alterations and by the infant's appearance and behaviours may indicate that mothers still have greater role expectations concerning nurturing and providing caregiving than fathers. This finding supports Steele's (1987) statement

that mothers are generally assigned the role of first family nurturer.

Mothers expect to be able to provide the infant with protection and nurturance inherent in the maternal role. By being separated from their premature infants after birth, mothers were deprived of the opportunity to carry out their expected role and this became a source of moderate stress for them. Fathers indicated a positive attitude toward caregiving as evidenced by their scores on the PAS. However, they experienced a low level of stress from parental role alterations. Perhaps, as Jeffcoate et al. (1978) point out, fundamental sex role differences still persist and even where individuals claim to have accepted change, they often adhere to traditional ways of thinking and behaving.

Both mothers and fathers had almost identical mean scores for the perceived degree of stress arising from staff communications and relations. Two possible explanations for the low mean scores are that this aspect of the environment may not engender stress or that these potential stresses had been minimized by the SCN staff. The latter explanation is supported by parent's written comments on the NICU:PSS regarding their satisfaction with interactions between themselves and the SCN staff such as "staff at SCN have been very understanding and informative", "the staff is the least stressful aspect of the SCN" and "I have been most impressed with the

staff's caring and communication" .

Mothers were much more stressed by both the environmental aspects of SCN and the total SCN experience than were fathers as evidenced by the highly significant difference between their total scores. This finding supports evidence in the literature that the birth of a premature infant imposes a greater degree of stress on the mother than the father (Blackburn & Lowen, 1986; Jeffcoate et al., 1978; Klaus & Kennell, 1976). Steele (1987) suggests that the maternal reaction to the birth of a premature infant is more severe because the mother's self-esteem and maternal/feminine roles are affected, mothers perceive that they receive inadequate support and they are unable to provide the protection and nurturance inherent in the maternal role.

Role performance is what a person actually does within a position in response to role expectations (Friedman, 1986). Western society still expects a mother's primary role to encompass nurturing and caretaking of her children. As Humenick and Bugen (1987) found in their study of parents of full-term infants, mothers actually spent more time than expected caring for their newborns while fathers spent less time than expected. When an infant is born prematurely and admitted to SCN the infant's mother is unable to fulfill parental role expectations and this becomes a source of stress for her.

Fathers in this study indicated a positive attitude toward infant caregiving as evidenced by their high PAS scores ($M = 158$). Fathers appeared to expect to participate in infant caregiving. The finding that no significant correlation existed between the PAS scores and any of the NICU:PSS scores is difficult to interpret. However, one explanation may be that although fathers' scores indicated that they had a positive attitude toward infant caregiving, this attitude existed only for caregiving of a well infant particularly once the infant was at home. Because the majority of the items on the PAS are related to caregiving in a home situation, the fathers' attitude toward caregiving of the premature infant in SCN may not be accurately measured by the PAS. Nevertheless, in light of the fathers' low score on the parental role alteration dimension of the NICU:PSS, fathers appear to experience little stress with regards to their parenting role in SCN. If fathers expected to participate in caregiving for the infant in SCN, one would have expected a higher stress score on the parental role alteration dimension. Therefore, fathers may be more accepting of having the infant's care taken over by the nurses and doctors in SCN whereas mothers, due to their role expectations, find this a source of stress. Fathers may have few or no expectations regarding infant caregiving in SCN. Although role expectations for fathers in Western society are changing and

fathers are increasingly participating in child care activities, the fathers of premature infants may feel exempted from these role expectations while the infant is in SCN.

