PREDICTORS OF ROLE IDENTITY AND
ROLE ATTAINMENT IN MOTHERS
OF PREMATURE INFANTS

by

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DISSERTATION

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment
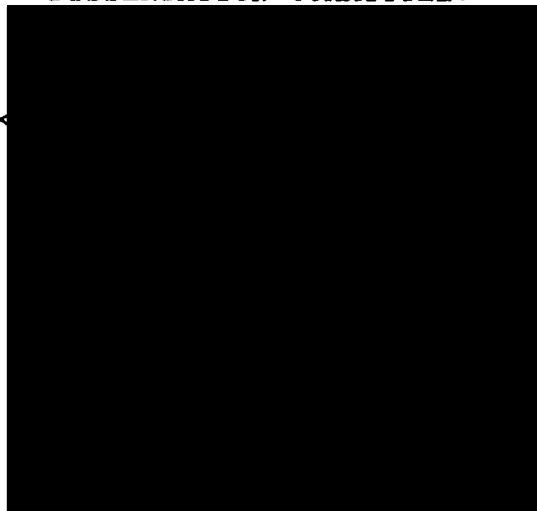
of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT AUSTIN
December, 1992

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OF PREMATURE INFANTS

APPROVED BY
DISSERTATION COMMITTEE:

Acknowledgements

When undertaking a work such as this dissertation, it is completed with the assistance of many people. They deserve to be acknowledged. Many thanks are extended to Dr. Joy Penticuff, chairman of my supervisory committee, who helped me hammer out the details contained in the work. Thanks are extended also to the members of my supervisory committee, Dr. Kay Avant, Dr. Mark Shermis, Dr. Lorraine Walker and Dr. Phoebe Williams for willingly giving time when it was needed.

Those people in the clinical agencies who were very willing to assist me in gaining access to subjects are also to be thanked. They included Dr. Jim Rawlings, Dr. Mary Lim, Dr. Van Lilly, Ms. Carolyn Johnson, Ms. Judith Martin and Ms. Mary Ann DiMola. Their assistance was invaluable. Maureen Macke and Maggie Bednar were very willing research assistants who saved me many hours of chart reviews.

The mothers who participated in this study deserve very special thanks. They were willing to give time during a potentially stressful time in their own lives.

Rita Sutherland and Joann Patray spent time doing editorial work with very careful scrutiny. Their contribution is appreciated.

Finally, many many thanks to Michael, my "better half" who never let me forget that I could do it.

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Publication No._____

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The University of Texas at Austin, 1992
Supervisor: Joy Hinson Penticuff

The purpose of this study was to identify whether stress, social support, maternal age and infant birthweight contributed to role identity and role attainment in mothers of premature infants: 1) when the infant was being discharged from the hospital and maternal caretaking had been limited, and 2) when the infant had been home for four weeks and maternal caretaking had increased. Prior work implied that mothers of term infants had achieved a level of psychological preparedness. Similar information was needed about mothers of premature infants.

The framework guiding this study proposed that the mother who experiences the birth of a premature infant has the normal process of maternal role development interrupted. This stressor is unwanted and unpredicted change. Maternal age and infant birthweight also interact with these stressors leading to stress in the role of parent, a role for which the mother is not yet ready. If the mother receives social support during this time, she

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has less stress in the role of parent and therefore, is able to achieve the transition to the role of mother.

Sixty-six primiparous mothers between 18 and 37 years of age participated in this descriptive study which collected data using cross-sectional and repeated measures approaches. Demographic data were collected on mothers and infants. Study variables were measured with the Norbeck Social Support Questionnaire, Perceived Stress Scale, Myself as Mother Scale, My Baby Scale, Gratification in the Mothering Role Scale and Parenting Stress Index. The research questions were analyzed using multiple regression and repeated measures ANOVA.

Results indicated that stress and social support, significantly predicted maternal role identity at infant discharge from the hospital and four weeks after discharge. Role attainment was significantly predicted by perceived stress and parenting stress four weeks after discharge. Decreases over time occurred in perceived stress, social support and maternal evaluation of baby. These decreases were not statistically significant. The primary implication of this study for nurses is that they can be instrumental in assessing stress levels and improving the support systems of these mothers.

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Chapter 1

Introduction

Maternal role development has been described as incorporating the processes of role identity and role attainment. Role identity has been identified as the end point of the role taking process (Rubin, 1967a). It was later described as the mother's building of a reciprocal relationship that establishes both linkages and boundaries between mother and baby (Walker, Crain & Thompson, 1986a). Role attainment has been defined as the process in which competence in the maternal role is achieved and mothering behaviors are integrated into the maternal role set (Mercer, 1985a).

The development of role identity and role attainment has been investigated extensively in mothers of full term infants. It has not been studied in mothers of prematurely born infants. A related concept, maternal confidence, has been studied in mothers of premature infants (Zahr, 1991). Premature birth interrupts the process of maternal role development, and this interruption

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is conceptualized as a source of stress. In addition, the special characteristics of the premature infant are known to be a reason for frustration and stress for parents, such as during feeding (Barnard, 1978; Clark, 1987). The effects of these stresses on the process of maternal role identity and role attainment in mothers of premature infants and the intervening influence of social support is of theoretical as well as clinical significance.

Background

Conceptual Framework

The conceptual framework that guided this study incorporated concepts related to role identity, role attainment, social support and stress. Maternal age and infant birthweight were also included as variables in the framework.

Role Identity and Role Attainment

Previous study of the processes of role identity and role attainment has identified developmental phases experienced by the mother during pregnancy and the postpartum (Rubin, 1967; Mercer, 1981, 1985; Walker, Crain, & Thompson, 1986). Viewing role within an interactionist framework, Mercer (1981, 1985a) described role attainment

as a process of role acquisition during which the mother achieves competence and experiences gratification in her role. Mercer indicated that role attainment is a normative process and mothers of term infants complete the process during the infant's first year (1985a). She found that maternal role attainment behaviors followed similar patterns in the three age groups of mothers she studied. The patterns were noted from the earliest observations which occurred within one month after the infants were at home. Further she identified specific variables that would impact on maternal role development. These included maternal age, infant illness, early maternal-infant separation, the maternal support system, and infant temperament, among others.

Rubin (1967a) focused on maternal role acquisition and identified progressive stages involved in the taking-in of the maternal role: 1) mimicry, 2) role playing, 3) fantasy, 4) introjection-projection-rejection, and 5) grief work. For each of these operations, specific behaviors are exhibited. Role identity, according to Rubin, was the end point of this role taking process.

Walker, Crain, and Thompson (1986a) examined the

process of maternal role identity and attainment in the postpartum period. Role identity was viewed as the mother's evaluation of herself and her baby, while role attainment was defined as competence in specific tasks of infant care. These authors found that maternal attitudes demonstrated both stability and change during the initial period of having the baby at home. Mothers became more self-confident and positive towards themselves over the period studied, and they viewed their infants less positively. Multiparous mothers had more positive attitudes than primiparas.

While these authors have all identified specifics related to the processes of role identity and role attainment, their work has focused on mothers of term infants. The mother who gives birth prematurely experiences the sudden interruption of this normal role development process. As Rubin (1984) noted, this mother has an incomplete delivery and lack of clear distinction between phases of childbearing. This sudden interruption was conceptualized as unwanted and unpredicted change. In addition, the presence of the premature infant, whose care needs are different from those of a term infant, was conceptualized as a further stressor, as Mercer suggested

(1981). The presence of such a stressor could, in turn, alter a mother's perception of her identity in her role, as suggested by Walker (1989). These ideas suggested that the following issues required study:

1. level of maternal role identity and role attainment as a mother takes her premature infant home from the hospital.

2. the level of maternal role identity and role attainment after the infant has been home for four weeks.

3. the contribution of stress, social support, maternal age and infant birthweight to role identity and role attainment in these mothers.

4. the difference in stress and support levels for these mothers during this time period.

Stress

The concept of stress has been defined from different perspectives. Research has examined stress from the viewpoint of being either a stimulus or response. When stress is a stimulus, it is conceptualized as leading to a disruptive response. Conversely, if it is a response, it is the effect of a deleterious stimulus (Derogatis, 1982; Lyon

& Werner, 1987).

More recent work has indicated a shift toward viewing stress within a relational or transactional framework. That is stress occurs between the person and the environment and the person appraises whether it is taxing his or her resources (Folkman, 1984; Appley & Trumbull, 1986; Lyon & Werner, 1987). Subsequently, the person assesses the ability of available resources to assist him/her in dealing with the stressor (Lieberman, 1982). In addition, as suggested by Pearlin (1982), an unscheduled stressor is likely to mobilize social supports. These ideas were relevant for the framework of this study.

Research demonstrates that the premature infant is often less developed than the term infant. This can result from a variety of factors, such as low birthweight or medical complications such as respiratory distress syndrome. Since these infants have immature neurophysiologic systems, their energy will be directed toward physiological stabilization rather than interaction (Magyary, 1984).

Recent research results also suggest that premature infants have different patterns of interaction

with their mothers compared to those of term infants. For example, they gaze at faces, including their mothers' for shorter periods of time and are slower in orienting toward stimuli (Masi & Scott, 1983; Telzrow, Kang, Mitchell, Ashworth, & Barnard, 1982; Sostek, Davitt, Rinzi, Born & Kiely, 1982). This different style of interaction will occur regardless of infant age and birthweight. This fact leads to the postulation that mothers of premature infants will perceive more stress in their lives that is related to the premature birth and subsequent caretaking they must assume. Barnard, Snyder, and Spietz (1984), noted that the presence of a premature infant was one of the factors that contributed to low involvement of mothers in a nursing program designed to support mothers and infants in the home environment.

Mercer (1985a) noted that role strain or a woman's felt conflict and difficulty in fulfilling maternal role obligations can be influenced by the situational context, role partner (i.e. the infant), self-system and perceived role performance. This then implies that if a mother perceives her situation as stressful, she will experience increased stress in her role development. This

is analogous to the concept of perceived stress as discussed by Cohen, Kamarck, and Mermelstein (1983).

Abidin (1986) proposed that parenting stress is the amount of stress a parent identifies in a parent-child system. Younger (1984) found that parenting stress, particularly the child characteristics were mediated by social support. Similar findings were noted by McKinney and Peterson (1987) who found that parenting stress related to having a developmentally disabled child was moderated by spousal support. This implies that stress which a mother identifies as being present during her role development will likely be influenced by the presence of a supportive relationship. The question which then arises is whether perceived stress and identified stress will contribute to the processes of role identity and role attainment in the mother of a premature infant.

Social Support

That social support can be effective for people experiencing stress was suggested initially by Cobb (1976). He defined support as information leading a person to believe that he is esteemed, cared for, loved and a member of a network of mutual obligations.

Similar ideas have been proposed by other researchers. House and Kahn (1985) presented the following parameters as definitions of social support:

1. Social support refers to the existence or quantity of social relationships or a particular type of relationship.

2. Social support has been defined in terms of the functional content of relationships which includes the degree to which the relationship meets needs for information, tangible aid or emotional concerns.

Kahn and Antonucci (1980) recommended that social support functions to facilitate role transitions and that it can aid in determining an individual's well-being throughout life. Social support, they assert, has an effect primarily through interaction of the person with those individuals who comprise his personal network or convoy. Requirements for and adequacy of support will vary depending on the person's specific situation.

Specific propositions of Kahn and Antonucci (1980) related to social support that were relevant to this study included:

1. Social support is defined as interpersonal transactions that serve one or more of the following functions.

a. Affect - transactions that include expressions of liking, admiration, respect or love.

b. Affirmation - transactions that include expressions of agreement or acknowledgement of the appropriateness or rightness of some act or statement of another person.

c. Aid - transactions that consist of direct aid or assistance including things, money, information, time and entitlements.

2. Social support is proposed as being comprised of a personal network of family, friends, and others. This network often cuts across role boundaries in its interpersonal relationships and interactions.

3. The effect of social support is most likely to be observed when any of a person's major life roles undergoes change, especially unwanted and unpredicted change.

These concepts are examples of social support serving as a resource in the presence of stress (Kahn & Antonucci, 1980; Cohen & Syme, 1985).

Research which has examined social support in mothers of premature infants has incorporated these concepts related to social support. Crnic, Greenberg, Ragozin, Robinson and Basham (1983) and Minde, Whitelaw, Brown and Fitzhardinge (1983) found that emotional support served to moderate the impact of the stress of having a premature infant.

Other authors (Sweeney & Davis, 1979; Kagey, Vivace & Lutz, 1981; and Wandersman, Wandersman & Kahn, 1980) found that functional support for new parents came from involvement with groups with similar concerns. In these studies, the involvement was with other parents with new infants. The question which then arises is whether social support will influence role identity and role attainment in mothers of premature infants.

