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Maternal coping effort in the neonatal intensive care setting

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The University of Arizona, 1989

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MATERNAL COPING EFFORT
IN THE
NEONATAL INTENSIVE CARE SETTING

by

Cynthia Smith

A Thesis Submitted to the Faculty of the

COLLEGE OF NURSING

In Partial Fulfillment of the Requirements
For the Degree of

MASTER OF SCIENCE

In the Graduate College

THE UNIVERSITY OF ARIZONA

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STATEMENT BY AUTHOR

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Margarita Kay
MARGARITA KAY
Professor of Nursing

3 January 1989
Date

DEDICATION

Thirty mothers willingly participated in this study. In addition to completing the forms, they shared thoughts and feelings about a difficult experience. I thank these women for their participation and dedicate this endeavor to them.

ACKNOWLEDGEMENTS

There are a number of people I would like to acknowledge for contributing to my growth and learning during my graduate studies.

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ABSTRACT

The purpose of this study was to describe maternal coping effort. The sample was composed of 30 mothers of infants hospitalized in the neonatal intensive care unit. Descriptive and correlational statistics were used to determine maternal coping effort and the maternal factors that may be associated with coping effort. Results of the study showed that a majority of the mothers exerted a great amount of effort to cope with situations encountered in the NICU. Maternal age, marital status, gravidity and parity, mode of delivery and ethnicity did not prove to associate significantly with coping effort. The results of this study are significant to nursing practice in the confirmation of the high degree of maternal coping associated with the hospitalization of an infant in the NICU.

CHAPTER I

INTRODUCTION

The purpose of this study was to learn about mothers and their coping in the neonatal intensive care unit (NICU). The birth and consequent hospitalization of a premature or sick newborn, in a neonatal intensive care unit, result in a crisis situation for the mother (Siegel, Gardner & Merenstein, 1985; Harrison & Twardosz, 1986; Sammons & Lewis, 1985). With this crisis situation, the mother undergoes a period of psychological disorganization and is vulnerable to a tremendous amount of stress (Siegel, Gardner & Merenstein, 1985). A mother with an infant in the NICU must cope with the stress encountered during the prolonged hospitalization of the infant. In addition, the mother must also cope with the stress derived from the disruption of the attachment process (Rushton, 1986).

The environment of the neonatal intensive care unit adds to the stress of the situation. Korones (1985) identifies the following physical features of the NICU which contribute to the stress of the environment: equipment, noise, lighting, and crowded quarters. Life support and monitoring equipment such as cardiorespiratory monitors, ventilators, and infusion pumps crowd each infant's bedside to create a sophisticated technological atmosphere. The audible heart beat of the cardiorespiratory monitor and the alarms of various machines pervade the surroundings. The setting is further intensified by the

bright fluorescent lights which illuminate the room. Infants are bedded in radiant warmers or isolettes which are situated amid the machines. This physical arrangement provides for crowded surroundings which lack privacy. Korones (1985) has also identified personnel as a source of stress in the NICU. Various personnel collaborate to manage the care of an infant in the NICU and associate with the mother during the infant's hospitalization. Nurses, pediatricians, neonatologists, residents, various specialists, social workers, therapists, and technicians collectively contribute to the character of the setting. The activity within the NICU intensifies the environment even more.

> The milieu of the neonatal intensive care unit is best described as "ordered chaos". Recurrent emergencies preclude a smooth routine. Situations vary from severely stressed infants (a primary concern) and emotionally stressed parents to shortages of critical equipment and personnel to iatrogenic misadventures that are inevitable in such a setting (Korones, 1985, p. 21).

Visits with an infant in a neonatal intensive care unit are accompanied by the noise, lights, machines and activity that make the environment frightening, intimidating, and stressful.

The focus of this study was limited to maternal coping. It is acknowledged that both parents experience the impact of the NICU (Sammons & Lewis, 1985). Fathers must cope with the same stresses encountered during an infant's hospitalization as mothers. However, "in the human species, the mother is typically the caretaker responsible for the baby's survival and the mediator for his or her development" (Kennell & Klaus, 1985, p. 272). Kennell and Klaus

emphasize the importance of studying the effect of the neonatal intensive care experience on the primary caretaker, the mother. Therefore, this project limited its scope to the study of maternal coping.

Various factors have been reported to affect the maternal role and may influence maternal coping. Age is one such factor. Jones, Green and Krauss (1980) have identified mother's age as a factor in determining responsiveness to an infant. Mercer (1981) also identified maternal age as a factor that has impact on the maternal role. In addition, Mercer (1981) identified social support, perception of the birth experience, and culture as variables that influence the maternal role. A positive relationship exists between a woman's support system and her mothering. More specifically, there is a high correlation between a husband's role (behavior) and maternal functioning. Thus, marital status is influential in maternal functioning.

A mother's perceptions of the birth experience have been linked with maternal self-esteem and interaction behaviors with an infant. Mercer (1981) has reported that mothers who delivered vaginally viewed the experience more positively and made more positive comments about their infants than mothers who delivered by cesarean section. Therefore, mode of delivery can have impact on the maternal role. Past experience with childcare can also affect the transition to motherhood (Auvenshine & Enriquez, 1985). First time mothers can differ from experienced mothers in the manifestation of the maternal role. Any factor that affects the way a woman mothers may also influence the way a mother copes. Thus, age, marital status, gravidity and parity,

mode of delivery, and ethnicity are factors that may influence maternal coping.

Coping is a construct central to nursing. Nursing is concerned with how patients and their families cope with illness and hospitalization. Neonatal nurses are involved with the care of the premature or sick newborn infant, which includes interest in the family. Maternal coping is a primary concern as the neonatal nurse deals with mothers of infants in the NICU. The neonatal nurse is in a position to assess and intervene with mothers as they make efforts to cope with the neonatal intensive care experience. The amount of effort, or energy, exerted by a mother to cope with the situation should be of major concern to the neonatal nurse. Excess effort that a mother directs to cope with an infant's intensive care hospitalization is energy directed away from nurturing the relationship with the infant or managing the family, marriage, and the care of her self. Neonatal nurses can assess mothers who demonstrate an abundance of coping effort within the NICU and intervene to help mothers redirect energy to the infant, family, marriage, and self.

The concept of coping effort, that is "the amount of behavior, both action oriented and intrapsychic, employed by parents to master, tolerate, reduce or minimize stressful events encountered during their child's hospitalization" (Schepp, 1985, p. 4), has been measured with mothers of children in the pediatric setting using the Coping Effort Instrument (CEI) (Schepp, 1985). Coping effort is a concept which has not yet been measured within the neonatal intensive care environment. Therefore, this study focused upon the measurement of the coping

effort of mothers of infants in the neonatal intensive care unit using an adaptation of the Coping Effort Instrument.

Statement of the Problem

Mothers of infants that are hospitalized in a neonatal intensive care unit must cope with the stress encountered during the prolonged hospitalization along with the stress derived from the disruption of the attachment process. Excess coping effort is energy that is not directed to the infant, family, marriage, or self. How much effort do mothers use to cope with the stresses of the NICU?

Statement of the Purpose

The purpose of this study was to measure the coping effort of mothers of infants in a neonatal intensive care setting and identify the maternal factors that are associated with coping effort. The following research questions were explored in this study:

1. What is the coping effort of mothers of infants in the neonatal intensive care unit?
2. What maternal factors are associated with the coping effort of mothers?
3. What is the reliability and validity of the Coping Effort Instrument in the neonatal intensive care setting?

Significance of the Problem

Two to nine percent of newborn infants in the United States are estimated to require neonatal intensive care each year (Gottfried & Gaiter, 1985, p. 23). This can be translated to an annual rate

of approximately 200,000 to 250,000 newborns. The average length of hospitalization for a sick newborn ranges from 15 to 20 days for a birthweight greater than 1500 grams, 40 to 50 days for a birthweight 1000 to 1500 grams, and exceeds 50 days for a birthweight less than 1000 grams. These statistics reflect the prevalence of neonatal intensive care in the United States. A significant percentage of newborn infants receive neonatal intensive care. The length of hospitalization of these infants can extend or even exceed a few months.

The care of infants in the neonatal intensive care unit is central to neonatal nursing. Neonatal nursing, in addition, is concerned with the parents, specifically the mothers of these infants. An important part of the care that neonatal nurses manage involves the support of the mothers of infants in the NICU.

> Social and emotional support for parents is an essential component of total neonatal care ... the nurse, who is often the first to encounter parents, briefs them about the medical situation, assesses their reactions, attempts to comprehend their attitudes, and supports them during stressful moments. The nurse functions similarly during subsequent parental visits and vigils (Korones, 1985, p. 19).

Helping a mother to manage coping effort is the neonatal nurse's responsibility as the nurse supports the mother throughout the infant's hospitalization.

A mother who is experiencing an excess degree of coping effort during an infant's neonatal intensive care hospitalization is directing a great deal of energy away from nurturing the relationship

with the infant. The attachment process between the mother and infant is already disrupted due to the circumstances of the hospitalization. However, this disruption can be compounded as the mother directs increasing amounts of energy to cope. Perhaps the best way to understand the difficulties that mothers have in attaching to their hospitalized infant is to examine the process of attachment.

Siegel, Gardner & Merenstein (1985) have discussed the nine steps in the process of attachment identified by Klaus and Kennell:

Step 1: Planning the Pregnancy

Step 2: Confirming the Pregnancy

Step 3: Accepting the Pregnancy

Step 4: Beginning of Acceptance of the Fetus as an Individual

Step 5: Acceptance of the Fetus as an Individual

Step 6: Labor and Birth

Step 7: Seeing the Infant

Step 8: Touching the Infant

Step 9: Caretaking

Steps one, two and three of the attachment process: Planning, Confirming, and Accepting the Pregnancy, occur early in pregnancy. The woman realizes that she will soon become a mother and begins to plan for that. Step four: Beginning of Acceptance of the Fetus as an Individual, coincides with the perception of fetal movement. This step is marked by the realization of the distinct life within the mother. In Step five: Acceptance of the Fetus as an Individual, the mother begins to open up the unconscious. In this step mothers dream and fantasize about the expected infant. A mother views the

fetus as a separate individual with a personality and establishes a relationship with that personality (Siegel, Gardner & Merenstein, 1985). Step six: Labor and Birth, is the culmination of the pregnancy.