The finding of a significant relationship between birth weight and mothers' and fathers' scores on the dimension of staff communications and relations is in agreement with Choi's (1973) finding of a significant correlation between birth weight and degree of maternal anxiety and depression ($r = -.75$). Lissenden (1984) in her study of parental attitudes to premature very low birth weight infants found that 21 mothers ($n = 33$) were anxious about the infant's weight and used it as a major indicator of well-being. The fact that very low birth weight infants often have more medical problems related to their prematurity usually necessitates an increase in the amount and frequency of information about the infant's condition that is given to the parents by SCN staff. As well, the survival and long-term outcome of very low birth weight infants may be uncertain and this could increase the environmental stress experienced by the parents. Steele (1987) writes that parents in SCN may encounter difficulties in obtaining and assimilating information because they have such limited knowledge of neonatal issues that they cannot formulate appropriate questions in order to increase their knowledge base. Therefore, parents of

low birth weight infants may be experiencing more stress arising from staff communications and relations because of their inability to assimilate the quantity of unfamiliar information that can change on a day-to-day or even hour-to-hour basis.

No significant relationship was found between birth weight and the other three dimensions on the NICU:PSS for mothers or fathers. No satisfactory explanation can be put forth by this researcher.

A $p = .06$ level of significance was found between gestational age and the maternal stress scores on the infant's appearance and behaviours dimension. While not quite reaching the $p < .05$ level set for this study, it closely approaches significance. High maternal stress scores on this dimension were associated with earlier gestational ages. This result is similar to Choi's (1973) finding of a statistically high correlation between gestational age and maternal anxiety and depression ($r = -.72$). The earlier the infant's gestational age, the greater the differences in the appearance and behaviour between the premature infant and the expected full-term infant. Because gestational age affects the infant's appearance and level of functioning, mothers of early gestational age infants appear to experience greater stress in response to the premature infant's appearance and behaviours.

High paternal stress scores for staff communications and relations were significantly correlated with earlier gestational age. Because low birth weight and early gestational age usually occur simultaneously, early gestational age infants also experience more medical problems related to their prematurity. This often necessitates an increase in the amount and frequency of SCN staff communication with the parents which may increase the degree of stress experienced by fathers. Because of the mothers' physical status following delivery, fathers are often the first parent to see the infant in SCN and to receive information about the infant's condition (Steele, 1987). For fathers of early gestational infants this aspect of staff communications and relations may generate additional stress.

Gestational age did not correlate with either sights and sounds of the unit or parental role alterations for mothers or fathers. Once again this researcher is unable to put forth a satisfactory explanation.

This study used Miles and Carter's (1983) conceptual framework and role theory as a means for understanding parental stress in the SCN. According to the conceptual framework, the parents' response to stress is the result of a complicated interaction between a number of variables. Miles and Carter have identified three potential sources of stress (personal/family factors, situational conditions and environmental stimuli)

which are mediated by cognitive appraisal of the situation, coping responses and resources available. The focus of this study was on the parents' perception of stress arising from environmental stimuli in SCN. However, in keeping with the conceptual framework's tenet that parental stress results from interaction between variables this study investigated variables within each of the three potential sources of stress and determined if a relationship existed between them. Role theory provided a theoretical basis for understanding the influence of the mother/father role on the perception of stressors following the admission of their premature infant to SCN.

This conceptual framework was useful for studying parents' perception of environmental stressors in SCN. The results of this study indicated that both mothers and fathers perceived the environmental stimuli in SCN as a low source of stress for them. However, mothers perceived that the total SCN experience was moderately stressful. In order to understand these results the researcher utilized the conceptual framework. Besides environmental stimuli, the framework identifies two other potential sources of stress for parents. Mothers in this study may have been experiencing stress arising from personal/family factors and/or situational conditions. In fact, both mothers and fathers in this study identified several other sources of stress. These other sources of stress could be

classified as personal/family, for example, living out of town and being worried about their other children and situational conditions, for example, being afraid the infant would not survive, being worried about the infant's future physical and mental development and being discharged from hospital without the infant.

This study found that a significant negative relationship existed between birth weight and the parents' perception of the environmental stress arising from staff communications and relations. As well, a significant negative correlation existed between gestational age and the fathers' perception of environmental stress arising from staff communications and relations. These two findings support Miles and Carter's concept that parents' response to stress is the result of interaction between the three potential sources of stress.

