1983

Anxiety, Problem-Solving Ability, And Maternal Adaptation To The Premature Infant.

Susan Gennaro
University of Alabama at Birmingham

Gennaro, Susan

ANXIETY, PROBLEM-SOLVING ABILITY, AND MATERNAL ADAPTATION TO THE PREMATURE INFANT

The University of Alabama in Birmingham D.S.N. 1983

ANXIETY, PROBLEM-SOLVING ABILITY, AND MATERNAL ADAPTATION TO THE PREMATURE INFANT

by

SUSAN GENNARO

A DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Science in
Nursing in the School of Nursing in
The Graduate School, University
of Alabama in Birmingham

BIRMINGHAM, ALABAMA

1982

ABSTRACT OF DISSERTATION

GRADUATE SCHOOL, UNIVERSITY OF ALABAMA IN BIRMINGHAM

Degree D.S.N. Major Subject Nursing

Name of Candidate Susan Gennaro

Title Anxiety, Problem-Solving Ability, and Maternal Adaptation to the Premature Infant

Health professionals need to identify factors which are predictive of dysfunctional mother-child relationships so they can help mothers who have difficulty adapting to their premature infants. The purpose of this study was to determine if maternal anxiety and problem-solving ability were related to maternal adaptation. The conceptual framework posited that adaptation results when an organism achieves psychological equilibrium and maintains cognitive mastery over the environment.

The sample consisted of 35 married mothers of premature infants. A demographic and obstetrical profile was completed on each subject. Subjects completed the State-Trait Anxiety Inventory and the Means-Ends Problem-Solving Procedure within a week of their infants birth. Subjects completed the Postpartum Self-Evaluation Questionnaire when the infant was discharged.

Maternal anxiety and problem-solving ability were not significantly related to maternal adaptation to the premature infant at the time the infant was discharged. Maternal anxiety and problem-solving ability were significantly correlated. State anxiety was significantly higher in study mothers than in data reported on high school and college women but problem-solving ability was not statistically different between the sample and scores reported on four different groups. The Postpartum Self-Evaluation Questionnaire had a high degree of reliability but construct validity was not supported.

Mothers with previous unpleasant outcomes of pregnancy had significantly lower adaptation scores than mothers without this pregnancy history. No other differences in adaptation scores were found when mothers were placed in groups based on obstetrical and demographic factors. Mothers of premature infants had significantly less confidence in their mothering ability than did mothers of term infants.

Since mothers of premature infants had adequate problem-solving ability in this study, but lacked confidence in their mothering ability, nurses might help mothers adapt by allowing them to make decisions about their infants. Since problem-solving ability was positively correlated with anxiety mothers of premature infants might adapt to their infant by using anxiety as a tool to cope with their infant's premature birth. Further research is suggested on: interventions designed to channel maternal anxiety,

the affect of increased maternal decision-making on adaptation to the premature infant, and the affect of previous adverse experience with childbearing on maternal adaptation.

Abstract Approved by: Committee Chairman Janice Beaty

Program Director [illegible]

Date 3/18/83 Dean of Graduate School R. J. Krotseng

ACKNOWLEDGEMENTS

I would like to thank Dr. Janice Gay, the chairman of my graduate research committee for her help and encouragement. I would also like to thank the members of my graduate research committee, Dr. Sylvia Britt, Dr. Phyllis Horns, Dr. Norma Mobley, and Dr. Joseph Philips, for their immeasurable help. I would especially like to thank Dr. Kathryn Barchard for generously sharing her time and expertise.

I would never have aspired to doctoral education were it not for my parents, Nicholas and Helen Gennaro, who taught me to reason independently. I would not have enjoyed my doctoral education so much without the support of my husband and my son, William and Daniel Fehder. These four people enabled me to complete my doctoral education and I am very grateful to each of them for their love and understanding.

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

LIST OF TABLES

CHAPTER I

THE PROBLEM

Introduction to the Problem

Only one part of the challenge for health care professionals who work with premature infants and their families is assuring the physical and psychological health of the premature infant. Another concern is to assure that the premature infant enters a family in which relationships among family members are not adversely affected by the infant's premature birth, and in which family members adapt positively to the premature infant. Since mothers are most often the primary caretakers of infants and children, the successful adaptation of the mother to the premature infant is of particular concern.

The premature birth of an infant can pose a serious threat to maternal adaptation for many reasons. The mother of a premature infant may experience a sense of loss because she has not given birth to her expected term infant and because she faces the possible death of this premature infant. Since she did not carry her infant to term, the mother may also have a perceived loss of bodily function (Mercer, 1977).

The mother of a premature infant unexpectedly becomes the parent of an infant who is smaller and sicker than her hoped-for baby. She also has less time to complete three of the psychological tasks of pregnancy: identifying the fetus, nesting, and preparing to give up the fetus as pregnancy grows tiresome (Rubin, 1972).

In today's mobile society the nuclear family, whose baby is born prematurely, may experience a lack of social support which can also contribute to the mother's difficulty in adapting to her premature infant. With the advent of regionalized tertiary neonatal intensive care units, a mother might be at one hospital while her infant is at another, distant hospital, and her husband might be traveling between hospitals. In 1980, 52% of the babies treated in the Regional Neonatal Intensive Care Unit at University Hospital Birmingham, Alabama were born in outlying hospitals. This figure was 40% in 1981 and 51% during the first six months of 1982 (Mortality data, Note 1).

Financial worries, resulting from the premature infant's expensive hospitilization, have been cited by parents as one difficulty they faced after their infant's birth (Benfield, Leib, & Reuter, 1976). Prior to the infant's premature birth, a mother may have experienced an increased incidence of significant, often stressful, life events (Schwartz, 1977).

Another factor which may contribute to the mother's difficulty in adapting to her premature infant is that these infants are less likely than term infants to engage in social interaction with their

parents. Premature infants, at the time of hospital discharge, are less responsive to stimulation and have poorer motor coordination than do term infants (DiVitto & Goldberg, 1979). Therefore, even when the premature infant is well enough to be held and fed by the mother, the premature infant is initially often relatively unresponsive.

Brown and Bakeman (1980) compared 26 preterm with 23 full-term infants at discharge, one month, and three months of age, and found that preterm infants were less social, more difficult to feed, and more difficult to console than were full-term babies. Mothers of premature infants carried an increased responsibility for interaction with their infants. Premature babies were less active than full-term infants and, perhaps in response to this phenomenon, mothers of premature infants were more active and more likely to initiate behavior changes than were mothers of full-term babies. While receiving less positive feedback from their babies, mothers of preterm infants expended more energy.

Maternal adaptation to the premature infant can be complicated by many factors. These factors include lack of social support, a shortened pregnancy, financial worries, other stressful life events, unfulfilled expectations for the average pregnancy and term infant, and an unresponsive infant.

Significance of the Problem

Prematurity occurs in 7-8% of all live births (Barnard & Sumner, Note 2). The long-term impact that the premature birth of an infant can have on family functioning can be seen in the high number of divorces and separations which occur after the birth of these infants. Gunter (1963) reported that 30% of the parents of premature infants were separated after their infant's birth. In another study 13% of the parents of premature infants, and none of the parents of a control group of term infants, were divorced after the infant's birth (Leifer, Leiderman, Barnett, & Williams, 1972).

The difficulty some mothers have in adapting to the birth of a premature infant can result in dysfunctions in the mother-child relationship. Retrospective studies of children who were neglected or abused show that a greater percentage of abused children are born prematurely than can be accounted for by random chance (Elmer & Gregg, 1967; Klein & Stern, 1971). A prospective study of 255 premature and ill newborns discharged home to their parents from a neonatal intensive care unit showed a high level of maltreatment (3.9%) in the first postnatal year (Hunter, Kilstrom, Kraybill, & Loda, 1978). There is also a high incidence of premature births reported in studies of children who fail to thrive (Hannaway, 1970; O'Callaghan & Hull, 1978; Shaheen, Alexander, & Barbero, 1968).

Although these and other data indicate that some mothers do not adapt well to the birth of a premature infant, there are less

data to help identify which mothers are at risk of experiencing dysfunctional relationships. Cohen (1979) suggested, based on his clinical experience, that mothers who have prior adverse experiences with childbearing, conflicts in their social support systems, inadequate preparation for childbearing, or maternal health concerns are more likely to be maladapted in the neonatal period than are mothers who do not experience these difficulties.

A retrospective study of the adaptation of 10 families of premature infants demonstrated that those mothers who experienced a positive outcome evinced active searching for information and a conscious attempt to master negative feelings such as anxiety (Caplan, 1960). A small prospective study of 19 mothers of premature infants also found that successful adaptation was based, in part, on the ability to master anxiety, the existence of social support systems, and the ability to gather information (Mason, 1963).

Although there are some data to suggest factors which might be predictive of maternal adaptation, there is no systematic way for nurses in clinical practice to assess those mothers at risk of having difficulty in adapting to their premature infant. As a result, interventions are not targeted specifically to mothers who need help.

Research has not been conducted to support the appropriateness of interventions currently utilized to promote maternal adaptation to the premature infant. Although problem-solving ability has not been examined in regard to its relationship to maternal adaptation,

anxiety is generally viewed by nurses to be a negative affect which should be diminished in order to facilitate adaptation. Many nursing interventions are specifically designed to decrease anxiety in parents of premature infants (Hawkins-Walsh, 1980; Slade, Reidl, & Mangurten, 1977). The role of anxiety in maternal adaptation to the premature infant has not been thoroughly examined, however. It is possible that certain levels of anxiety might actually facilitate rather than impede adaptation. If factors in the early puerperium which predict maternal adaptation could be identified, perinatal nurses would be able to intervene more appropriately to facilitate maternal adaptation to the premature infant.

Statement of the Problem

Adaptation to the premature infant is determined, according to Mercer (1977), by both the individual's cognitive mastery of and psychological response to the situation. Findings from one study of the psychological response of parents to the premature birth of their infants revealed that anxiety, rather than anger or depression, as measured by the Multiple Affect Adjective Check List (Zuckerman & Lubin, 1965), was the only one of these emotions occurring in elevated levels in these parents during their infants' first week of life (Gennaro, Note 3). Control of anxiety, therefore, can be one important psychological task necessary for successful maternal adaptation to the premature infant.

Research has shown that information seeking is a common human response to threatening situations (Hamburg & Adams, 1967). Information-seeking behavior is only one step in the problem-solving process and is frequently seen in parents of premature infants (Sherman, 1980). The influence of problem-solving ability on maternal adaptation has not been examined. Therefore, the purpose of this study is to determine if anxiety level and problem-solving ability can explain maternal adaptation to the premature infant at the time the infant is discharged from the neonatal intensive care unit.

Conceptual Framework

The conceptual framework for this study is based on White's (1974) discussion of variables which influence adaptive behavior. White posited that adaptation occurs when the organism is able to maintain internal organization and to achieve cognitive mastery over the environment. Neither of these tasks can occur unless the organism has freedom of action. Cognitive mastery, according to White, is established when the organism obtains adequate information about the environment. An organism, in order to maintain internal organization, must have physical health and psychological equilibrium. Disruptive affect must be controlled if psychological equilibrium is to be maintained.

In this study of the adaptation of mothers to their premature infants, the main threats to adaptation, according to White's schema, are the inability to maintain internal organization in

terms of psychological equilibrium and the inability to obtain cognitive mastery over the environment. Since the subjects in this study only participated if they were feeling physically well, physical health is not thought to be a threat to adapation in this situation. Anxiety is the affect most likely to disrupt the internal organization of the mother adapting to her premature infant (Choi, 1973; Gennaro, Note 3). Anxiety, therefore, was the affective variable chosen for study in this investigation.

The cognitive variable chosen for investigation in this study was problem-solving ability. Information gathering, which White (1974), claims the adapting organism does to obtain mastery of the environment, is only one step in problem-solving. Although White does not discuss cognitive mastery in terms of problem-solving ability, it seems logical that the adapting organism achieves cognitive mastery not just by gathering adequate information but also by using this information to problem-solve.

The way an individual thinks about a situation affects his emotional response and his adaptation to the situation (Folkman, Schaefer, & Lazarus, 1979). Cognitive abilities influence the individual's perception of an event as threatening (Spielberger, 1972). After the initial cognitive appraisal of a situation, psychological reactions such as anxiety, and further cognitive functioning, such as problem-solving, determine adaptational outcomes.

An individual's emotional response to a situation may likewise have an effect on his cognitive ability. Sarason (1961)

has demonstrated that high levels of anxiety decrease the subject's ability to solve anagrams. The curvilinear relationship between anxiety and learning is well accepted (Hockey, 1979). Moderate levels of anxiety increase learning but high levels of anxiety decrease learning (Guzzetta, 1979). Moderate levels of anxiety arouse the individual to master his environment but high levels of anxiety may impede the individual's ability to achieve cognitive mastery over the environment.

The premature birth of an infant serves as a stimulus to the mother to complete the adaptive tasks of maintaining psychological equilibrium and achieving cognitive mastery. The individual's cognitive and affective response to the premature infant, that is, problem-solving ability and control of anxiety, interact and result in the mother's adjustment to the premature infant.