COMPONENTS OF CONCEPTUAL FRAMEWORK

STRESS

Perceived Stress

Parenting Stress

SOCIAL SUPPORT

Functional

Support

ROLE IDENTITY

Maternal view of self

and baby

ROLE

ATTAINMENT

Gratification

in role

ADDITIONAL FACTORS

Maternal Age

Infant Birthweight

FIGURE 1

TIME 1	TIME 2

PREMATURE
BIRTH ——————→

SOCIAL	SOCIAL
SUPPORT	SUPPORT
PERCEIVED	PERCEIVED
STRESS ——→	STRESS
MATERNAL	PARENTING
AGE	STRESS
INFANT	MATERNAL
BIRTHWEIGHT	AGE
	INFANT
	BIRTHWEIGHT

ROLE	ROLE
IDENTITY	IDENTITY
& ROLE	& ROLE
ATTAINMENT	ATTAINMENT
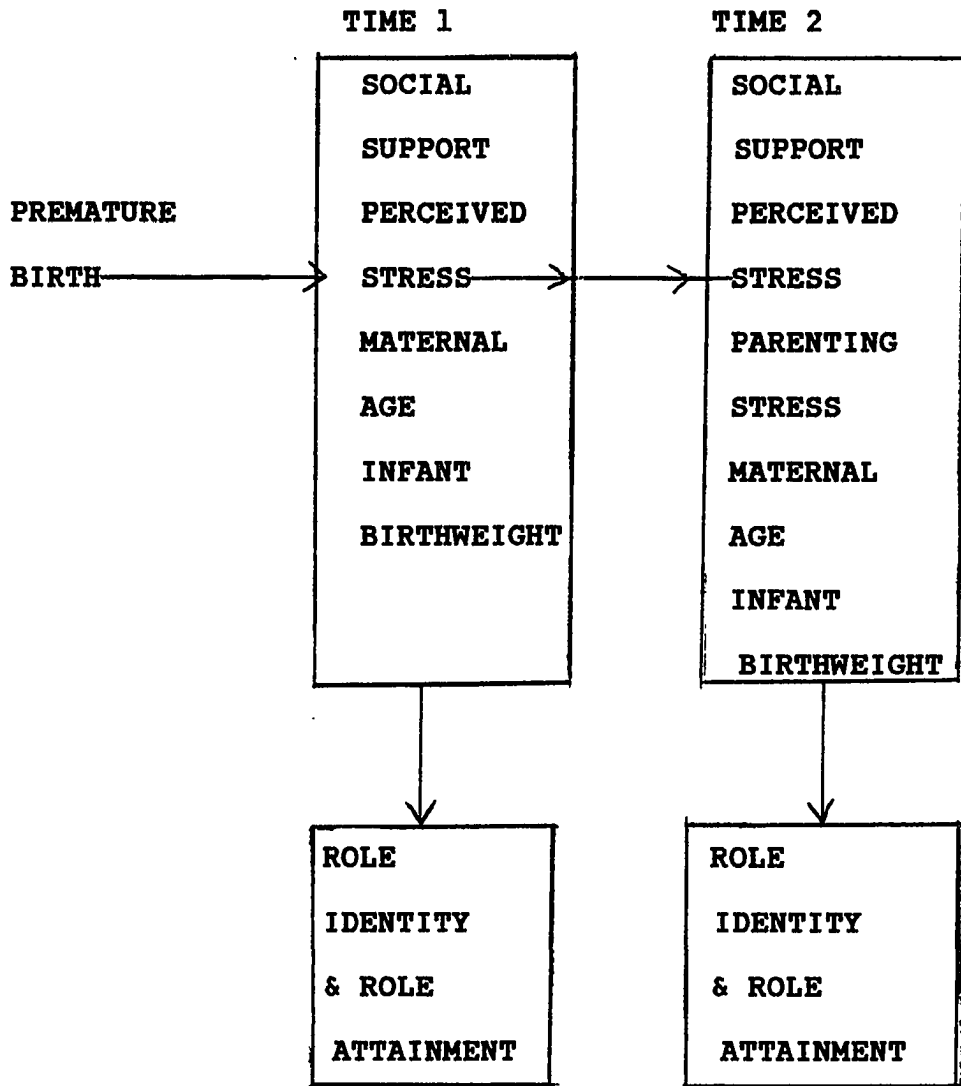
FIGURE 2

Summary of Conceptual Framework:

The component variables studied are presented in Figure 1. The conceptualization of the relationship of these variables for the purpose of this study was comprised of the following components:

The mother of a premature infant is experiencing the stress of the presence of her prematurely born infant. The infant's early arrival interrupted the normal process of maternal role development. The sudden interuption of this process is conceptualized as unwanted and unpredicted change. The interaction of these stressors in turn leads to perceived stress and identified stress in the role of parent, a role for which the mother is not yet ready. The mother's age and size of her infant, as measured in birthweight, may further interact with the stress she experiences.

If the mother is receiving what she identifies as functional support from a personal network, during this time, it is hypothesized that she will have less stress in the role of parent. Therefore, she will be better able to achieve the transition to the role of mother. These relationships are presented schematically in Figure 2.

Purpose of the Study

The purpose of this study was to identify the relative contributions of stress and social support to role identity and role attainment in mothers of premature infants at two points in time:

1. when the infant is being discharged from the hospital and the mother has not had full caretaking responsibility,

2. when the infant has been home for four weeks and the mother's caretaking responsibility has increased.

Research Questions

The research questions addressed in this study were:

1. What are the relative contributions of stress (i.e. perceived stress) social support, maternal age and infant birthweight to maternal role identity and role attainment in mothers of premature infants when the infant is being discharged from the hospital?

2. What are the relative contributions of stress (i.e. perceived stress, parenting stress) social support, maternal age and infant birthweight to maternal role identity and role attainment in mothers of premature

infants when the infant has been at home for four weeks?

3. Is there a change in perceived stress from time one to time two?

4. Is there a change in social support from time one to time two?

5. Is there a change in role identity and role attainment from time one to time two?

Definition of Terms

For the purposes of this study, the following definitions were used:

1. Social support - support that intervenes between individually identified stress and its consequences. Social support comes from interpersonal transactions that (a) moderate the effects of stress, (b) come from a network that cuts across role boundaries, and (c) includes expressions of (1) admiration, (2) acknowledgement of another's appropriateness, and (3) direct aid (Kahn & Antonucci, 1980). Social support was measured by the Norbeck Social Support Questionnaire (NSSQ) (Norbeck, Lindsay & Carrieri, 1981).

2. Stress - that which the individual identifies in the following ways:

a. perceived stress - the degree to which situations in one's life are appraised as stressful (Cohen et al., 1983). This was measured by the Perceived Stress Scale (PSS) (Cohen et al., 1983).

b. parenting stress - the amount of stress, consisting of child and parent characteristics, that a parent identifies as being present in a parent-child system. This was measured by the Parenting Stress Index (PSI) (Abidin, 1986).

3. Role identity - degree to which a mother has a positive view of herself and her baby, and evidences a reciprocal relationship between mother and baby. This was measured with two semantic differential scales, SD-Self (SD-S) and SD-Baby (SD-B) (Walker et al., 1986).

4. Role attainment - the mother's identified gratification with specific events occurring after the birth of her baby. This was measured with the Gratification in the Mothring Role Scale (GRAT) (Mercer, 1985).

5. Maternal Age - the mother's age as reported by her on the demographic data sheet.

6. Infant birthweight - the infant's birthweight, measured in grams and reported on the infant's medical record.

Significance of the Study

Although they did not assess role identity and role attainment specifically, Fanaroff, Kennell, and Klaus (1972) noted that maternal psychological preparedness is not usually considered when a premature infant is being prepared for discharge from the hospital. The work that has examined role identity and role attainment to date (Rubin, 1967; Mercer, 1985; Walker et al., 1986) implies that mothers of term infants have achieved a level of psychological preparedness. Similar information is needed about mothers of premature infants. Findings of this study may provide a basis for improved care delivery to mothers and their premature infants with subsequent improvement in outcome for mother and baby.

Chapter 2

Literature Review

The literature reviewed in this chapter addresses the concepts of role identity and role attainment, the premature infant as stressor, maternal-infant separation, maternal-infant interaction in prematurity, and social support, including support in new parents and in mothers of premature infants. The purpose of the literature review is to present current knowledge related to role identity and role attainment and how these processes may be influenced by social support, stress, maternal age and infant birthweight in mothers of premature infants.

Role Identity and Role Attainment

Rubin (1967a) identified phases experienced by an expectant mother during her pregnancy. This account drew on classical role theory to develop a framework related to role acquisition and focused on procurement of the maternal role. Two groups of women, primiparas and multiparas, were studied. Analysis of interviews and observations indicated that pregnant women experienced specific phases during

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their pregnancy. These included mimicry, role playing,
fantasy, introjection-projection-rejection, (I-P-R) and
grief work. Each phase had specific behaviors that were
identified. For example, role play involved acting out 2
"what a person of this position does in a situation like
this" (Rubin, 1967a p. 241). Grief work was identified
as a letting-go of a former identity in roles now
incompatible with the new role, and role identity is the
end-point of the role taking process.

This phase of Rubin's work utilized a field
methodology. A total of nine subjects, five primiparous and
four multiparous mothers were interviewed multiple times
throughout their pregnancies and postpartal periods. With
this low number of subjects, generalizability of findings
would be a concern. To improve this limitation, an
additional 82 primiparas and 74 multiparas were recruited
and interviewed at specific points in the data collection
process.

All interviews were subsequently coded to identify
content relevant to the process of becoming or being a
mother. Primiparous mothers identified an average of 25.8

relevant items per interview, while multiparous mothers
identified an average of 37.2 relevant items.

Analyses revealed that items relevant to becoming or
being a mother had three dimensions. Rubin identified these
as (1) the self system as object, (2) the process, and (3)
the model or referrant as the subject.

Each of these dimensions was in turn further
clarified. The self system served to determine what would
be admitted by selective perceptions and by prioritizing
motivations. The self system also manifests three
categories: ideal image, self image, and body image.

Ideal image was the mode for expressing those factors
that were found to be desirable for maternal behavior. Self
image was used to represent the consistent self that
continued into the here and now. Body image represented the
continuing physical and emotional changes of pregnancy.

The process dimension included the operations involved
in becoming a mother and consisted of five categories:

1. Mimicry included the adoption of behavioral
manifestations that are recognized as symbols of
childbearing or childrearing. Mimicry was expressed in

action or expectations as to what will happen.

2. Role playing consisted of an actual "acting out" of what is done in a situation. For example, women pregnant with their second child played the role of the mother of two children.

3. Fantasy included the mother's wishes, fears, daydreams, and dreams and was indicative of a deepening involvement with the future role of mother. Some activities did result from fantasies and these included a variety of forms. At times, information gathering or planning resulted from fantasies. Rubin (1967a) noted a sequential ordering of these operations as pregnancy progressed.

4. Introjection-Projection-Rejection was similar to mimicry, but somewhat refined. In I-P-R, an action started within self and an outside model was found whose behavior was matched for fit. The outside behavior served as reinforcement in a good fit, or was rejected if it was not satisfactory. This phase represented a firmer role-taking since subjects were selectively interpreting models' behaviors. Identity was defined as the goal of the role-taking process. This achievement was marked by the subjects

reference to self without discussion of a model.

5. The other process that Rubin discussed was grief work. This process was viewed as a separate operation from role taking-in or role taking-on. It included reviewing in memory events associated with a former self. The process served to loosen ties with that former self. Grief work was not finalized as much as it was brought to a level of resolution. Grief work was noted to be a catalyst for other operations of role-taking.

The final dimension that Rubin (1967b) discussed was subjects' use of models and referrants. In relation to this dimension, the essential difference noted between primiparous and multiparous mothers was in their selection of significant others. In both groups, the significant others were almost all women.

Models were either the subject's own mother or a peer. Mothers were the significant contributors to a subject's set of anticipations in becoming a mother. Subsequently, as each phase of role-taking began, the subject's mother was the initial model. However, as the phases progressed, mothers were replaced by peers. When mothers were actually

physically available to the subjects, they were viewed as a helper and not as a peer.

Peers tended to be generation and sex specific. Primiparous mothers were inclined to use peers other than relatives more than did multiparous mothers. Peers served to provide the necessary reflections of the self system.

Others identified as significant by subjects included the partner or spouse and children. Multiparous mothers tended to utilize children, either their own or related children as referrants. Partners, in this case the spouses, were used for support and reinforcement particularly when goals were mutual.

The additional significant feature noted by Rubin was the identification of the partner with whom the role was to be enacted. The identification included a process of matching the newborn with others in the family. For example, references were made as to whom the baby resembled physically.

These phases were observed in both the long-term study group and the controls. That the observations were present in the control group served to validate the data. Rubin's

use of the field study approach allowed for in-depth investigation of a significant role transition. This work identified specific information that formed the basis for later investigations by other authors (Mercer, 1981; Walker et al., 1986).

Mercer (1981) presented a comprehensive theoretical framework for studying factors that impact on the process of maternal role attainment during the first year of motherhood. In discussing this framework, Mercer noted that the ease of transition to a role will be affected by many factors. Her literature review identified key variables that have an impact on the mothering role. These variables included such components as maternal age, perceptions of the birth experience, early maternal-infant separation, infant illness, social stress, the maternal support system, self-concept and personality traits, maternal illness, child rearing attitudes, and infant temperament.

Based on her review, Mercer was able to clarify the framework that supported the process of maternal role attainment over the first year of motherhood. The framework that Mercer described was based on role theory and the

developmental stages occurring in role acquisition (Mercer, 1981). Within this framework, Mercer viewed the infant as an active partner in the role-taking process. This was consistent with the stages of role acquisition described by Thornton and Nardi (1975). Subsequent work (Mercer, 1985a) described the research itself.

This later work (Mercer, 1985a) examined the process of maternal role attainment over the first year of motherhood. Specific questions addressed: (a) whether the pattern of maternal role attainment behaviors vary according to maternal age, (b) what challenges, demands, and role strain are experienced, (c) which mothering behaviors were viewed as ideal, (d) how the mother viewed her self image in the role, and (e) at what point the maternal role became internalized.

A repeated measures design was utilized, and both quantitative and qualitative data were collected. Only primiparous mothers were invited to participate, and 52% (N= 294 women) agreed to participate. Of these, 52 dropped out during the course of the study. Subjects comprised three age groups: (1) teenagers, 15 to 19 years

of age (n = 66), (2) adults, 20 to 29 years of age (n = 138), and (3) adults 30 to 42 years of age (n = 90). This low response rate could have been due to the length of time involved in participation in the study. It could also have been because only those mothers who were aware of their own feelings chose to participate.

Maternal role attainment was measured with four instruments: (1) Feelings about the Baby (FAB) with coefficient alpha reliabilities ranging from .51 to .65; (2) Gratification in the Mothering Role (GRAT) with alpha reliabilities ranging from .77 to .80; (3) interviewer rated Maternal Behaviors (MABE) with interrater agreements ranging from .80 to .90; (4) self reported Ways of Handling Irritating Child Behaviors (WHIB) with interrater agreements ranging from 87 to 89 percent (Mercer, 1985a). Information related to validity of these instruments was not given.

Results indicated recognizable patterns for the behaviors over time. Maternal feelings about the baby varied with all mothers feeling more positive at four months post birth. After this, positive feelings declined.

Maternal gratification in the mothering role did show

age differences. As with feelings, gratification was high at four months and then decreased except in the 20 to 29 year-old group. The 30 and older group had significantly lower scores than the other groups at each time period. According to the demographic data Mercer provided, 63% of the 30 and older group held a baccalaureate or higher degree. This fact would imply, as noted by Mercer, that many of them were career women who might have been experiencing less gratification in their maternal roles.

Maternal competency behaviors were also higher at four months. The teenage group showed consistently lower scores than the older groups for this variable.

Ways of handling irritating child behaviors also improved as the infants grew. This finding was especially noticeable for teenage mothers.

The interview data were content analyzed and the results yielded information on what the mothers perceived as major demands or challenges. At all four time points (1, 4, 8, and 12 months post birth), personal time, role skills, sleep deprivation, and responsibility were identified by the mothers as challenges and demands.

At eight and twelve months, the infants' behavior

became a major demand. As the demand occurred, feelings of maternal incompetency increased. However, the incompetency did not drop as low as it had been at one month post birth.

Interviews also yielded information similar to that identified by Rubin (1967a). For example, 52% of the sample identified their own mothers as role models. Other role models identified included aunt, sister, in-law and girlfriend.

In later work (Mercer, 1985b), the relationship of gratification in mothering to age, performance in the role, role strain, educational level, readiness for pregnancy, experience in infant care and mate relationship was examined.

In Mercer's (1985b) study, gratification was measured by the Gratification in the Mothering Role Scale (GRAT). The GRAT is an adapted checklist on which subjects rated the extent to which statements such as "pride in my baby's development" were true for them. This study utilized the same sample as the previously described investigation (Mercer, 1985a).

The results indicated age differences in gratification. Younger women reported greater gratification

in the role at eight months post birth. Significant relationships were found by age group on some of the variables.

