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The Relationship between Prenatal Maternal Attachment, Postpartum Depressive Symptoms and Maternal Role Attainment

Eileen R. Fowles
Loyola University Chicago

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LOYOLA UNIVERSITY OF CHICAGO

THE RELATIONSHIP BETWEEN PRENATAL
MATERNAL ATTACHMENT,
POSTPARTUM DEPRESSIVE SYMPTOMS AND
MATERNAL ROLE ATTAINMENT

A DISSERTATION SUBMITTED TO THE FACULTY
OF THE GRADUATE SCHOOL IN THE
SCHOOL OF NURSING
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
SCHOOL OF NURSING

BY

EILEEN R. FOWLES, R.N., M.S.N.

CHICAGO, ILLINOIS

JANUARY, 1994

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CHAPTER I

INTRODUCTION

The transition from being a childless woman to becoming a mother requires complex cognitive, affective, and behavioral changes within the woman. Many women experience anxiety and confusion during this period that may stem from unrealistic expectations of ease in completing this process (Mercer, 1981). Some women, even though prepared for childbirth, are unprepared for the emotional aftermath or the extent of fatigue that may result when caring for their newborn. Others may doubt their ability to "be a mother" to their child because of a perceived absence of acceptable role models in their own life. Becoming a mother, with all the necessary cognitive and behavioral demands, is assumed to be natural, even instinctual, for a woman. But this is often not the case.

Transitions in any life situation involve changes which, even to a minimal degree, cause discomfort. The transition in role after becoming a mother impacts not only on the woman's self-esteem, but also the infant's development. Roberts and Rowley (1972) have suggested an association between infant development, maternal competence in infant care tasks and the amount of contact between the mother and her baby.

The transition from "woman-without-child" to "woman-with-child" is important to understand, for it affects each of us in our own development

and in what we leave to our children. The transition to motherhood begins before the baby's birth and involves acquiring new role behaviors and attitudes. Perceptions of a woman's own progress in obtaining these behaviors may affect the ease in making the transition. Health care providers can use this knowledge as a basis for the development of effective interventions that ease the transition. A scientifically based understanding of the correlations among the behavioral, cognitive, and affective components of maternal identity add to theory development.

The purpose of this study is to examine the relationships among a woman's attachment to her fetus, the mother's age and economic status, presence of postpartum depressive symptoms, and subsequent perceptions of her own attainment of a maternal role three months after the birth of her baby.

The specific research hypotheses for this study are:

1. Prenatal maternal attachment will be positively related to maternal role attainment.
2. Prenatal maternal attachment will be negatively related to presence of postpartum depressive symptoms.
3. Postpartum depressive symptoms will be negatively related to maternal role attainment.
4. Prenatal maternal attachment will not be related to maternal age.

5. Prenatal maternal attachment will not be related to maternal socioeconomic status.
6. Maternal age will not be related to presence of postpartum depressive symptoms.
7. Maternal socioeconomic status will not be related to presence of postpartum depressive symptoms.
8. Maternal age will not be related to maternal role attainment
9. Maternal socioeconomic status will not be related to maternal role attainment.

Using the data from this study, interventions designed to strengthen a woman's care-giving abilities or to foster the beginning of the affective tie to the child could be developed and evaluated for their appropriateness and effectiveness. Congruency between subjective evaluation of role performance and observed role behaviors could be evaluated, and counselling provided to enhance maternal role attainment.

The theoretical framework for this study is derived from the work on transition by Parkes (1971), Schlossberg (1987), and Chick and Meleis (1986). Role theory is examined from Mead's (1934) perspective. Maternal identity and the corresponding concept of maternal role attainment is derived from the work of Rubin (1984), Mercer (1986a), and Walker (1986a, 1986b).