In addition, this study found a significant difference between mothers' and fathers' perception of environmental stress which was only partially explained by differing role expectations. Although not investigated in this study, the mediating factors of cognitive appraisal, coping response and resources influence the stress response and may help to explain the differences in maternal and paternal perception found in this study. For example, more information is needed to determine the

differences in maternal and paternal coping responses and how this affects their stress response.

Summary

In this chapter, the sample has been described in terms of characteristics of the parents, the infants and other children in the family. Maternal and paternal perceptions of the SCN environment were reported. The results indicated that overall the SCN environment was perceived by mothers as a low source of stress while fathers perceived it as an even lower source of stress. The environmental stress dimension generating the highest stress for mothers was parental role alteration. Mothers experienced low levels of stress from both dimensions of sights and sounds and the infant's appearance and behaviour. Fathers perceived sights and sounds as generating the highest stress while they experienced low levels of stress from the dimensions of parental role alteration and the infant's appearance and behaviour. The staff communications and relations dimension was not stressful for either mothers or fathers. Mothers had significantly higher scores than fathers on the total score and on the dimensions of sights and sounds, infant's appearance and behaviours and parental role alteration.

In examining the correlation between several variables in this study,

no significant relationship was found between paternal attitude toward caregiving and fathers' scores on any of the environmental stress dimensions or the total score. A significant negative correlation was found between birth weight and the mothers' and fathers' scores on the dimension of staff communications and relations. In addition, a significant negative correlation existed between gestational age and the fathers' scores on staff communications and relations.

CHAPTER 5

Summary, Conclusions, Implications and Recommendations

This study was designed to determine the degree of environmental stress perceived by mothers and fathers during the first week of their infant's admission to a SCN and to determine the differences in their perceptions. In addition, the variables of gestational age, birth weight and paternal attitude toward caregiving were investigated for their relationship to the perceived degree of environmental stress. An overview of the study is presented in this chapter followed by conclusions, implications for nursing practice and recommendations for research.

Summary

A review of the literature on parents' reactions to the birth of a premature infant indicated that particular environmental factors in a SCN are seen as stressors. No research had been performed which investigated the differences between mothers' and fathers' perception of these environmental stressors or the relationship of other variables such as birth weight, gestational age and paternal attitude toward caregiving to environmental stressors. Therefore, this study was designed to address this gap in the research.

This descriptive comparative and correlational study was carried out

in a tertiary level SCN of a large children's hospital in western Canada. Data were collected from a convenience sample of thirty-one sets of parents who met the established criteria. Both parents completed the Neonatal Intensive Care Unit Parental Stress Scale and an information sheet. As well, fathers completed the Paternal Attitude Scale. The data were analyzed using descriptive statistics and nonparametric statistical tests.

Demographic characteristics of the study sample were analyzed. The mean age for mothers was 27.9 years while for fathers the mean age was 31.2 years. The principal occupations of mothers were homemakers, secretaries/office workers or professional/managerial positions. Fathers were employed primarily as technicians, manual labourers, professionals/managers or office workers. The great majority of mothers (90.3%) and fathers (83.9%) had achieved at least a high school education. Seven fathers and four mothers indicated that they had toured the SCN prior to their infant's birth. Over half of the couples had no other children. Twelve couples had one other child.

This study included 16 male and 15 female infants for whom the mean birth weight was 1370 grams and the mean gestational age was 29.3 weeks. All infants were born at the adjacent maternity hospital and transferred to SCN because of complications of prematurity. The mean number of days that

the infants had been in SCN was 3.8 days.

Mothers perceived that overall the SCN environment caused them a low level of stress ($M = 84.1$, item mean = 1.83). The environmental stress dimension causing the highest stress for mothers was parental role alteration ($M = 2.84$), then sights and sounds ($M = 2.32$), the infant's appearance and behaviours ($M = 1.86$) and finally staff communications and relations ($M = 0.55$).