Within the 30 to 42 year old group, the older the mother, the greater was her gratification (r = .27, p < .05) This increased gratification also occurred with experience caring for infants (r = .22, p < .05). In the 20 to 29 year old group, a significant relationship between gratification and the relationship with the spouse was noted (r = -.40, p < .001). That is the 20 to 29 year old mothers had greater gratification when the relationship with the spouse was more positive. Older mothers had greater gratification when the relationship with the mate was more bothersome.

The results support the idea that multiple factors, including maternal age. can contribute to maternal role identity and role attainment. However, the remaining question centers on what the experience is for the mother who has the developmental process suddenly interrupted, as in the birth of a premature infant.

Walker, Crain and Thompson (1986a) studied stability and change in maternal role attainment and identity in the

postpartum period. The sample for this study was composed of 64 primiparous and 58 multiparous women, all of whom had experienced an uncomplicated pregnancy, labor and delivery. Role attainment was measured by the Pharis self-confidence scale that assessed confidence in certain infant care tasks. Role identity was defined as the mother's evaluation of herself and her baby as measured by two semantic differential scales.

The specific questions addressed focused on: (a) change and stability that occur in role identity and role attainment in the postpartum period, (b) the relationship between infant sex, maternal age, education and socioeconomic status, and role identity and role attainment.

Results indicated that the variables in question showed evidence of both stability and change. Maternal attitudes became more positive over the two testings, with multiparous mothers showing more positive attitudes towards themselves than primiparas. Multiparas also showed more positive attitudes towards their babies and reported greater self confidence than did primiparas. Correlations with demographic variables in each group accounted for less

than 10% of the variance in attitudes.

Subsequent work (Walker, Crain & Thompson, 1986b) examined the dynamics of the process of maternal role attainment during the postpartum period. The specific question addressed in this investigation was: What relationships do subjective aspects of role attainment, specifically maternal identity and perceived role attainment, have to demonstrated role attainment at four to six weeks postpartum? The relationships among demonstrated role attainment and the demographic variables identified in the previous study were also examined.

In addition to the tools utilized in the previously described investigation, this study used a measure of maternal-infant adaptation to assess demonstrated role attainment. This scale was used to rate videotapes of mother-infant interaction during feeding at four to six weeks postpartum. The sample for this study was the same as for the first investigation (Walker et al., 1986a).

Results indicated that the component of maternal identity measuring "myself as mother" at time one (one to three days postpartum) was significantly related to demonstrated role attainment in both groups. Additionally,

confidence in the maternal role at time two (six weeks postpartum), was significantly related to demonstrated role attainment. Demographic variables, such as maternal age, were significantly related to demonstrated role attainment (r = .27, p < .05). These significant correlations were noted in primiparous mothers. Other demographic variables that were related to demonstrated role attainment in primiparas were education and SES.

Dunnington and Glazer (1991) focused on previously infertile women, in their examination of maternal identity and early mothering behavior. Their pilot study employed Stryker's symbolic interactionist theory, as a framework. Stryker views the self as having multiple discrete identities. Dunnington and Glazer used a combination of quantitative data and open-ended interviews to obtain data from previously infertile and never infertile women. Significant correlations were present between the two measures of maternal identity, as measured by Walker's semantic differential scale, in the previously infertile women. Additionally, in this group, Semantic Differential-Self was significantly correlated with maternal feeding behaviors at four to six weeks postpartum.

As did Mercer's work, these investigations also raise the question of what happens with these processes in mothers of premature infants.

The only additional work that examined maternal role transitions studied the relationship among employment status, employment role attitude, role conflict and marital satisfaction, and ease of role transitions in 86 first time mothers (Majewski, 1986). Data for this study were collected from 5 to 18 months after the birth of the child. Mothers in this sample were unemployed, had jobs, or had careers. Significant relationships were found between high role conflict and more stressful transition, as well as between greater marital satisfaction and greater ease in transition for all mothers. Marital satisfaction was based on perceptions of the marital relationship at a given time.

These findings would imply that the marital relationship is an important component for successful maternal role transitions.

The Premature Infant as Stressor

The premature infant is physiologically unstable at birth. This fact, coupled with the infant's different reactions to stimuli from those of term infants, highlight

that premature infants will often be a stressor for their mothers. Ferrari, Grosoli, Fontana, and Cavazzuti (1983) assessed behavioral and neurological items of the Brazelton Neonatal Behavioral Assessment Scale (BNBAS) in 20 low risk preterm and 20 healthy term infants. All infants were 40 weeks at age of testing. In the clusters studied, the premature infants displayed poorer performance in orientation, motor performance, regulation of state and autonomic regulation. These findings are consistent with other studies which have focused on the premature infant's ability to interact with adults, specifically their mothers.

The premature infant's ability to interact has received increased attention in recent research. However, ability to interact does not imply that interacting will be perceived as positive by the caregiver (Magyary, 1984).

Masi and Scott (1983) examined infants' early responses to social stimuli in 14 preterm and 16 term infants. Stimuli used were the faces and voices of the infants' primary caregiver and a stranger. Duration of visual fixation and latency to first fixation were measured. All infants were tested after having been home

for a period of three to four weeks and then again four weeks later. Results indicated that while preterm and full-term infants looked at their mothers' faces more, the preterm infants gazed for shorter periods. Additionally, preterm infants were slower in orienting toward the faces. The investigators also noted that the preterms were more difficult to test in that they required more time, were more fussy, and eliciting their attention was more difficult.

Masi and Scott's findings are similar to other work that examined premature infant behavior using the Brazelton Neonatal Assessment Scales (Telzrow, Kang, Mitchell, Ashworth, & Barnard, 1982; Sostek, Davitt, Rinzi, Born & Kiely, 1982). Telzrow et al. (1982) compared 90 preterm infants to 42 normal newborns when they reached 40 weeks gestational age. All infant ages were compatible at time of testing. In addition to Brazelton items, infants were compared on such supplementary items as general tonus, motor maturity, and self-quieting. While these preterms demonstrated an ability to interact, their overall responses to manipulation and ability to control state were limited.

Sostek et al. (1982) factor analyzed Brazelton scores of 227 high-risk preterm infants tested at time of discharge from the hospital. Mean gestational age of these infants was 32.9 weeks at testing. In this group, medical complications were related to response decrement. Specifically, less organized response to certain stimuli occurred with more complications. The implication of these studies is that even though interaction does occur, it may not be rewarding for the caregiver. This idea was explored by Friedman, Jacobs, and Werthmann (1982), who examined spontaneous activity, irritability, state change and responsiveness to soothing in 23 black term newborns and 45 black low risk preterms at expected date of birth. All infants were observed after a feeding. Specific interventions, such as placing a pacifier in the infants mouth were used to elicit behaviors. Findings indicated that the preterms fussed and cried and changed state more often and were less easy to soothe than term infants.

Lester, Hoffman, and Brazelton (1985) systematically examined social interaction rhythms in 20 term and 20 preterm Caucasian infant-mother dyads when the infants were three and five months old. All dyads were studied in the

laboratory and interactions were videotaped and analyzed. As expected, differences in interaction were still present. In this study, term infants maintained a smoother interactional sequence and led interactions more than preterms. As Magyary noted (1984) the basic differences that the preterm brings to the interaction may well present caregiving problems for the mother.

Maternal - Infant Separation

The literature on maternal-infant separation has examined the concept from a variety of perspectives in mothers of preterm and term infants. Barnett, Leiderman, Grobstein, and Klaus (1970) hypothesized that mothers who were denied contact with their premature infants would be less responsive to them. Mothers in the experimental group were allowed to handle and then to feed their infants. A preliminary discussion of a long-term study indicated that 11 of the 13 randomly selected mothers who had regular contact with their infants felt positively about the experience. The two mothers in the sample who did not have contact with their infants refused the invitation for contact because of their babies' poor prognoses. The mothers' refusal of contact raises the question of whether

they also might not have been ready to interact as mothers with their infants.

Subsequent work (Klaus, Jerauld, Kreger, McAlpine, Steffa & Kennell, 1972) studied extended early contact in a sample of 28 primiparous mothers of normal term infants. The mothers were assigned to either the extended contact or routine contact group according to day of delivery. Data collection at 28 to 32 days postpartum examined maternal behavior during a standardized interview, an examination of the infant, and in a filmed feeding situation. While these authors made decisions in advance regarding scoring of the data, mothers knew that they were being filmed. The authors indicated that mothers who had been in the extended contact group evidenced more positive interactions with their infants. However, they failed to note whether additional variables, such as support systems of the mother or infant behavior, might have contributed to this observation.

DeChateau (1976) and Kontos (1978) also examined extended contact in mothers of term infants. DeChateau focused on skin-to-skin contact versus routine care in a group of 42 primiparous mother-infant pairs. Sample sizes were (n = 22) for skin-to-skin contact and (n = 20) for

routine care. DeChateau noted statistically significant differences, in maternal behaviors towards infants at 36 hours postpartum, between the two groups.However, these differences were present only in mother-male infant pairs in the two groups at three months postpartum. This finding was not significant in mother-female infant pairs.

Kontos (1978) examined the effect of extended contact on maternal attachment behavior. This study utilized skin-to-skin contact in the delivery room and rooming-in as the independent variables. Contact was one of four types. One group of mothers had extended contact with their infants beginning within 45 minutes after birth and lasting one hour. A second group had routine hospital procedures immediately after birth and included brief holding shortly after birth, then separation, then brief contact at six to twelve hours. The third group had both extended contact within 45 minutes after birth and rooming-in within 24 hours after birth. The fourth group received routine hospital procedures for the entire hospital stay. The four groups of twelve mother-infant pairs were observed at one and three months postpartum to assess attachment behavior. Information on parity was not given. Significant

differences in attachment behaviors were noted for both the extended contact group and rooming-in with routine contact group compareed to the other two groups. These findings raise questions concerning the author's conclusion that her study lends evidence for a maternal sensitive period in the immediate postpartum hours.

Lamb (1982a; 1982b) discussed some additional discrepancies in these three studies. For example, in the work by Klaus et al. (1972), only five out of at least seventy-five measures revealed significant differences. Additionally, medical and nursing staff were aware of subjects' group assignment. Lamb also indicated that deChateau's findings were not replicated in a later investigation. Regarding Kontos' work (1978), Lamb noted that the fact that the author made all behavioral observations of infants and mothers could have biased the data. Other authors have explored different aspects of the outcomes of maternal-infant separation.

O'Connor, Vietze, Sherrod, Sandler, and Alteimeier (1980) examined parenting inadequacy after rooming-in in 301 primiparous low-income, predominantly black mother-infant pairs. The 143 rooming-in mothers in this sample had

their infants with them for up to eight hours daily until discharge. The remaining 158 mothers had routine postpartum contact. Parenting inadequacy was assessed when infants were 17 months old. The study evaluated such factors as physical abuse of the child, voluntary parental surrender of caretaking responsibility, or growth failure in assessing parental inadequacy. No follow-up was conducted in either study group between discharge and the 17 month data collection. These authors indicated that a total of two rooming-in and ten control children experienced parenting inadequacy. Information about how these differences were analyzed statistically was not given. Again data on variables such as maternal support and assistance with child care were not given.

Maternal psychological preparedness to give care to premature infants was explored retrospectively by Fanaroff. Kennell, and Klaus (1972). Frequency of maternal visits and/or telephone calls were the variables used retrospectively to identify mothers "at risk" for mothering disorders. Infrequent visitors were defined as those mothers who visited or called less than three times in a two week period. Data from a total of 146 mothers were

evaluated. Of these, 38 were identified as infrequent visitors, and nine had later mothering disorders, which included primarily failure-to-thrive in infants.

Seashore, Leifer, Barnett, and Leiderman (1973) hypothesized that mothers denied early contact and caretaking of their premature infants would have lower self-confidence. Of the 21 mothers denied contact with their infants, only primiparous mothers had lower self-confidence that continued after the infants' discharge.

Collingwood and Alberman (1979) analyzed retrospectively whether specific maternal and infant factors present in 32 low birthweight infants separated from their mothers at birth might contribute to later rejection of the child. No significant relationship between infant factors and subsequent rejection was found. However, a significantly higher proportion of mothers of rejected children were "socially isolated". This term was defined as lacking contact with friends or relatives.

These varied results lead to the conclusion that maternal-infant separation must be viewed in a framework that includes variables other than just separation.

Maternal Interaction with Premature Infants

Maternal interaction with the premature infant has been examined from such perspectives as disturbances in the interaction, differences between these interactions and those of a mother and normal newborn, and later abuse of the child. As discussed in the previous section, interaction has also been viewed from the perspective of separation of mother and infant.

Harper, Sia, Sokal, and Sokal (1976) utilized a questionnaire to examine parental reactions to prolonged visiting of sick and premature infants in neonatal intensive care. Fifty-eight of ninety-one families responded to the survey. In the study, parents had unrestricted contact with their infants. The majority of parents, particularly mothers, chose to maintain contact with their infants, even when the infant was severely ill.

Similar observations were made by Beckwith and Cohen (1978) who examined the relationship between hazardous obstetrical and postnatal events and later maternal interaction with premature infants in 123 mother-infant dyads. Mothers and infants were observed at home during normal activities when the infants were one month old as

calculated from expected date of birth. The findings revealed that those infants who had experienced more risk received more social interaction and caretaking at that age.

Greene, Fox and Lewis (1983) examined videotaped mother-infant interactions at 3 months postnatal age in four groups of infants. Two groups were premature and two groups were term infants. The term and preterm infants were each divided into a healthy and sick group. Total number of infants studied was 62. The authors' findings indicated that mothers of preterm infants spent significantly more time interacting with and responding to their infants. However, neither of these studies indicated what type of maternal interaction occurred with the infants during hospitalization or what resources were available to the mothers.

Jeffcoate, Humphrey, and Lloyd (1979a) retrospectively examined disturbances in parent-child relationships in 34 families, 17 of which had experienced a premature birth. Preterm families were randomly selected and term families were matched based on maternal parity. All families were interviewed when their infants were approximately one year

of age. Mothers of preterm infants indicated that their babies were more difficult to care for than they had expected. Additionally, in two families who had an infant labeled abused or failure to thrive, the mothers had received inadequate support. In later work examining parental role perception in these same families (Jeffcoate, Humphrey, & Lloyd, 1979b), the mothers reported feelings of love for their preterm babies only after two weeks to two months. In contrast, thirteen of the seventeen term mothers reported feeling love within 24 hours after the birth of their babies. Information about infants' length of hospitalization was not given in either of these reports.

Inadequate support in mothers of premature infants was also noted by Hunter, Kilstrom, Kraybill, and Loda (1978). These authors undertook prospective follow-up, over a thirteen month period, of 255 infants who were discharged from a regional intensive care unit to their parents. In this study, 41 infants were identified as being at risk for abuse when discharged. This prediction was based on scoring of an investigator-designed psychosocial risk inventory. The inventory was scored after a family interview while the infant was still hospitalized. Inventory items included

such things as adolescent or inexperience in child care, precarious financial situation, and socially isolated situations with poor support system. All 41 families of the infants identified as at risk for abuse had inadequate social support. Of these, ten infants subsequently were abused. Those infants were identified as smaller and less mature in the nursery and were hospitalized longer than other infants. The cumulative effect of factors appear to be present in this situation.