CHAPTER II
REVIEW OF THE LITERATURE
Conceptual Framework

The importance of the transition to motherhood has been addressed earlier. The review of literature will examine the broad concept of transition followed by an examination of role theory. A synthesis of the theories will be developed to explain the transition to motherhood and the development of a maternal identity. Last, a model will be presented that will serve as a guide for this study.

Transition Theory

Transition theory emerged primarily from social psychology followed by a developmental psychological perspective. More recently nursing has begun to examine the application of the concept of transitions to various areas of nursing practice.

Social Psychology.

Parkes is acknowledged by psychologists as being the first author to systematically examine the concept of transitions. Parkes (1971) defines psychosocial transitions as "those major changes in life space which are lasting in their effects, which take place over a relatively short period of time and which affect large areas of our assumptive world" (p. 103). Life

space refers to the environment in which persons interact and around which their behavior is organized. The assumptive world contains the total set of assumptions and perceptions which form the basis of our interpretations of past experiences and future perceptions. Parkes views transitions as a process that develops over time rather than a "state" which infers a relatively static situation. Transitions are event-centered rather than age-determined. Although some transitions, for example, retirement are age related; others such as widowhood or loss of a job cross all age boundaries. A change of roles, for example, from line worker to supervisor or childless woman to mother can initiate a transition. The processes taking place during a transition actively involve our perceptions of external occurrences, our belief about the consequences of the external occurrence, and a comparison to the already known impressions of similar occurrences. The result of the comparison could lead to changes in the individual's assumptive world that are more closely aligned to the expectations and realities associated with new occurrence.

Individuals in a transition are often brought into contact with others involved in a similar transition. Hospitals, particularly postpartum units, can be viewed as an institution whose purpose is to facilitate certain aspects of the transition process. The notion of being able to facilitate the transitional process can lead to developmental interventions, such as prenatal and parenting education programs (advanced planning and

preparatory training) that can transform a potentially major alteration in an individual's assumptive world to a relatively easy transition. Trained individuals, such as nurses, may be able to facilitate the transition process for another person and transform a potentially difficult adjustment into a relatively easy transition.

Schlossberg (1981) defines transition as "an event or non-event (which) results in a change in assumptions about oneself and the world and thus requires a corresponding change in one's behavior and relationships" (pg. 5). Critical life events such as high school graduation, childbirth and widowhood can initiate a transitional process, but so do non-events, such as facing infertility or not receiving an expected job promotion.

The focus of concern in a transition is the process people undergo. The process of transition is influenced by three major sets of factors: 1) the characteristics of the particular transition, 2) the character of the environment before and after the transition, and 3) characteristics of the individual experiencing the transitions. These factors interact to produce either a positive outcome marked by a new life organization and/or a new self identity, or a negative outcome marked by loss of identity and/or disorganization. One particular transition may result in both negative and positive outcomes. The "ease of the adaptation" to a transition depends on one's perceived and/or actual balance of resources to deficits in terms of the transition itself, the pre-post transition environment, and the

individual's sense of competency, well-being and health. Transitional periods may result in ambivalence in individuals because of conflicting feelings related to change and opportunity for growth. Factors associated with the transition include potential role change, affect, source of transition, timing, onset, duration, and degree of stress associated with the event. Factors associated with the pre/post transition environment include the interpersonal and institutional support systems and actual physical setting. Individual characteristics of psychosocial competence, gender and gender identification, age, state of health, ethnic and racial background, socioeconomic status, value orientation, and previous experience with a transition of a similar kind influence the adaptive process in a transition (Schlossberg, 1981).

Schlossberg's dimensions offer criteria by which to evaluate a particular transitional process and open the door to the possibility of developing specific interventions designed to ease the transition.

Developmental Psychology.