The hospitalization of an infant in a neonatal intensive care unit interferes with Steps seven, eight and nine in the process of attachment: Seeing the Infant, Touching the Infant, and Caretaking. Seeing and touching, so called species specific behaviors, are ways that humans attach to their offspring. "As parents see the reality of the actual newborn, they begin 'letting go' of the prenatal fantasized child" (Siegel, Gardner & Merenstein, 1985, p. 426). The eye-to-eye contact between mother and baby initiates reciprocal interactions. By touching the infant, the mother comes to know her baby. In turn, the infant's stimulus hunger is satisfied. Holding the infant completes the satisfaction of the need for touch. The period immediately after the birth is ideal for interaction between mother and newborn. However, the premature or sick newborn is not capable of participating in visual exchange with the mother at this time. The infant has been whisked away to the neonatal intensive care unit where resuscitative and stabilization procedures are undertaken. Although mothers are encouraged to visit the infant in the NICU, they may initially be reluctant to touch their baby in fear of harming their infant or disturbing any catheters or tubes attached. Actual holding of the infant may be delayed for days or even weeks (Siegel, Gardner & Merenstein, 1985). This delay in holding is

expressed by mothers as feeling "empty arms" and is often accompanied by depression (Klaus, 1976).

Step nine: Caretaking, is the final step in the process of attachment. It involves the actual caretaking of the infant by the mother. With this task comes psychic closure of the relationship between mother and infant. The mother and infant give and receive from each other. It may be weeks or even months before a mother of an infant in an NICU assumes the responsibility of caretaking (Siegel, Gardner & Merenstein, 1985). Mothers often express feelings that their babies belong to the hospital and not until they are able to do the caretaking do the mothers feel their babies belong to them (Klaus, 1976).

In summary, the hospitalization of an infant in a neonatal intensive care unit disrupts the process of attachment between mother and infant. In addition, maternal coping can have an impact on the attachment process. Excess maternal coping efforts subtract from the amount of energy the mother can direct to nurture the relationship with the hospitalized infant. Neonatal nurses are concerned with assisting the mother to manage coping efforts during an infant's hospitalization and with facilitating the attachment process between mother and infant.

Definition of Terms

For this study, the following terms are defined as follows:

1. Mother -- the biological mother of a premature or sick newborn in an NICU.

2. Infant -- a newborn baby, born prematurely or with a medical or surgical problem requiring neonatal intensive care for a minimum of 48 hours.
3. Neonatal Intensive Care Unit (NICU) -- "a level III tertiary center caring for infants less than 28 days of age on admission" (Hopkin, 1986, p. 7).
4. Maternal Factors -- age, marital status, gravidity and parity, mode of delivery, ethnicity.
5. Coping -- the "use of innate or acquired mechanisms or ways of responding to a stimulus in order to adapt to change" (Rambo, 1984, p. 3).
6. Coping Effort -- "the amount of behavior, both action oriented and intrapsychic, employed by parents to master, tolerate, reduce or minimize stressful events encountered during their child's hospitalization" (Schepp, 1985, p. 4).
7. Coping Effort Instrument (CEI) -- a questionnaire designed to measure coping effort.

Summary

Little is documented in nursing research concerning maternal coping in the neonatal intensive care environment. The purpose of this study was to explore maternal coping in the neonatal intensive care unit. This chapter presented an introduction to the study. The research problem was stated. Along with the statement of the

purpose, three research questions were proposed. The significance of the problem was established through the presentation of statistics related to the prevalence of neonatal intensive care, in addition to the explanation of the process of maternal attachment. Terms used in the study were defined.

CHAPTER II

CONCEPTUAL FRAMEWORK AND REVIEW OF THE LITERATURE

This chapter will present the conceptual framework and include a review of literature. The constructs of stimuli and adaptation within the framework of The Roy Adaptation Model (Roy, 1980; Roy, 1984; Rambo, 1984) will be discussed in addition to the concepts of residual stimuli, maternal factors, coping, and maternal coping effort.

Conceptual Framework

The conceptual framework for this study is based on The Roy Adaptation Model (Roy, 1980). Roy's model has a systems orientation with levels of interaction analysis. The client is viewed as an open system in constant interaction with the environment. Stress or tension originates from within the system or from the environment of which the system is a part. Nursing interventions are directed at promoting adaptation by the manipulation of sources of stress within the system or from the environment.

Within this model, the construct of adaptation is viewed in four modes: physiologic, self-concept, role function, and interdependence. Roy (1980) identifies these four modes as different ways that a client adapts. The client first adapts according to physiologic needs. Then, through interactions with others, a client's self-concept

is determined. Role function is performed according to societal expectations. Finally, interdependence occurs through relations with others.

The model also incorporates three classes of stimuli: focal, contextual and residual, which pool to determine the level of adaptation. Focal stimuli refer to those stimuli immediately confronting a client in a given situation. Contextual stimuli relate to all other stimuli, within the system or in the environment, that affect the given situation. Residual stimuli are characteristics, traits, attitudes, beliefs, culture, past experiences, and other factors that are relevant to the given situation. According to Roy's model, a client's adaptation is "a function of the stimulus he is exposed to and his adaptation level" (Roy, 1980, p. 181). A client's adaptation level is comprised of a zone in which stimuli within will lead to a positive response. Stimuli outside that zone will not lead to a positive response. The nurse's role is to move those stimuli within the adaptation zone of the client.

The mother of the infant that is hospitalized in a neonatal intensive care unit is the client of interest in this study. Role function of the mother is the mode of adaptation of concern. The application of the Roy Model of Adaptation to this situation is illustrated in Figure 1. At the highest level of abstraction are the constructs of stimuli and adaptation. The concepts of the focal stimulus, contextual stimuli, residual stimuli, and coping are the concept level of the framework. The focal stimulus for the mother in the neonatal intensive care situation is the birth and

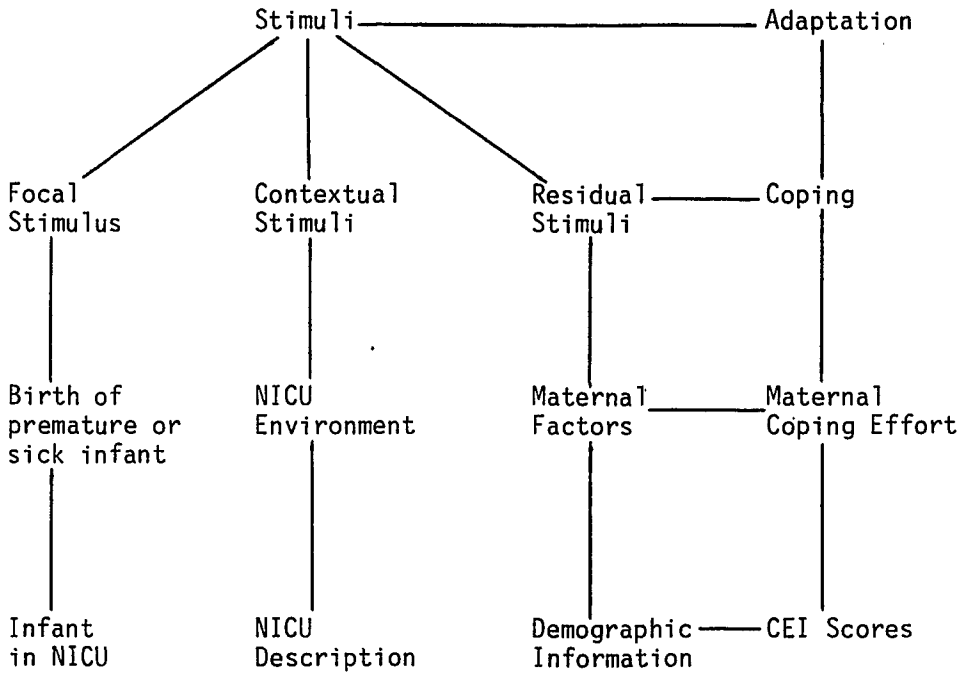

Figure 1. Diagram of the Conceptual Framework

of a premature or sick newborn. The environment of the neonatal intensive care unit, which includes the machines, noise, lights, personnel and activity contribute to the contextual stimuli of the situation.

Within the framework of this study, coping is a form of adaptation. Effort is exerted to cope. The premature or sick newborn hospitalized in the neonatal intensive care unit fits under the focal stimuli at the operational level of the framework. The sources of stress within the environment of the NICU, which were described in the introduction of Chapter One, emerge at the operational level of the framework under contextual stimuli. Demographic information yields the operational measure of the maternal factors identified, which correspond to the residual stimuli. Maternal coping effort, under the concept of coping, is operationalized from the measurement of scores on the Coping Effort Instrument.

The present study concentrates on a portion of the framework (Figure 2), involving the measurement of maternal factors and maternal coping effort to determine the answers to the proposed research questions. Maternal factors were identified from demographic information and the Coping Effort Instrument (CEI) was used to index maternal coping effort.