Fathers perceived the SCN environment as causing a low level of stress ($M = 59.7$, item mean = 1.29). The environmental stress dimension causing the highest stress for fathers was sights and sounds ($M = 1.74$), then parental role alteration ($M = 1.69$), the infant's appearance and behaviour ($M = 1.39$) and finally staff communications and relations ($M = 0.55$).

Mothers had significantly higher scores than fathers on the total score ($Z = -3.60$, $p = .000$) and on the dimensions of sights and sounds ($Z = -3.21$, $p = .001$), the infant's appearance and behaviour ($Z = -2.34$, $p = .019$) and parental role alteration ($Z = -4.26$, $p = .000$) as well as the total SCN experience score ($Z = -2.67$, $p = .007$).

A significant negative correlation was found between birth weight and the mothers' scores on the dimension of staff communications and

relations ($\rho = -.48$, $p = .01$) and birth weight and fathers' scores on staff communications and relations ($\rho = -.52$, $p = .00$). In addition, a significant negative correlation existed between gestational age and the fathers' scores on staff communications and relations ($\rho = -.39$, $p = .03$).

Miles and Carter's (1983) conceptual framework and role theory were appropriate for studying parents' perception of environmental stressors in SCN.

Conclusions

Due to the small sample size and the convenience nature of the sample, the findings of this study cannot be generalized. However, the findings of this study suggest the following differences and directions:

Overall, mothers and fathers perceived the SCN environment as a low source of stress. One environmental stress dimension in particular, that of staff communications and relations, was perceived as not stressful by both mothers and fathers. However, mothers were moderately stressed by environmental stimuli arising from aspects of their altered parental role. Although mothers found the SCN environment to be a low source of stress for them, they were moderately stressed by the total SCN experience and they identified other sources of stress.

Mothers were significantly more stressed by both the environmental

aspects of SCN and the total SCN experience than were fathers. Mothers' response to having their infant admitted to SCN appeared to differ from fathers' response. Parents' perception of environmental stress arising from staff communications and relations was related to birth weight and gestational age.

Implications for Nursing Practice

Neonatal nurses assist and guide parents from the initial introduction to the SCN through the preparation and planning for discharge. Because most parents of premature infants are in a state of shock and are ill-prepared for this experience, nurses are important sources of counselling and support. Therefore, knowing the degree of stress generated by the SCN environment as perceived by both mothers and fathers would be useful to nurses.

Neonatal nurses need to be aware that mothers are significantly more stressed by both the environmental aspects of SCN and the total SCN experience than are fathers and therefore mothers may require more support both from the SCN staff and from their spouses. In addition, mothers are moderately stressed by their altered parental role in SCN. Therefore, nurses need to develop interventions which assist mothers to adapt to their changed parental role. Nurses also need to be particularly aware of parents with an infant of very low birth weight or very early gestational age as

these parents may be experiencing an increased level of stress.

Although parents in this study appeared to be not particularly stressed by the SCN environment, specific aspects of the environment were extremely stressful for certain individual parents. Therefore, nurses need to carry out an individual assessment of sources of environmental stress for each parent. In addition, nurses should continue to carry out communication with parents in such a way as to prevent or reduce stress arising out of these interactions.

Although mothers found the SCN environment a low source of stress, they were moderately stressed by the total SCN experience and identified other sources of stress such as living out of town, being worried about their other children, and being afraid that the infant would not survive. Therefore, nurses need to assess situational conditions and personal/family factors that may affect the parents' perception of stress and to develop interventions strategies to reduce these stressors.

Finally, differing perceptions between mothers and fathers and individual variation between parents may reflect individual coping styles and personal adaptations to the stress of a premature infant. Nurses should recognize the individual needs of each parent with an infant in SCN and should maximize the personal and environmental resources available to

parents.