Hypothesis

In accord with the purpose of this study the following hypothesis is proposed:

1. Maternal anxiety and maternal problem-solving ability are related statistically to maternal adaptation to the premature infant at the time the infant is discharged from the neonatal intensive care unit.

Assumptions

For the purposes of this study it is assumed that:

1. The birth of a premature infant requires the mother to adapt.

2. Maternal adaptation is an evolving process and does not occur immediately at the infant's birth.

3. Maternal adaptation to the premature infant is not always psychologically healthy.

Limitations

The findings of this study are limited by the following factors:

1. Maternal adaptation and maternal anxiety were measured by a self-report scale.

2. The sample of this study was a sample of convenience and does not represent all mothers of premature infants.

3. The ages of individual infants at the time of discharge varied; therefore the length of time each mother had to adapt to her infant prior to testing varied.

4. Anxiety, problem-solving ability, and adaptation were only measured at one point in time.

Definition of Terms

Maternal Adapation -- A process by which the mother masters her environment and ensures a state of personal comfort by resolving the disequilibrium arising from threats to personal goals. An operational definition of maternal adaptation is the score achieved on the Postpartum Self-Evaluation Questionnaire Measurement of Maternal Postpartum Adaptation (Lederman, Weingarten, & Lederman, Note 4).

Problem-Solving Ability -- A behavioral process that (a) makes available a variety of response alternatives for dealing with a problematic situation and (b) increases the probability of selecting the most effective response from among those alternatives (D'Zurilla & Goldfried, 1971). Problem-solving ability is operationally defined as the score achieved on the Means-Ends Problem-Solving Procedure (Platt & Spivack, 1975).

Anxiety -- A condition characterized by subjective, consciously perceived feelings of tension and apprehension and activation of the autonomic nervous system (Spielberger, 1972). Anxiety is operationally defined as the score achieved on the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970).

Premature Infant -- An infant born before 37 weeks of gestation.

Age-at-Discharge -- The infant's postnatal age in days at the time of discharge from the neonatal intensive care unit either to his home or to another hospital.

Neonatal Risk -- A measure of the severity of the infant's physical condition. Neonatal risk is operationally defined as the score achieved on Blumberg's (1980) neonatal risk categorization schema.

Summary

An overview of the study, including the problem to be examined, the significance of the problem, and the conceptual framework which forms the basis for this study, was presented in Chapter I. The assumptions and limitations which frame this study were listed, as was a definition of terms integral to the study.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to review the literature relevant to the study of maternal adaptation to premature birth. The following subjects were reviewed: adaptation, adaptation in pregnancy and in the puerperium, adaptation to the high-risk infant, anxiety, anxiety and childbearing, and problem-solving ability.

Adaptation--A General Introduction

Adaptation was once measured only in terms of the organism's biological ability to develop genetically in response to environmental demands and, thus, assure reproductive success (Hamburg, Coelho, & Adams, 1974). In today's complex society man's ability to survive is based not only on his biological adaptation but also on his psychosocial adaptation.

White (1974) stated that the individual must perform two tasks to assure psychosocial adaptation. These tasks are securing adequate information about the environment and maintaining satisfactory internal conditions for action and for problem-solving. The individual cannot respond to the environment unless

there is adequate information about the environment. If the individual has too little information, he is hampered in responding appropriately to the environment. On the other hand, if the individual has too much information, confusion is created and decision making is impeded. Therefore, one important adaptive task is to achieve cognitive mastery over the environment. Cognitive mastery cannot be achieved, however, if internal conditions are not satisfactorily maintained. Another adaptive task, therefore, is to maintain psychological equilibrium.

In order to have successful cognitive adaptation to a threatening event, according to Folkman et al. (1979), the subject must be able to identify an event as threatening and the subject must then be able to decide how to handle the threat. The resources necessary to adapt to a threatening event, according to these authors, include health and energy, problem-solving skills, social networks, utilitarian resources such as money, and a belief in self and God. The health-care team has long been involved in helping the patient and family to improve health and energy levels and to secure financial aid if necessary; however, they have paid less attention to the problem-solving abilities and social networks of patients and families.

Adaptation and Pregnancy

The importance of adequate social support in adapting to pregnancy is well established. Shereshefsky and Yarrow (1974)

studied 62 middle-class families during pregnancy and early parenthood. The women in this study underwent repeated psychological interviews and home visits. The researchers found that a woman's perception of her own mother and the social support she received from her mother and husband significantly affected maternal adaptation. These findings are supported by Osofsky and Osofsky (1980) who concluded, based on clinical experience and research, that life circumstances, degree of economic stability, family and community supports, and the strength of the marital relationship all affect maternal adaptation to pregnancy.

Cohen (1966) stated that maternal adaptation to pregnancy is affected significantly by the relationship the mother has with her mate, and by whether or not other significant life stresses occur which impede the adaptive process. According to Cohen, life events which can seriously limit the mother's adaptation to pregnancy include death of a close friend or relative, dislocating moves during pregnancy, illness, and serious reverses in the mother's career.

Postpartal Adaptation

The existence of adequate social support is a factor which affects maternal postpartal adaptation. Cronenwett (1980) studied 66 postpartal women who participated in a social support group. One of the greatest benefits of the group, according to 73% of the sample, was the recognition that others shared their feelings and

concerns and that their experiences were normal. The benefit of social support to the subjects in this sample can be seen in that 72% of the sample reported an increase in self-esteem and problem-solving ability. This study, however, did not attempt to measure which emotions were experienced postpartally or to quantify problem-solving ability or maternal adaptation.

Although having a good support system seems to be a positive factor in facilitating maternal adaptation postpartally, the exact impact of social support on maternal adaptation is not clear. McGuire and Gottlieb (1979), in a study of 24 couples randomly assigned to a postpartal support group or to a control group which did not meet regularly, found that belonging to a support group did not significantly affect the parents' self-reported feelings of well-being or their levels of stress. There was a significant difference in the use of other support networks, with the parents in the support group using other support networks more frequently than did the control group parents.

Adaptation to the High-Risk Infant

Few studies have examined the factors which influence maternal adaptation to the high-risk infant. Research which has been conducted supports Mercer's (1977) contention that adaptation occurs within a social context and has a psychological and a cognitive component. The specific cognitive and psychological factors which influence adaptation have not been identified.

A retrospective study to determine the course of parental reactions to the birth of a child with a congenital anomaly found that sadness and anger were emotions which usually preceded parental adaptation (Drotar, Baskiewicz, Irvin, Kennell, & Klaus, 1975). Parents in this study also searched for information and explanations as to the cause of their child's anomaly. The authors state that some parents did not adapt well to their malformed infants and that some tended to intellectualize the baby's problem rather than responding emotionally. No information is given, however, as to what patterns of response led to more positive parental adaptation.

Johns (1971), in a longitudinal study of 12 families of babies with congenital anomalies, found that each mother experienced anxiety immediately after the birth of her child. By the time the child was three months old, the interviewer reported that the families had reorganized and that the bond between married couples appeared strengthened. When their child reached three months of age, parents were actively involved in seeking information about their child's anomaly.

The importance of information seeking and the control of disruptive affect in order to achieve maternal adaptation to the infant with a congenital anomaly was evident in a longitudinal study of 26 families of infants with congenital amputations (Daniels & Berg, 1968). In this study successive interviews established that the parents' first adaptive task was to resolve the anxiety and depression they experienced during the first six

months of their infant's life. The second adaptive task these parents experienced was the need to secure services for their child. This task encompassed the need to gather information and to problem-solve. In the Daniels and Berg study most parents reported experiencing a threat to their marriage. The authors reported that the majority of the sample enjoyed satisfying marriages and responded to their child with a congenital anomaly with pride, warmth, love, and acceptance. However, no data were given to support these conclusions and no mention was made of families who experienced difficulty in adapting to their infant.

Mercer (1974), in a study of parents' adjustment to the birth of infants with congenital anomalies, found that cognitive responses were more observable than emotional responses. The most common cognitive response parents demonstrated was planning for the future.

Some interesting variables have been examined in regard to maternal adaptation to the premature infant. To determine what events contribute to the early maternal behaviors of mothers of premature infants, 32 maternal-infant dyads were studied during the infants' first three months at home (Minde, Marton, Manning, & Hines, 1980). Infant level of responsiveness was found to affect significantly maternal behaviors. Maternal behaviors were also affected significantly by the mother's relationship with the infant's father and with her own mother.

Early mother-infant separation is one factor which has been implicated in contributing to the formation of a dysfunctional

relationship between mother and child (Klaus & Kennell, 1976). An experimental study which manipulated the amount of contact 44 mothers had with their premature infants found no statistically significant differences in the behavior of mothers separated from their premature infants and mothers who enjoyed extended contact with their premature infants (Leifer, Leiderman, Barnett, & Williams, 1972). Significant differences in attachment behaviors were found between the mothers of premature infants and a control group of 24 mothers of term infants. Term infant mothers scored significantly higher in behaviors such as smiling and holding the infant close to her body than did mothers of premature infants. The authors concluded that although differences in attachment behaviors were not statistically significant, extended contact with premature infants was clinically significant and should be encouraged.

Social support is an important factor in maternal adaptation to the premature infant as well as to maternal adaptation to pregnancy and the puerperium. Parent support groups have been found to foster maternal adaptation to the high-risk infant (Meier, 1978). A controlled evaluation of 28 families of premature infants who participated in a parent support group and 29 control families found that parents in the support group touched, talked to, and visited their babies more frequently than control group parents (Minde, Shosenberg, Marton, Thompson, Ripley, & Burns, 1980). At three months after hospital discharge, support group mothers continued to be more involved with their babies during feedings

than control group mothers. Assignment to the treatment and control group was random in this study and the two groups were well matched in regard to parity, marital status, sex of infant, birthweight, and social class. No information was given as to group differences in other social networks available to parents.

Caplan (1960) studied the adaptation of 10 families to the birth of premature infants. Families were identified as having healthy outcomes if all dyadic relationships among family members were as healthy two months after the infant's premature birth as they were before the infant's birth. The families with unhealthy outcomes did not verbalize negative feelings and were less active in searching for evidence upon which to make decisions than were families with healthy outcomes.

Mason (1963) studied 19 married women who gave birth to premature infants. Subjects were interviewed within 24 hours of delivery. The investigator then attempted to predict the quality of the mother-child relationship. An independent judge evaluated the mother-child relationship at 6-10 weeks after the infant was discharged from the hospital. The predictions were found to agree with the outcome ratings in 90% of the cases. The five characteristics found to predict positive maternal-child relationships were: acknowledged moderate to high anxiety levels, active searching for information, strong maternal feelings, supportive relationships with the husband, and previous successful experience with a premature baby.

A difficulty which exists in assessing the literature relevant to maternal adaptation to the high-risk infant is that in many studies adaptation has not been well defined or quantified. The importance of social support for maternal adaptation throughout the childbearing process seems well established. However, the affective and cognitive factors which influence adaptation to the premature infant are not clear and require further study.

Anxiety

Anxiety is an omnipresent phenomenon experienced by everyone at some time (Freud, 1936). Since anxiety is a universally experienced affect, it could be assumed that the concept of anxiety is well defined. In fact, the opposite is true.

Sullivan (1953) in his interpersonal theory of anxiety posited that the unpleasant state of anxiety is a result of experiencing disapproval in interpersonal relationships. Anxiety is accompanied by tension and distorts the individual's perception of reality. Sullivan, therefore, sees anxiety as a disorganizing factor.

Not all theorists conceptualize anxiety as a disorganizing force. Much of the research conducted on the effects of anxiety on learning used a conceptual framework that views anxiety as a motivational force. Anxiety, it is believed, motivates the subject to perform, since it is a drive force that enables the subject to strive for control and the diminution of anxiety (Spence & Spence, 1966).

Anxiety is commonly agreed by most theorists to be an unpleasant state differentiated from fear in that the source of anxiety is objectless. Freud (1936) was the first to make these conceptual distinctions. Another distinction made in the development of the conceptualization of anxiety is that anxiety exists both as a semipermanent predisposition which has a hereditary component and as a transient mood or condition (Eysenck, 1979). Cattel and Scheier (1961) were two of the first researchers to make a distinction between state and trait anxiety and they viewed anxiety as a disorganizing rather than motivating force.

Difficulty in clearly delineating anxiety from correlated emotions led to several unique conceptual approaches. Basowitz (1955) studied parachutists during World War II and developed a conceptual framework which views anxiety as a conscious reportable experience internally derived and unrelated to external threats. Basowitz's conceptual framework depicts low levels of anxiety as a motivating factor and high levels of anxiety as a disorganizing factor. Anxiety, according to Basowitz, has a psychological as well as physiological base and is comprised of two further components, fear and shame.

By suggesting that anxiety is composed of fear and two or more fundamental emotions, Izard (1972) developed a conceptual framework which responds to the difficulty in differentiating anxiety from other correlated emotions. Thus, fear and a combination of distress, shame, anger, or intense interest- excitement form to become the emotion commonly called anxiety. Izard stated that

"Anxiety is not a unitary concept. Anxiety does not refer to a single class of consequent acts" (p. 45). Izard agrees that anxiety has a psychological as well as physiological component, but his conceptual framework considers the physiologic response to anxiety as being identical to the physiologic response to many other emotions. According to Izard's conceptual framework, the activation of anxiety is determined by an interaction of selective sensitivity, physiological mechanisms, individual experience and socialization. Izard's conceptualization supports the distinction that anxiety exists as a transitory emotion and personality trait, or state and trait anxiety.