Stimuli and Adaptation

Stimuli and adaptation appear at the construct level of the model for this study. In The Roy Adaptation Model, stimuli are defined as stressors or factors that cause or influence behavior (Rambo,

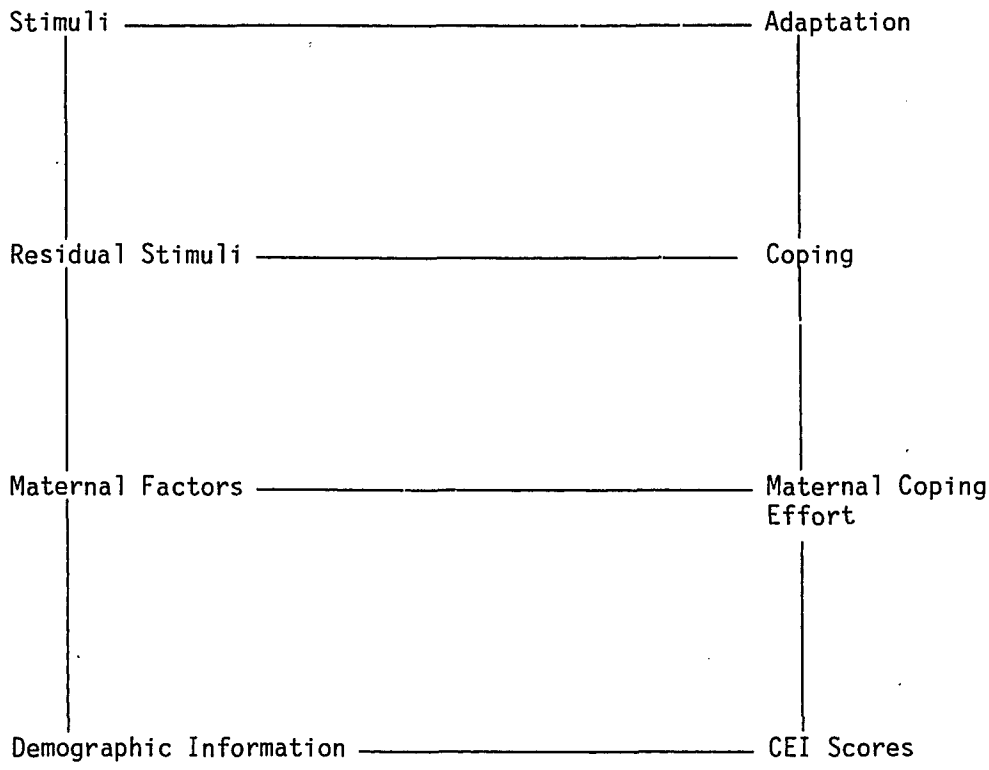

Figure 2. Diagram of Conceptual Framework for Study

1984, p. 4). The total effect of the three classes of stimuli, the focal stimulus, and the contextual and residual stimuli, define the individual's adaptation level (Rambo, 1984, p. 11). The individual's adaptation level and the various stimuli encountered determine adaptation. Adaptation is viewed as a process of responding to environmental changes. The process of coping with changes in the internal or external environment is a way of achieving adaptation. The positive response that the individual makes to cope with environmental changes in order to maintain integrity is adaptation.

The application of these constructs to the neonatal intensive care experience is as follows. The mother of the hospitalized newborn infant responds to the stimuli she encounters. The focal stimulus, the birth and hospitalization, initiates the adaptation response. The environmental factors within the neonatal intensive care unit contribute to the contextual stimuli that influence the mother's adaptive response. Various maternal factors correspond to the residual stimuli which also influence the adaptive response of the mother.

Residual Stimuli and Maternal Factors

At the concept level of the model for this study, under the construct of stimuli, the concepts of residual stimuli and maternal factors are found. As stated earlier, residual stimuli refer to the beliefs of an individual, along with past experiences, characteristics, attitudes, traits, and culture. These factors influence the adaptive response of the individual in a given situation (Roy, 1980; Roy, 1984; Rambo, 1984).

The maternal factors are part of the residual stimuli of the mother of the premature or sick newborn hospitalized in the neonatal intensive care unit. Age, marital status, gravidity and parity, and mode of delivery are characteristics of the mother which make up the residual stimuli in the neonatal intensive care situation. In this study, ethnicity is used as a measure of culture, which also contributes to the residual stimuli.

Mercer is foremost in the study of factors that affect the maternal role. As early as 1977, Mercer investigated the nursing care of parents of high-risk infants and identified predictive characteristics of the woman who adapts to the maternal role more easily (Mercer, 1977). Past experience in caring for infants, the support of a mate, and cognitive and emotional maturity are among the characteristics that Mercer identified. Extrapolating from Mercer's findings, the experienced mother will adapt more easily than the first time mother. Although gravidity and parity are more accurately a reflection of the woman's pregnancy and childbirth history, they do distinguish a first time mother from an experienced mother in most cases. Marital status is significant as a reflection of the presence of a supportive mate. Although maternal age is not always an indication of cognitive and emotional maturity, it is assumed that such maturity increases with increasing maternal age.

In 1981 Mercer developed a theoretical framework for the study of factors that have impact on the maternal role. From literature, Mercer identified variables that relate to the maternal role. Maternal age is one variable. Ease of maternal role attainment increases

with increasing maternal age. Adolescent mothers were reported to be less secure with their maternal role. Women in their twenties showed greater psychosocial readiness for mothering than adolescents. Mothers who had graduated from college or attended graduate school and mothers over 29 had more adaptive behaviors.

Perceptions of the birth experience was another variable. The mother's self-esteem and early interactions with her infant can be affected by the impact of the events surrounding the labor and birth of the infant. Women who experienced an unanticipated cesarean birth viewed their birth experience with less favor and made less favorable comments about their infants. Therefore, mode of delivery can have an impact on the maternal role.

Another variable identified by Mercer is support system. In particular, there is a high correlation between the husband's role and the mother's maternal functioning. Thus, marital status is significant in relation to the maternal role. Mercer also reported culture as a variable that impacts on the other variables as well as maternal role attainment.

In another paper, Mercer (1985) reported maternal age as a factor that impacts the maternal role in a research study investigating the process of maternal role attainment over the first year of motherhood. Mercer investigated ways of responding to irritable child behaviors, observed maternal behaviors, gratification with the maternal role, and feelings of love for the infant with mothers in three age grouped (15 to 19, 20 to 29, and 30 to 42 years).

Mercer's findings show increasing maternal age to support increasing competency in maternal role behaviors.

Jones, Green and Krauss (1980) have also identified maternal age as a factor in determining the quality and quantity of interaction between infant and mother. In their investigation of primaparous mothers during the postpartum period, the researchers discovered that mothers 18 years or younger demonstrated significantly less maternal responsiveness than mothers 19 years or older (Jones, Green & Krauss, 1980).

Teyber and Littlehales (1981) investigated the feelings of seriously ill children and their families. They identified factors that help families to cope with the tragedy of a seriously ill child. One factor is a strong marital relationship. Thus, marital status is a significant characteristic of the mother. Teyber and Littlehales also reported that families cope better when the sick child is not the first born. Thus, a mother may have more difficulty coping with the illness of a first born child.

Coping and Maternal Coping Effort

At the concept level of the model for this study, under the construct of adaptation, emerge the concepts of coping and maternal coping effort. Coping is a concept central to nursing. Nurses are ultimately concerned with client and family coping in response to illness and hospitalization. Nursing literature reveals this concern with numerous investigations focused on coping.

Lazarus defines coping as "the process of managing demands (external or internal) that are appraised as taxing or exceeding the resources of a person" (Cohen & Lazarus, 1983, p. 610). Five distinct perspectives are emphasized in this definition. The definition focuses on the process of coping, rather than viewing coping as a trait. The definition emphasizes management of demands rather than mastery. In addition, coping is not distinguished from defense processes. Psychological mediation, through cognitive appraisal, is central to the definition. Lazarus also explains that coping refers to any effort directed to stress management regardless of its effectiveness. Lastly, the relationship between stress and coping is emphasized in the definition. Thus, according to Lazarus, coping does not necessarily result in the effective management of a situation.

Scott, Oberst and Dropkin (1980) developed a stress-coping model to be used for nursing research. The model depicts the process of stress-coping as "a flow of events occurring over time and across encounters. Coping with stress represents a gradual movement toward specified goals and is a necessary characteristic of growth" (Scott, Oberst & Dropkin, 1980, p. 17). In this model, stress is defined in terms of demands that challenge adaptive resources. Coping is viewed as a process that entails cognitive appraisal, which is similar to Lazarus' definition. However, these authors further characterize coping as a process that is continuous and utilizes strategies that are goal directed. The utilization of these strategies occurs through time and encounters by means of cognitive appraisal, emotion

regulation, and physiologic response regulation. Coping efforts result in adaptation. Integrity is maintained by the establishment of balance between demands and the capability to deal with demands.

Clarke (1984) has also addressed coping as an important concept for nursing. She refers to coping as the individual's response appraised as positively or negatively affecting a demand in a desired direction. Adaptation consists of the adjustment to coping with varying rates of demands. Clarke describes three types of coping: direct, indirect and palliative. Direct coping involves the action of an individual which in some way affects the demand. Indirect coping is comprised of strategies which change the way an individual experiences a demand, his coping, or both. Palliative coping involves the use of indirect coping strategies which assist an individual to temporarily view a demand or coping in a positive fashion. Clarke concludes that coping must be clearly understood in order to plan nursing interventions.

For this study, coping is defined according to The Roy Adaptation Model. Coping is the "use of innate or acquired mechanisms or ways of responding to a stimulus in order to adapt to change" (Rambo, 1984, p. 3). Therefore, coping is an adaptation response. Stimuli or change evoke such a response. Coping employs mechanisms, inherent or learned. This definition is most appropriate for this study because it delineates coping as an adaptive response to stimuli, which corresponds with the conceptual model. In summary, coping is a way to achieve adaptation.

A vast amount of nursing literature is devoted to the study of the concept of coping. Unfortunately, very little nursing research has been conducted investigating coping in the neonatal intensive care setting. However, as early as 1960, the psychiatrist Caplan published a qualitative analysis of the coping strategies of families experiencing the crisis of the birth of a premature infant. This study was based on the premise that responses to stress in a crisis situation, such as premature birth, have significance for future mental health and that pathogenic sequences are often aggravated at such times. Caplan defined three patterns of response to premature birth: the cognitive grasp of the situation, the handling of feelings, and the provision of help. Caplan also described healthy and unhealthy outcomes to each of these patterns. Since Caplan's study was a preliminary report, he did acknowledge the need for further study concerning parental reactions to the birth of a premature infant.