Recommendations for Further Research

A replication of this study should be carried out using a larger sample size in order to confirm the findings especially in light of the difference in this study's results and those of the Miles' (1986) study. As well, because of the inadequate explanation for the lack of relationship between paternal attitude toward caregiving and the fathers' perception of environmental stress, research into the father's expectations regarding his role in infant caregiving in SCN is needed.

Further study is needed to identify other sources of stress for parents with an infant in SCN. A qualitative research design would be useful for examining sources of stress arising from personal/family factors and situational conditions. Further study is also needed to determine the differences in perception of environmental stress for those parents who have toured the SCN before the infant's birth and their perception of environmental stress after the infant's admission to SCN.

Finally, research into the mediating factors from the conceptual framework of cognitive appraisal, coping response and resources is needed. For example, more information is needed to determine the differences in maternal and paternal coping responses and the influence that these may

have on stress levels. This research may help to explain the differences in parents' perception of environmental stress and may help to determine if parents with inadequate personal resources and poor coping skills are at risk for experiencing more stressful responses to the SCN experience.

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Appendix A: Neonatal Intensive Care Unit Parental Stress Scale

Code:_____

SCN PARENTAL STRESS SCALE

Nurses and others who work in the Special Care Nursery are interested in the effect of this environment and experience on parents. The Special Care Nursery is the room where your baby is receiving care. Sometimes this room is called the SCN for short. I would like to know about your experiences as your baby is cared for in the SCN.

This questionnaire lists various experiences other parents have had in the SCN. If you have had the experience listed, I would like for you to indicate how stressful it has been. If you have not had the experience, I would like for you to indicate this by circling the "0" meaning "not experienced".

By stressful, I mean that the experience has caused you to feel anxious, upset, or tense.

On the questionnaire, circle the single number that best expresses how stressful each experience has been for you since your baby's admission to the SCN. On the scale:

- 1 represents "Not at all stressful", meaning that the experience was not one that caused you to be upset, tense or anxious;
- 2 represents "a little stress";
- 3 represents "moderate stress";
- 4 represents "very stressful";
- 5 represents "extremely stressful", meaning that the experience caused you a great deal of anxiety or tension.

Remember, if you have not experienced the item, please circle "0" meaning "not experienced".

Example

Now let's take an item for an example:

The bright lights in the SCN.

If for example you feel that the bright lights in the Special Care Nursery were extremely stressful to you, you would circle the number 5.

0 1 2 3 4 5

If you feel that the lights were not stressful at all, you would circle the number 1.

0 1 2 3 4 5

If the bright lights were not on when you visited (not likely), you would circle 0 indicating "not experienced".

0 1 2 3 4 5

Below is a list of the various SIGHTS AND SOUNDS you may have experienced while visiting the SCN. I am interested in knowing about your view of these SIGHTS AND SOUNDS. If you did see or hear them, indicate how upset or stressed you have been by them by circling the number on the questionnaire that best represents your level of stress. If you did not see or hear them, circle the 0 meaning "Not experienced".

- | | | | | | | |
|---|---|---|---|---|---|---|
| 1. The presence of monitors and equipment | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. The constant noises of monitors and equipment | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. The sudden noises of monitor alarms | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. The other sick babies in the room | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. The large number of people working in the unit | 0 | 1 | 2 | 3 | 4 | 5 |

Below is a list of items that might describe the way your BABY LOOKS to you or BEHAVES while you are visiting in the SCN as well as some of the TREATMENTS that you might have seen done to the baby. Not all babies have these experiences or look this way, so circle the 0 if you have not experienced or seen the listed item. If it is something that you have experienced, then indicate how much the experience was stressful or upsetting to you by circling the appropriate number.