Minde, Perrotta, and Hellman (1988) prospectively examined the impact of delayed development in premature infants on mother-infant interaction. These authors used home observations at three month intervals and directed maternal interview to assess interaction in 16 developmentally delayed premature infants and their mothers and in 16 normal control infants and mothers. All delayed infants scored below 80 on the mental and psychomotor development index of the Bayley scales. Maternal interviews focused on parental background, maternal experience with pregnancy, mother's past relationship with her mother and the infant's father, her previous psychiatric history and employment status.

Maternal attitudes were rated on a scale from very present to absent based on analysis of observations and interview data. While social support was not specifically defined, these authors found that those mothers who had a better psychosocial background combined with more support at home had more positive interactions with their delayed infants. These mothers also changed their behavior according to infant cues sooner than mothers with the opposite combination of factors. Interaction after discharge has also been examined.

Goodman and Sauve (1985) studied concerns about infants after discharge in 30 mothers of high risk infants and 30 mothers of normal newborns. Twenty-six of the high risk group were preterm infants. Concerns included such areas as infant feeding, sleeping, appearance, and mothers' feelings of attachment towards the babies.

These variables were measured by interview after the infants had been home for at least two weeks. All mothers expressed concerns. However, mothers of high risk infants identified a significantly higher number of concerns. As Penticuff (1980) noted, a combination of many factors may produce stress for mothers and thus impede interaction.

Parenting Stress

Stress as it occurs in the parental role has been the focus of many authors. The stress of a premature birth has been viewed as an acute emotional disorder (Kaplan & Mason, 1960). These authors suggested that even though prematurity is especially stressful for mothers, situational factors such as the behavior of the infants' fathers can assist in determining the outcome for the mother.

Other authors have examined the concept of parenting stress from slightly different perspectives. Several authors have examined the concept of stress in parents and used a measure of parenting stress developed by Abidin (1986). Abidin defines parenting stress as the amount of stress, composed of child and parent characteristics, identified by parents in a parent-child system. Abidin's tool measures these two dimensions and also gives a measure of total stress.

Zakreski (cited in Abidin, 1986) examined the relationship among Parenting Stress Index scores, marital stress, birth status (preterm vs. term), and infant development in 54 married and single mothers of infants who were three and six months of age. Zakreski found that single mothers and mothers of premature infants had

significantly more stress at both testings.

Younger (1984) examined determinants of stress at six to eight weeks postpartum in mothers of 101 healthy infants. She found that stress for mothers correlated with pregnancy that was unplanned and unwanted. This author also noted that social support was one of the variables that served to mediate the effects of stress.

McKinney and Peterson (1987) also used the Parenting Stress Index in examining predictors of stress in 67 mothers of developmentally disabled children. The Social Network Form was used to measure support received from outside the home. Spouse support was measured by response to one question on the spouse subscale of the Parenting Stress Index. In this study, child characteristics, as expected, significantly accounted for stress in these mothers when regression analysis was performed. Additionally, high spousal support correlated with high maternal perceived sense of control and low maternal mood disturbances.

Trause and Kramer (1983) assessed the effects of a premature birth on parents and the parental relationship.

A group of 38 parents of 19 low-risk premature infants was compared with 28 parents of 14 term infants. An investigator-designed inventory of parental perception measured parents' evaluation of their own needs. Parents' difficulty in adjusting to having a baby at home was assessed with a separate instrument. These authors found that parents, particularly mothers, of low-risk premature infants experienced more feelings of helplessness and worry in the first week after birth, in comparison to parents of term infants. However, after the babies had been home for a month the mothers of term infants experienced more upset than mothers of preterm infants. Parents of premature infants were also noted to become increasingly sensitive to each other over time. Term parents did not follow this pattern. At one month after the infants' discharge, maternal adjustment difficulty was inversely related to spouses' needs and feelings.

Laney and Sandler (1982) examined maternal stress, using the Life Stress Inventory. They looked at its relationship to infant status and maternal-infant interaction. Their subjects were 15 mothers of average for gestational age premature infants and 43 mothers of full-

term infants. All subjects were followed during pregnancy. The mothers were part of a group identified as being at risk for future parenting difficulties. This research revealed that mothers of premature infants experienced significantly more overall stress. Additionally, the premature infants evidenced less time engaging in interactional behaviors than did full-term infants.

Affonso and Mayberry (1990) reported on common stressors of childbearing women in the first and third trimesters and the postpartum period. A total of 60 women were interviewed during the postpartum period. The focus of this study was to identify stressors that generated distress. Stressors that were identified during the postpartum period included: 1) concerns about the baby's welfare, 2) time and schedule restrictions, and 3) concerns about being able to care for the baby among others.

The question that remains is how stress influences maternal role identity and role attainment.

Social Support

The additional question raised by the works discussed in the previous section is whether support can positively contribute to these stressful life events. The relationship

of social support to specific outcomes of life events has received much attention in the literature. As previously described, Kahn and Antonucci (1980) proposed that social support can be an important determinant of an individual's well-being. They further proposed that support functions particularly during major life transitions. This framework was developed after a detailed review of literature on support throughout the life cycle.

Utilizing Kahn and Antonucci's framework, Norbeck, Lindsey, and Carrieri (1981; 1983), and Norbeck (1984) described development of the instrument which has become a widely used measure of social support. In describing the repeated testing of their instrument (Norbeck, Lindsey, & Carrieri, 1983), the sources of support subjects identified were discussed. In this category, the two sources that were identified with greatest frequency were family/relatives and friends. Each of these sources were identified by more than 90% of the respondents. This finding has been noted in other studies of social support that focused on parents.

Nuckolls, Cassel, and Kaplan (1972) undertook one of the earliest studies of social support in primiparous mothers. They explored psychological or social factors that

contributed to a woman's ability to adapt to her first pregnancy. Factors that the questionnaire examined were feelings about self, marriage, extended family, social resources, and definition of pregnancy. Life change was measured by the Holmes and Rahe Schedule of Recent Events.

Of the 253 original subjects, 170 remained in the complete study. The significant finding of this study was that when high life change scores were coupled with favorable assets, pregnancy complications were significantly lower. This finding had many implications for intervention.

The efficacy of group support for expectant and new parents has received attention in several studies. Sweeney and Davis (1979) conducted a study that focused on providing a support group for expectant parents. A total of 12 parents consisting of five couples and two wives comprised the group. A prevalent theme in this group was the commonalities experienced by all members. For example, new mothers were able to admit openly that not being able to quiet a crying baby was frustrating. Additionally, both men and women described experiencing less guilt about feelings when they learned that other group members had

similar feelings.

Wandersman, Wandersman, and Kahn (1980) explored in a longitudinal study whether different types of social support in the early postpartum period would predict adjustment at the end of the first year of parenthood in first time parents. The groups studied consisted of 41 parents (18 fathers, 23 mothers) who attended parenting groups and 47 parents (23 mothers, 24 fathers) in a comparison group. Of the four types of support examined, marital support and parenting group support correlated with later adjustment. Marital cohesion and network support were statistically significant for mothers, while parenting group support and cohesion were significant for fathers.

The effectiveness of parent group support was also observed by Kagey, Vivace, and Lutz (1981) who explored the effectiveness of a pilot program that established a support group for new parents. A survey mailed to 270 parents who completed the program yielded responses from 98 of them. The majority of parents who responded to this survey responded positively to such areas as "feeling less alone in the role of parenting," and "feeling more positive about my role as a parent."

Utilizing Weiss' theory emphasizing the assets of social relationships, Cutrona (1984) examined whether social support and stress were predictors of depressive symptoms in 71 primiparous women. Investigator-designed tools were used to measure support and postpartum stress. Depression was measured by the Beck Depression Inventory. Participants completed these measures during the third trimester of pregnancy and at 2, 8, and 12 months postpartum. Cutrona found that the components of support most strongly predictive of later depression were deficiencies in social integration and reliable alliance, which involve aid and assistance from others.

Cronenwett (1985a) discussed the relationship between social support and postpartum adaptation to the parental role. Subjects were 50 primigravid couples who completed the Social Network Inventory during the third trimester of pregnancy, and the Postpartum Self-Evaluation Questionnaire at six weeks postpartum. Cronenwett found that support networks of those parents were composed primarily of relatives. As did other authors, she found that emotional support was the best predictor of satisfaction with the parenting role. For the mothers in this study, emotional

support had a correlation of r = .31 (p < .01) with confidence in the ability to cope with parenting, and a correlation of r = .39 (p < .01) with satisfaction with parenthood.

Later work, which described the long-term follow-up of these subjects, indicated that mothers perceived an increased need for support in the postpartum period. Increased support from the spouse over the first year was also noted by more than two thirds of the subjects in the investigation (Cronenwett, 1985b).

Other authors have focused on stress and support in populations that are considered to be at greater risk for difficulty than parents who experience a normal pregnancy. In an early study, Gunter (1963) examined psychopathology and stress in the life experiences of 20 black mothers of premature infants. A comparison group consisted of 20 mothers of term infants. Data analyzed consisted of the Cornell Medical Index, life history with pertinent social data, results of the Thematic Apperception Test and a home visit by a public health nurse. Mothers of premature infants were found to have more distant relationships with their husbands compared to mothers of term infants.

Focusing on family responses to premature birth, Caplan, Mason, and Kaplan (1965) presented data from 86 families after premature births. Families were interviewed in the home within two weeks of the infants' birth. The investigators' work consisted of two parts, an exploratory component and one that involved hypothesis testing. The exploratory component focused on hypothesis development with healthy and unhealthy mental health outcomes. Those parents who had healthy outcomes actively sought information about the baby and were aware of and expressed negative feelings about their crisis situation, that is the premature birth. Additionally, these parents actively sought support from family or community to deal with their feelings and tasks of caring for the baby. This work led to the definition of tasks facing the mother who experiences the crisis of premature birth. These tasks include: (a) preparing for possible loss of the baby,

(b) acknowledgement of feelings of failure at not delivering a full-term infant, (c) resumption of the task of relating to the baby, and (d) understanding differences between premature and normal infants. The hypothesis testing phase indicated that task accomplishment predicted

mental health outcome with 80% accuracy.

Attitudes and support systems in black mothers was the focus of research by Zuckerman, Winsmore, and Alpert (1979). They examined attitudes and support systems of 23 black adolescent primiparous mothers, 8 adult primiparous mothers and 24 adult multiparous mothers. All subjects were interviewed at two weeks and three months postpartum. Interviews focused on such things as perception of baby's behavior, attachment, self-image, and support system. Their findings indicated that the adolescents identified their extended family, as well as the baby's father as major supports. Support included advice on infant caretaking as well as actual assistance with care.

This was similar to later work by Crockenberg (1981) who examined the influence of social support, infant irritability, and maternal responsiveness on the development of infant-mother attachment at one year of age in 48 mother-infant pairs. Social support was assessed by interview. This author defined support as the assessment of affective material assistance experienced by the mother in her maternal role, relative to the stress experienced. Regression analysis indicated that social support

significantly predicted infant avoidance and resistance as measured by the Strange Situation Procedure. Those mothers with high support had less resistant, less avoidant babies.

Seiffert, Thompson, TenBensel, and Hunt (1983) used a survey to investigate the impact of family functioning, social support, parental experience with the neonatal intensive care unit (NICU) and infant morbidity on subsequent development of parenting problems. Surveys were completed by 54 parents (32 mothers, 22 fathers) at infant admission to the NICU, discharge, and three months after discharge. Using the Michigan Screening Profile of Parenting, these authors found that social support was related to coping with the child.

Minde, Marton, Manning, and Hines (1980) examined 32 mother-premature infant dyads in the premature nursery and later in the home environment. Additionally, this study assessed the contribution certain psychiatric and social factors made to specific maternal behaviors. These latter factors included such things as the mother's relationship with her own parents and her spouse. Those factors that were consistently identified as predictors of increased

interactive activity with the infant were the relationship with own mother and with the infant's father.

In later work, Minde, Whitelaw, Brown, and Fitzhardinge (1983) observed 184 premature infants and their families. One phase of this study focused on whether maternal background factors might contribute to their subsequent interactions with premature infants. Maternal background factors included such things as the social condition of the mother's family. In analysis of this data, scores for support and risk factors in mothers were combined. Mothers were then divided into either high or low interaction groups and the scores were compared to mean scores of infant morbidity. Data indicated that mothers with positive background factors interacted more with their well infants and infants who had a short illness than with infants who had long illnesses. The infants' medical instability might have discouraged mothers from interacting with their infants. Other researchers have also focused on mother-premature infant interaction.

Weingarten, Baker, Manning, and Kutzner (1990) investigated the relationship between maternal perceptions

of interactions with premature or term infants and the quality of their relationship with their spouses. All subjects in this study were married, had a minimum of a high school education, and included primiparous and multiparous mothers. These authors found that mothers of premature infants perceived their own infants to be better than average during the immediate and extended postpartum periods. Additionally, these authors noted that those mothers with negative perceptions of their infants tended to have higher marital conflict scores.

Crnic, Greenberg, Ragozin, Robinson, and Basham (1983) examined the relationships of social support and stress to maternal attitudes and early mother-infant interactive behaviors in mothers with preterm and term infants. Social support was defined as support coming from intimate relationships, friendships, and community support. The sample consisted of 52 preterm and 53 fullterm mother-infant pairs. All subjects were interviewed when their infants had been home from the hospital for one month. Specific areas addressed in the interviews included life stress, social support, general life satisfaction, and satisfaction with parenting. Mother-infant interaction was

videotaped during free play at infants' four month birthday (corrected for gestational age). Regression analysis indicated that intimate support and friendship were significant predictors of mothers' attitude towards parenting (R^2 = .27, p < .01). Attitudes were more positive with high support.

Follow-up work with these subjects (Crnic, Greenberg, Robinson, & Ragozin, 1984) indicated that, at 18 months infant age intimate support was the most stable form of support the mother received. In addition, stress and support had effect sizes in the range of .17 to .34 on life satisfaction and satisfaction with parenting.

Richardson (1982) noted that when others are experienced as supportive, childbearing endeavors are facilitated. This observation is still pertinent in summarizing findings from studies in the previous section.

Summary of Literature Review

The literature reviewed in this chapter indicates the following:

1. Maternal role development is a normative process experienced by mothers during the pregnancy and postpartum. Specific factors which can influence

this process include maternal age and infant illness among others. Specifics related to the process in mothers of premature infants remain to be studied.

2. The premature infant will interact differently from the full-term infant. This can be perceived as stressful by the mother.

3. The mother's interactions with her premature infant may be influenced by such variables as length of separation from infant due to illness of infant, her experience with the pregnancy, support from significant others, and, infant's prognosis. These factors will influence the stress the mother is experiencing.