Although nursing research has neglected to address coping in the neonatal intensive care setting, numerous researchers have become interested in the family's ability to cope with the critical illness of a family member. King and Gregor (1985) reviewed the literature and compiled a report describing the stress and coping that families experience during a family member's critical illness. The authors identify five circumstances which heighten emotional distress, stress that is psychologically or emotionally unpleasant or uncomfortable. Clearly, the neonatal intensive care experience is an event which involves the five circumstances. These five are as follows. Emotional distress is increased when a person encounters

a source of stress without time for anticipatory preparation. The birth of a sick or premature infant is often times an unexpected occurrence. Emotional distress is also increased when a person encounters stress for an extended period of time. The hospitalization of an infant in a neonatal intensive care unit can be lengthy. When a person encounters multiple stressors at the same time, emotional distress increases. The stress encountered by parents during the ordeal of the neonatal intensive care experience stems from the disruption of the attachment process as well as factors related to the hospitalization. An event that is uncertain or ambiguous can also increase emotional distress. The outcome of the illness of a sick or premature infant is often times uncertain. The exposure to an event which involves an aspect of life which is important, such as childbirth, also increases emotional distress. The neonatal intensive care experience is a situation in which emotional distress can be heightened in parents.

When a child is afflicted with a chronic illness, the family experiences the situational stressors of the illness, along with the developmental stressors as the child undergoes the transition of the life cycle. Nursing goals are focused on assisting the family to cope with these stressors. Thus, the assessment of family coping is paramount in nursing interventions with the family. McCubbin (1984) conducted an investigation of the coping of parents of children with cystic fibrosis. One hundred families participated in the study. Parents were asked to complete a demographic data sheet and respond to questions on the Coping Health Inventory for Parents (CHIP).

The CHIP inventory operationally defines specific items of coping behavior and provides information on specific strategies of coping used to manage life with a child with cystic fibrosis. Coping behaviors and coping strategies can be defined with this inventory. The results of the study showed family income and child's age significantly associated with patterns of coping. The higher the family income, the more effort the father made in trying to keep the family together. The older the child, the less effort the mother made to gain support and maintain self-esteem and psychological stability. The study also revealed single-parent families, families with an older afflicted child, and families with limited income to be high-risk, particularly vulnerable to maladaptive coping patterns. McCubbin concludes that nurses must identify family coping capabilities and be sensitive to the needs of families at high-risk.

Burns (1984) specifically addressed single-parent families in relation to the hospitalization of a child. Single-parent families are particularly vulnerable to stress during the child's hospitalization due to limited economic and psychologic reserves. In addition, single-parent families often lack adequate support systems to assist in coping during the crisis. Burns (1984) reports that nursing research has neglected to address the issue of hospitalization and the single-parent family. She explains that nursing care during a child's hospitalization should focus on assisting the family to cope.

Schepp (1985) investigated the impact of three factors on the coping effort of mothers of acutely ill hospitalized children.

The factors included situational anxiety, situational control, and expectation of events. Coping effort was defined as "the amount of behavior, both action oriented and intrapsychic, employed by parents to master, tolerate, reduce or minimize stressful events encountered during their child's hospitalization" (Schepp, 1985, p. 4). Forty-five mothers participated in the study. Schepp provided a four scaled magnitude estimation instrument to the mothers to measure the concepts. Results showed that expectation of events directly affected situational anxiety, anxiety derived from a given situation, and indirectly impacted maternal coping effort. Situational anxiety related to coping effort in a strong, direct, positive way. Situational control did not, directly or indirectly, significantly influence maternal coping effort. In addition, the expectation of events was not influenced by situational control. In essence, mothers who knew what to expect experienced less anxiety and exerted less effort to cope with the child's hospitalization.

The concept of coping effort, originated by Schepp, is of interest. According to the definition, coping effort is the quantification of the concept of coping. Coping effort measures the amount of behavior, intrapsychic and action oriented, the individual exerts to manage stress encountered. Schepp's definition limits coping effort to the stress encountered by parents during the hospitalization of a child. The concept of coping effort can be extended to the neonatal intensive care experience. This study is particularly interested in the concept of maternal coping effort. In addition, Schepp has since developed the Coping Effort Instrument (1986) to

replace the magnitude estimation scale in the measurement of coping effort in relation to a child's hospitalization and illness. The instrument has been pilot tested with good reliability and validity. It has been proven an appropriate tool to replace the magnitude estimation instrument for measuring coping effort. This study will utilize Schepp's Coping Effort Instrument to measure maternal coping effort.

Summary

This chapter presented the conceptual framework for the study in addition to a review of literature. The constructs of stimuli and adaptation, within the framework of The Roy Adaptation Model, were discussed. Emerging from the construct of stimuli, the concepts of residual stimuli and maternal factors were defined. Literature supporting the maternal factors identified for this study was presented. The concept of coping, emerging from the construct of adaptation, was defined. Literature was presented illustrating the status of coping in nursing research. Coping effort was defined and extended to the neonatal intensive care setting. The focus of this study, maternal coping effort in the neonatal intensive care situation, was stated.

CHAPTER III

METHODOLOGY

This chapter will explain the research design and describe the setting, the sample, the instrument, and data collection techniques. Data analysis will also be discussed, including instrument reliability and validity.

Research Design

This study utilized a descriptive correlational research design to determine the coping effort of mothers of infants in an NICU, and the maternal factors that are associated with the coping effort of mothers. The reliability and validity of the Coping Effort Instrument in the setting of the neonatal intensive care unit was also determined.

Setting

The settings for this study were the neonatal intensive care units (NICUs) at two acute-care hospitals in a large metropolitan area in the southwest. The two NICUs are similar in size, capacity, physical layout, environment, and patient acuity. Both units are designed to accommodate 24 neonatal intensive care patients. The equipment used, along with the lighting, noise and activity level in the two units are comparable. Both hospitals serve the same patient population. The acuity of the patients in each of the NICUs

is similar. The same attending physicians and house officers serve both facilities, therefore the medical management of the patients in the NICUs is also similar.

Sample

A convenience sample of 30 mothers was used for this study. Criteria for sample selection included:

1. Consent to participate in the study.
2. Able to speak and read English.
3. Admission of infant to NICU at least 48 hours prior to participation. This allowed mothers time for immediate recovery from the birth of the infant and assimilation of the newborn intensive care experience.

Mothers who were facing the death of their infant in the immediate future were excluded from the study in order to avoid the additional stress which might have been experienced through participating in the study.

Instrument

The Coping Effort Instrument (CEI) was developed by Schepp (1986) to measure parental coping in relation to a child's illness and hospitalization in a pediatric setting (Appendix A). The CEI, a 30 item Likert-type scale, addresses common stressful events that parents experience when a child is hospitalized. The instrument can be self-administered in approximately 15 minutes. It is scored by adding each item's score. A high total score indicates coping effort is greater, a low score coping effort is less. The instrument

was pilot tested by Schepp with 100 subjects. Analysis derived from pilot testing revealed an alpha of 0.94 indicating internal consistency. A test retest, 24 to 48 hours after the initial testing, yielded a correlation figure of 0.85 which indicates a stable instrument. Therefore, the reliability and validity of the CEI revealed that the tool is reliable in the measurement of parental coping effort in the pediatric setting. Permission was given by Schepp for the use of the CEI in this study (Appendix E).

For the purpose of this study, the CEI was adapted for use in the neonatal intensive care setting (Appendix B). The adaptation of the CEI consists of the following changes. The word "child" has been replaced by the word "baby". Item 11, "Your child is not comforted like he/she usually is when you hold him/her", has been reworded to "Your baby is not comforted". Item 19, "Your child does not act or behave like he/she normally does", has been changed to "Your baby does not act like other babies". Item 25, "Your child is not eating", has been reworded to "Your baby is not feeding". Item 28, "You don't know if your child will be watched when you leave", has been changed to "You don't know if your baby will be carefully watched when you leave". Item 30, "Your child cries as you leave his/her room", has been reworded to "Your baby cries as you leave his/her bedside".

The changes of the wording of items on the CEI were made to increase the relevance of the questionnaire to the target population for this study, mothers of infants in the NICU. The adapted version of the questionnaire was reviewed by mothers prior to use in the

study in order to substantiate relevance. Three mothers of infants previously hospitalized in the NICU were asked to complete the questionnaire and comment on its relevance to their experiences. The mothers reported that the adapted CEI appropriately dealt with their experiences coping during the hospitalization of their infants. Therefore, the CEI, adapted for use in the neonatal intensive care setting, was used in this study. Reliability and validity figures were estimated in order to ascertain the usefulness of this instrument in the neonatal intensive care setting.

Data Collection

The study was approved as exempt by the College of Nursing (Appendix F). Permission to collect data in the neonatal intensive care unit was granted by two hospitals (Appendix G). Data was collected in the two neonatal intensive care units. Mothers meeting the research criteria were approached and asked if they would like to participate in the study. The study was explained to interested mothers (see Appendix D for consent form). Mothers were assured that there were no known risks to themselves or their infants for participating or not participating in the study, and that participation was strictly voluntary. Mothers were also told that the goal of the study was to learn more about the coping of mothers in the neonatal intensive care unit so that nurses can more fully understand the mother's experience. Confidentiality of the mothers was protected through the assignment of identification numbers on the research tool and the corresponding data sheet.

Mothers agreeing to participate in the study were asked to answer the questions on the CEI and complete a demographic data sheet (Appendix C). Mothers were given the option of completing the forms in a quiet place on the unit, such as a parent visiting room, or at the infant's bedside. In order to answer questions, the researcher stayed with mothers as they completed the forms.

Data Analysis

The data collected in this study were analyzed in order to answer the following research questions:

> What is the coping effort of mothers of infants in the neonatal intensive care unit?

The first research question is answered using descriptive statistics. The scores from the CEI are presented in a frequency distribution. The range, mean, and standard deviation for the scores are reported.

> What maternal factors are associated with the coping effort of mothers?

In order to answer research question two, the maternal factors (independent variables) of age, marital status, gravidity and parity, mode of delivery, and ethnicity are related to the scores of the CEI (dependent variable). Correlation coefficients were computed to determine if significant relationships exist between the various independent variables and the dependent variables. Pearsons' Product Moment Correlation (r) is reported for each maternal factor in relation to the CEI scores. A correlation with an absolute value

of at least .70 is considered strong (Polit & Hungler, 1983). Therefore, a significant relationship is considered between two variables if an absolute value of r is at least .70. In addition, a significance level of p equal to or less than .05 was chosen for this study (Polit & Hungler, 1983).