- | | | | | | | |
|---|---|---|---|---|---|---|
| 1. Tubes and equipment on or near my baby | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. Bruises, cuts or incisions on my baby | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. The unusual color of my baby (for example, looking pale or yellow jaundiced) | 0 | 1 | 2 | 3 | 4 | 5 |

4. My baby's unusual breathing patterns	0	1	2	3	4	5
5. Seeing my baby suddenly change color (for example, becoming pale or blue)	0	1	2	3	4	5
6. Seeing my baby stop breathing	0	1	2	3	4	5
7. The small size of my baby	0	1	2	3	4	5
8. The wrinkled appearance of my baby	0	1	2	3	4	5
9. Having a machine (respirator) breathe for my baby	0	1	2	3	4	5
10. Seeing needles and tubes put in my baby	0	1	2	3	4	5
11. My baby being fed by an intravenous line or tube	0	1	2	3	4	5
12. When my baby seemed to be in pain	0	1	2	3	4	5
13. My baby crying for long periods	0	1	2	3	4	5
14. When my baby looked afraid	0	1	2	3	4	5
15. When my baby looked sad	0	1	2	3	4	5
16. The limp and weak appearance of my baby	0	1	2	3	4	5
17. Jerky or restless movements of my baby	0	1	2	3	4	5
18. My baby not being able to cry like other babies.	0	1	2	3	4	5
19. Clapping on my baby's chest for postural drainage	0	1	2	3	4	5

I am also interested in whether you experienced any stress related to STAFF BEHAVIOURS and COMMUNICATION. Again, if you experienced the item, indicate how stressful it was by circling the appropriate number. If you did not experience the item, circle the 0 meaning "Not experienced". Remember, your answers are confidential and will not be shared or discussed with any staff member.

- | | | | | | | |
|---|---|---|---|---|---|---|
| 1. Staff explaining things too fast | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. Staff using words I don't understand | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. Telling me different (conflicting) things about my baby's condition | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. Not telling me enough about tests and treatments being done to my baby | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. Not talking to me enough | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. Too many different people (doctors, nurses, others) talking to me | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. Difficulty in getting information or help when I visit or telephone the SCN | 0 | 1 | 2 | 3 | 4 | 5 |
| 8. Not feeling sure that I will be called about changes in my baby's condition | 0 | 1 | 2 | 3 | 4 | 5 |
| 9. Staff looking worried about my baby | 0 | 1 | 2 | 3 | 4 | 5 |
| 10. Staff acting as if they were not interested in my baby | 0 | 1 | 2 | 3 | 4 | 5 |
| 11. Staff acting as if they did not understand my baby's behaviour or special needs | 0 | 1 | 2 | 3 | 4 | 5 |

The last area I want to ask you about is how you feel about your own RELATIONSHIP with the baby. If you have experienced the following situations or feelings, indicate how stressed you have been by them by circling the appropriate number. Again, circle 0 if you did not experience the item.

- | | | | | | | |
|--|---|---|---|---|---|---|
| 1. Being separated from my baby | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. Not feeding my baby myself | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. Not being able to care for my baby myself (for example, diapering, bathing) | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. Not being able to hold my baby when I want | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. Sometimes forgetting what my baby looks like | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. Not being alone with my baby | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. Not being able to share my baby with other family members | 0 | 1 | 2 | 3 | 4 | 5 |
| 8. Being unable to protect my baby from pain and painful procedures | 0 | 1 | 2 | 3 | 4 | 5 |
| 9. Being afraid of touching or holding my baby. | 0 | 1 | 2 | 3 | 4 | 5 |
| 10. Feeling the staff were closer to my baby than I am | 0 | 1 | 2 | 3 | 4 | 5 |
| 11. Feeling helpless about how to help my baby during this time | 0 | 1 | 2 | 3 | 4 | 5 |

Using the same rating scale, indicate how stressful in general, the total Special Care Nursery experience has been for you.

1 2 3 4 5

Was there anything else that was stressful for you during the time that your baby has been in the Special Care Nursery? Please list and explain below:

Appendix B: Paternal Attitude Scale

Code: _____

PATERNAL ATTITUDE SCALE

Please check [✓] the response that best describes your attitude about each statement.