4. Support from others, particularly intimate support has been identified as beneficial for mothers who are experiencing the stress of dealing with a premature birth.

If social support and stress function in maternal developmental transitions as described in this literature reveiw, it can be proposed that they will contribute to developmental transitions in mothers of premature infants.

Specifically, the literature has not yet answered the questions that were investigated in this study. That is the literature has not yet identified the relative contributions of stress, social support, maternal age and infant birthweight to role identity and role attainment in mothers of premature infants.

Chapter 3

Methodology

Design

The question addressed in this study was: What are the relative contributions of stress, social support, maternal age and infant birthweight to role identity and role attainment in mothers of premature infants at two points in time? This study employed a descriptive research design. Data collection covered a limited time period and repeated measures of selected variables were performed (Achenbach, 1978; Waltz and Bausell, 1981).

Sample

The sample consisted of primiparous mothers of prematurely born infants hospitalized in three neonatal intensive care units (NICU's) in northeast Florida. All mothers who met the eligibility criteria were invited to participate. Mothers were recruited for participation between March, 1989 and December, 1990, and background information was collected from mothers who declined to participate in the study.

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To be considered for participation, the mother had to meet the following criteria:

1. Be a first time natural mother of an infant born at 37 weeks or less gestation with weight appropriate for gestational age.

2. Be taking the infant home to reside with her.

3. Be able to read and write English.

4. Without history of mental retardation or psychiatric diagnosis.

5. Be 18 years of age or older.

The nurseries from which the sample were drawn were Level II or intermediate level nurseries. An intermediate level nursery receives infants requiring skilled nursing and medical care including monitoring, ventilation, arterial line placement and stabilization. Often infants from Level III nurseries are transferred to Level II units when they are stabilized. The largest of the nurseries from which subjects were recruited had an average monthly admission rate of 30 - 35 babies.

Based on an anticipated power level of .80, performing a multiple regression and repeated measures ANOVA with a type I error rate of .05, and an anticipated effect size of

.17, the recommended sample size was 63 subjects (Cohen, 1977). Estimates of effect size were derived using the background data from the studies of Crnic et al., (1983, 1984), Cronenwett (1985a), Walker et al., (1986b) and Mercer (1985b). These authors examined concepts similar to those used in the present study. A full discussion of these works is included in Chapter 2. In the studies reviewed, the authors discussed effect sizes ranging from .17 to .31.

Sample Characteristics.

During the data collection period, March, 1989 through December, 1990, there were 137 mothers who met the eligibility criteria for the study. Of those, 75 (55%) agreed to participate. Of the 75 mothers who completed the first phase of the study, 9 dropped out or were lost to follow-up. Reasons for their loss from the study will be discussed later.

In the group of mothers who participated in both study phases ($\underline{N}$ = 66), the mean age was 27 years (range 18 - 37 years), and mean educational level was 14 years (range 10 - 20 years). Occupational level of the majority of the families (57%) included the categories of medium business workers, minor professional and technical workers, which

comprise social strata 4 on the Hollingshead Four - factor Index of Social Status (Hollingshead, 1975). Fifty-six percent of the mothers indicated that they worked outside the home. For this group, the mean number of hours worked per week was 20. The major occupational categories for the working mothers were clerical and sales workers, and managers and minor professionals (Hollingshead categories 5 and 7). The major occupational categories for the infants' fathers were technical and semiprofessional workers and managers and minor professionals (Hollingshead categories 6 and 7).

Racial background of the participants was primarily Caucasian (n = 60, 91%). The remaining mothers were Black (n = 6, 9%). The majority of the group indicated that they were married, (n = 63, 95%). The remaining mothers listed marital status as single (n = 1, 2%), or engaged (n = 2, 3%).

Infant Data.

The mothers who took part in both study phases had a total of 73 infants as there were 7 twin pregnancies. Demographic data are presented on only 66 babies, however. To facilitate data entry and subsequent analysis, the twin

of each twin pair who was to be included for analysis was chosen by a coin toss. All twin pairs except one were same sex twins.

Of the 66 babies there were 35 males and 31 females. The mean length of stay was 33 days (S.D. 30.98), and mean gestational age was 32 weeks (S.D. 3.05). Mean birthweight was 1872.09 grams (S.D. 651.48). The mean APGAR scores at 1 and 5 minutes were 6 (S.D. 2.34) and 8 (S.D. 1.19). The mean complication score for the group of infants was 5 (S.D. 2.70). Forty-four of the infants (66%) required respiratory support after birth. Of these infants, 5 required a ventilator only, 10 utilized an oxyhood, 6 received continuous positive airway pressure (CPAP), 2 had intermittent mandatory ventilation (IMV), and the remaining 21 required a combination of the above therapies. Of the 21 who had a combination of therapies, 18 required a combination of ventilator and another therapy. Twelve of the infants (18%) required an apnea monitor after discharge. Following is a brief description of 3 infants who represent a very ill infant, a moderately ill infant and a healthy premature infant, whose mothers participated in the study.

Baby M was born at 27 weeks gestation to a 26 year old Caucasian mother. At birth, he weighed 627 grams and had 1 and 5 minute APGARS of 1 and 6. A subsequent 10 minute APGAR was 9. Baby M required ventilatory support for 30 days. He was diagnosed with bronchopulmonary dysplasia, although it was not oxygen dependent. Other complications included hyperbilirubinemia, hypoglycemia, anemia of prematurity, intraventricular hemorrhage, patent ductus arteriosis, necrotizing enterocolitis, bilateral retinopathy of prematurity and episodes of apnea and bradycardia. This infant required 88 hospital days before he was ready for discharge.

Baby S was born at 31 weeks gestation to a 25 year old Caucasian mother. At birth, he weighed 1389 grams and had 1 and 5 minute APGARS of 8 and 9. His complications included respiratiory distress which was treated with CPAP for 5 days. Additionally, he experienced hyperbiliubinemia, hypocalcemia, apnea and bradycardia. He was hospitalized for a total of 33 days before being discharged.

Baby A was born at 34 weeks gestation to a 34 year old Caucasian mother. At birth, he weighed 2036 grams and had APGARS of 3 and 9. His only complication was hypoglycemia

and he was ready for discharge 7 days after birth.

Non-Participant Mother and Infant Data.

There were 62 mothers who did not participate in this study. For this group, the mean age was 24.48 years (range 18 - 35 years), ethnicity was primarily Caucasian ($\underline{n}$ = 40, 65%). The majority of these mothers indicated that they were married ($\underline{n}$ = 46, 74%). Of this group, 24 mothers had requested that packets of the study materials be mailed to them, but they did not return the materials even after a reminder notice was mailed.

The remaining mothers who did not participate refused when they were initially contacted by the investigator. These mothers gave reasons such as "I am not interested", "I don't have time, My husband does not want me to do it", or "The baby is no different form any other, just smaller." One mother indicated that she and her husband were in too much emotional turmoil to think about the study.

The non-participant mothers had a total of 67 infants. There were 10 sets of twins and there was no data available on 5 of these infants. The 67 infants included 35 males and 32 females. Mean birthweight was 1904 grams (S.D. 617.12), and mean gestational age was 33 weeks (S.D. 2.72)

The meam complication score for these infants was 4 (S.D. 2.48). In addition, the APGAR scores at 1 and 5 minutes were 7 (S.D. 2.64) and 8 (S.D. 2.53). Only 9 of these infants required an apnea monitor after discharge.

Discussion.

The participant and non-participant groups had similar age ranges, ethnicity and marital status. The infant data for both groups were also similar specifically their birthweights, gestational ages and complications.

Both groups of mothers were also similar in age to obstetric patients served by the Florida Regional Perinatal Intensive Care Center (RPICC) Network during the 1988-90 biennium (Childrens' Medical Services, 1990). When the RPICC demographic data for this period were reviewed, it was noted that mean age of obstetric patients was 26 years in 1988-89 and 25 years in 1989-90. For each of these periods, the majority of the women served (69%) were between 20 and 35 years of age. Additionally, the ethnic background of the RPICC program patients, for these periods was primarily Caucasian and Black.

Even though these similarities to Florida high-risk mothers are present, the data from this study must still be

viewed conservatively. The data for this study were collected in one geographic region of the state and are from primiparous mothers only.

Additional age similarities were noted between the participant group of this study and the primiparous mothers in the work reported by Walker et al., (1986a). Those authors reported primiparous mothers in their study had a mean age of 26 years.

The 9 mothers who dropped out or were lost to follow -up did so for various reasons. One mother had recently separated form her husband and did not return the investigators' phone call to set up an appointment for follow-up. Another mother decided to withdraw when she was contacted for follow-up. The remaining 7 mothers had agreed to complete the second phase of data collection by mail and did not return the data packets. Of this group of mothers, 5 had completed the first phase of data collection by mail.

There were no apparent differences between the mothers who dropped out and the mothers who completed the full study. The mothers who dropped out ranged in age from 18 to 30 years and were both Caucasian and Black. Six of the mothers were married, 2 were single and one was separated.

Additionally, 6 of the mothers indicated that they worked full-time. Their infants had gestational ages at birth ranging from 28 to 36 weeks, and complication scores ranging from 1 to 8. One of the infants, a male, required an apnea monitor at discharge.

Demographic data on participant and non-participant mothers is summarized in Table 3.1. Demographic data on infants of the two groups of mothers is summarized in Table 3.2.

Table 3.1

Maternal Demographics

	Participants (N = 66)	Non-Participants (N = 62)
Age ($\bar{x}$)	27 years	24 years
Education ($\bar{x}$)	14 years	13 years (n = 34)
Employed	56%	70% (n = 30)
Ethnicity		
Caucasian	91%	65%
Non-caucasian	9%	35%
Marital Status		
Married	95%	79% (n = 58)
Single	2%	16%
Engaged	3%	3%
Div/Sep	0	0
Widowed	0	2%

Table 3.2

Infant Demographics

	Participants (N = 66)	**Non-Participants** (N = 67)
Sex		
males	35	35
females	31	32
Length of		
Stay ($\bar{x}$)	33 days	29 days (n = 57)
Gest. Age ($\bar{x}$)	32 weeks	33 weeks
Birthweight ($\bar{x}$)	1872 grams	1904 grams (n = 66)
Complication ($\bar{x}$)	5	4

Procedure

Mothers were recruited for participation into the study when their infants were ready for discharge from the nursery. The investigator identified those infants through weekly rounds in the NICU's. Charts were reviewed to identify those mothers who met sample selection criteria. When potential participants were identified, the

investigator called the mother to discuss the study. When a mother agreed to participate, a time for the investigator to meet with her was established. When the investigator met with the mother, either at her home or in the hospital, the mother completed the following instruments in this order:

1. Norbeck Social Support Questionnaire (NSSQ) Appendix C

2. Perceived Stress Scale (PSS) Appendix D

3. Gratification in the Mothering Role (GRAT) Appendix E

4. Myself as Mother (SD-Self) Appendix F

5. My Baby (SD-Baby) Appendix G

6. Demographic Data Questionnaire (Appendix B).

The second data collection occurred approximately three to four weeks after the infant's discharge from the hospital. At this time, the investigator met with the mother at home and administered the following instruments in this order:

1. Norbeck Social Support Questionnaire

2. Perceived Stress Scale

3. Parenting Stress Index (PSI) Appendix H

4. Gratification in the Mothering Role

5. Myself as Mother

6. My Baby

The following data were obtained from the infant's chart at the mother's entry into the study:

1. Sex

2. Gestational age at birth

3. Weight at birth (grams)

4. Length of hospitalization

5. APGAR at birth

6. Care required at home - for example, an apnea monitor.

7. Medical Complications (using Penticuff scale) Appendix I.

<u>Instrumentation</u>

1. Norbeck Social Support Questionnaire - This tool is designed to measure the concept of social support. It measured the mother's definition of those interpersonal transactions that provided specific dimensions of support.

The NSSQ was developed to measure functional and network properties of social support as defined by Kahn and Antonucci (Norbeck et al., 1981, 1983: Norbeck, 1984). Functional properties include affect affirmation and aid

while network properties are network size, duration of relationship and frequency of contact with network members.

The Norbeck scale was used to measure social support since it measures the concept as defined by Kahn and Antonucci (1980). Additionally, it yields a score for functional support which is the type of support relevant for the framework of this study. The functional score for the NSSQ has a wide range since it is dependent on the network size. This score was used as the measure of social support for the data analysis of the questions pertaining to the contribution of social support to role identity and role attainment. The other social support data pertaining to the size of the network and relationship to mother was analyzed using summary statistics.

The NSSQ is a self-administered questionnaire that also measures changes in convoy or support system caused by loss of relationships (Norbeck, 1984). Graduate nursing students and employed adults served as subjects in studies testing reliability and validity of the instrument. Test-retest reliabilities range from .85 to .92 (Norbeck et al., 1981). Internal consistency measures ranged from .88 to .97 (Norbeck, 1984). Construct validity was demonstrated by

testing subjects with the Fundamental Interpretation Relation Orientation (FIRO-B). As expected, significant correlations (range .18 to .26, p < .05) were demonstrated between NSSQ subscales and FIRO-B constructs for inclusion and affection (Norbeck et al., 1983; Norbeck, 1984). In the present study, internal consistency analysis yielded a coefficient alpha of .98 indicating good internal consistency.

2. Perceived Stress Scale - This tool is a 14 item questionnaire designed to measure the degree to which situations in one's life are appraised as stressful. The scale focuses on events the person has experienced during the past month. It can be self administered and takes approximately 10 minutes to complete. Validity and reliability data were obtained from two samples of college students and a group of adults enrolled in a smoking cessation program.

Coefficient alpha reliabilities were .84, .85 and .86, respectively, in each of the above mentioned samples. Concurrent validity was present in the form of correlations between the PSS and life events scores. In the sample of college students, life events were measured with the

College Students Life Events Scale. In the smoking cessation group, life events were measured with the Unpleasant Events Schedule. In each group, correlations were significant ($p < .01$) for impact of life events. These correlations were .24 and .35 in the student samples and .49 and .33 in the smoking cessation sample (Cohen et al., 1983). The PSS was used to measure perceived stress, since it is based on the assumption that stress impact is determined by a person's perception of the event. For the mother of a premature infant, this is an appropriate method to use in assessing stress. In the present study, internal consistency analysis yielded a coefficient alpha of .84 indicating good internal consistency.

3. Parenting Stress Index - This tool is a screening and diagnostic assessment technique designed to measure the amount of stress a parent identifies in a parent-child system (Abidin, 1986). The tool also identifies sources of stress. It can be self administered and takes approximately 30 minutes to complete. This tool identifies sources of stress as child or parent characteristics.

The subscales measured in each domain are:

    a. Child Characteristics

        (1) Child Adaptability/Plasticity - assesses ability to adjust to changes in the physical/social environment.

        (2) Acceptability of Child to Parent - assesses degree to which child characteristics match parent expectations.

        (3) Child Demandingness - assesses degree to which parent experiences child as placing demands on him/her.