What is the reliability and validity of the Coping Effort Instrument as adapted to the neonatal intensive care unit?

Research question three is answered by reporting reliability and validity of the instrument as derived from this study. Cronbach's alpha was computed to determine the reliability of the CEI. An alpha of 0.70 is considered to be acceptable for new instruments (Polit & Hungler, 1983). Content validity of the instrument was determined by conducting informal interviews with the participants after completion of the questionnaire. The participants were asked:

1. Are there other things about your baby's hospitalization that are difficult for you?
2. Are there other things about your experience in the neonatal intensive care setting that are difficult for you?

The interviewer noted key words as participants answered these questions. A summary of responses is reported.

In addition, the sample is described in terms of the maternal factors, independent variables, using descriptive statistics. For the independent variables of age, the range, mean, median, and mode were computed. A frequency distribution illustrating the frequency

and percentage for different age ranges (less than 19, 20 to 29, and greater than 30 years of age) is presented. For the independent variables of marital status, gravidity and parity, mode of delivery and ethnicity, frequency distributions illustrate the frequencies and percentages of the items for each independent variable.

Summary

This chapter included the methodology of the study. A descriptive correlational research design was utilized. Data was collected in neonatal intensive care setting. Research subjects were mothers of infants in the NICU meeting the proposed criteria and agreeing to participation in the study. Data analysis used descriptive and correlational statistics.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

In this chapter the description of the sample, the results of the data collection, and the statistical analysis of the data will be presented.

Data were derived from a convenience sample of 30 mothers of infants in the neonatal intensive care unit. Thirty-three mothers were asked to participate in the study; 30 (91%) consented. Of the three mothers who did not want to participate, one was in another study, one did not understand directions, and the third did not give a reason. Data collection spanned a period of two and a half months in the late spring and early summer.

Description of the Sample

The sample consisted of 30 mothers ranging in age from 19 to 36 years old. The mean age of the mothers was 26.6 years with a standard deviation of 4.9 years. The median and the mode of the age of mothers were both 25. Tables 1 and 2 illustrate the frequency distribution of the demographic attributes of the mothers for the sample. Eighty percent of the mothers in the sample were married, 13.3% were single and 6.7% were divorced. Thirty percent of the mothers in the sample were primigravidas. The remaining 70% of the sample ranged from two to five for gravidity. Primiparas accounted

Table 1. Maternal Demographic Information (n=30)

	f	%	Mean	SD
AGE (YEARS)				
<19	2	6.7		
20–29	21	70		
>30	7	23.3		
			26.6	4.9
MARITAL STATUS				
Single	4	13.3		
Married	24	80		
Divorced	2	6.7		
GRAVIDITY				
1	9	30		
2	10	33.3		
3	6	20		
4	1	3.3		
5	4	13.3		
PARITY				
1	17	56.7		
2	7	23.3		
3	5	16.7		
4	1	3.3		

Table 2. Maternal Demographic Information (n=30)

	f	%
MODE OF DELIVERY		
Vaginal	18	60
Cesarean Section	12	40
ETHNIC BACKGROUND		
Caucasian	19	63.3
Black	2	6.7
Hispanic	6	20
American Indian	3	10

for 56.7% of the sample. The remainder of the mothers in the sample, 43.3%, ranged in parity from two to four.

Sixty percent of the mothers in the sample had delivered vaginally, while 40% delivered by cesarean section (Table 2). These figures reflect a high percentage of cesarean births for the sample. In the United States, the current rate of cesarean births is about 25% for large, high-risk centers (Auvenshine & Enriquez, 1985). Holmes and Magiera (1987) report that the incidence of deliveries by cesarean section is as high as 30%. The higher percentage of cesarean deliveries in the sample is not surprising considering the high-risk nature of the infant. Obstetricians consider cesarean delivery to be less hazardous to the premature fetus than vaginal delivery (Holmes & Magiera, 1987).

A majority of the mothers in the sample were white (63.3%). The remaining 36.7% of the sample contributed to the black, hispanic and American Indian population (Table 2). These percentages do not reflect the ethnic distribution of the metropolitan area where the study was conducted. The 1986 figures for the ethnic origin of households in the metropolitan area report 85% white, 15% hispanic, 2% black, 1% American Indian, 1% oriental, and 1% other. The total is greater than 100% due to multiple ethnic origins in one household (Tucson Trends, 1986). The study sample consists of a smaller percentages of white mothers, and a larger percentage of mothers from the black, hispanic and American Indian populations. Perhaps racial difference is a factor in the proportion of infants hospitalized in the NICU in a comparative population. Black women do have a higher

percentage of low birth weight infants in comparison to white women. However, socioeconomic factors may contribute to the disparity between the various ethnic groups (Pernoll, Benda & Babson, 1986).

In addition to the maternal characteristics, the sample can be further described in terms of infant information (Table 3). The age of the infant at the time of participation of the mother in the study ranged from two to 77 days with a mean of 12.9 days. The gestational age of the infant at birth ranged from 25 weeks to 40 weeks with a mean of 32.3 weeks. Sixty percent of the infants were male while 40% were female. The admitting diagnoses of the infants varied, however 66.7% of the infants were premature. The remaining 33.3% of the infants were admitted to the NICU with diagnoses of respiratory distress, respiratory distress syndrome (RDS), hypoglycemia, perinatal depression (birth asphyxia), bowel obstruction, or transient tachypnea of the newborn (TTN).

Results and Analysis of the Data Collection

Mothers who participated in the research study completed the Demographic Data Sheet (Appendix C) and the Coping Effort Instrument (CEI) revised for use in the NICU (Appendix B). Results of the data collection reflect the answers to the proposed research questions:

1. What is the coping effort of mothers of infants in the neonatal intensive care unit?
2. What maternal factors are associated with the coping effort of mothers?

Table 3. Infant Demographic Information (n=30)

	f	%	Mean	SD
AGE (DAYS)				
<6 (1 week)	17	56.7		
7-13 (2 weeks)	4	13.3		
14-20 (3 weeks)	4	13.3		
21-77 (4 weeks and greater)	5	16.5		
			12.9	17.1
GESTATIONAL AGE				
25-29	11	36.6		
30-33	7	23.4		
34-36	6	20		
37-40	6	20		
			32.1	4.4
SEX				
Male	18	60		
Female	12	40		
ADMISSION DIAGNOSIS				
Prematurity	20	66.7		
Respiratory Distress	1	3.3		
RDS	5	16.7		
Hypoglycemia	1	3.3		
Perinatal Depression	1	3.3		
Bowel Obstruction	1	3.3		
TTN	1	3.3		

3. What is the reliability and validity of the Coping Effort Instrument in the neonatal intensive care unit?

The first research question, "What is the coping effort of mothers of infants in the neonatal intensive care unit?", is answered using descriptive statistics. The possible total scores for the Coping Effort Instrument range from 0 to 300. The total scores for the mothers in the sample ranged from 53 to 266 with a mean total score of 189.6. Table 4 illustrates the frequency distribution for the total scores on the Coping Effort Instrument for the sample. Greater than 50% of the mothers in the sample (53.3%) scored in the high range (201-300) for the total score on the CEI. This indicates a great amount of coping effort for these mothers which is consistent with the high level of maternal stress reported in nursing literature.

In reviewing the results of the data collection, a number of items on the questionnaire were not answered by mothers. Item five, "You have to leave your other children to be with your sick baby," was not answered by six of the mothers in the sample. This item is relevant only if the mother has other children at home. Of interest to the results of the study, 17 or 56.7% of the mothers in the sample were primiparas. Unless adoptive or stepchildren contributed to the family at home, item five is not relevant to the 17 primiparous mothers in the sample. In addition, several other items on the questionnaire were not completed by mothers in the sample. One case was missing for each of the following items on the CEI: Item two, "Your baby is not showing signs of improvement", item six, "Your baby's sleep is interrupted", item 22, "You are not

Table 4. Total Scores on the CEI (n=30)

Total Score	f	%	Mean	SD
000-100 (low range)	3	10		
101-200 (middle range)	11	36.7		
201-300 (high range)	16	53.3		
			189.6	60.0

told what the treatment plans are for your baby", and item 27, "You are unable to get answers to your questions about your baby's condition". Perhaps these items were missed by mothers as an oversight. Items not scored by mothers were given a value of zero.

The second research question, "What maternal factors are associated with the coping effort of mothers?", is answered using correlational statistics. Pearson's Product Moment Correlation (r) was computed for each of the maternal characteristics, independent variables, in relation to the total score on the CEI, dependent variable. Table 5 illustrates the value for r for each of the independent variables in relation to the dependent variable, and also the significance level (p) for each relationship. A p of equal to or less than .05 was preset as a criterion for statistical significance (Polit & Hungler, 1983).

The relationship between maternal age and the total score on the CEI has a value of $r = -.0558$. With increasing maternal age there may be a decreasing total score on the CEI. In other words, older mothers may exert less effort to cope with the NICU ordeal as compared to younger mothers. The p value of .770 does not fall within a level of statistical significance. However, the trend revealed in this relationship is consistent with nursing literature. Jones, Green and Krauss (1980) and Mercer (1981) have identified maternal age as a factor that influences maternal responsiveness and maternal role attainment. Maternal responsiveness increases with increasing maternal age (Jones, Green & Krauss, 1980). Ease

Table 5. Correlational Analysis of Independent Variables with Dependent Variables (n=30)

Independent Variables	Dependent Variable Total Scores on CEI
Maternal Age	r = -.0558
	p = .770
Marital Status	r = -.1714
	p = .365
Gravidity	r = -.0268
	p = .890
Parity	r = .0229
	p = .904
Mode of Delivery	r = .2251
	p = .232
Ethnicity	r = .0439
	p = .818

r = Pearson's Product Moment Correlation (/.70/ or greater desired)

p = Significance Level (.05 or less desired)

of maternal role attainment also increases with increasing maternal age (Mercer, 1981).