For the purposes of the present study, Spielberger's (1972) conceptualization of anxiety will be used. Spielberger suggested that state anxiety results from the cognitive appraisal of a stimulus as dangerous or threatening. Further, state anxiety enables the subject to initiate a behavior sequence designed to avoid danger, to evoke defense mechanisms to reduce anxiety, or to alter the cognitive appraisal of the situation. Trait anxiety reflects individual differences in the subject's past experiences with state anxiety and the probability that state anxiety will be experienced in the future. According to Spielberger, the cognitive appraisal leading to state anxiety is influenced by individual differences in trait anxiety and by past experiences. Spielberger's conceptualization of anxiety supports the view that anxiety has a psychological as well as physiological component and is in agreement with Freud's (1936) conceptualization of anxiety as

objectless fear. Spielberger's conceptual framework is based on assumptions that the intensity of state anxiety is proportional to the amount of threat a situation poses for the individual and that the duration of anxiety depends upon the individual's perception of the persistence of threat. Spielberger does not propose a physiological measure of anxiety; however, he proposes that psychological anxiety can be measured by the State-Trait Anxiety Inventory, a psychometrically sound self-report scale (Spielberger et al. 1970).

Spielberger's conceptualization that anxiety is comprised of two components, state and trait anxiety, has been widely utilized by health researchers. Investigators studied trait anxiety to identify risk factors in the etiology of various diseases such as coronary artery disease (Blumenthal, Thompson, Williams, & Kong 1979). Other investigators interested in disease prevention examined trait anxiety and its effect on the development of hypertension (Banahan, Sharpe, Baker, Liao, & Smith, 1979). Researchers interested in diminishing the unpleasant, often iatrogenic effects of hospitilization investigated state anxiety and its effect on health and illness (Beck, Siegal, L., Davidson, N., Kormeier, S., Breitenstein, A., & Hall, D., 1980; Guzzetta, 1979; Johnston, 1980)

Anxiety and Childbearing

Anxiety is one affect almost universally experienced by the parturient in America at some point during pregnancy. Klein, Potter, and Dyk (1950) studied 27 primiparous clinic patients, each of whom reported experiencing anxiety during pregnancy. Leifer (1980), in a longitudinal study of 19 middle-class primiparas, also found that each parturient experienced anxiety at some time during pregnancy. In both studies, pregnant women were found to be anxious about three factors: maintaining their lifestyle after the birth of the baby, delivery, and the normalcy of the baby.

The effect of anxiety on the parturient's labor, delivery, and on the health of the newborn infant was studied. Lederman, Lederman, Work, and McCann (1978) found that state anxiety at the onset of the second phase of labor correlated significantly with endogenous plasma epinephrine and length of labor. Beck et al. (1980), in a study of 102 patients, found that state anxiety on admission to the labor room was predictive of labor length. In both studies increased levels of anxiety correlated positively with longer labors. Crandon (1979a) studied 146 patients and found that women with high levels of anxiety in the third trimester of pregnancy delivered babies with significantly lower Apgar scores than did women with normal anxiety scores. Crandon (1979b) also found that obstetric complications, such as forceps delivery,

postpartum hemorrhage, and pre-eclampsia, were significantly greater in the high anxiety group than in mothers with normal anxiety levels.

Anxiety may be seen as part of the postpartum blues syndrome. Postpartal anxiety after birth seems to be cross-cultural and has been reported in a study of 50 East African mothers (Harris, 1981).

For parents whose infants are born prematurely, anxiety can continue long after the infant's birth. A study by Kaplan and Mason (1960) indicated that premature birth generates an acute emotional disorder. Findings revealed that the mother of a premature infant must accomplish four tasks before she can be a functional mother. These tasks are: working through anticipatory grief at the possible loss of her infant, acknowledging failure to deliver a term baby, resuming the process of relating to her baby, and understanding her premature infant's special needs. According to Kaplan and Mason, these four tasks are accompanied by anxiety. Furthermore, the immediate period surrounding the premature infant's birth and the discharge of the premature infant from the hospital were found to be times of especially high anxiety.

The attitudes of 20 mothers toward their term and preterm children were examined by the use of an interview and Semantic Differential technique (Bidder, Crowe, & Gray, 1974). Mothers reported feeling much more anxious after the birth of their preterm infants, and in caring for the preterm infants at home, than they did with their term infants. The sex of the preterm infant and the order of birth of the preterm and term infant did not affect these results.

An interview conducted by a child psychiatrists revealed no differences in maternal mood between 35 mothers of premature infants and 34 mothers of term infants during the first 3 to 5 postpartal days (Smith, Schwartz, Mandell, Silberstein, Dalock, & Sacks, 1969). Moreover, no differences were found between these two groups in maternal concern for the baby, acceptance of pregnancy or acceptance of the baby. The discrepancy between the results of this and other studies might be partly accounted for by the fact that the mothers in this study were middle-class and had healthy premature infants with no serious diseases. The infants in this study weighed between 1400-2500 grams at birth. Since prematurity was determined solely by weight, and not by weight and a calculation of gestational age, it is possible that some of the infants were not really born prematurely but were small term babies.

Choi (1973) compared 20 mothers of premature infants with 20 mothers of term infants and found that mothers of premature infants have a higher level of anxiety than do mothers of term infants. Blumberg (1980) studied 100 mothers from a low socioeconomic background, 60% of whom had infants with neonatal complications, and found that higher levels of neonatal risk are associated with higher levels of anxiety. Although the existence of higher levels of anxiety in mothers of premature infants as compared to mothers of term infants is fairly well established, the effect of that anxiety on adaptation has not been determined.

Problem-Solving Ability

Problem-solving ability is one factor identified as being necessary for humans to adapt to change (Folkman et al. 1979). Problem-solving involves generating alternatives as well as making decisions. Also problem-solving allows an individual to examine symbolic solutions to a variety of unfamilar problems (D'Zurilla & Goldfried, 1971). According to D'Zurilla and Goldfried, components of the problem-solving process are (a) a general orientation that problems are part of life, (b) problem definition, (c) generation of alternatives, (d) decision making, and (e) verification of decisions.

Hirschman (1981) theorizes that an individual's ability to problem-solve is influenced by prior experience with similar types of problems, time constraints, depth of personal involvement with the problem, the availability of information, and intelligence. Nezu and D'Zurilla (1981) studied 96 college students and found that subjects who received training on how to problem-solve were better able to generate solutions to problems than were those students who did not receive training. These findings support the importance of prior experience to problem-solving ability. Platt and Spivack (1975) examined the relationship between problem-solving ability and intellectual functioning ability, achievement, personality factors and creativity. Their findings did not support the relationship between intelligence and problem-solving ability, because none of the factors which they examined was strongly correlated with problem-solving ability.

The role problem-solving ability plays in an individual's ability to adapt to the environment was examined in a series of studies that revealed poorly adjusted individuals are less capable of problem-solving than are their better adapted counterparts. Platt and Spivack (1972) studied 103 acutely ill psychiatric patients and found that patients with higher social competence had higher levels of problem-solving ability. In a study of adolescents, Levenson and Neuringer (1971) found that suicidal adolescents were less able to concentrate, organize facts, and shift to new strategies than were normal adolescents and other psychiatric patients.

Siegal, Platt and Peizer (1976) studied the problem-solving abilities of 138 psychiatric patients as compared to the problem-solving abilities of two control groups consisting of 49 adult hospital employees and 53 high school sophmores. These researchers used the Means-Ends Problem-Solving Procedure (Platt & Spivack, 1975) to measure problem-solving ability. The findings showed that patients had signficantly less social problem-solving ability than did the control group.

In a study of 108 children age 10-21, Shure and Spivack (1972) found that regardless of social class and intellectual functioning disturbed youngsters in special schools exhibited less problem-solving ability than did normal youngsters. In another study, of 86 adolescent psychiatric patients, researchers found that this group possessed a decreased ability to problem-solve successfully in regard to interpersonal problems (Platt, Spivack,

Altman, Altman, & Peizer, 1974). Gotlib and Asarnow (1979) found that depressed college students were less able to generate solutions to interpersonal problems than were nondepressed college students.

Individuals who evinced difficulty in adapting to the environment were shown to have a decreased ability to problem-solve. The reverse situation, that is, the effect of problem-solving ability on the individual's ability to adapt, has not been as thoroughly researched.

In a study of 112 college freshmen, Lidner (1981) found that problem-solving ability can be experimentally manipulated by changing the levels of social support available to the subject. Changes in social support and problem-solving ability are thought to change the way an individual will adapt to a situation (Mechanic, 1974). These findings were supported by Cronenwett's (1980) study in which 80% of the 66 postpartal women subjects reported that problem-solving ability was increased as a result of belonging to a postpartal support group. These women also reported an increase in self-esteem, improved interpersonal skills and an increased belief in their ability to parent. Mothers in Cronenwett's study appeared to adapt better to parenthood as a result of the support group.

McGuire and Gottlieb (1979), however, did not find a significant difference in problem-solving ability in couples who participated in a postpartum support group and those who did not participate. Differences in parental adaptation were not measured.

Five weeks after the support group ended, problem-solving ability was measured by means of a questionnaire which required parents to make subjective judgements about their problem-solving ability.

Poorly adapted individuals have a decreased ability to problem-solve. The effect of problem-solving on maternal adaptation has not been studied but research indicates that problem-solving ability can be experimentally manipulated and that problem-solving ability is a necessary component in the adaptive process.

Summary

This chapter reviewed the relevant research and theories which form the basis for this study. Literature on adaptation, anxiety, and problem-solving was discussed.

CHAPTER III

METHODOLOGY

This chapter presents a discussion of the methodology used to examine if maternal anxiety level and maternal problem-solving ability are related to maternal adaptation to the premature infant. The sample, instrumentation, data collection procedures, and data analysis are discussed in this chapter.

The Sample

The sample was selected from mothers whose infants were hospitalized in high-risk nurseries in Birmingham, Alabama between May 1, 1982, and October 6, 1982. The high-risk nurseries of three hospitals were used in order to ensure an adequate size sample. Two of the hospitals were voluntary, religiously affliliated hospitals and contributed 20% of the sample. The third hospital, from which 80% of the sample was selected, was a university hospital.

In order to protect the human rights of the study subjects, the research proposal was submitted to the institutional review board for human use at the University of Alabama in Birmingham.

The protocol was approved and subjects were found not to be at risk (see Appendix A).

The following criteria were used for sample selection. All mothers in this study were married and had infants who--

1. weighed between 1000 and 2500 grams
2. had no congenital anomalies
3. survived to be discharged from the hospital
4. were less than 37 weeks gestational age.

Gestational age was determined by the attending neonatologist who used a combination of last menstrual period, initial obstetric examination, fetal ultrasound, and Dubowitz's neonatal assessment tool (Dubowitz, Dubowitz, & Goldberg, 1970). Mothers whose infants weighed less than 1000 grams were not included because of the high mortality in this weight group. Mothers whose infants had congenital anomalies were not included in this study because the adaptational process in these mothers might differ from that of mothers with normally formed premature infants.

At each of the voluntary hospitals a graduate student, who was also an employee of the hospital, screened chart information on each infant admitted to the hospital during the period of data collection to determine if the mother was eligible for inclusion in the study. At the university hospital the family liason nurse screened candidates for inclusion in the study daily and notified the investigator whenever a mother was eligible for the study. The investigator also personally reviewed infant admissions and discharges at this hospital once a week.

All mothers who met the sample criteria were asked to participate during the period from May 1, 1982, when data collection was initiated, until September 20, 1982, when data collection was completed on the thirtieth subject. Data continued to be collected on mothers who had been admitted to the study sample before September 20, 1982. The final number of subjects in this study was 35.

Instrumentation

The instruments used for data collection in this study were as follows:

1. Demographic and Obstetrical Data Profile
2. State-Trait Anxiety Inventory
3. Means-Ends Problem-Solving Procedure
4. Postpartum Self-Evaluation Questionnaire

The investigator constructed a form to collect demographic data and data on variables which are thought to influence maternal adaptation (see Appendix B). Information on the time of initial maternal-infant contact, social support available to the subjects, preparation for childbirth, and other significant life events which had occurred during the year prior to delivery of the premature infant was collected. Obstetrical information such as the mother's parity, length of labor, and analgesia and anesthesia received during labor and delivery was also collected as well as demographic information such as age and socioeconomic status. Information on

each infant was collected, including birthweight, sex, race, gestational age, Apgar scores at birth, initial diagnoses, and intercurrent illnesses experienced after the first day of postnatal life.

State-trait anxiety inventory. The state scale of the State-Trait Anxiety Inventory (STAI) was used to measure maternal anxiety (Spielberger et al. 1970). This portion of the STAI has 20 items and is a self-report measure of present feelings of anxiety. Subjects are asked to examine their feelings and to respond to each statement in the inventory on a four-point Likert scale which ranges from 4, Very much so, to 1, Not at all.