        (4) Child Mood - assesses affective functioning of child.

        (5) Child Distractibility/Activity - assesses parent's perception of the child's level of activity and concentration.

        (6) Child Reinforces Parent - assesses the degree to which the parent experiences the child as a source of reinforcement.

    b. Parent Characteristics

        (1) Parent Depression - assesses feelings of guilt, unhappiness, and depression.

(2) Parent Attachment - assesses emotional closeness to child and ability to under-stand child's feelings/needs.

(3) Restrictions Imposed by Parental Role - assesses degree to which parent experiences role as restricting freedom and frustrating attempt to maintain identity.

(4) Parent's Sense of Competence - assesses the parent's perceived degree of competence in fulfilling the parental role.

(5) Social Isolation - assesses degree of isolation from peers, relatives and other emotional support systems.

(6) Relationship with Spouse - assesses emotional and active support in the relationship.

(7) Parental Health - assesses general health of the parent (McKinney & Peterson, 1984).

The PSI was developed to identify parent-child systems that are under excessive stress. Therefore, it is an important component of preventive programs aimed at early identification and intervention (Abidin, 1986).

The initial field testing of the PSI items with a wide variety of mothers resulted in a questionnaire containing 151 items that were assigned to a priori subscales based on manifest content and research domain represented. The field tests indicated that the questions were understandable to mothers having a fifth grade education. Form 6, the currently used form of the PSI, is a revision of earlier forms that permits easier hand scoring and reduced the length of the instrument to 101 items (Loyd, 1986).

Internal consistency coefficients were computed based on a sample of 534 mothers drawn from small group pediatric clinics in central Virginia. The coefficients for the subscales are presented in Table 3.3.

Table 3.3

PSI Subscale Reliability

Subscale	Reliability
Child Adaptability/Plasticity	alpha = .66
Acceptability of Child to Parent	alpha = .63
Child Demandingness	alpha = .62
Child Mood	alpha = .66
Child Distractibility/Activity	alpha = .62
Child Reinforces Parent	alpha = .70
Parent Depression	alpha = .80
Parent Attachment	alpha = .55
Restrictions Imposed by Role	alpha = .79
Parent's Sense of Competence	alpha = .73
Social Isolation	alpha = .70
Relationship with Spouse	alpha = .70
Parental Health	alpha = .66

Test-retest reliabilities yielded the following correlations:

1. Child Domain - .63

2. Parent Domain - .61

3. Total Stress - .96.

A number of studies are cited (Abidin, 1986) demonstrating criterion related validity of the PSI. For example, Lafiosca (cited in Abidin, 1986) demonstrated a significant correlation (p < .001) between scores on the PSI Child Domain and the Child Behavior Problem Checklist. Additionally, scores on the Parent Domain Scale correlated .68 with the State Trait Anxiety Scale in that study.

The reliabilities for the sub-scales are low, ranging from .55 to .80. For this study, only the total score was used to measure parenting stress. The score range for total score is from 180 to 250 (Abidin, 1986). The PSI was chosen to measure the concept of identified stress since it incorporates questions related to the parent's perception of the stressfulness of the parent-child system. The answer choices include the choice not sure which might be appropriate for some questions as they relate to infants. Additionally, as discussed in Chapter 2, the instrument has been used in populations similar to the group studied in the current investigation. The questions covered in the child domain draw on the concept of temperament as

originally described by Chess and Thomas (Abidin, 1986).

4. Gratification in the Mothering Role - This tool was used to measure role attainment. It is a series of statements related to motherhood that the mother rates on a 5-point Likert scale. The GRAT was adapted from the gratification checklist developed by Russell (1974). That checklist was fashioned after Hobbs' crisis checklist by asking new parents what things they enjoyed about their new role. The original checklist had a split-half reliability of .93 (Russell, 1974). Mercer (1985a) changed the scale from 3-point to 5-point, made two questions out of one and added the item "Watching the baby grow and do new things." The adapted version had test-retest reliabilities of .77 to .80 over four testing periods (Mercer, 1985a, 1985b). Construct validity was demonstrated in Mercer's study of age and gratification (1985b). In that study, the following were among the significant intercorrelations found:

a. self rating of performance and gratification - .24

b. education and gratification - -.15

c. mate relationship and gratification - -.19.

This instrument was chosen to measure maternal role attainment since it questions the mother about experiences

that would be expected after the birth of a baby. In addition, it was used in the initial study of maternal role attainment completed by Mercer (1985a), which served as background for this investigation. In the present study, internal consistency analysis yielded a coefficient alpha of .75 indicating good internal consistency.

5. To measure role identity, the following were used:

a. Myself as Mother - This tool measures the evaluative dimension of the concept myself as mother using a semantic differential technique. This scale consists of 11 bipolar adjectives contained within a 22-item, 7-point semantic differential scale (Walker et al., 1986a). A high score indicates positive maternal self evaluations. Alpha internal consistency reliabilities range from .81 to .85. Construct validity was demonstrated by correlations of .37 with the Pharis self-confidence scale (Walker et al., 1986a), and .60 with Gibaud-Wallston's Sense of Parenting Competence scale (Best, 1988). In the present study, internal consistency analysis yielded a coefficient alpha of .72 indicating good internal consistency.

b. My Baby - This tool is also a semantic differential and measures the evaluative dimension of the concept My

Baby. This scale consists of 6 bipolar adjective pairs contained within a 21-item, 7-point semantic differential scale (Walker, 1977). A high score on this tool also indicates positive evaluations of one's infant. The coefficient alpha values for this scale range from .66 to .77. Additionally, this scale correlates negatively ($\underline{r}$ = -.49 to -.60) with perceived infant difficulties using the NPI Your Baby subscales. In the present study, internal consistency analysis yielded a coefficient alpha of .77 indicating good internal consistency.

The evaluative dimensions of Myself as Mother and My Baby scales were identified by factor analysis of responses from 104 mothers who brought their infants to a military well-baby clinic (Walker, 1977).

These scales were chosen to measure role identity since they are designed to be evaluative measures of the concept. In addition, they were used in previous studies of these concepts in mothers of term infants, which serve as background for the current study.

6. Penticuff Scale of Infant Complications - This scale is designed to give tabular information about the number of medical complications a premature infant

experiences during the period of hospitalization. This scale is a checklist and the infant receives one point for each complication. Percent agreement at 24 hour intervals between testings was used to establish intrarater reliability on this instrument. Retesting this instrument with four different sets of data yielded agreements ranging from 92 to 95 percent (Penticuff & Wills, 1989). The investigator completed this scale on each infant whose mother participated in the study.

7. Open ended interview - To obtain further validity for the measures of stress and support, a subsample of mothers were asked the following questions during the second data collection period.

a) Since your baby has been home with you, what changes in your daily activities have occurred that you were not expecting?

b) Who have been helpful when you needed assistance with the baby? How have they helped you?

Table 3.4 summarizes a few of the key characteristics of each instrument used in this study. While there is a high reliance on the self - report of mothers, records information were used as well to determine status of the

infants followed in this study.

Table 3.4

Tool Summary

Construct	Tool	Tool Format	Reliability	Validity
social support	NSSQ	questionnaire	test-retest .85 to .92	construct .18 to .26 with FIRO-B
parenting stress	PSI	Likert scale	alpha .89 to .93	criterion .001 with Child Behavior Problem Checklist
role identity	SD-Self	semantic differential	alpha .81 to .85	construct .60 with Sense of Parenting Competence

Table 3.4 (cont'd.)

Tool Summary

Construct	Tool	Format	Reliability	Validity
	SD-Baby	semantic differential	.66 to .77	(-.49 to -.60) with NPI
role attainment	GRAT	Likert scale	alpha .77 to .80	significant intercorr. with demo graphics
perceived stress	PSS	Likert scale	alpha .84 to .86	concurrent corr. .24 and .35 with Life Events scale.

Descriptive Analysis of Key Variables

This section will present descriptive data related to the variables utilized to answer the research questions. Data presented in Table 3.5 includes score ranges with means and standard deviations for social support, perceived stress, parenting stress index, maternal age, infant birthweight, infant complications, role identity and role attainment.

Table 3.5

Descriptive Data - Key Variables

Variable	Min.	Max.	Mean	Std. Dev.
Social Support				
Time 1 (Discharge)	22	612	189.68	104.12
Time 2 (Four weeks)	15	530	174.48	94.97
Perceived Stress				
Time 1	8	47	27.72	8.39
Time 2	7	45	24.90	8.22
Parenting Stress				
Time 2	150	345	229.66	40.47
Maternal Age				
Time 1	18	37	26.64	5.16

Table 3.5 (cont'd.)

Descriptive Data - Key Variables

Variable	Min.	Max.	Mean	Std. Dev.
Infant Birthweight				
Time 1	587	3350	1845.32	651.48
Complications				
Time 1	4	12	4.90	2.70
Role Identity				
SD-S Time 1	42	76	63.40	6.56
Time 2	37	77	64.92	7.36
SD-B Time 1	25	42	37.06	4.18
Time 2	23	42	36.56	4.16
Role Attainment (GRAT)				
Time 1	42	70	60.31	6.14
Time 2	44	70	60.43	5.81

Limitations

The major limitations of this study were that only primiparous mothers were studied and that they were evaluated at only two points in time. Other investigations of role identity and role attainment, reviewed in the

literature, followed subjects for longer intervals.

It is possible that mothers who participated had adequate support and low stress. Subjects might have had changes in the variables measured as a result of their own role development (Waltz and Bausell, 1981; Polit and Hungler, 1987). Since only those mothers whose infants were in Level II nurseries were subjects for the study, the results may have limited generalizability to other populations of mothers of premature infants. The results should be generalizable to Florida, however. The 1988 - 1990 demographic data for neonatal patients served by the Florida Regional Perinatal Intensive Care Centers were examined. It was noted that the city where the participant nurseries were located served neonatal patients in numbers comparable to other major cities throughout the state.

Data Analysis

Several data analytic procedures were utilized in analysis of the data obtained in this study. Summary descriptive statistics were calculated on the following background characteristics:

1. infant birth data and infant complications

2. maternal background data - This data was analyzed

according to whether or not the mother participated in the study.

3. social support data - network size and member relationship to mother.

The research questions identified in Chapter 1 were analyzed using both multiple regression and repeated measures ANOVA. The questions addressing the contributions of stress, support, maternal age and infant birthweight (independent variables) to role identity and role attainment (dependent variables) were analyzed using multiple regression. This was appropriate for these questions since they addressed the simultaneous effects of two or more independent variables on a dependent variable (Polit and Hungler, 1987). In addition, the data obtained met the assumptions of this parametric technique.

The questions addressing the change in specific variables were analyzed using repeated measures ANOVA. This was appropriate for these questions since two sets of scores were obtained from the same subjects. When the focus is on change in such scores, a repeated measures ANOVA will take account of any correlations among the different sets of scores (Achenbach, 1978).

The next chapter will present results of the analysis of data collected for this investigation.

Chapter 4

Results

This chapter will present results of data analysis. Data from correlation analyses and descriptive data related to social support network membership will be presented. This will be followed by the results of analysis of data related to the questions of the study as addressed in Chapter 1.

Correlation Analysis

The variables used to measure stress and social support were subject to correlation analysis. That data is presented in Table 4.1.

Table 4.1

Correlation Matrix - Stress and Social Support Measures

	SS1	SS2	PSS1	PSS2	PSI
SS1	1.0	,89*	-.08	-.32	-.31
SS2	.89	1.0	-.10	-.31	-.36
PSS1	-.08	-.10	1.0	.47	.43+
PSS2	-.32	-.31	.47*	1.0	.60*
PSI	-.31	-.37	.43+	.60*	1.0

* p < .001, + p < .005

The low correlations between the measures of stress and social support indicate that each variable has a contribution to make to the prediction of the dependent variables. The higher correlations between the two measures of stress indicate that they may be somewhat redundant (Polit & Hungler, 1987).

In addition to the preceding data, correlation analyses were carried out to determine whether maternal age, infant birthweight or complications would be appropriate to use as additional predictors in research questions 1 and 2. These variables were examined to

determine their correlations with social support, perceived stress, parenting stress, role identity and role attainment. The results of these descriptive analyses are presented in Tables 4.2 and 4.3.

Table 4.2

Correlation Matrix - Maternal Age, Birthweight, Complications with Predictor Variables

	SS1	SS2	PSS1	PSS2	PSI
Age	.21(+)	.12	-.03	-.16	-.11
Weight	-.09	-.02	.01	.14	.02
Comp.	.12	.12	.01	-.13	-.03

+ p <.06

Table 4.3

Correlation Matrix - Maternal Age, Birthweight,
Complications with Criterion Variables

	SD-S1	SD-S2	SD-B1	SD-B2	GRAT1	GRAT2
Age	.22 (+)	.11	.17	.12	-.07	-.04
Weight	-.08	-.17	-.06	-.05	-.10	-.22 (#)
Comp.	.14	.11	.11	.01	.15	.19

+ p <.05, # p <.08.

These correlation analyses indicated some values that
were significant between maternal age and infant
birthweight and specific predictor and criterion variables.
The correlations that were significant were similar to work
reported by Mercer (1985b) and Walker et al., (1986a).
Mercer (1985b) found gratification in mothering to be
significantly correlated with experience caring for infants
and mate relationship in addition to other variables.
Walker et al. (1986a) found maternal age to be
significantly correlated with role identity as measured by

the scale SD-Self in the primiparous mothers in their
sample. Since these similarities were present and the
values obtained indicated some significance, the variables
of maternal age and infant birthweight were used as
additional predictors in research questions 1 and 2.

<u>Social Support Descriptive Data</u>

This section presents descriptive data related to
maternal social support networks. Data described includes
social support network size and member composition and
affiliation to mother.

Social support network size ranged from 1 to 28
members at time one and from 2 to 24 members at time two.
The mean network size at each data collection point was 10
at time one and 9 at time two.

The maternal support networks included spouses/
significant other, family, friends, work associates,
neighbors, health care providers and ministers. Of these
categories, spouse/significant other, family and friends
were the members that mothers listed most frequently.
Ninety-five to ninety-seven percent of the mothers listed
these categories in their networks at time one while 85 to
92 percent listed those groups at time two. That family

members and friends accounted for a high percentage of network membership is consistent with data on network structure presented by Cronenwett (1985a), who found that social networks of postpartum couples were composed primarily of relatives.

The family members that mothers listed as part of their networks included parents, in-laws, grandparents, aunts and siblings. Verbal feedback from many mothers, as they completed the social support questionnaires indicated that these family members were seen as very supportive.

Research Questions

The specific research questions of this study were analyzed using multiple regression and repeated measures analysis of variance. As described previously, infant birthweight and maternal age were additional predictor variables used in the first two research questions. Infant birthweight was the infant's weight as measured in grams and recorded on the hospital chart at the time of birth. Maternal age was the mother's age in years, as recorded on the demographic data questionnaire. This form was completed by the mother at the time of her entry into the study.