Being married and total score on the CEI also show a weak inverse relationship with a value of -.1714 for r. Mothers who were married scored comparatively lower on the CEI and exerted less effort to cope than mothers who were unmarried. This relationship is also not within a significance level with a value of .365. Again, the trend illustrated in this relationship is consistent with nursing literature. Social support, in the form of a husband, has been identified positively with maternal functioning (Mercer, 1981).

A value of -.0264 for r for the relationship between gravidity and total score on the CEI again indicates a weak inverse relationship for these variables. Therefore, with increasing gravidity there may be decreasing coping effort. The level of significance is a p of .890, which indicates the relationship is not within the statistical significance level. Parity and total score on the CEI show a weak positive relationship with a value of .0229 for r. Thus, with increasing parity there may be an increased effort to cope with the NICU situation. The value of .904 for p indicates the relationship is also not within the significance level. The contradiction between these relationships, decreasing coping effort with increasing gravidity and increasing coping effort with increasing parity, may be attributed to chance statistical results. Gravidity and parity may make minimal difference in maternal coping effort.

Mode of delivery and the total score for the CEI reveal a value of .2251 for r, which shows a weak positive relationship between

the variables. Mothers who had cesarean deliveries exerted greater effort to cope with the hospitalization of their infant in the NICU than mothers who delivered vaginally. The value of .232 for p shows the relationship is not within statistical significance. These results are not surprising considering that a mother recovering from a cesarean delivery has the added stress of recuperating from major surgery. In addition, Mercer (1981) identified perceptions of the birth experience, more specifically mode of delivery, as a factor that has impact on maternal role attainment.

The variables of ethnicity and total score for the CEI also show a weak positive relationship with a value of .0439 for r. Again, this relationship is not within the statistical significance level of .05 with a p value of .818. The relationship described from these results, hispanic, black and American Indian mothers exerting greater effort to cope with the NICU ordeal than white mothers, may be influenced by socioeconomic factors not approached in this study.

Research question three, "What is the reliability and validity of the Coping Effort Instrument in the neonatal intensive care unit?", is answered by the computation of Cronbach's alpha. An alpha of at least 0.70 indicates a reliable instrument according to Polit and Hungler (1983). A value of .9566 for alpha for this study indicates excellent reliability for the Coping Effort Instrument revised for use in the neonatal intensive care setting. The value of alpha obtained for this study is very close to the alpha for the CEI reported by Schepp in 1986, .9400.

Content validity for the instrument was obtained by informal interviews with mothers after completion of the questionnaire. Mothers were asked: "Are there other things about your baby's hospitalization that are difficult for you?" and "Are there other things about your experience in the neonatal intensive care setting that are difficult for you?". Mothers responded favorably to the questionnaire, stating that they felt the items dealt with the situations they were coping with. In addition, a number of mothers reiterated difficult situations such as understanding the baby's condition (similar to items eight, 13 and 27), and dealing with the unfamiliar equipment (similar to item 16). Many of the mothers stated the most difficult part of the experience was being discharged from the hospital without the baby. These mothers expressed that this was "the hardest thing" about the entire ordeal. Item 10, "You cannot stay with your baby", touches on this situation, however not specifically at the time of the mother's discharge from the hospital.

In addition to the statistical analysis to answer the proposed research questions, a chi square analysis was performed to identify significant differences for various groups in answering questions on the revised Coping Effort Instrument. The sample was divided into two groups according to four categories: maternal age, parity, ethnicity and mode of delivery. A chi square analysis was computed to determine if any group scored significantly low (0-5) or high (6-10) on any items on the questionnaire. A significance value of $p = \text{or} < .05$ for the chi square analysis would indicate a significant difference between groups for any one item (Polit & Hungler, 1983).

The purpose of this analysis was to identify items on the revised CEI that discriminate between the groups.

The sample was divided into a younger group, 25 years or younger (n=16), and an older group, 26 years or older (n=14), in the category of maternal age. The chi square analysis was performed for each of the 30 items on the revised CEI. One item, question 24 "You feel guilty if you do not stay with your baby", revealed a significance value for the chi square analysis of .0662, which only approached the significance level of .05. On this item, the younger group scored proportionally higher than the older group.

For the category of parity, the sample was divided into two groups according to parity, primiparas (n=17) and multiparas (n=13). The chi square analysis was performed, and item 24 "You feel guilty if you do not stay with your baby", revealed a value of .0537 which again approaches statistical significance. On this question, the multiparous mothers scored proportionally higher than the primiparous mothers.

Whites comprised one group (n=19) and blacks, hispanics, and American Indians comprised the other (n=11) for the category of ethnicity. The chi square analysis was performed and item seven "You have to wait for test results" revealed a significance value of .0455, within the desired level of statistical significance. On this question, the group comprised of whites scored proportionally lower than the group comprised of blacks, hispanics and American Indians.

For the category of mode of delivery, mothers who delivered vaginally made one group (n=18) and mothers who delivered by cesarean section made the other group (n=12). The chi square analysis was performed, however no item on the questionnaire approached statistical significance.

The chi square analysis revealed that only two items, questions seven and 24, differentiated among the categories of maternal age, parity and ethnicity. For the category of mode of delivery, none of the items on the questionnaire discriminated between mothers who delivered vaginally and mothers who delivered by cesarean section.

Summary

In this chapter the results of data analysis were presented. The sample was described in terms of maternal characteristics and also infant information. The total Coping Effort Instrument scores were reported for the sample, in addition to the mean and standard deviation. Pearson's Product Moment Correlation was computed for each of the independent variables in relation to the dependent variable. Instrument reliability was computed and content validity was estimated. A chi square analysis was performed in order to identify items on the revised Coping Effort Instrument which discriminated between two groups in the categories of maternal age, parity, ethnicity, and mode of delivery.

CHAPTER V

DISCUSSION OF RESULTS, CONCLUSIONS, NURSING IMPLICATIONS AND RECOMMENDATIONS

This chapter will include a discussion of the results of the data analysis. In addition, conclusions and nursing implications derived from the study along with recommendations for future research will be presented.

Discussion of Results

The purpose of this study was to learn about mothers and their coping in the neonatal intensive care unit. Data analysis was designed to answer the three research questions proposed:

1. What is the coping effort of mothers of infants in the neonatal intensive care unit?
2. What maternal factors are associated with the coping effort of mothers?
3. What is the reliability and validity of the Coping Effort Instrument in the neonatal intensive care setting?

The stressful nature of the hospitalization of an infant in the neonatal intensive care unit has been reported in nursing literature (Siegel, Gardner & Merenstein, 1985; Sammons & Lewis, 1985; Harrison & Twardosz, 1986; Rushton, 1986). Kennel and Klaus (1985) have identified the mother, the primary caretaker, as the person of greatest concern in this situation. During the course of the

hospitalization, the mother of the infant copes with all the stresses encountered from the day to day changes in her infant's condition. The results of this study confirm the high degree of maternal stress associated with the hospitalization of an infant in the NICU, which has been described in nursing literature. Over half of the mothers in the sample scored in the high range on the Coping Effort Instrument indicating a great amount of energy was needed to cope with the stressful situations of neonatal intensive care.

Nursing literature has also identified maternal characteristics which may be associated with coping effort. In this study, maternal age, marital status, gravidity and parity, mode of delivery and ethnicity were explored in relation to coping effort. Data analysis revealed the absence of statistically significant associations between the maternal characteristics and coping effort. Although the associations between the variables did not prove to be statistically significant, trends did emerge from the data.

Data analysis showed a weak association between maternal age and coping effort. With increasing maternal age there was a decreasing coping effort. This trend was expected in view of previous reports from nursing literature relating age with maternal responsiveness and maternal role attainment. Jones, Green and Krauss (1980) reported that maternal responsiveness increases with increasing maternal age. In addition, Mercer (1981) reported maternal role attainment increases with increasing maternal age.

Mercer (1981) reported social support to relate positively with maternal functioning. She stated there is a high correlation

between a husband's role (behavior) and maternal functioning. With this information, it was expected that mothers who were married would score lower on the Coping Effort Instrument than mothers who were single or divorced. Analysis of the data did reveal this trend. Mothers who were married did score lower and exert less effort to cope than mothers who were single or divorced.

Nursing literature identifies the first time mother to differ from the experienced mother in the manifestation of the maternal role (Auvenshine & Enriquez, 1985). In the light of this, the first time mother was expected to differ from the experienced mother with regards to coping effort. Gravidity and parity were measured as a reflection of experience with mothering. Analysis of the data revealed ambiguous results: with increasing gravidity there was decreasing coping effort and with increasing parity there was increasing coping effort.

Data analysis revealed a weak association between mode of delivery and coping effort. Mothers who delivered by cesarean scored higher on the Coping Effort Instrument, exerting greater effort to cope, than mothers who delivered vaginally. This association was expected considering the additional stress of recuperating from surgery.

Mercer (1981) included culture as a variable that influences the maternal role. Therefore, it was expected that ethnicity would relate to maternal coping effort. A weak association between the variables was gleaned from data analysis. Hispanic, black and American Indian mothers did score higher on the Coping Effort Instrument,

exerting greater effort to cope, than white mothers. However, socio-economic factors may have influenced these results.

Although the associations described emerged from the data, statistical significance was not proven. The lack of statistical significance between variables must be addressed. Sample size may be a reason. Larger samples produce more accurate estimates than smaller samples (Polit & Hungler, 1983). With the recommendation of 10, preferably 20 to 30, subjects for every subdivision of data, a sample size of 30 was sought for this study. However, several of the independent variables were subdivided into more than two groups. For instance, ethnicity was subdivided into five groups: white, black, hispanic, American Indian and Asian. With this consideration, perhaps the sample size was not large enough to yield statistically significant results.