Reliability and vailidity testing on the State-Trait Anxiety Inventory was performed on college students, prisoners, and general medical-surgical patients (Spielberger et al. 1970). The trait scale of the STAI had a test-retest reliability ranging from .73 to .86. The state anxiety scale had much lower test-retest correlations (.16 to .54), which would be expected since state anxiety is a transitory emotion. However, internal consistency reliability on the state scale, as measured by Cronbach's alpha, ranged from .83 to .92. Concurrent validity for the STAI was established by comparing this tool with other pencil and paper measures of anxiety, such as the IPAT Anxiety Scale (Cattell & Scheier, 1963) and the Taylor (1953) Manifest Anxiety Scale.

Construct validity of the state scale of the STAI was supported by a study of 977 college undergraduates who completed

the state scale under normal conditions and also as they would feel prior to taking an important exam (Spielberger et al. 1970). The items on the state scale discriminated significantly between the normal and examination conditions. Additional support for construct validity of the state scale of the STAI comes from a study of 197 undergraduate students under four different experimental conditions. Items on the state scale of the STAI were able to discriminate between conditions of varying levels of stress (Spielberger et al. 1970).

Means-ends problem-solving procedure. The Means-Ends Problem-Solving Procedure (MEPS) was used to measure maternal problem-solving ability (Platt & Spivack, 1975). The MEPS consists of a series of situations for which the respondent is given the beginning and the end of a story and is asked to make up the middle of the story. The subjects in this study were asked to complete five stories. Three of the stories presented interpersonal problems and two stories presented emotional problems. Since many of the subjects in this study had less than a twelth grade education, responses to the MEPS were recorded on tape. Platt and Spivack found taping responses to be a reliable method of measuring problem-solving ability on subjects with little formal education. A pilot study conducted by this investigator on 19 parents of premature infants determined that approximately 25% of the mothers at the university hospital had less than a twelth grade education.

The following are two examples of the stories presented for subjects to complete in this study. The first story presents an

emotional problem to be solved and the second presents an interpersonal problem.

> C. had been feeling "blue" and "down" for days. She couldn't seem to shake the depression that had her in its grip. The story ends with C. feeling much happier. You begin the story where she felt "blue" and "down".
>
> Mrs. A. was listening to the people speak at a meeting about how to make things better in her neighborhood. She wanted to say something important and have a chance to be a leader too. The story ends with her being elected leader and presenting a speech. You begin the story at the meeting where she wanted to have a chance to be a leader.

Odd-even reliability testing of the Means-Ends Problem-Solving Procedure was performed on psychiatric patients and ranged from .82 to .84 (Platt & Spivack, 1975). Test-retest reliability was established on college males and was found to be .64. The Kuder-Richardson measure of internal consistency reliability was found to range from .80 to .82 when administered to psychiatric patients.

Construct validity on the Means-Ends Problem-Solving Procedure is supported by studies which indicate that the procedure consistently discriminates among groups of individuals. Scores on the MEPS have differentiated adult psychiatric patients from non-patients (Platt & Spivack, 1972), adolescent psychiatric patients from non-patients (Platt et al. 1974), and heroin addicts from non-addicts (Platt, Scura, & Hannon, 1973). Discriminant

validity of the procedure is supported in that problem-solving ability is not related to personal adjustment or intelligence (Platt & Spivack, 1975).

In order to allow the subjects in this study to become familiar with the problem-solving procedure, the first story was used for practice and responses to the first problem presented to the subjects were not scored. Responses on two interpersonal and two emotional problems were scored.

Scoring of the Means-End Problem-Solving Procedure was done independently by the principal investigator and two doctorally prepared psychologists. Following criteria established by Platt and Spivack (1975), subjects were given one point for each means to an end they enumerated. Additionally, subjects received one point for each obstacle the protagonist in their story overcame and one point for each mention of time passing. Points were summed to obtain a score for each story and the scores on the four stories were summed to obtain the final problem-solving score. If the raters disagreed on a story score the scores were averaged and the average score was used in data analysis.

Postpartum self-evaluation questionnaire. The Postpartum Self-Evaluation Questionnaire is a recently developed tool which objectively quantifies maternal adaptation (Lederman, et al. Note 4). The questionnaire contains items which comprise eight scales. The mother answering this questionnaire responds as to how much an item reflects her feelings on a four-point Likert scale ranging

from 4, Very Much so, to 1, Not at all. Sample questions from the Postpartum Self-Evaluation Questionnaire include the following:

I know what my baby likes and dislikes.

My husband helps as little as possible with child care.

I have friends or relatives who reassure me as a mother.

I feel I reacted badly to the pain of labor.

There is enough money for all my family's basic needs. Although the recent development of the instrument means that it has not been utilized extensively in research, this instrument was selected for use in this study because it is the only available objective measure of adaptation which specifically measures postpartal maternal adaptation.

The eight scales of the Postpartum Self-Evaluation Questionnaire are:

1. The quality of relationship with the husband.

2. The mother's perception of the father's participation in child care.

3. The mother's gratification from her labor and delivery experience.

4. The mother's satisfaction with her life situation and circumstances.

5. The mother's confidence in her ability to cope with the tasks of motherhood.

6. The mother's satisfaction with motherhood and infant care.

7. Support for the maternal role from parents.

8. Support for the maternal role from friends and other family members.

Each scale contains items which are worded positively and negatively.

Reliability and validity testing on the Postpartum Self-Evaluation Questionnaire was conducted on 146 mothers who vaginally delivered term infants (Lederman et al. Note 4). Reliability on the eight scales of the tool, as measured by Cronbach's alpha, ranged from .62 to .90. Construct validity of the tool was supported in the Lederman et al. (Note 4) study by the low intercorrelations among the eight scales of the tool which ranged from .04 to .53. Each scale, therefore, appears to be measuring a unique factor. The authors of this tool attempted to ensure content validity by including items on the questionnaire which represent all the factors the literature reports as affecting maternal postpartal adaptation.

Data Collection Procedure

Each mother who met the sample criteria was asked if she would like to participate in the study. The risks and benefits of being in the study were explained and a convenient time to collect data was established. Mothers were informed that their names would not be used on questionnaires, that all questionnaires would be coded, and that individual responses would not be reported.

Data were collected at two distinct intervals. Maternal anxiety level and problem-solving ability were measured within a week of the infant's premature birth. Maternal adaptation was measured either on the day the infant was discharged from the hospital or, if the infant was transferred to another hospital, within the week following transfer. For the purposes of this study, mothers whose infants were transferred to other hospitals were not dropped from the study. Transfer to a nursery closer to home signified that the infant was doing well and it was thought this would be an appropriate time to measure maternal adaptation rather than losing the mothers of transferred infants from the study.

At the time of initial data collection, mothers were first asked all the starred questions on the Demographic and Obstetrical profile (see Appendix B). Starred questions called for information which could not be readily obtained from the mother's chart. Next the mothers were asked to complete the State-Trait Anxiety Inventory followed by the Means-Ends Problem-Solving Procedure. Subjects were given the investigator's name and phone number and encouraged to call if they had any further questions. A set protocol was established by the investigator and was followed during each phase of data collection (see Appendix C).

Within a week of the infant's scheduled discharge the data gatherer again met with the mother so that she could complete the Postpartum Self-Evaluation Questionnaire. If the infant was transferred to an outlying hospital the questionnaire was mailed to the mother at home (see Appendix D).

Data were gathered by the principal investigator and three graduate students obtaining master's degrees in nursing. In order to assure consistency in data collection, a fixed protocol for gathering data was constructed. Additionally, each of the graduate students either collected data in the presence of the investigator or practiced role-playing situations of data collection with the investigator. Data were collected on 28 subjects by the principal investigator and on 7 subjects by the graduate students.

Data were also collected on two variables which, it was thought, might affect the results of this study. The infant's age at the time maternal adaptation was measured was calculated. The severity of the infant's condition at birth was calculated by the investigator and by a neonatologist using Blumberg's (1980) Neonatal Risk Inventory (see Appendix E). Blumberg found these categories to have predictive validity and obtained an interrater reliability of .96 in her study.

Data Analysis

Multiple regression was the primary statistical technique used to analyze the data in relationship to the study hypothesis. Descriptive statistics were also calculated. The Postpartum Self-Evaluation Questionnaire was examined for reliability and validity since no previous study reported use of this questionnaire with mothers of premature infants. Interrater reliabilities were

obtained on the scores from the Neonatal Risk Inventory and the Means-Ends Problem-Solving Procedure. The alpha level for data analysis was set at .05.

Summary of Methodology

Four tools were administered to 35 married mothers of premature infants without congenital anomalies who weighed between 1000 and 2500 grams. Data collection occurred primarily in the hospital, although some questionnaires were mailed to study participants. Verbal informed consent was obtained from all study subjects. Data analysis primarily consisted of multiple regression.

CHAPTER IV

FINDINGS

In this chapter the sample is described and analysis of the data regarding maternal anxiety, maternal problem-solving ability and maternal adaptation are discussed. The null hypothesis is tested. Data regarding the validity and reliability of the Postpartum Self-Evaluation Questionnaire are examined. Finally, supplementary analyses of the data are provided.

The Sample

A total of 44 mothers met the criteria for sample eligibility and were asked to participate in this study. Of the 44 eligible mothers four declined to participate and three failed to complete all questionnaires. Additionally, one mother was unable to complete the study because her infant died and one mother did not answer the questionnaires in the specified time period. The final sample size, therefore, was 35.

Mothers. The mean age of the mothers in this study was 26 years. Maternal age ranged from 16 to 35 years. The sample was heterogeneous in regards to racial composition and had six Black mothers and 29 Caucasian mothers.

The Two Factor Index of Social Position (Hollingshead, Note 5) was used to determine socioeconomic status. This scale assigns one score for the occupation of the head of the household and one score for the level of education achieved by the head of the household. Each of these two scores is multiplied by a factor weight and then added together to obtain the socioeconomic status score. The mean socioeconomic status score for this sample was 44.1, which indicated that most subjects were from the lower middle class. Socioeconomic status scores ranged from 69 (lower class) to 11 (upper class). In this study 15 mothers were from the middle class; 5 subjects were from the upper and upper middle class; 5 subjects belonged to the lower middle class; and 10 subjects were from the lower class. The subjects in this study lived in Alabama and represented all geographic areas of the state.

Multiparas (19) outnumbered primiparas (16) in the study. The number of mothers who had Cesarean deliveries (16) nearly equaled the number of mothers who delivered vaginally (19). Fifteen mothers received epidural nerve blocks; while five mothers had spinal blocks; six mothers had general anesthesia; five mothers had pudendal analgesia; and four mothers received no anesthesia or analgesia.

Since significant life events, early maternal-infant contact, and available social support systems have been cited as factors influencing maternal adaptation, descriptive data were gathered on these variables (Cronenwett, 1980; Klaus & Kennell, 1976; Schwartz, 1977). When asked if anything important had happened to them

within the past year, 18 subjects responded affirmatively. Some of these mothers experienced more than one recent significant life event. Moving was the most commonly cited outstanding recent event experienced by the mothers (eight subjects). Recent marriages were reported by four subjects. The death of a mother, mother-in-law, or grandmother occurred in the families of three subjects and two subjects had grandmothers who were seriously ill. One subject had another baby in the past year; two subjects were divorced and remarried; and one subject had her appendix removed during this pregnancy. Changes in job status occurred in the families of three mothers (see Table 1).

Table 1

Significant Life Events Reported by Sample

Event	Number of Participants Experiencing Event
Divorce and remarriage	2
Marriage	4
Job loss by parent or spouse	2
Change in residence	8
New job	1
Death of close family member	3
Birth of another baby	1
Illness of close family member	4

Note: Some participants reported experiencing more than one significant life event.

Most mothers saw and touched their infants immediately after the baby's birth. Only 9 of the 35 mothers were unable to touch their babies immediately. The longest delay in initial maternal-infant contact was three days (one mother), but most mothers who experienced delayed contact with their infants touched their babies within the first 24 hours. Once the mother was physically able to visit her baby, visiting hours were unlimited in each of the nurseries from which the sample was drawn.

Of the 35 mothers in this study, 20 reported having relatives who lived nearby and who were offering social support. Many subjects had a number of different relatives on whom they could rely for help. All mothers in this study received social support from their husbands and three mothers reported having friends who were strongly supportive (see Table 2).

Table 2

Categories of Support Persons
Reported by Sample

Support Person	Number of participants receiving support for this source
Mother	11
Mother-in-law	7
Sister	4
Aunt	1
Mother and father	2
Friends	3
Husband	35

Note: Some participants reported receiving social support from more than one support person.

Few of the mothers in the study were able to attend childbirth classes before their infants were born. Only six couples attended classes prior to delivery. Of these six, four attended prenatal classes at their local hospitals and two attended prepared childbirth classes.

Many of the study mothers experienced one or more unexpected outcomes during previous pregnancies. Spontaneous abortions had been experienced by six mothers. While two mothers had stillborn infants prior to this infant's birth, two previous infants of study mothers died during the neonatal period. Premature infants had previously been born to five mothers.

Infants. There were three sets of twins born to mothers in this study. For the purposes of data analysis only data regarding the twin with the greater risk were computed. The mean weight of the infants in this study was 1520 grams and the mean gestational age was 31 weeks. The range of infant weight was 1020 to 2500 grams and the range of infant gestational age was 28 to 37 weeks.