<u>Question 1.</u>

What are the relative contributions of stress, social support, maternal age and infant birthweight to maternal role identity and role attainment in mothers of premature infants when the infant is being discharged from the hospital (Time 1)?

This question was analyzed using multiple regression with 4 independent variables, social support (SS), perceived stress (PSS), infant birthweight (BW), and maternal age (AGE). Results will be presented for each component dependent variable, role identity (SD-S, SD-B), and role attainment (GRAT). Due to missing data, a total of 73 observations were used for analysis.

<u>Role Identity - SD-S Time 1</u>

When all predictors were used, the resulting R^2 was .28 [F (4, 68) = 6.59, p < .0002]. The results are presented in Table 4.4.

Table 4.4

Regression Table - Four Predictors - Time 1

Source	DF	SS	MS	F	p
Regression	4	834.84	208.71	6.59	.0002
Error	68	2152.20	31.64		
Total	72	2987.04			

Variable	Beta	S.E. Beta	t	p
PSS1	-.17	.08	-2.13	.04
SS1	.02	.01	3.51	.01
BW	.01	.01	0.04	.96
AGE	.23	.13	1.71	.09

For this measure of role identity, all variables accounted for 28% of the variance observed. The variables in the model which were significant contributors were perceived stress and social support while maternal age and infant birthweight were not significant. It must be noted that the beta for social support is low. Since perceived stress was the first variable entered in the regression, that variable may be the primary contributor to the variance that occurred, despite the significance of the

contribution of social support. Additionally, it is noted that the zero order correlations between social support and perceived stress and age are -.08 and .21 respectively.

Role Identity - SD-B Time 1

When all predictors were used, the resulting R^2 was 2.30 [$\underline{F}$ (4, 68) = 7.09, $\underline{p}$ < .0001]. The results are presented in Table 4.5.

Table 4.5

Regression Table - Four Predictors - Time 1

Source	DF	SS	MS	F	p
Regression	4	375.09	93.77	7.09	.0001
Error	68	899.24	13.22		
Total	72	1274.33			

Variable	Beta	S.E. Beta	t	p
PSS	-.22	.05	- 4.21	.0001
SS1	.01	.01	2.12	.038
BW	.01	.01	- 0.58	.561
AGE	.01	.01	1.13	.261

For this measure, all variables accounted for 30% of the variance observed. Perceived stress and social support

were again the significant contributors while age and birthweight were not.

Role Attainment - GRAT - Time 1

When all predictors were used, the resulting R^2 was .10 [F (4, 68) = 1.85, p < .13], which was non-significant. For this measure, all variables accounted for 10% of the variance observed.

Question 2.

What are the relative contributions of perceived stress, parenting stress, social support, maternal age and infant birthweight to maternal role identity and role attainment in mothers of premature infants when the infant has been at home for four weeks (Time 2)?

This question was also analyzed using multiple regression with 5 independent variables, perceived stress (PSS), parenting stress (PSI), social support (SS), maternal age (AGE) and infant birthweight (BW). Results will be presented for each component dependent variable. Due to missing data, a total of 60 observations were used for this analysis.

Role Identity - SD-S - Time 2

When all predictors were used, the resulting R^2 was

.47 [F (5, 55) = 9.63, p < .0001]. These data are presented in Table 4.6.

Table 4.6

Regression Table - Five Predictors - Time 2

Source	DF	SS	MS	F	p
Regression	5	1359.90	271.98	9.63	.0001
Error	55	1554.03	28.25		
Total	60	2913.93			

Variable	Beta	S.E. Beta	t	p
PSS2	-0.23	.10	-2.35	.02
SS2	0.02	.01	2.19	.03
BW	-0.00	.00	-1.07	.30
AGE	-0.00	.13	-0.02	.98
PSI	-0.06	.02	-2.99	.004

For this measure of role identity, all variables accounted for 47% of the variance observed. Perceived stress, social support and parenting stress contributed significantly to the variance, while maternal age and infant birthweight did not.

Role Identity - SD-B - Time 2

When all predictors were used, the resulting R^2 was .51 [F (5, 55) = 11.63, p < .0001]. These data are presented in Table 4.7.

Table 4.7

Regression Table - Five Predictors - Time 2

Source	DF	SS	MS	F	p
Regression	5	559.59	111.92	11.63	.0001
Error	55	529.16	9.62		
Total	60				

Variable	Beta	S.E. Beta	t	p
PSS2	-0.13	.06	-2.27	.03
SS2	-0.002	.004	-0.49	.63
BW	-0.00009	.0007	-0.13	.89
AGE	0.05	.08	0.60	.55
PSI	-0.06	.01	-5.12	.0001

For this measure of role identity, all variables accounted for 51% of the variance observed. Perceived stress and parenting stress contributed significantly to the variance while social support, maternal age and infant

birthweight did not.

<u>Role Attainment - GRAT - Time 2</u>

When all predictors were used, the resulting R^2 was
.24 [F (5,55) = 3.56, p < .0073]. These data are
presented in Table 4.8.

Table 4.8

<u>Regression Table - Five Predictors - Time 2</u>

Source	DF	SS	MS	F	p
Regression	5	522.57	104.51	3.56	.0073
Error	55	1613.50	29.34		
Total	60	2136.07			

Variable	Beta	S.E. Beta	t	p
PSS2	-0.20	.09	-2.06	.04
SS2	-0.01	.007	-1.54	.13
BW	-0.002	.001	-1.88	.07
AGE	-0.07	.14	-0.49	.63
PSI	-0.03	.02	-1.69	.09

For this measure, all variables accounted for only 24%
of the variance observed. Perceived stress contributed
significantly while age, social support, parenting stress

and birthweight did not.

Questions 3 - 5

These questions examined whether there was any significant change in role identity and role attainment, perceived stress and social support from Time 1 to Time 2. These questions were analyzed using repeated measures ANOVA and paired t-tests. When t-tests were performed, analysis revealed significant changes in the predictor variables and in one measure of role identity, SD-B.

The research questions, therefore, were further analyzed using repeated measures ANOVA. When this analysis was carried out, infant birthweight was used as the blocking variable. This divided the mothers into two groups, depending on whether their infant's birthweight was above or below 1500 grams. Results for each question will be presented.

Question 3

Is there a significant change in perceived stress from time 1 to time 2 in mothers of premature infants who weigh greater or less than 1500 grams? Due to missing data, only 66 observations were used in this analysis.

When this question was analyzed using repeated

measures ANOVA, analysis revealed no significant main effect for birthweight, nor was there an interaction effect for time x birthweight. There was an effect for time which was the effect of the error variable, however. As seen in Table 3.5, there was a mean decrease in perceived stress from time 1 to time 2. The repeated measures ANOVA indicated no significant change in perceived stress from time 1 to time 2. Table 4.9 presents the repeated measures ANOVA results for perceived stress as well as means and standard deviations for the ANOVA subgroups.

Table 4.9

ANOVA Table Perceived Stress - Discharge versus Four Weeks

Source	DF	SS	MS	F	p
Between					
Birthweight	1	211.91	211.91	2.08	.15
Error	64	6519.97	101.87		
Within					
Time	1	198.81	198.81	5.21	.03
Time x					
Birthweight	1	3.33	3.33	0.09	.77
Error (Time)	64	2442.85	38.16		

Table 4.9 (cont'd.)

ANOVA Table Perceived Stress - Discharge versus Four Weeks

Subgroup Data	n	Mean	Std. Dev.	
< 1500 grams	27	27.9	7.4	(PSS1)
	23	23.9	6.9	(PSS2)
> 1500 grams	48	27.6	9.0	(PSS1)
	42	25.47	8.9	(PSS2)

Question 4.

Is there a significant change in social support from time 1 to time 2 in mothers of premature infants who weigh greater or less than 1500 grams?

When this question was analyzed using repeated measures ANOVA, analysis revealed no significant main effect for birthweight nor was there an interaction effect for time x birthweight. There was an effect for time which was an error effect. As seen in Table 3.5, there was a mean decrease in social support from time 1 to time 2. As with perceived stress, there was no significant change in social support. Data are presented in Table 4.10.

Table 4.10

ANOVA Table Social Support - Discharge versus Four Weeks

Source	DF	SS	MS	F	p
Between					
Birthweight	1	5918.38	5918.38	.31	.58
Error	64	1240107.68	19376.68		
Within					
Time	1	7040.12	7040.12	6.14	,02
Time x					
Birthweight	1	2724.01	2724.01	2.38	.13
Error (Time)	64	73365.87	1146.34		

Subgroup Data	n	Mean	Std. Dev.	
< 1500 grams	27	208.7	128.5	(SS1)
	24	177.3	98.5	(SS2)
> 1500 grams	48	178.9	87.3	(SS1)
	42	172.9	94.1	(SS2)

Question 5

Is there a significant change in role identity and role attainment from time 1 to time 2 in mothers of

premature infants who weigh greater or less than 1500 grams?

When this question was analyzed using repeated measures ANOVA, analysis revealed no significant main effects for birthweight or interaction effects for time x birthweight in role identity or role attainment. There was an effect for time in role identity as measured by the scale SD-B. As seen in Table 3.5, there was a mean decrease in role identity (SD-B) from time 1 to time 2. As occurred with the previous variables, this effect was an error effect. There was no significant change in role identity or role attainment from time of infant discharge until four weeks after discharge. Table 4.11 presents the ANOVA subgroup mean data for role identity and role attainment.

Table 4.11

ANOVA Subgroup Data - Role Identity and Attainment

		n	Mean	Std. Dev.	
Role Identity					
SD-S	< 1500 grams	26	63.9	6.8	(SD-S1)
		24	66.4	6.7	(SD-S2)
	> 1500 grams	48	63.1	6.5	(SD-S1)
		42	64.0	7.7	(SD-S2)
SD-B	<1500 grams	26	37.6	4.5	(SD-B1)
		23	37.0	4.1	(SD-B2)
	> 1500 grams	48	36.8	4.0	(SD-B1)
		42	36.3	4.2	(SD-B2)
Role Attainment					
GRAT	< 1500 grams	26	60.9	5.4	(GRAT1)
		23	62.3	4.9	(GRAT2)
	> 1500 grams	48	59.9	6.5	(GRAT1)
		42	59.4	6.1	(GRAT2)

Content Analysis

To obtain further validity for the measures of stress and social support, a sub-sample of 8 mothers were asked the following questions at the second data collection point. Every eighth mother who agreed to participate was interviewed. The questions asked were:

1) Since your baby has been home with you, what changes in your daily activities have occurred that you were not expecting?

2) Who have been helpful when you needed assistance with the baby and how have they helped?

The mothers' responses to these questions were tape recorded and the tapes were analyzed to identify recurrent themes present in the answers that the mothers gave. Recurrent themes identified are presented.

Question 1

Since your baby has been home with you, what changes in your daily activities have occurred that you were not expecting?

Mothers' answers to this question indicated that the amount of time required to care for the infant was a change that had not been expected. They talked about not having

time for chores such as cooking, cleaning and grocery shopping. The other major theme that was identified was related to experiencing sleep deprivation. This was also due to the time necessary to care for the baby, such as for feedings at night. It was, however, identified by many of the mothers as something that was not anticipated.

Question 2

Who have been helpful when you needed assistance with the baby and how have they helped?

Mothers' answers to this question indicated that those individuals who were helpful were spouses, parents, in-laws, siblings and female friends. These individuals gave assistance that included help with daily activities, such as housework. Additional assistance included psychological support, which usually came from spouses and family members.

Table 4.12 presents a summary of the results of the content analysis.

Table 4.12

<u>Summary of Content Analysis</u>

Question	Results
Unexpected Daily Changes	Time Constraints - no time for chores Sleep Deprivation
Helpful People	Family -spouse -parents -in-laws -siblings Friends -female friends
Help Received	- help with daily activities (housework) - psychological support

The next chapter will focus on discussion of the results presented. Implications and a summary will also be included.

Chapter 5

Discussion

Results of descriptive data not discussed in chapter three will be addressed followed by discussion of results related to the research questions.

As mentioned in Chapter 3, the city where the participant nurseries were located served neonatal patients in numbers comparable to other major cities in Florida, during the data collection period for this study. Therefore, the results of this study may have limited generalizability to the state of Florida.

Descriptive Data - Key Variables

The descriptive data presented in Table 3.5 related to the key variables indicates that the mean data obtained in this study are within the ranges discussed by the authors of the instruments in previous work (Abidin, 1986; Cohen et al., 1983; Mercer, 1985a, 1985b, Norbeck et al., 1983; Walker, 1977; Walker et al., 1986a). Additionally, the participants in this study were demographically similar to the norming group for the Parenting Stress Index, Form 6

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described by Abidin (1986).

Inferential Data

Question 1

The predictors utilized in this model accounted for a greater amount of variance in role identity than in role attainment. The data presented for role identity, in Tables 4.4 and 4.5, indicates perceived stress and social support were the primary variables contributing to the variance observed in both measures of role identity. As Walker (1989), suggested stressors will alter perceptions of circumstances. Additionally, as proposed in the conceptual framework for this study, support can serve as a resource when stress is occurring. For the mothers in this study, social support appears to have been a resource to assist them in the transition to role of mother at time of infant discharge from the hospital. This is also consistent with the data on support and mothers' attitudes towards parenting discussed by Crnic et al., (1983).

As Richardson (1982) suggested, having support in the postpartum period assists in the transition to the new role of mother. Other authors have indicated that in what is perceived as a stressful situation, support is often a

significant resource (Younger, 1984; McKinney & Peterson, 1987; Mercer & Ferketich, 1990). It would appear that this was occurring for the mothers in this study. For these mothers, support was functioning no matter what the level of stress was.

That the predictors utilized in this model contributed only a small amount of the variance in role attainment is similar to Mercer's findings (1985b). As occurred in that study (Mercer, 1985b), means for the present group were high. Unlike Mercer's group, there was little score variability from the first to second data collection point in the present sample. This leads to a conclusion similar to that voiced by Mercer, (1985b) who suggested that many factors contributing to gratification in the maternal role are somewhat elusive.

The additional question to raise is whether the predictors might more adequately indicate role attainment if another measure of role attainment had been utilized. One possibility would have been to use one of the other measures described by Mercer (1985a). Those measures that might have been used are the Feelings about the Baby scale or Maternal Behaviors observations. Another possibility

would have been to utilize the Pharis Self-Confidence Scale which was described by Walker et al., (1986a). Had one of these other scales been used instead of or in addition to the Gratification in the Mothering Role Scale, role attainment might have been better predicted.

Another possibility would have been to define role attainment by using a definition other than gratification in the role. It is also possible that other factors might have been better predictors of gratification at this point for these mothers. It must be remembered that many of the mothers in this sample, were taking home an infant who was still a "premature infant". This implies that gratification in the maternal role might not be the most appropriate measure of the feelings of the mother of a premature infant. Additionally, other factors might be more sensitive predictors of the concept of gratification.