In contrast to the lack of statistical significance in the associations between variables, the Coping Effort Instrument proved to be a reliable and valid tool in the neonatal intensive care setting. This was expected in view of reliability and validity figures reported by Schepp (1986). With the proven psychometric stability of the Coping Effort Instrument, the lack of statistical significance due to a small sample size is questionable. Perhaps coping with the hospitalization of an infant in the neonatal intensive care unit is a universal experience for all mothers regardless of age, experience, marital status, method of delivery or ethnicity. As mentioned earlier, over half of the mothers in the sample scored in the high range on the Coping Effort Instrument, indicating a great

amount of effort was needed to cope with the situations encountered. The neonatal intensive care experience is stressful, as reported in nursing literature and confirmed in this study, and may universally be difficult for all mothers to cope with.

Conclusions

With examination of the results of the study, the following conclusions can be made:

1. Mothers exert a great amount of effort to cope with the hospitalization of an infant in the NICU.
2. In addition to the maternal characteristics explored in this study, other variables may be associated with coping effort.
3. The Coping Effort Instrument, adapted for use in the neonatal intensive care setting, has beginning reliability.

Nursing literature reports the hospitalization of an infant in the neonatal intensive care unit to be a stressful experience for the mother. The results of this study support what nursing literature has presented. Indeed, mothers do exert a great amount of effort to cope with the stressful situations encountered while their infant is hospitalized in the NICU.

The maternal characteristics of age, marital status, gravidity and parity, mode of delivery and ethnicity were found to be weakly associated with scores on the Coping Effort Instrument. Although these factors did not prove to be significantly associated with

maternal coping effort, other variables may. Factors such as gestational age of the infant at birth or length of hospitalization of the infant may relate to the coping effort of mothers. In addition, socioeconomic factors such as income, support, and education may influence maternal coping effort.

Schepp (1986) developed and tested the Coping Effort Instrument in the pediatric setting and reported acceptable reliability and validity. The instrument was adapted to the neonatal intensive care setting for this study. Data analysis indicates the questionnaire has beginning reliability.

Limitations

In this study, the following limitations are recognized:

1. The data collection was based on a convenience sample rather than a random sample.
2. The sample size (n=30) was relatively small and may account for the lack of statistical significance of the data analysis.

Due to these limitations, the results of this study cannot be generalized to the larger population of mothers of infants in the neonatal intensive care unit. It is suggested that further revision and testing of the instrument be done in order to achieve results worthy of generalizations.

Sources of Error

The potential for error exists in any research endeavor. This study is no exception. The following have been identified as potential

sources of error for this study: clarity of the instrument and administration of the instrument.

Clarity of the Instrument

Although the neonatal adapted version of the Coping Effort Instrument had been reviewed by mothers prior to use in the study, instrument clarity is still a suspected source of error. An explanation of the questionnaire was given to mothers prior to administration:

> This questionnaire contains 30 situations that mothers often encounter when their infant is hospitalized in a neonatal intensive care unit. Please rate each situation on the amount of effort, either physical or emotional energy, that it takes for you to cope with the situation. You may not have or may never experience some of the situations that are depicted in this questionnaire. Please rate these situations as if you have experienced them.

This explanation was confusing for some mothers and required further clarification. Some mothers expressed difficulty in answering items describing situations that they had not experienced. Some mothers asked for clarification of items during the administration of the questionnaire.

Administration of the Instrument

The administration of the instrument may also be a source of error in this study. As discussed above, mothers were given an explanation of the questionnaire prior to administration. This explanation and clarification evolved over the course of data collection. Therefore, more definite and clear instructions were given

to mothers at the completion of data collection than at the onset of data collection.

Nursing Implications

Nursing literature reveals that the birth and hospitalization of a premature or sick newborn in a neonatal intensive care unit is a difficult and stressful experience. Mothers, who spend a great deal of time at the infant's bedside during the course of the hospitalization, are vulnerable to the stresses encountered during the prolonged hospital stay. Mothers also endure the stress of the disruption of the attachment process. Mothers must learn to cope with these stresses.

Nurses are concerned with meeting the needs of patients, which include meeting the needs of the family. In the NICU, nurses are interested in mothers' needs. Neonatal nurses are in a position to help mothers to cope with the difficulties of the NICU experience. While providing care for the infant in the NICU, the neonatal nurse encounters the mother during visits. One responsibility of the nurse is to assist the mother in managing coping effort during the hospitalization of the infant.

Awareness of the stressful nature of the NICU experience is the first step in helping mothers to cope. The more nurses learn about the difficulties of the experience the better able nurses are to understand and support mothers through the hospitalization. In talking with mothers during the course of data collection for this study, mothers verbalized satisfaction with the nursing care given

to their infant. Also, mothers explained that nurses were attentive to their needs and listened to their concerns. Allowing mothers to express thoughts and feelings about the difficulties with which they are coping, and listening with compassion and concern may help mothers to manage coping efforts. Acknowledging feelings and the difficulty of the experience is something that neonatal nurses can do to help mothers to cope.

In addition, mothers in the study shared that the most difficult experience for them was being discharged from the hospital and having to leave the baby behind. From clinical observation, on the day of their discharge, mothers are often found weeping at the infant's bedside. Neonatal nurses must be sensitive to the difficulty of this time and offer additional concern and support.

The results of this study failed to identify a group of mothers at risk for extremes in coping. On the contrary, all mothers of infants in the NICU are faced with stressful situations and at times are subject to the utmost effort to cope. Neonatal nurses must not assume that any group of mothers cope with less effort. Nurses must offer assistance by showing compassion and concern to all mothers.

Recommendations

The following are recommendations for future research concerning maternal coping in the NICU:

1. Continue to develop the Coping Effort Instrument, making revisions and testing the scale to increase relevance and clarity of items.

2. Replicate the study exploring other variables such as gestational age of the infant at birth, length of hospitalization of the infant, or socioeconomic factors.
3. Conduct a qualitative study exploring maternal coping in the NICU.
4. Include fathers in the investigation of coping with the neonatal intensive care experience.

Summary

In summary, this study explored maternal coping effort in the neonatal intensive care setting. The neonatal adapted version of the Coping Effort Instrument was used to measure maternal coping effort. The maternal factors of age, marital status, gravidity and parity, mode of delivery and ethnicity were explored in the context of this study. This chapter included a discussion of the results of the study, conclusions, limitations and sources of error for the study, nursing implications and recommendations for future research.

APPENDIX A

COPING EFFORT INSTRUMENT

University of Arizona College of Nursing

Coping Effort Instrument

Directions: Below is a series of situations commonly encountered by parents when their child is hospitalized. I am interested in how much coping effort each situation requires of you. Coping effort means how much physical and/or emotional energy a situation requires of you for you to adjust to or handle the situation. Some situations may require more energy or effort for you to cope with than others. There are no right or wrong answers. Beside each item is a 10-point scale which ranges from "No Coping Effort" (1) to "Maximum Coping Effort" (10). Circle the number that represents the amount of effort it takes for you to cope with the situation in each item. Your responses will be kept confidential.

	No Coping Effort									Maximum Coping Effort
1. You have to wait for the doctor to see your child.	1	2	3	4	5	6	7	8	9	10
2. Your child is not showing signs of improvement.	1	2	3	4	5	6	7	8	9	10
3. You feel as though you are in the way when you stay with your child.	1	2	3	4	5	6	7	8	9	10
4. You don't know how long your child will be in the hospital.	1	2	3	4	5	6	7	8	9	10
5. You have to leave your other children to be with your sick child.	1	2	3	4	5	6	7	8	9	10
6. Your child's sleep is interrupted.	1	2	3	4	5	6	7	8	9	10
7. You have to wait for test results.	1	2	3	4	5	6	7	8	9	10
8. You do not understand the medical words used by the hospital personnel when they talk to you about your child.	1	2	3	4	5	6	7	8	9	10
9. Your child's illness costs you more money.	1	2	3	4	5	6	7	8	9	10
10. You cannot stay with your child.	1	2	3	4	5	6	7	8	9	10

		No Coping Effort									Maximum Coping Effort
11.	Your child is not comforted like he/she usually is when you hold him/her.	1	2	3	4	5	6	7	8	9	10
12.	Your child is restrained for a painful procedure.	1	2	3	4	5	6	7	8	9	10
13.	You are unable to find out how serious your child's illness is.	1	2	3	4	5	6	7	8	9	10
14.	You do not know the general routine of the hospital.	1	2	3	4	5	6	7	8	9	10
15.	Your child cries as if he/she is in pain.	1	2	3	4	5	6	7	8	9	10
16.	Your child has treatment equipment attached to him/her that is unfamiliar to you.	1	2	3	4	5	6	7	8	9	10
17.	You do not know when special tests will be done to your child.	1	2	3	4	5	6	7	8	9	10
18.	Your child is taken from you for a painful procedure.	1	2	3	4	5	6	7	8	9	10
19.	Your child does not act or behave like he/she normally does.	1	2	3	4	5	6	7	8	9	10
20.	You have no one to talk about what it's like to have your child in the hospital.	1	2	3	4	5	6	7	8	9	10
21.	You hear your child crying during a painful procedure.	1	2	3	4	5	6	7	8	9	10
22.	You are not told what the treatment plans are for your child.	1	2	3	4	5	6	7	8	9	10
23.	Your child is not sleeping.	1	2	3	4	5	6	7	8	9	10
24.	You feel guilty if you do not stay with your child.	1	2	3	4	5	6	7	8	9	10
25.	Your child is not eating.	1	2	3	4	5	6	7	8	9	10

		No Coping Effort									Maximum Coping Effort
26.	You blame yourself for your child being ill.	1	2	3	4	5	6	7	8	9	10
27.	You are unable to get answers to your questions about your child's condition.	1	2	3	4	5	6	7	8	9	10
28.	You don't know if your child will be watched when you leave.	1	2	3	4	5	6	7	8	9	10
29.	You are asked to leave your child during a painful procedure.	1	2	3	4	5	6	7	8	9	10
30.	Your child cries as you leave his/her room.	1	2	3	4	5	6	7	8	9	10

APPENDIX B

COPING EFFORT INSTRUMENT

ADAPTED FOR

NEONATAL INTENSIVE CARE SETTING

The University of Arizona College of Nursing

Coping Effort Instrument

Directions: Below is a series of situations commonly encountered by mothers when their infant is hospitalized in a neonatal intensive care unit. I am interested in how much coping effort each situation requires of you. Coping effort means how much physical and/or emotional energy a situation requires of you for you to adjust to or handle the situation. Some situations may require more energy or effort for you to cope with than others. There are no right or wrong answers. Beside each item is a 10-point scale which ranges from "No Coping Effort" (1) to "Maximum Coping Effort" (10). Circle the number that represents the amount of effort it takes for you to cope with the situation in each item. Your responses will be kept confidential.