There were 15 boys and 20 girls born to study mothers. Most of these infants (22) were at the highest level of risk for developing physical complications according to Blumberg's (1980) criteria for risk factors. While nine infants were in the highest risk category, four infants were at medium risk. No infants were classified as being in the lowest two categories of infant risk (see Table 3). Risk factor was based on infant weight, gestational

age and initial diagnoses. There was an interrater reliability of .94 between the investigator and the neonatologist who scored neonatal risk.

Table 3

Risk Categories of Study Infants

Risk factor	Level of risk	Number of infants
1	highest	22
2	high	9
3	medium	4
4	low	0
5	lowest	0

The mean age of the infants when they were discharged or transferred from the intensive care nurseries was 30.8 days. The range of days infants were hospitalized in the intensive care nursery was 4 to 112 days.

The infant's age at the time maternal adaptation was measured and infant risk factor were two extraneous variables which might influence maternal adaptation scores. Therefore, correlations were performed between infant age and adaptation and infant risk and adaptation to determine if these variables needed to be entered into the regression equation. Infant risk factor was not statistically significantly correlated with maternal adaptation. The Pearson product-moment correlation between infant risk factor and maternal adaptation was .26 with a probability of .13. The

infant's age, at the time maternal adaptation was measured, was not found to be statistically significantly correlated with maternal adaptation. The Pearson product-moment correlation between infant age and maternal adaptation was .06 with a probability of .70.

Testing of Hypothesis

Data obtained from the 35 mothers of premature infants were used to test the following hypothesis: there is no statistically significant relationship among maternal anxiety, maternal problem-solving ability and maternal adaptation to the premature infant. The descriptive statistics for the independent variables, problem-solving ability and state anxiety appear in Table 4. The matrix of Pearson product-moment correlations among the variables appears in Table 5. The correlation between problem-solving ability and anxiety was .35, which is the only statistically significant correlation ($p=.04$).

Table 4

Descriptive Statistics for Major Variables

Variable	Range of possible score	Mean	SD	Range
Anxiety STAI-State Score	20-80	43.14	11.37	20-66
Problem-Solving MEPS Score	0-unlimited	6.22	3.66	1-18
Adaptation Postpartum Self-Evaluation Questionnaire	82-328	122.34	23.38	88-187

Table 5

Correlation Matrix of Major Variables

Variables	Adaptation	Anxiety (STAI)
Anxiety (STAI)	.03	
Problem-Solving (MEPS)	.01	.35*

Note: n = 35
* $p < .05$

Multiple regression was used to analyze the data. The statistical hypotheses were:

HO: $R^2_{FM} = R^2_{RM}$

HA: $R^2_{FM} \neq R^2_{RM}$

The first hypothesis, that the full model with two independent variables predicted the dependent variable no better than the restricted model with no independent variables, was tested. The second, alternative, hypothesis was that the full model with two independent variables predicted the dependent variable better than the restricted model. The full model is as follows:

$Y' = a + b_1X_1 + b_2X_2$

Y': mother's adaptation score

X_1: mother's state anxiety score

X_2: mother's problem-solving score.

The restricted model is $Y' = 0$.

An analysis of the multiple regression showed that the R^2 value was .01, which indicated that 1% of the variance in maternal adaptation was explained by knowledge of the two independent variables. The standard error of estimate was .32. The regression summary table is listed below.

Table 6

Regression Summary Table

Source	df	Sum of squares	Mean square	F value	R^2
Regression	2	.04	.19	.18	.01
Residual	32	3.33	.10		
Total	34	3.37			

In the analysis of variance of the full model the obtained F ratio was .18 with a probability of .84 and 2 and 32 degrees of freedom. This was not significant at the .05 level. The regression equation resulting from this model is:

$$Y' = .33 - .01 + 1.24$$

The full model with two independent variables did not predict maternal adaptation to the premature infant better than a restricted model with no independent variables. The null hypothesis was retained.

The regression coefficients for each predictor variable were tested for linearity. The null hypothesis that an independent variable is not linearly related to the dependent variable is: HO: b = 0. The obtained t value for anxiety (-.19, p = .85) was not statistically significant. Anxiety was not linearly related to maternal adaptation and the null hypothesis was not rejected. The obtained t value for problem-solving ability was .56 (p = .58), which indicated that problem-solving ability was not linearly related to maternal adaptation. This hypothesis was retained.

Since no linear relationship was found among maternal postpartal adaptation, problem-solving ability, and anxiety, a scattergram was plotted to determine if a curvilinear relationship existed. The scattergram did not show a curvilinear relationship among these variables.

Reliability and Validity of Instruments

Scores obtained from the Means-Ends Problem-Solving Procedure in this study were examined to determine if there was consistency in scoring. The interrater reliability obtained on the Means-Ends Problem-Solving Procedure was .89.

Since the Postpartum Self-Evaluation Questionnaire has been only recently developed and since it has not previously been used with mothers of premature infants, data were analyzed to examine the reliability and validity of the tool. Factor analysis of the subjects' responses to the questionnaire did not support the tool's

construct validity. A 19 factor solution was initially obtained. These factors were not meaningful. Since the tool is based on eight scales purporting to measure separate constructs, the data were then forced into an eight factor solution. The eight factor solution did not resemble the constructs upon which the tool was built and could not be meaningfully interpreted (see Appendix F). A Pearson product-moment correlation was performed to examine inter-scale relationships (see Table 7). There were several significant correlations between scales of the tool. The independence of the eight scales was not supported. The alpha reliability of the Postpartum Self-Evaluation Questionnaire was .93. Reliability scores for each scale of the questionnaire are listed in Table 8.

Table 7

Correlation Matrix of Scales on the Postpartum Self-Evaluation Questionnaire

Scales	Scale 1	Scale 2	Scale 3	Scale 4	Scale 5	Scale 6	Scale 7	Scale 8
1		.74*	.07	.43*	.20	.32	.23	.26
2			.34*	.22	.02	.25	-.05	.45*
3				.06	-.23	-.21	-.43*	.56*
4					.21	.21	.18	.17
5						.86*	.76*	-.34*
6							.83*	-.15
7								-.26

* $p < .05$

Table 8

Reliability Scores for the Eight Scales of the Postpartum Self-Evaluation Questionnaire

Scale	Alpha Reliability
1	.90
2	.90
3	.77
4	.75
5	.80
6	.84
7	.85
8	.56

Supplementary Analyses of Major Variables

Anxiety. In order to obtain more information about the major variables, anxiety, problem-solving ability and adaptation, further analyses were performed. Spielberger et al. (1970) normed the State-Trait Anxiety Inventory on general medical- surgical patients, college students, high school students, and prisoners. One sample *t* tests were performed to compare anxiety scores of the sample mothers with the three populations which were thought to be most similar to the study sample: female high school students, women college undergraduates and general medical-surgical patients. The null hypothesis for each *t* test was $\mu=\bar{X}$, indicating that there was no statistically significant difference between the mean state

anxiety score of the sample mothers and the mean state anxiety score of a group of subjects on whom the test was normed (the population mean).

State anxiety scores were statistically significantly different between the sample mothers and female high school students (t obtained = 2.9, df = 34, p = .01). State anxiety scores were also statistically significantly different between women college students and the sample mothers (t obtained = 4.76, df = 34, p = .00008). There was no statistically significant difference between the sample mothers and general medical-surgical patients (t obtained = -.14, df = 34, p = .39).

The null hypothesis that there is no statistically significant difference between state anxiety in the sample mothers and in general medical-surgical patients was retained. The null hypotheses that there were no statistically significant differences in state anxiety between college women and the sample mothers and between female high school students and the mothers were both rejected. State anxiety in the sample mothers was statistically significantly higher than state anxiety either in female college or high school students.

Problem-solving data. Descriptive data are provided by Platt and Spivack (1975) on only two of the four problem-solving stories used in this study. In one story S. notices her friends avoiding her but is able to regain their friendship, and in another story Mrs. C. moves into a new neighborhood and is lonely but eventually feels at home in her new neighborhood. Platt and Spivack (1975)

scored these stories for the number of steps the protagonist took to reach the goal and they reported the mean scores and standard deviations on each of these stories for four groups of subjects: graduate students, female upperclassmen, beauticians, and hospital employees. A pooled *t* test was used to test the null hypothesis that $\bar{X}_1=\bar{X}_2$. If this hypothesis is correct then the mean problem-solving score of one sample (alternatively graduate students, female upperclassmen, beauticians, and hospital employees) is equal to the mean problem-solving ability of the mothers of premature infants. Each null hypothesis was retained. There was no statistically significant difference on either of the two stories between problem-solving ability scores obtained by mothers of premature infants and those obtained by the groups reported by Platt and Spivack (see Table 9).

Table 9

t-Test Comparisons of Mothers' Problem-Solving Scores with Other Samples

	Story 1		Story 2
Sample Used for Comparison	Obtained *t* value	*df*	Obtained *t* value
Beauticians	.26	77	.20
Female Uperclassmen	.67	64	.46
Graduate Students	.52	56	.23
Hospital Employees	.11	78	.48

Maternal adaptation. The mean scores on each of the scales of the Postpartum Self-Evaluation Questionnaire are reported by Lederman et al. (Note 4). The researchers obtained these scores from mothers who were six weeks postpartum and who had delivered term infants vaginally in one of three hospitals in Michigan. A pooled t test was used to compare the mean scores of mothers of premature infants on each of the eight scales of the Postpartum Self-Evaluation Questionnaire with the mean scale scores of the Michigan mothers. The null hypothesis that $\bar{X}_1=\bar{X}_2$ was tested to determine if there was a statistically significant difference in the mean score achieved by mothers of premature infants on a scale and the mean score of the Michigan mothers on the same scale. This hypothesis was retained for seven of the scales of the Postpartum Self-Evaluation Questionnaire. The null hypothesis was rejected for scale 5, confidence in mothering ability. There was a statistically significant difference between mothers of premature infants in the sample and the Michigan mothers of term infants on this scale. Mothers of premature infants reported less confidence in their mothering ability than did mothers of term infants (see Table 10).

Table 10

t-Test Comparisons of Adaptation Scale Scores of Mothers of Premature and Term Infants

Scale	Obtained t value	df
1	1.16	90
2	.82	91
3	-.38	90
4	-.76	90
5	3.48*	90
6	.70	90
7	-.93	90
8	-.431	91

*$p < .05$

Supplementary Analyses of Minor Variables

Several variables, other than the independent study variables, were examined to identify group differences. A Wilcoxon Rank Sum test was performed to determine statistically significant differences in adaptation in groups classified by parity. Adaptation scores of multiparas were compared to scores obtained from primiparas. No statistically significant difference was found ($S = 227.00$, $Z = .83$, $p = .41$).

Adaptation scores were subjected to the Wilcoxon Rank Sum test to see if there was any statistically significant difference in adaptation scores based on type of delivery. No statistically significant difference was found in adaptation scores between mothers who had vaginal deliveries and those who had Cesarean deliveries ($S = 258.00$, $Z = .19$ $p = .85$).

There was no statistically significant difference in adaptation scores between mothers who reported having support persons other than their husbands readily available to them and those who did not have this type of readily available social support. A Wilcoxon Rank Sum test found that $S = 95.0$, $Z = -1.24$, $p = .22$.

Adaptation scores of mothers who reported experiencing significant life events within the year prior to delivery were compared with those mothers who did not experience recent significant life events. A Wilcoxon Rank Sum test was performed and no statistically significant difference was found between these two groups ($S = 290.60$, $Z = .07$, $p = .95$).

Mothers who did not see and touch their babies in the delivery room were compared with mothers who had immediate contact with their infants. The Wilcoxon Rank Sum test was used to detect differences in these two groups. No statistically significant difference was found in adaptation scores between mothers who had early contact with their infants and those mothers who had delayed contact with their infants ($S = 164$, $Z = .06$, $p = .96$).

The adaptation scores of mothers who had a healthy premature baby prior to this baby were compared to the adaptation scores of mothers who had not had a previous healthy premature baby. There was no difference in adaptation scores in these two groups of mothers ($S = 111.50$, $Z = .99$, $p = .32$).

The adaptation scores of mothers who had a previous unexpected, unpleasant, outcome of pregnancy (either a spontaneous

abortion, stillbirth, or neonatal death) were compared to the adaptation scores of mothers who had not experienced these events. A Wilcoxon Rank Sum test found a significant difference between these two groups (S = 85.50, Z = 2.28, p = .02). Mothers who had a previous unpleasant outcome of childbirth had significantly lower adaptation scores than mothers who did not have this experience.

Demographic variables were examined to determine if there were statistically significiant differences in adaptation scores grouped by demographic factors. A Wilcoxon Rank Sum test found no statistically significant difference in adaptation scores based on the sex of the baby (S = 275.50, Z = .17, p = .87). There was no statistically significant difference in maternal adaptation based on race (S = 153, Z = 1.95, p = .05). A Pearson product-moment correlation showed no statistically significant relationship between maternal adaptation and maternal age (r = .17, p = .32) or between maternal adaptation and socieconomic status (r = .40, p = .79).

Summary

In this chapter statistical information about the sample was discussed. The research hypothesis was tested. Information was reported on the reliability and validity of selected tools used in the study and supplementary analyses of variables were provided.