1. When I stay out of the way, my wife can do a better job taking care of our baby.

strongly
disagree

disagree

uncertain

agree

strongly
agree

2. I am afraid I will hurt my baby when I hold her/him.

strongly
disagree

disagree

uncertain

agree

strongly
agree

3. It is just as much my responsibility as my wife's to change the diapers.

strongly
disagree

disagree

uncertain

agree

strongly
agree

4. I enjoy just sitting and holding my baby.

strongly
disagree

disagree

uncertain

agree

strongly
agree

5. When our baby cries during the night, it will be my wife's responsibility to see what is wrong with her/him.

strongly
disagree

disagree

uncertain

agree

strongly
agree

6. As long as my wife cuddles and hugs our baby, it really won't be necessary for me to cuddle the baby.

strongly
disagree

disagree

uncertain

agree

strongly
agree

7. If it is necessary, my wife should be the one to take our baby's temperature.

strongly
disagree

disagree

uncertain

agree

strongly
agree

8. Babies like to be held by their fathers, as well as their mothers.

strongly
disagree

disagree

uncertain

agree

strongly
agree

- 2 -

9. Helping take care of our baby will be a big source of satisfaction for me.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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10. When our baby begins to eat cereal, feeding the baby will be my wife's task.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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11. I should stay home with my baby sometimes and let my wife go out.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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12. I am just as capable of giving our baby a bath as my wife.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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13. My wife can do a better job of taking care of our baby when I am involved.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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14. Fathers and mothers should share equally in the child-rearing decisions.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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15. During infancy, the father's role in the family is not nearly as important as the mother's role.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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16. Employers should allow fathers time off from work for the first few days after the baby comes home.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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- 3 -

17. Singing to our baby is part of my wife's role and not my role.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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18. Babies need to be held frequently by both their mother and father.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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19. Fathers need to spend several hours a week with their baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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20. It is not necessary that I know what to do when my baby cries, as my wife will know how to calm her/him.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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21. The father's main function in child care is playing with the baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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22. Fathers should not have to decrease their activities outside the home to become more involved with their baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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23. Children develop better when the mother solves most of the child-rearing problems.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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24. It is my wife's responsibility to arrange for babysitting.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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- 4 -

25. I am not afraid to hold my baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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26. My wife should not have to take full responsibility for raising the children.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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27. Fathers should not have to be involved in the planning for the needs of the baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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28. Discipline of the small child should be the role of the mother.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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29. Fathers should share the task of getting up in the night with their crying baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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30. I obtain a great deal of pleasure from rocking my baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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31. Fathers should not have to assume babysitting responsibilities.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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32. I believe babies should be hugged and cuddled by their fathers.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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- 5 -

33. Babies should have a lot of care and attention from their fathers.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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34. It will be safer if my wife bathes the baby.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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35. When our baby is sick, I can care for her/him just as safely as my wife can.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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36. Women instinctively know more about babies than men do.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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37. Helping my wife with the baby will make adjustment to the baby a lot easier for both of us.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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38. The father's role is to provide financial security and the mother's role is to provide emotional security.

<u>strongly</u> disagree	<u>disagree</u>	<u>uncertain</u>	<u>agree</u>	<u>strongly</u> agree
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Appendix C: Information Sheet

Code: _____

INFORMATION SHEET

1. You are the infant's _____Mother _____Father
2. Sex of infant: _____Male _____Female
3. Birth date of infant: _____
4. Birth weight: _____
5. Gestational age at birth: _____weeks
5. Place of birth: _____
6. Number of days your infant has been in the Special Care Nursery: _____
7. Reason for your infant being in the Special Care Nursery:

8. Your Age: _____
9. Your Occupation:

10. Your Education :

_____1. Less than High School education

_____2. High School graduate

_____3. Partial college (at least one year) or specialized training

_____4. University graduation

_____5. Graduate degree
11. Number of other children: _____
12. Did you tour the Special Care Nursery before the infant's birth?

_____Yes _____No

Appendix D: Information Letter

Appendix E: Consent Form