	No Coping Effort									Maximum Coping Effort
1. You have to wait for the doctor to see your baby.	1	2	3	4	5	6	7	8	9	10
2. Your baby is not showing signs of improvement.	1	2	3	4	5	6	7	8	9	10
3. You feel as though you are in the way when you stay with your baby.	1	2	3	4	5	6	7	8	9	10
4. You don't know how long your baby will be in the hospital.	1	2	3	4	5	6	7	8	9	10
5. You have to leave your other children to be with your sick baby.	1	2	3	4	5	6	7	8	9	10
6. Your baby's sleep is interrupted.	1	2	3	4	5	6	7	8	9	10
7. You have to wait for test results.	1	2	3	4	5	6	7	8	9	10
8. You do not understand the medical words used by the hospital personnel when they talk to you about your baby.	1	2	3	4	5	6	7	8	9	10
9. Your baby's illness costs you more money.	1	2	3	4	5	6	7	8	9	10

		No Coping Effort									Maximum Coping Effort
10.	You cannot stay with your baby.	1	2	3	4	5	6	7	8	9	10
11.	Your baby is not comforted.	1	2	3	4	5	6	7	8	9	10
12.	Your baby is restrained for a painful procedure.	1	2	3	4	5	6	7	8	9	10
13.	You are unable to find out how serious your baby's illness is.	1	2	3	4	5	6	7	8	9	10
14.	You do not know the general routine of the hospital.	1	2	3	4	5	6	7	8	9	10
15.	Your baby cries if he/she is in pain.	1	2	3	4	5	6	7	8	9	10
16.	Your baby has treatment equipment attached to him/her that is unfamiliar to you.	1	2	3	4	5	6	7	8	9	10
17.	You do not know when special tests will be done to your baby.	1	2	3	4	5	6	7	8	9	10
18.	Your baby is taken from you for a painful procedure.	1	2	3	4	5	6	7	8	9	10
19.	Your baby does not act or behave like other babies.	1	2	3	4	5	6	7	8	9	10
20.	You have no one to talk to about what it's like to have your baby in the hospital.	1	2	3	4	5	6	7	8	9	10
21.	You hear your baby crying during a painful procedure.	1	2	3	4	5	6	7	8	9	10
22.	You are not told what the treatment plans are for your baby.	1	2	3	4	5	6	7	8	9	10
23.	Your baby is not sleeping.	1	2	3	4	5	6	7	8	9	10
24.	You feel guilty if you do not stay with your baby.	1	2	3	4	5	6	7	8	9	10
25.	Your baby is not feeding.	1	2	3	4	5	6	7	8	9	10

		No Coping Effort									Maximum Coping Effort
26.	You blame yourself for your baby being ill.	1	2	3	4	5	6	7	8	9	10
27.	You are unable to get answers to your questions about your baby's condition.	1	2	3	4	5	6	7	8	9	10
28.	You don't know if your baby will be carefully watched when you leave.	1	2	3	4	5	6	7	8	9	10
29.	You are asked to leave your baby during a painful procedure.	1	2	3	4	5	6	7	8	9	10
30.	Your baby cries as you leave his/her bedside.	1	2	3	4	5	6	7	8	9	10

APPENDIX C

DEMOGRAPHIC DATA SHEET

THE UNIVERSITY OF ARIZONA COLLEGE OF NURSING

Demographic Data Sheet

Study: The measurement of coping effort of mothers of infants in a neonatal intensive care unit (NICU).

Principal Investigator: Cynthia Smith, B.S.N., R.N.

Subject's identification number _____

Date of interview _____

Subject Information

Age: _____ years

Marital Status: ___ single ___ married ___ separated ___ divorced

Gravidity: _____

Parity: _____

Mode of delivery: _____ vaginal _____ cesarean section

Ethnicity: ___ Caucasian ___ Black ___ Hispanic ___ American Indian ___ Asian

Prior experience in neonatal intensive care: ___ Yes ___ No

Infant Information

Age (days): _____ Gestational age at birth (weeks): _____

Sex of infant: _____ male _____ female

Days in NICU: _____ Diagnosis: _____

CS:12/87

APPENDIX D

CONSENT FORM

Subject's Consent

You are being asked to participate in the study of Cynthia Smith, R.N., entitled "The Measurement of Coping Effort of Mothers of Infants in a Neonatal Intensive Care Unit". The goal of the study is to learn about the coping effort of mothers in the neonatal intensive care unit so that nurses can more fully understand the mother's experience.

You are being asked to participate in the study because your infant has been receiving care in the neonatal intensive care unit for a minimum of 48 hours.

Participation in the study is voluntary and will involve the completion of a questionnaire and a demographic data sheet. This will involve approximately 20 minutes of time. There is no cost and no compensation for participation in the study.

Participation in the study will not involve any known risk to you or your infant. Although there are no direct benefits, your participation in the study will increase the knowledge of parental coping in the setting of the neonatal intensive care unit.

Confidentiality will be assured through the assignment of identification numbers to the questionnaire and data sheet. You may withdraw from the study at any time without affecting the care of your baby. You may ask the researcher questions at any time. You may contact the researcher at 747-5826.

The information provided through participation in this study will be presented in the researcher's thesis and may be published in nursing literature.

The nature of this project has been explained to me and I have read the above consent form. I understand that this consent form will be filed with the Human Research Committee and only the principal investigator will have access to it. I understand that a copy of this form is available to me upon request. I agree to participate in this study.

Signature _____ Date _____

Witness _____ Date _____

APPENDIX E

PERMISSION TO USE INSTRUMENT

CALIFORNIA STATE UNIVERSITY · SAN BERNARDINO

DEPARTMENT OF NURSING
TELEPHONE (714) 887-7346

The California State University

September 23, 1987

Cindy Smith
1336 Avenida Polar
C-212
Tucson, Arizona 85710

Dear Cindy:

I was thrilled to receive your letter of September 16, 1987. You are making excellent progress on your thesis. You have my permission to use the Coping Effort Instrument in your study. I will be most interested to hear how reliable and valid the instrument is with your study population.

I have continued to refine the instrument through further study. Although I have not made any major changes, I would suggest you might add "if" to preface each item. I believe that will clear up any confusion that might occur if a subject has not experienced a particular event. You may also want to change the number of response points on the scale from ten to five or seven. I have not tested the scale with fewer response points, but I have found that subjects are able to discriminate quite well on each item. Therefore, the number of response points shouldn't influence the results to any great degree. I will be glad to help you in revising the scale if you wish.

Cindy, I wish you the best of luck as you proceed with your study. Please let me know if I can assist you in any way. I can be reached at the following phone numbers: work (714) 887-7346 or home (714) 882-8912. I look forward to hearing the results of your study.

Sincerely,

Karen G. Schepp

Karen G.. Schepp, Ph.D., R.N.
Associate Professor

KGS/mm

APPENDIX F

APPROVAL LETTER

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

COLLEGE OF NURSING

MEMORANDUM

TO: Cynthia Denise Smith, RN,BSN

FROM: Linda R. Phillips, PhD, RN, FAAN
Director of Research

DATE: February 24, 1988

RE: Human Subjects Review: The Measurement of Coping Effort of Mothers of Infants in a Neonatal Intensive Care Unit

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Subcommittee of the Research Committee and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research if you need access to it.

We wish you a valuable and stimulating experience with your research.

LRP/ms

APPENDIX G

PERMISSION TO COLLECT DATA

University Medical Center
1501 North Campbell Avenue
Tucson, Arizona 85724
Nursing Administration

April 13, 1988

Cynthia Smith, RN, BS
1336 Avenida Polar
C-2121
Tucson, AZ 85710

Dear Cynthia:

It is a pleasure to approve your request to conduct your research, "Maternal Coping Efforts In The Neonatal Intensive Care Setting". The clinical unit for which you are approved is: NICU and NNB, contact person will be Norma Holmlund, RN, BSN, Nurse Manager.

Please notify me when you have completed your data collection.

We look forward to having you report your results and providing us with an abstract of your findings. Please contact me if you have any questions or concerns 626-6458 or 626-6353.

Sincerely,

Carolyn Murdaugh, RN, PhD
Director of Nursing Research

CC: Norma Holmlund

CM/jah

April 15, 1988

Cynthia Smith, R.N., B.S.N.
1336 Avenida Polar - #C-212
Tucson, AZ 85710

Dear Ms. Smith:

You have been granted access to Tucson Medical Center to conduct your research project entitled, "Maternal Coping Effort in the Neonatal Intensive Care Setting." Your proposal materials have been reviewed and approved by administrative staff of the division of Patient Care Resources and Human Research Committee (HRC).

To facilitate your data collection activities and to minimize the impact of these activities on the unit, several individuals have been designated as your clinical liaison contact: Jane Surprenant, Patient Care Manager, Nurseries.

Attached are the data collection policies and procedures which you are expected to follow. Upon completion of your study, you are expected to provide us with a formal copy of your study and to present your findings to interested staff. Accordingly, guidelines for presentation are also attached. Additionally, you may be asked to provide us with a brief written synopsis of your study for potential publication in the department's newsletter.

We wish you a successful research experience, and we look forward to your sharing your results with us.

Sincerely,

Guadalupe S. Olivas, RN, Ph.D
Coordinator
Publications and Research

GSO:dll
Attachments

cc: Dale Reimer, Clinical Director, Maternal Child Services
Jane Surprenant, Patient Care Manager, Nurseries

5301 EAST GRANT ROAD • BOX 42195 • PHONE (602) 327-5461 • TUCSON, ARIZONA 85733

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