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION IMPLICATIONS, AND RECOMMENDATIONS

Summary of the Study

This study was concerned with factors influencing maternal adaptation to the premature infant. The purpose of the study was to determine if maternal anxiety and problem-solving ability were related to maternal adaptation. The hypothesis of the study was: there is no statistically significant relationship between maternal anxiety, maternal problem-solving ability, and maternal adaptation to the premature infant.

The study sample consisted of 35 married mothers of premature infants whose infants weighed between 1000-2500 grams, survived to be discharged from the hospital and had no congenital anomalies. The sample was selected from mothers with infants hospitalized in three neonatal intensive care nurseries in a large southeastern city. Questionnaires were used to collect data on maternal anxiety and adaptation. A projective test was used to measure problem-solving ability and demographic and obstetrical data were collected on an investigator constructed profile. Demographic

factors and anxiety and problem-solving data were collected within a week of the premature infant's birth. Data measuring adaptation were collected at the time of the infant's discharge from the hospital or within one week of the infant's transfer from the intensive care nursery. Multiple regression, t tests, factor analysis, Pearson product-moment correlations, the Wilcoxon Rank Sum test, and alpha reliability were used to analyze the data.

Conclusions

Based on the analysis of the data the following conclusions were drawn:

1. Maternal anxiety and maternal problem-solving ability were not related to maternal adaptation at the time the infant was discharged from the neonatal intensive care unit.

2. There was a statistically significant correlation between anxiety and problem-solving ability.

3. State anxiety was significantly higher in mothers of premature infants than the normative data reported for female college and high school students.

4. State anxiety scores for mothers of premature infants did not differ from state anxiety scores reported for general medical-surgical patients.

5. There were no statistically significant differences between the scores obtained by sample mothers on two problem-solving stories and scores reported to have been obtained by

beauticians, graduate students, female upperclassmen, and hospital employees.

6. The only statistically significant difference in scores obtained on the eight scales of the Postpartum Self-Evaluation Questionnaire by sample mothers and mothers of term infants, on whom the tool was originally tested, was on scale 5, confidence in mothering ability.

7. No differences in adaptation were found between sample mothers who had experienced recent significant life events and those who had not.

8. Mothers who received social support from persons living in close proximity, other than their husbands, did not differ in maternal adaptation from those mothers who did not receive this type of social support.

9. No differences in maternal adaptation were found in groups based upon demographic and obstetrical variables such as race, parity, type of delivery, or sex of infant.

10. Maternal age was not correlated with maternal adaptation.

11. There was no difference in maternal adaptation in mothers who had early contact with their infants and those mothers with delayed infant contact.

12. Socioeconomic status was not correlated with maternal adaptation.

13. Mothers who had previous healthy premature infants did not differ in maternal adaptation scores from those mothers who had never previously had a healthy premature infant.

14. Mothers with previous unexpected, unpleasant outcomes of pregnancy had significantly lower adaptation scores than those mothers who had never previously experienced adverse pregnancy outcomes.

15. The Postpartum Self-Evaluation Questionnaire was a reliable measure but it did not have construct validity for the subjects in this sample.

Discussion

Anxiety and problem-solving ability, the specific constructs chosen by the investigator to represent the conceptual framework's more global constructs of internal organization and cognitive mastery, did not predict maternal adaptation. Problem-solving ability and anxiety interact, as posited by the conceptual framework of this study. Study findings demonstrate the significant correlation between anxiety and problem-solving ability.

Some data are available which suggest that adaptation results when anxiety is explored and verbalized rather than when it is quickly controlled and diminished. In the studies conducted by Caplan (1960) and Mason (1963), those mothers who adapted well to the birth of the premature infant were able to verbalize anxiety as

well as to evince information-seeking behavior. However, in the present study a mother's ability to report heightened anxiety on a self-report scale was not related to differences in adaptation scores. Anxiety in this study was neither positively correlated with maternal adaptation as the conceptual framework suggested it might be nor negatively correlated with adaptation as the Caplan (1960) and Mason (1963) studies suggested.

Caplan's study (1960) was a small (10 subjects) retrospective study of interview records obtained from mothers of premature infants. Using an interview technique, Mason (1963) studied 19 mothers of premature infants prospectively and determined anxiety level, as well as the subjects response to anxiety. The small sample sizes of the Caplan and Mason studies and differences in data gathering techniques could account for some of the disparity in findings between their studies and the present study.

There are several possible reasons why in this study anxiety and problem-solving ability did not explain maternal adaptation to the premature infant. The findings in this study may reflect the true state of nature, and anxiety and problem-solving ability may be totally unrelated to maternal adaptation. Perhaps anxiety and problem-solving ability are significant factors in maternal adaptation, and methodological problems in the study masked their true importance. Methodological problems which might have affected the study findings are the characteristics of the sample, the type of tools used to measure major variables, and the timing of tool administration. Each of these possibilities will be discussed in turn.

By collecting data at three different hospitals, an attempt was made to assure that the study sample was heterogeneous and was similar to all mothers of premature infants living in a large southeastern city. However, the sample of the study was a sample of convenience. Not all mothers who were eligible to participate agreed to do so and not all mothers who initially participated completed all questionnaires. The voluntary nature of the sample combined with its nonrandom selection could have resulted in a non-representative self-selected sample of well-adapted mothers. This possibility is supported by the fact that the infant of one of the study mothers who failed to complete the adaptation questionnaire was rehospitalized with bruises thought to be caused by child abuse.

A possibility exists that if different tools had been used to measure study variables, different results would have been obtained. Adaptation was measured by means of a self-report questionnaire. Society places a high value on a woman's mothering ability so social desirability might have influenced study mothers to under report difficulties they were experiencing as mothers. Additionally, the adaptation questionnaire, while highly reliable for this group of mothers, had questionable validity. Since construct validity was not supported, it is possible that the tool does not really measure adaptation. However, an equally possible alternative is that the tool measures adaptation but simply does not measure adaptation in terms of the constructs proposed by the tool's developers. However, the tool may measure adaptation, and

if a larger more representative sample had been tested, might have supported the constructs upon which the questionnaire was based.

The State-Trait Anxiety Inventory did detect higher levels of anxiety in the mothers of premature infants than exist in high school females or college women, on whom the tool was normed. The lack of a statistically significant difference in anxiety between the general medical-surgical patients, on whom the tool was normed, and the study mothers might be explained by the differences in age and sex between these groups or by the fact that being a general medical-surgical patient is an anxiety producing situation. The general medical-surgical patients were men and women with a mean age of 55 years. The findings of heightened anxiety in mothers of premature infants support the studies of Blumberg (1980) and Choi (1973) in which mothers of premature infants were found to have increased levels of anxiety.

No differences were found in problem-solving ability between mothers of premature infants and four other groups tested by Platt and Spivack (1975). The small sample size of this study and of the four other groups tested do not allow inferences to be drawn regarding the problem-solving ability of mothers of premature infants and the general population. These findings do indicate that the problem-solving ability of mothers of premature infants is not dissimilar to that of some other types of people.

In this study the investigator elected to measure general problem-solving ability so the problem-solving situations were not

content specific to the problems encountered by mothers of premature infants. If content specific problem-solving stories had been utilized, different results might have been obtained.

In this study adaptation was assumed to be an evolving process and so maternal adaptation was measured at the time the infant left the high-risk nursery. It is possible that the sample did represent mothers experiencing various levels of difficutly in adapting to their infants and that instruments used to measure variables were appropriate but were not administered at the optimal time. If adaptation had been measured after the infant had been home for a period of time, different results might have been obtained.

No conclusions can be drawn as to which of the many possibilities advanced correctly explains why maternal anxiety and maternal problem-solving ability did not relate to maternal adaptation to the premature infant. Recommendations for further research which will help clarify this question will be made in a later section of this chapter.

If the adaptation scores obtained by mothers in this study are accepted as reflecting the true state of nature, several interesting observations can be made. There is no reason to think that demographic factors such as socioeconomic status and age, or obstetrical variables, such as parity, type of delivery, or sex of the infant, should correlate with maternal adaptation to the premature infant. Indeed in this study they did not.

The time of initial maternal-infant contact did not make a significant difference in maternal adaptation in this study. These findings support the study of Leifer et al. (1972) who did not find a significant difference in mothering behaviors between mothers of premature infants who had early contact with their infants and those who did not.

Social support has been cited as one factor important to maternal adaptation throughout the childbearing cycle (Cohen, 1966; Cronenwett, 1980; Osofsky & Osofsky, 1980; Shereshefsky & Yarrow, 1974). Social support was measured by the Postpartum Self-Evaluation Questionnaire on three of its eight scales. The positive adaptation scores of the sample mothers are based in part on their assessment that they were supported in the mothering role by family, friends, and husbands. The investigator, however, was also interested in determining if having support persons, other than the husband, who lived in the same city made a difference in maternal adaptation. Since no difference in maternal adaptation was found in this study between mothers who had readily available social support and those who did not, it might be that the existence of support persons, wherever they live, is more important to maternal adaptation than is the physical presence of the support person.

Schwartz (1977) reported an increased incidence of significant life events occurring to mothers of premature infants which might have implications for the maternal-child relationship. In this study the occurrence of significant life events did not influence

maternal adaptation to the premature infant. However, it must be noted that the occurrence of significant life events was determined solely by asking the mother what outstanding events had occurred to her within the past year and not by the use of a more elaborate tool.

Mason (1963) found that a previous successful experience with premature birth was one factor which could predict successful maternal adapation to succeeding premature infants. This finding was not supported in this study. Mothers with previous healthy premature infants did not have significantly different adaptation scores than mothers who had not had previous healthy premature infants.

Cohen's (1979) suggestion that mothers with previous adverse experiences with childbearing have difficulty adapting to their infants was supported by the findings of this study. Study mothers who had previously experienced the loss of a pregnancy, who had had a stillborn infant or had an infant die in the neonatal period, did have significantly different adaptation scores than those mothers not experiencing these prior adverse outcomes of pregnancy.

The one area in which mothers of premature infants differed from mothers of term infants in their response to the Postpartum Self-Evaluation Questionnaires was in their confidence in their mothering ability. This scale asks mothers to respond to statements such as:

I am unsure what to do for the baby when s/he cries.

I trust my own judgement in deciding how to care for the baby.

I know what my baby likes and dislikes.

I have confidence in my ability to care for the baby.

Most mothers in this sample had had extensive contact with their infants before answering the Postpartum Self-Evaluation Questionnaire. The decreased level of confidence in mothers of premature infants whose infants are not yet living at home might result partially from the decreased control these mothers have over their infants. Also since premature infants are less responsive and give their mothers less feedback than do term infants, mothers of premature infants might experience a decreased ability to know if their mothering is pleasing to their infants (Brown & Bakeman 1980; DiVitto & Goldberg, 1979).

Implications

Continued research is necessary to help identify those mothers who have difficulty adapting to their premature infants. Since the mother is so readily accessible to the health care system while the infant is hospitalized, this is an excellent time for case finding. Early indicators of mothers who are at risk of developing dysfunctional relationship with their infants still need to be identified. Special attention should be given to women who have had previous unpleasant outcomes of pregnancy, because this group might be at increased risk of forming dysfunctional relationships with their infants.

Hospital rules have changed considerably in the past few years and early contact between the mother and her infant is now encouraged. However, in this study the inital timing of the mother's contact with her infant was not a determining factor in how well she adapted to her infant. Although nurses should continue to encourage mothers to enjoy early and continued contact with their infants, this contact might not be enough to help the mother of the premature infant feel confidence in herself as a mother. In this study the mothers of premature infants reported a decreased confidence in their mothering skills. Nurses might need to allow mothers an increased opportunity to practice mothering their premature infants.

In most nurseries mothers who visit their premature infants are encouraged to hold and feed their babies when that is appropriate. However, mothers of premature infants are not given many other opportunities to mother their infants. This is an area which might need to be reconsidered. In order to increase the confidence of the mother of a premature infant, the nurse, while the infant is acutely ill, can help the mother to individualize her infant, understand her infant's response to the mother's presence, and perform caretaking activities for the infant. Mothers who have premature infants who are not acutely ill might benefit from being allowed to solve problems and make the same types of decisions about the care of their babies in the hospital that they will have to make at home. This is especially important since mothers of premature infants appear to have adequate problem-solving skills.

In this study mothers demonstrated that they had problem-solving skills which were just as good as the problem-solving skills of several other groups of people.

Problem-solving ability in this study was also positively correlated with state anxiety. That is, mothers who reported having higher levels of anxiety had better problem-solving abilities. It should be noted that none of the study mothers reported having extremely high anxiety levels. In light of these findings nursing interventions aimed at reducing anxiety in mothers of premature infants might need to be reexamined. Rather than attempting to extinguish anxiety, nurses might wish to help mothers channel anxiety so that it can be used by the mothers to help them cope with having a premature infant.

Recommendations

Based on the findings of the study the following points are made:

1. A variety of tools should be used to measure maternal adaptation after the infant has been discharged from the hospital.

2. In future studies problem-solving ability should be measured specifically in regard to the ability to solve problems resulting from having a premature infant as well as by measuring general problem-solving ability.