In an attempt to identify whether any of the predictors contributed to the variance observed in role attainment at infant discharge, the backward elimination procedure was used. For this measure, backward elimination removed the variables social support, birthweight and maternal age. The resulting R^2 was .07 [F (1, 71) = 5.45,

$p < .02$]. For role attainment, therefore, only perceived stress contributed to the variance obtained. However, the amount of total variance explained by the predictor was very small.

Question 2

In examining the data on role identity and role attainment when the infants had been at home for 4 weeks, stress is again a significant contributor to the variance. At this time, support contributed only to the variance in role identity, as measured by the scale SD-S. This may be explained by pointing out that the mothers were now in the role of primary caregiver for their infants. They would, therefore, have different evaluations of themselves. Additionally, their experience of stress and support would be different from when their infants had been hospitalized.

Verbal feedback from some of the mothers, at the second data collection point, indicated that stress and support were different from when the infants had been hospitalized. For example, some mothers discussed that they felt more stressed since bringing their infant home. Those mothers who mentioned feeling more stressed were also dealing with returning to work, which could account for

their feeling stressed. Overall, the level of perceived stress decreased at the second data collection point, as is noted in Table 3.5 Other mothers indicated that support received from spouses, relatives and close friends was an important factor in post-discharge adjustment to their infants. This would further explain how support contributed to the variance in role identity as measured by the scale SD-S.

The fact that the predicted variance in role attainment was again low leads to the same question regarding the definition of role attainment discussed previously. At this data collection point, it is possible that another definition of role attainment would have been a more sensitive indicator of the mothers' role development

The findings at the second data collection point are consistent with data presented by other authors. Crnic et al. (1984), found stress and support to be significant predictors of maternal life satisfaction in mothers of premature and full-term infants when the infant had been at home for one month. Other authors also noted similar findings in mothers of premature infants (Seiffert et al., 1983; Minde et al., 1983; Weingarten et al., 1990).

Zuckerman, Winsmore and Alpert, (1979) found that young black mothers identified their family and the infant's father as major support systems. Additionally, Walker et al. (1986b) found infant birthweight to be significantly correlated with demonstrated role attainment in mothers of term infants in the postpartum period. In the group of mothers who participated in this study, the small contribution to role attainment made by infant birthweight at the second data collection point may be explained by the fact that the mothers now saw significant positive changes in their infants. This in turn could lead to greater gratification in the role of mother.

In summary, the findings of this study do support what has been discussed by other authors. Specifically, support is a resource when life events are perceived as stressful (Lieberman, 1982; Appley & Trumbull, 1986).

Question 3 - 5

The lack of statistically significant change in perceived stress, social support, role identity and role attainment, when repeated measures ANOVA analysis was performed implies that another factor, for example, maternal age might have been a more appropriate blocking

factor in the analysis.

Question 3

That perceived stress decreased although not significantly would be expected based on the results of the regressions discussed in the previous sections. Those mothers who were dealing with having to return to work either immediately after their infants came home, or in the near future, did indicate feeling stressed. This, however, was not a significant finding.

Question 4

That social support decreased, although not significantly is explained by the fact that there were changes noted in the social support network size and therefore, in the amount of support received. As noted in Table 3.5, the mean values for social support decreased from time 1 to time 2. As mentioned previously in the discussion of social support network information, spouses, family members and friends were the network members that mothers listed most frequently at both data collection points. These members accounted for the majority of support received. Network membership at time 2 included work associates, health care providers and ministers much less

frequently than at time 1. This, therefore, may have contributed to the change in social support that occurred. Another factor to consider is that since stressors were decreased at the second data collection, the need for support was also decreased. This would be consistent with the idea presented by Pearlin (1982) who proposed that unexpected stressors will tend to mobilize social support.

Question 5

That there was a decrease in role identity that evaluated maternal feelings about their infants can be accounted for by the fact that mothers were assuming increased responsibility for their infants' care. As this occurred, mothers would be dealing with their infants on an on-going basis rather than sporadically. They would, therefore, be observing normal variations in behavior as well as integrating the infant into their lifestyle. Subsequently feelings about the infant could change and be less positive. As noted in Table 3.5, mean scores for SD-B decreased but, mean scores for SD-S increased from time 1 to time 2. This is consistent with data reported by Walker et al. (1986a). These authors found attitudes towards

infants as measured by the scale SD-B became less positive during the postpartum period in mothers of term infants.

Content Analysis

The data obtained in answer to the open-ended questions that were asked of the sub-sample of 8 mothers at the second data collection point lend further validity to the measures of stress and social support utilized in this study. As mentioned in Chapter 4, the first question asked mothers about unexpected change in daily activities and the second question asked about people who had been helpful. II answer to the first question when the mothers were discussing changes, they did not express anger over what they were experiencing. Rather, they talked about the need to readjust priorities and put the baby first. The fact that these mothers experienced changes that were unexpected is consistent with data described by Wandersman, Wandersman and Kahn (1980) who examined social support in the transition to parenthood. These authors noted that the transition to parenthood is marked by many potentially stressful changes. Kagey, Vivace, and Lutz (1981) also suggested that parents undergo unexpected changes in the transiton to parenthood.

In answer to the second question the mothers mentioned that family members, for example, spouses, mothers or in-laws stayed at home with them for a period of time after the infants' discharge from the hospital. These people, as well as others, assisted the mothers with chores and in some instances gave "anticipatory guidance" or were available by phone if the mothers needed to contact them. This is consistent with the data on social support network membership. That data, as previously discussed, indicated that family and close friends were the members who were most helpful to mothers. This data is also consistent with data presented by other authors who examined support systems of new parents. Cronenwett (1985a) found that network structure for new parents consisted primarily of relatives and these members offered informational and material suport. Zuckerman, Winsmore, and Alpert (1979) also found that maternal support systems included extended family and support included assistance with infant caretaking.

Summary

In summary, the following are the primary findings of this study:

1. Five predictors, stress, social support, maternal age, and infant birthweight , of maternal role identity when a premature infant is being discharged from the hospital were tested in this study. Of these predictors, perceived stress and social support were the key contributors to role identity at this time, explaining 28 - 30% of the variance.

2. When a premature infant has been at home for 4 weeks, role identity is again predicted by stress and social support with 47 - 51% of the variance explained. Stress at this time point, is composed of perceived stress and parenting stress. Parenting stress is considered to be that which the parent identifies as stressful in the parent-child system. Both types of stress significantly predicted role identity at four weeks.

3. Role attainment in mothers of premature infants is not adequately measured by gratification when the infant is being discharged from the hospital.

4. Role attainment is predicted by perceived stress and parenting stress when a premature infant has been home for 4 weeks. At this time point, however, these two variables accounted for only 24% of the observed variance

in role attainment.

5. Perceived stress, social support, role identity and role attainment decreased from time of infant discharge from the hospital.

6. The mothers who participated in this study are similar to primiparous mothers of premature infants in many regions of Florida.

Implications

A clinically based study is not complete unless the implications for nurses working with the population of interest are discussed. In thinking about the implications of this study, one of the primary suggestions to be made is for nurses to remain aware of the fact that those mothers of premature infants with whom they work are experiencing different stages of role development. Therefore, this may be influencing maternal reactions to their infants as well as others with whom they interact. Nurses can also be instrumental in improving the support systems that these mothers have available to them. For example, they can assess the composition and adequacy of maternal support systems. They can also be accessible to mothers and encourage family to be involved with the mother during

infant hospitalization and after discharge. Nurses can also be instrumental in offering reassurance to mothers that their experiences of feeling stressed are to be expected.

In addition to the above, there are also implications for further research. This study needs to be repeated and the following changes incorporated. The conceptual framework for the present study could be strengthened by including other concepts that would effect maternal role identity and role attainment. In addition to the variables used in the present study, the conceptual framework should include maternal risk status during pregnancy. This could be defined as actual identified risk status or sudden change in status as occurs when a urinary tract infection develops with subsequent premature delivery.

The population from which a sample is drawn should include both primiparous and multiparous mothers. This would allow a comparison of variables studied between the two groups. Adolescent mothers should also be included as subjects which would assure representation of mothers from different age groups. The institutions from which subjects are identified should include both tertiary level nurseries and intermediate level nurseries to allow an additional

area for comparison.

Additional subject variables to consider would be maternal marital status and working status. Youngblut, Loveland-Cherry and Horan, (1990, 1991) suggested a method for examining working status that would be applicable. These authors divided mothers into working, non-working and leave of absence. These would be relevant when examining composition of the maternal support system and how that support influences role identity and role attainment. These variables would undoubtedly also effect perceived stress differently. Several subjects in the present study who returned to work by the second data collection point indicated that they felt quite stressed due to the demands of work added to the demands of a premature infant.

When thinking about the changes that can occur in role identity and role attainment over time, it is relevant to suggest that subsequent work follow subjects for a longer time period. This would incorporate the fact that the premature infants will reach their "due date" while the mother is still being followed. It should also allow a more objective comparison to data that is available about mothers of term infants. The ideal situation would follow

these mothers from delivery of the premature infant.

Specific infant predictors that might be used instead of birthweight include length of stay and type of complication. Complications could be grouped into categories such as cardiac, respiratory, cerebral, endocrine, etc. This is achieved on many standardized measures of risk assessment. Such categorization might reflect how a mother perceives the severity of her infant's status.

In addition to the measures of role identiy and role attainment used in this study, it would be pertinent to measure role attainment with an additional tool. As already discussed, it might be relevant to define role attainment as maternal confidence with certain infant care tasks or maternal feelings about the baby. This would be particularly relevant if subjects are followed for a longer time period.

Having a larger sample and adding more variables to an evaluation of role identity and role attainment would allow a more sophisticated analysis. If a large enough number of subjects could be obtained, future study of role identity and role attainment could be analyzed using more advanced

regression techniques. Repeated measures analysis as was used in the present study would also be relevant.

APPENDIX A

INFORMED WRITTEN CONSENT

TITLE: The Relative Contribution of Social Support and
        Stress to Role Identity and Role Attainment in
        Mothers of Premature Infants

PURPOSE OF THE RESEARCH

You are being invited to participate in a study
examining factors that influence your development in your
role as a mother. I am a graduate student at The University
of Texas at Austin School of Nursing. This study will serve
as my dissertation research.

Through this research, I hope to identify more
specific information about whether stress and support
contribute to the development of the role of mother in
mothers of premature infants.

You were selected as a possible participant in this
study because your baby was born prematurely and you are
now taking him/her home from the hospital. You will be one
of 63 mothers like yourself chosen to participate in this
study.

PROCEDURES FOR THE RESEARCH

If you decide to participate in this study, I will
meet with you prior to your infant's discharge from the
hospital. At this meeting, I will have five (5)
questionnaires for you to fill out. The questionnaires will
ask you for background information about your family,
whether recent situations have been stressful and what
people have been helpful to you in these situations. You
will also answer questions that describe what being a
mother means to you. Answering these questions should take
approximately one (1) hour of your time.

When your baby has been home for four (4) weeks, I
will meet with you at home and have you fill out these
questionnaires again. This meeting should also take
approximately one hour of your time. All questionnaires
will be number coded so that your confidentiality will be

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protected. (Additionally, I will tape record a short interview with you. These tapes will also be number coded and they will be destroyed when the research project is completed *).

Any information that is obtained in connection with this study and that can be identified with you will be disclosed only with your permission. All data from this study will be reported as group data only.

POTENTIAL RISKS OR DISCOMFORTS

Answering the questions will be time consuming and it may be slightly emotionally upsetting for you. If this occurs, you may discuss these, or any concerns about the study with either:

      1. Mary O'Pray, RN,C,MA (student investigator)
        (904) ███████████

or   2. Joy Pe████████, ███, PhD (supervising professor)
        (512) ███████████

There are no other foreseeable risks involved in answering the questionnaires (or interview questions *).

POTENTIAL BENEFITS TO YOU OR OTHERS

The knowledge gained from this study may help improve nursing care given to mothers like you and their infants. Meeting with the investigator may also give you a chance to discuss some of your concerns and questions about your role as a mother.

SIGNATURES

You are making a decision whether or not to participate in a study. Your signature indicates that you have read the information provided and have decided to participated. You may withdraw completely from the project at any time without prejudice after signing this form.

Your decision whether or not to participate in this study will not prejudice your future rleations with The University of Texas at Austin or (specific hospital).

You will be offered a copy of this form to keep.

I understand the term of this consent and agree to participate.

_____   _____
Signature   Date

_____   _____
Signature of Witness   Date

_____   _____
Signature of Investigator   Date

I understand the term of this consent and do not choose to participate.

_____   _____
Signature   Date

_____   _____
Signature of Witness   Date

_____   _____
Signature of Investigator   Date

* indicates statement in consent form of mothers who were asked open ended interview questions.

APPENDIX B

Demographic Information

Directions: For the following questions, please WRITE in
the answer which best describes you and your
baby's father

1. What is your age?_____
2. What is your baby's fathers' age? _____

For the following questions please CIRCLE the answer that
best describes you and your baby's father.

1. How many years did you complete in school?

Grammar School   High School   College   Graduate School
_____
1 2 3 4 5 6 7 8   1 2 3 4   1 2 3 4   1 2 3 4

2. How many years of school did your baby's father
complete?

Grammar School   High School   College   Graduate School
_____
1 2 3 4 5 6 7 8   1 2 3 4   1 2 3 4   1 2 3 4

3. What do you consider your background to be?
   Caucasian
   Black
   American Indian
   Hispanic
   Other

4. How would you describe your marital status?
   single
   engaged
   divorced/separated
   married/long-term relationship

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5. Do you work outside the home?
   yes
   no
   If yes, how many hours per week?_____
              Type of work?_____

6. What type of work does your baby's father
   do?_____

7. Where do you live?
   city
   suburb
   country

8. Do you live in a
   house
   trailer
   apartment

9. Do you live
   alone
   with someone else
   If so, who _____

10. How many people are in your household?_____

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They are available for consultation, however,
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APPENDIX I

**Penticuff Scale of
Infant Complications**

Infant Name_____

Sex_____

Admission Date_____

Discharge Date_____

DISCHARGE HISTORY

Birth Weight_____

Gestational Age_____

Maternal Age_____

APGAR_____

HOSPITAL COURSE

	Yes	No		Yes	No
Respiratory Distress	—	—	Aspiration Syndrome	—	—
Hyaline Membrane Disease	—	—	Sepsis	—	—
Ventilator Support	—	—	PDA	—	—
Total Vent. Time_____			ligation	—	—
BPD	—	—	NEC	—	—
Hyperbilirubinemia	—	—	Resection	—	—
Phototherapy	—	—	Peripheral Artery Cath.	—	—
Transfusion	—	—	Hyperalimentation	—	—
Hypocalcemia	—	—	Retinopathy	—	—
Hypoglycemia	—	—	Grade_____		
Anemia of Prematurity	—	—	Unilateral_____ Bilat._____		
Transfusion	—	—	Other Complications_____		
CNS	—	—	_____		
IVH	—	—	_____		

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