3. In future studies variables such as the occurrence of significant life events and having readily available social support systems should be more vigorously quantified.

4. Further research is needed on the effect of previous adverse outcomes of pregnancy on maternal adaptation.

5. Studies need to be performed to determine the effect of increased maternal decision making about the premature infant on maternal adaptation.

6. Interventions designed to help mothers of premature infants explore and use state anxiety as a tool to cope with the premature infant's birth need to be further examined.

REFERENCE NOTES

1. Mortality data. Unpublished report, 1982. (Available from Perinatal Medicine, University of Alabama in Birmingham).

2. Barnard, K. & Sumner, G. State-of-the-field paper: Health of women with fertility related needs. Draft manuscript prepared for MCH Conference, Brandeis University, June 9-10, 1981.

3. Gennaro, S. Parents' affective response to premature birth. Unpublished manuscript, 1981. (Available from 5305 Goldmar Drive, Birmingham, Alabama 35210).

4. Lederman, R., Weingarten, C., & Lederman, E. The postpartum self-evaluation questionnaire: Measurement of maternal postpartum adaptation. Unpublished manuscript, 1981. (Available from School of Nursing, Madison, Wisconsin).

5. Hollingshead, August. Two factor index of social position. Unpublished manuscript, 1957. (Available from 1965 Yale Station, New Haven, Connecticutt).

REFERENCES

Basowitz, H., Anxiety and stress: An interdisciplinary study of a life situation. New York: McGraw Hill, 1955.

Banahan, B., Sharpe, T., Baker, J., Liao, W., & Smith, M. Hypertension and stress: A preventative approach. Journal of Psychosomatic Research, 1979, 23, 69-75.

Beck, N., Siegal, L., Davidson, N., Kormeier, S., Breitenstein, A., & Hall, D. The prediction of pregnancy outcome maternal preparation, anxiety and attitudinal sets. Journal of Psychosomatic Research, 1980, 24, 343-351.

Benfield, D.G., Leib, S., & Reuter, J. Grief responses of parents after referral of the critically ill newborn to a regional center. New England Journal of Medicine, 1976, 294, 975-978.

Bidder, R.T., Crowe, E.A., & Gray, O.P. Mothers' attitudes to preterm infants. Archives of Disease in Childhood, 1974, 49, 766-770.

Blumberg, N. Effects of neonatal risk, maternal attitude, and cognitive style on early postpartum adjustment. Journal of Abnormal Psychology, 1980, 89, 139-150.

Blumenthal, J., Thompson, K., Williams, R., & Kong, Y. Anxiety proneness and coronary artery heart disease. Journal of Psychosomatic Research, 1979, 23, 12-21.

Brown, J., & Bakeman, R. Relationships of human mothers with their infants during the first year of life: Effect of prematurity. In R. Bell, W. Smotherman, (Eds.), Maternal Influences and Early Behavior. New York: SP Medical and Scientific Books, 1980.

Caplan, G. Patterns of parental response to the crisis of premature birth. Psychiatry, 1960, 23, 365-374.

Cattel, R.B., & Scheier, I. The meaning and measurement of neuro ticism and anxiety. New York: Ronald Press, 1961.

Cattel, R.B., & Scheier, I. Handbook for the IPAT anxiety scale. Champaign, Illinois: Institute for Personality and Ability Testing, 1963.

Choi, M. A comparison of maternal psychological reactions to premature and full-size newborns. Maternal Child Nursing Journal, 1973, 2, 1-13.

Cohen, R. Some maladaptive syndromes of pregnancy and the puerperium, Obstetrics and Gynecology, 1966, 27, 562-570.

Cohen, R. Maladaptation to pregnancy. Seminars in Perinatology, 1979, 3, 15-24.

Crandon, A. Maternal anxiety and neonatal wellbeing. Journal of Psychosomatic Research, 1979a, 23, 113-115.

Crandon, A. Maternal anxiety and obstetric complications. Journal of Psychosomatic Research, 1979b, 23, 109-111.

Cronenwett, L.R. Elements and outcomes of a postpartum support group program. Research in Nursing and Health, 1980, 3, 33-41.

Daniels, L., & Berg, C. The crisis of birth and adaptive patterns of parents of amputee children. Clinical Proceedings of Children's Hospital, 1968, 24, 108-117.

DiVitto, B., & Goldberg, S. The effects of newborn medical status on early parent-infant interaction. In T. Field (Ed.), Infants born at risk: Behavior and development. New York: SP Medical and Scientific Books, 1979.

Drotar, D., Baskiewicz, A., Irvin, N., Kennell, J., & Klaus, M. The adaptation of parents to the birth of an infant with a congenital malformation: A hypothetical model. Pediatrics, 56, 1975, 710-717.

Dubowitz, L.M.S., Dubowitz, V., & Goldberg, C. Clinical assessment of gestational age in the newborn infant. Journal of Pediatrics, 1970, 77, 1-16.

D'Zurilla, T., & Goldfried, M. Problem-solving and behavior modification. Journal of Abnormal Psychology, 1971, 78, 107-126.

Elmer, E., & Gregg, G. Developmental characteristics of abused children. Pediatrics, 1967, 40, 596-602.

Eysenck, M. Anxiety, learning, and memory: A reconceptualization. Journal of Research in Personality, 1979, 13, 363-385.

Folkman, S., Schaefer, C., & Lazarus, R. Cognitive processes as mediators of stress and coping. In V. Hamilton & D. Warburton (Eds.), Human stress and cognition: An information processing approach. New York: John Wiley & Sons, 1979.

Freud, S. The problem of anxiety. New York: Norton, 1936.

Gotlib, I., & Asarnow, R. Interpersonal and impersonal problem-solving skills in mildly and clinically depressed university students. Journal of Consulting and Clinical Pyschology, 1979, 47, 86-95.

Gunter, L. Psychopathology and stress in the life experience of mothers of premature infants. American Journal of Obstetrics and Gynecology, 1963, 86, 333-340.

Guzzetta, C. Relationship between stress and learning. Advances in Nursing Science, 1979, 2, 35-49.

Hamburg, D., & Adams, J. A perspective on coping behavior. Archives of General Psychiatry, 1967, 17, 277-284.

Hamburg, D., Coelho, G., & Adams, J. Coping and Adaptation. New York: Basic Books Inc., 1974.

Hannaway, P. Failure to thrive. Clinical Pediatrics, 1970, 9, 96-99.

Harris, B. 'Maternity blues' in East African clinic attenders. Archives of General Psychiatry, 1981, 38, 1293-1295.

Hawkins-Walsh, E. Diminishing anxiety in parents of sick newborns. The American Journal of Maternal Child Nursing, 1980, 5, 30-34.

Hirschman, E. Some novel propositions concerning problem-solving. Perceptual and Motor Skills, 1981, 52, 523-536.

Hockey, R. Stress and the cognitive components of skilled performance. In V. Hamilton & D. Warburton (Eds.), Human stress and cognition: An information processing approach. New York: John Wiley & Sons, 1979.

Hunter, R., Kilstrom, N., Kraybill, E., & Loda, F. Antecedents of child abuse and neglect in premature infants: A prospective study in a newborn intensive care unit. Pediatrics, 1978, 61, 629-635.

Izard, C. Patterns of emotion. New York: Academic Press, 1972.

Johns, N. Family reactions to the birth of a child with a congenital abnormality. The Medical Journal of Australia, 1971, 1, 277-281.

Johnston, M. Anxiety in surgical patients. Pyschological Medicine, 1980, 10, 145-152.

Kaplan, D., & Mason, E. Maternal reactions to premature birth viewed as an acute emotional disorder. Journal of Orthopsychiatry, 1960, 30, 539-552.

Klaus, M., & Kennell, J. Maternal infant bonding. St. Louis: C.V. Mosby Co., 1976.

Klein, H., Potter, H., & Dyk, R. Anxiety in pregnancy and childbirth. New York: Paul B. Hoeber Inc., 1950.

Klein, M., & Stern, L. Low birth weight and the battered child syndrome. American Journal of Diseases in Childhood, 1971, 122, 15-18.

Lederman, R., Lederman, E., Work, B., & McCann, D. The relationship of maternal anxiety, plasma catecholamines and plasma cortisol to progress in labor. American Journal of Obstetrics and Gynecology, 1978, 132, 495-498.

Leifer, A., Leiderman, D., Barnett, C., & Williams, J. Effects of mother-infant separation on maternal attachment behavior. Child Development, 1972, 43, 1203-1218.

Leifer, M. Psychological effects of motherhood: A study of first pregnancy. New York: Praeger Press, 1980.

Levenson, M., & Neuringer, C. Problem-solving behavior in suicidal adolescents. Journal of Consulting and Clinical Psychology, 1971, 37, 433-436.

Lidner, K. Life change, social support, and cognitive problem-solving skills. Unpublished doctoral dissertation, University of Washington, 1981.

Mason, E. A method of predicting crisis outcome for mothers of premature babies. Public Health Reports, 1963, 78, 1031-1033.

McGuire, J., & Gottlieb, B. Social support groups among new parents: An experimental study in primary prevention. Journal of Clinical Child Psychology, 1979, Summer, 111-116.

Mechanic, D. Social structure and personal adaptation: Some neglected dimensions. In D.Hamburg, G. Coelho, & J. Adams (Eds.), Coping and adaptation. New York: Basic Books Inc., 1974.

Meier, P. A crisis group for parents of high-risk infants. Maternal Child Nursing Journal, 1978, 7, 21-30.

Mercer, R. Mothers' responses to their infants with defects. Nursing Research, 1974, 23, 133-137.

Mercer, R. Nursing care for parents at risk. Thorofare, N.J.: Charles B. Slack, Inc., 1977.

Minde, K., Marton, P., Manning, D., & Hines, B. Some determinants of mother-infant interaction in the premature nursery. Journal of the American Academy of Child Psychiatry, 1980, 19, 1-21.

Minde, K., Shosenberg, N., Marton, P., Thompson, J., Ripley, J., & Burns, S. Self-help groups in a premature nursery. The Journal of Pediatrics, 1980, 96, 933-940.

Nezu, A., & D'Zurilla, T. Effects of problem definition and formulation on the generations of alternatives in the social problem-solving process. Cognitive Therapy and Research, 1981, 5, 265-271.

O'Callaghan, M.J., & Hull, D. Failure to thrive or failure to rear? Archives of Disease in Childhood, 1978, 53, 788-793.

Osofsky, H., & Osofsky, J. Normal adaptation to pregnancy and new parenthood. In P. Taylor (Ed.), Parent-infant relationships. New York: Grune & Stratton, 1980.

Platt, J., Scura, W., & Hannon, J. Problem-solving thinking of youthful incarcerated heroin addicts. Journal of Community Psychology, 1973, 1, 278-281.

Platt, J., & Spivack, G. Problem-solving thinking of psychiatric patients. Journal of Consulting and Clinical Psychology, 1972, 39, 148-151.

Platt, J., & Spivack, G. Manual for the means-ends problem-solving procedure (MEPS). Philadelphia: Department of Mental Health Sciences, Hahnemann Medical College and Hospital, 1975.

Platt, J., & Spivack, G., Altman, N., Altman, D., Peizer, S. Adolescent problem-solving thinking. Journal of Consulting and Clinical Psychology, 1974, 42, 787-793.

Rubin, R. Fantasy and object constancy in maternal relationships. Maternal Child Nursing Journal, 1972, 1, 101-111.

Sarason, I. The effects of anxiety and threat on the solution of a difficult task. Journal of Abnormal and Social Psychology, 1961, 62, 165-168.

Schwartz, J.L. A study of the relationship between maternal life-change events and premature delivery. In Schwartz, J. & Schwartz, L. (Eds.), Vulnerable infants: A psychosocial dilemma. New York: McGraw-Hill, 1977.

Shaheen, E., Alexander, D., & Barbero, G. Failure to thrive: A retrospective profile. Clincal Pediatrics 1968, 7, 255-261.

Shereshefsky, P.M., & Yarrow, L.J. Psychological aspects of a first pregnancy and early postnatal adaptation. New York: Raven Press, 1974.

Sherman, M. Psychiatry in the neonatal intensive care unit. Clinics in Perinatology, 1980, 7, 33-46.

Shure, M., & Spivack, G. Means-ends thinking, adjustment and social class among elementary school-aged children. Journal of Consulting and Clinical Psychology, 1972, 38, 348-353.

Siegal, J., Platt, J., & Peizer, S. Emotional and social real-life problem-solving thinking in adolescent and adult psychiatric patients. Journal of Clinical Psychology, 1976, 32, 230-232.

Slade, C., & Reidl, C., Mangurten, H. Working with parents of high-risk newborns. JOGN Nursing, 1977, 6, 21-26.

Smith, N., Schwartz, J., Mandell, W., Silberstein, R., Dalock, J., & Sacks, S. Mothers' psychological reactions to premature and full-size newborns. Archives of General Psychiatry, 1969, 21, 177-181.

Spence, J., & Spence, K. The motivational components of manifest anxiety: Drive and drive stimuli. In C.D. Spielberger (Ed.), Anxiety and behavior. London: Academic Press, 1966.

Spielberger, C. Anxiety: Current trends in theory and research. New York: Academic Press, 1972.

Spielberger, C., Gorsuch, R., & Lushene, R. Manual for the state-trait anxiety inventory. Palo Alto, California: Consulting Psychologists Press, 1970.

Sullivan, H. The collected works of Harry Stack Sullivan. New York: W.W. Norton & Co., 1953.

Taylor, J.A. A personality scale of manifest anxiety. Journal of Abnormal and Social Psychology, 1953, 48, 285-290.

White, R. Strategies of adaptation: An attempt at systematic description. In D. Hamburg, G. Coelho, & J. Adams (Eds.), Coping and adaptation. New York: Basic Books Inc., 1974.

Zuckerman, M., & Lubin, B. Multiple affect adjective check list. San Diego: EDITS, 1965.

APPENDIX A

APPROVAL OF INSTITUTIONAL REVIEW BOARD

FOR HUMAN USE - UAB

Approval of Institutional Review for Human Use - UAB

The University of Alabama in Birmingham
Institutional Review Board for Human Use
205/934-3789

FORM 4: IDENTIFICATION AND CERTIFICATION OF RESEARCH PROJECTS INVOLVING HUMAN SUBJECTS

The Institutional Review Board (IRB) must complete this form for all applications for research and research training grants, program project and center grants, demonstration grants, fellowships, traineeships, awards, and other proposals which might involve the use of human research subjects independent of source of funding.

This form does not apply to applications for grants limited to the support of construction, alterations and renovations, or research resources.

PRINCIPAL INVESTIGATOR Susan Gennaro

PROJECT TITLE Anxiety, Problem- Solving Ability and Maternal Adaptation to the Premature Infant .

_____ 1. This is a training grant. Each research project involving human subjects proposed by trainees must be reviewed separately by the Institutional Review Board (IRB).

X 2. This application includes research involving human subjects. The IRB has reviewed and approved this application on 4-27-82, in accordance with UAB's assurance approved by the United States Public Health Service. The project will be subject to annual continuing review as provided in that assurance.

- _X_ This project received expedited review. Human subjects will not be at risk.
- _____ This project received full IRB review. Human subjects will not be at risk.
- _____ This project received full IRB review. Human subjects will be at risk.

_____ 3. This application may include research involving human subjects. Review is pending by the IRB as provided by UAB's assurance. Completion of review will be certified by issuance of another FORM 4 as soon as possible.

_____ 4. Exemption is approved based on number(s)_____.

4-27-82
Date

Wesley O. Young, D.M.D., M.P.H.
Chairman, Institutional Review Board
The University of Alabama in Birmingham

APPENDIX B

DEMOGRAPHIC AND OBSTETRICAL PROFILE

Investigator's Initials _____

DEMOGRAPHIC AND OBSTETRICAL PROFILE

Name Mother_____ Code #_____ Age____

** Occupation head of household:

** Education head of household:

Hollingshead Factor Weight:

FPAL_____ TYPE DELIVERY_____

** Preparation for childbirth_____

Length of Labor_____ Anesthesia/Analgesia_____

** Was husband present at birth_____

Complications of Labor/Delivery_____

Brief Obstetrical History (antenatal course, previous prematures/ pregnancy loss/neonatal death etc.)

** Support System: Who is helping you while the baby is in the hospital?

Are mother and child in same hospital?_____

** How long before first contact between mom and baby _____

Apgars_____ Multiple Birth?_____ Birthweight_____

Gestational Age_____ Sex_____ Race_____

Risk Category (from neonatologist)_____

Primary diagnoses at birth_____

Infant's date of birth_____ Date of D/C_____

Age at D/C_____

** Has anything else important happened in your life recently?_____

Intercurrent illnesses (after first week) Use other side also.

APPENDIX C

PROTOCOL FOR CONTACT WITH SUBJECTS

PROTOCOL FOR INITIAL CONTACT

INITIAL CONTACT: Mrs. _____ I am _____ a (master, doctoral) student in nursing at the University of Alabama in Birmingham. I am doing research on what it is like to be the mother of a premature baby. I understand your baby is premature and I wonder if you'd like to be in the study? If you would like to be in the study you would fill out two questionnaires now and one around the time your baby is discharged from the neonatal intensive care unit. If you don't wish to be in the study it won't affect the care you or your baby receive. If you do wish to be in the study it won't help you but it will help me and hopefully it will help other mothers whose babies are premature. Would you like to be in the study?

DATA COLLECTION: (after affirmative response) Let me ask you a few questions first. (Ask starred questions on Data Collection Sheet).

STAI: Here's the first questionnaire. Let me read you the directions. (Give subject Stai-state side first. Give subject pen)

MEANS-ENDS PROBLEM-SOLVING: Thank you. Now we're going to do a procedure where you're asked to fill in the middle of a story after I give you the beginning and the end. So that you won't have to write and so I won't have to write if it's o.k. with you I'll tape

record what you say. I won't use you name--just your code number so no one will know who is answering. Is that all right? (If answer is affirmative) Let me read you the directions.

FINAL INSTRUCTIONS: Thank you so much. There is one more questionnaire for you to fill out, when your baby is discharged from the intensive care nursery. This one asks questions about what it is like to be the mother of this baby. I will be contacting you as soon as we know when you baby will be discharged from the intensive care unit. If you have any questions here is a card with my name and phone number. Please call me. Thank you again. Good-bye.

PROTOCOL FOR FINAL CONTACT

If infant is transferred from NICU and researcher cannot see mother before transfer, letter is sent to mother.

If researcher sees mother within week of infant's discharge the following script is followed:

MRS. _____, How are you? I'm so glad your baby is being discharged from the intensive care nursery. As I explained when you first filled out the questionnaires for this research on what it is like to be the mother of a premature infant, there is one more questionnaire to fill out which will complete your part in

this research project. Let me read you the directions. Here is the questionnaire. (After subject completes say,) Thank you very much for your participation in this study. You have really helped me, and I hope other nurses also, to take better care of families with premature babies.

APPENDIX D

LETTER TO MOTHERS OF TRANSFERRED BABIES

Letter to Mothers of Transferred Babies

Dear Mrs:_____

I am so glad your baby is doing so well and has been transferred from the intensive care nursery. When you first agreed to participate in the study on what it is like to be the mother of a premature infant you agreed to fill out one more questionnaire when your baby was transferred or discharged. If you would complete the Postpartum Self-Evaluation Questionnaire now it would complete your part in this study.

I am enclosing a stamped envelope addressed to me. If you could complete and return the questionnaire at your earliest convenience I would greatly appreciate it. If you have any questions please call me collect at (205) 951-3100.

Thank you for your help.

Sincerely,

Susan Gennaro, R.N.

APPENDIX E

NEONATAL RISK CATEGORIZATION SCHEMA

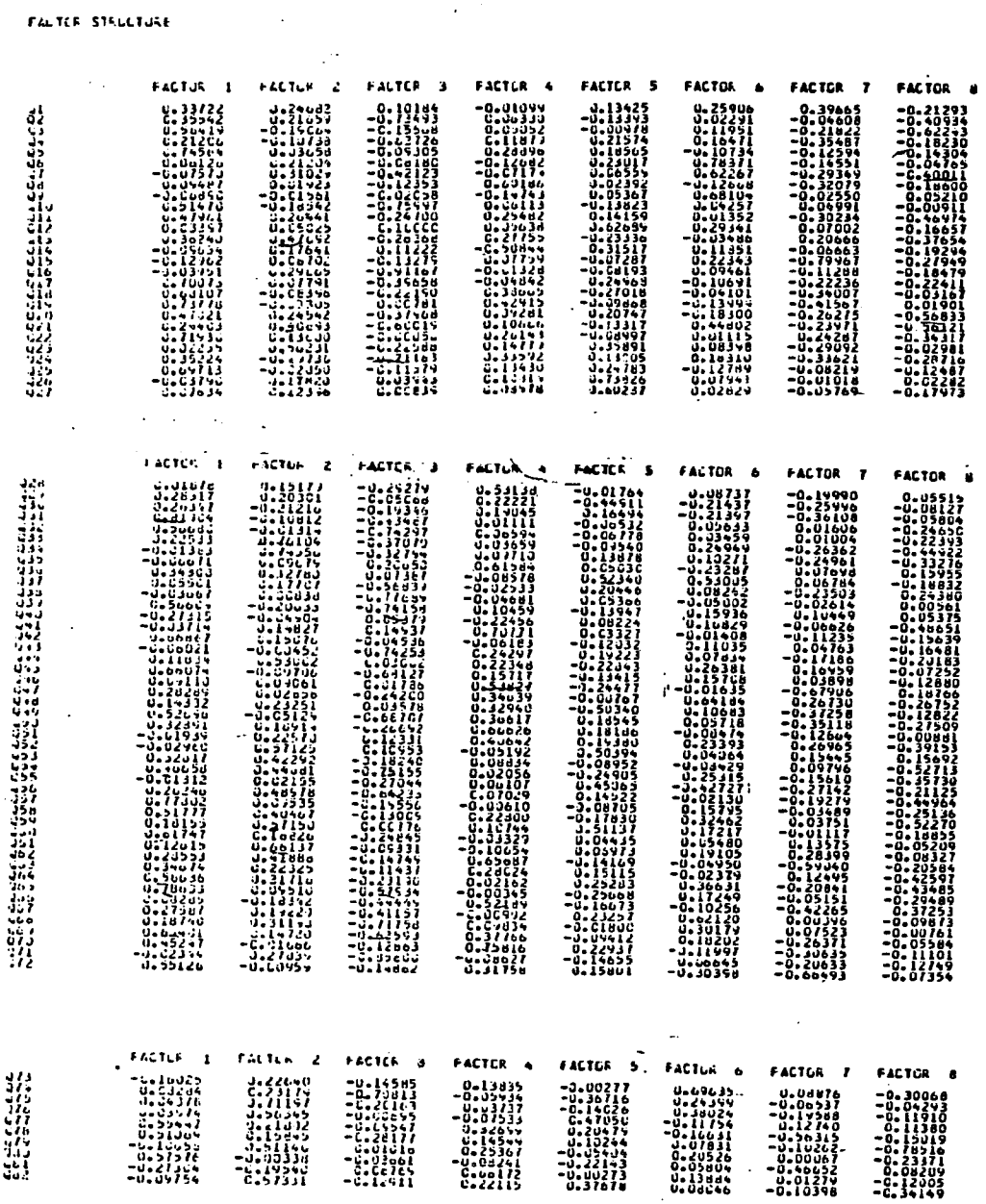
Neonatal Risk Categorization Schema

Risk Level	Risk Level
Highest	**Moderate**
Birth weight less than 1,600 g	Prematurity (2,000-2,500g)
Gestational age less than 33 weeks	Dysmaturity
Continuing or developing signs respiratory distress syndrome	Apgar score at 1 minute of 4-6
Asphyxiation (Apgar score of less than 6 at 5 minutes)	Feeding problems
Cyanosis or suspected cardiovascular disease	Multiple birth
Major congenital malformations requiring surgery or catheterization	Transient tachypnea
Convulsions, sepsis, hemorrhagic diathesis, or shock	Hypomagnesemia or hypermagnesemia
Meconium aspiration syndrome	Hypoparathyroidism
High	Failure to gain weight
Prematurity (less than 2,000 g)	Jitteriness or hyperactivity with specific causes
Apgar score at 5 minutes of 6 or less	Cardiac anomalies not requiring immediate catheterization
Resuscitation at birth	Heart murmur
Fetal anomalies	Anemia
Respiratory distress syndrome	Central nervous system depression less than 24 hours
Dysmaturity with meconium stain	**Low**
Congenital pneumonia	Birth weight greater than 2,500 g, but in Premature Nursery for observation
Anomalies of respiratory system	In Normal Nursery at time of contact with mother, but in Premature Nursery for first 24-48 hours
Neonatal apnea	In Septic (Isolation) Nursery due to maternal condition (e.g., temperature, suspected infection)
Other respiratory distress	In Normal Nursery during hospitalization, but not discharged with mother (e.g., treated for physiological jaundice)
Hypoglycemia	**None suspected**
Hypocalcemia	Normal birth weight, in Normal Nursery throughout hospitalization, fed routinely by mother and discharged with mother
Major congenital anomalies that do not require immediate procedures	
Congestive heart failure	
Hyperbilirubinemia	
Hemorrhagic diathesis, mild	
Chromosomal anomalies	
Sepsis	
Central nervous system depression longer than 24 hours	
Seizures	
Persistent cyanosis	

APPENDIX F

FACTOR STRUCTURE FOR POSTPARTUM SELF-EVALUATION QUESTIONNAIRE

Factor Structure for Postpartum Self-Evaluation Questionnaire



GRADUATE SCHOOL
UNIVERSITY OF ALABAMA IN BIRMINGHAM
DISSERTATION APPROVAL FORM

Name of Candidate Susan J. Gennaro

Major Subject Maternal Child Health Nursing

Title of Dissertation Anxiety, Problem Solving Ability and Maternal Adaptation to the Premature Infant

Dissertation Committee:

Janice Dorn, Chairman

Norma K. Malloy

Joseph B. Tuttle III

Sylvia Squires Britt

L. Barnard

Phyllis D. Harris

Director of Graduate Program

Dean, UAB Graduate School Kenneth Rozzen

Date 3/18/83

PS-1428