The expansion of a life-span perspective in developmental psychology has heightened the interest in transitions. The life-span approach stresses the multidimensionality and multidirectionality involved in adult development and interindividual variability. Development occurs through interaction of the individual with their social and physical environment and results in behavioral changes which are influenced by

normative age-graded, normative history-graded and non-normative transitions (Baltes, 1979). Normative age-graded transitions are associated with chronological age and include biological and environmental influences closely associated with a particular age, for example, graduating from high school at 18 or menopause in the late 40's to early 50's. Normative history-graded influences are those historical events that a major portion of a particular generation experience which can produce a unique cohort-related constellation of circumstances. The Depression or Vietnam War eras are such history-initiated influences that affected and defined entire generations in American culture. Non-normative transitions are initiated by biological and environmental determinants, such as serious illnesses, unemployment or divorce, which affect individuals, not an entire population.

Levinson's (1986) developmental model focuses on universal sequences which underlie the unique backgrounds of all individuals. Levinson identified five eras that produce major changes in the nature of our lives. Each lasts approximately 20 years. An era is composed of a series of developmental periods and transitions. The eras are: 1) pre-adulthood (age 0-20); 2) early adulthood (20-40); 3) middle adulthood (40-60); 4) late adulthood (60-80); and 5) late late adulthood (80+). The task during the stable period within an era is to build a life structure which involves critical life choices and goal-attainment and lasts 6-9 years. The

task during a transitional period is to alter the existing life structure of a previous era to meet the demands, goals, and choices of the new era.

Transitional periods last 4-5 years.

Levinson's perspective is solidly age-linked and based on a longitudinal study of 40 men during the 1970's. Transitions are age-specific rather than initiated by historical or life events. Failure of a satisfying life structure to develop at the end of a transitional period results in developmental dysfunction in future eras. While Levinson supports the universality of his theory, others question the application of such closely age-linked eras and behaviors to women (Gilligan, 1982; Hultsch & Pleman, 1979; Sheehy, 1976).

Nursing Perspectives.

It has only been in the past five years that nurses have begun to examine the relationship and applicability of transition theory to nursing. Chick and Meleis (1986) derived their notion of transitions from change and developmental theories, both of interest to nursing. They define transition simply as "a period of change between two relatively stable states" (p. 253). The defining characteristics of transitions include process, disconnectedness, perceptions and pattern of response. The process is bounded. It has a beginning and an end which are relatively stable situations separated by an unstable period of confusion and distress. It is during the unstable period that an individual feels a disconnection in the

link to earlier identities and security. There is incongruity between perceptions of past expectations and the present situation. The meaning of transitional events varies among individuals and influences the outcome. Individual perceptions of themselves and the circumstances surrounding the transition can influence responses to precipitating events. A person must perceive that they are in a transition that requires some personal responses in order for the transition to be resolved. The patterns of behaviors noted during a transition reflect intrapsychic structures and processes as well as the sociocultural context of the transition.

Chick and Meleis list 11 dimensions upon which transitions can vary. These include duration, desirability, ease of passage, length of effect, multiple or single transitions occurring simultaneously, clarity of beginning and end of transition, value placed on transition, degree of planning and predictability involved in transition, degree of disruption of life situations while undergoing transition, and pleasantness/unpleasantness of making a transition.

Chick and Meleis address the compatibility of transition theory with the nursing theories of Peplau, Roy, Rogers, Newman and Orem. Nursing interventions could be conceptualized as an antecedent to a transition, i.e., screening and preventative interventions, and as a consequence of a transition, i.e., therapeutic interventions after the onset of a serious illness.

Nurses can influence health behaviors and health care utilization by people in transitions resulting from illness or a change in health status.

Mercer, Nichols, and Doyle's (1989) perspective of transition emerges from a developmental framework. The authors define transitions "as turning points, a point of reference from which a person's life course takes a new direction, requiring adaptation or change in restructuring behaviors and roles appropriate to the new direction" (p. 2). Restructuring requires changes in responsibility, goals, identity and self-esteem.

Although transitions do not necessarily represent a period of disequilibrium for the individual, they offer an opportunity for psychosocial development. Transitions can be characterized as being age normative, normative history-graded, non-normative life events, internally versus externally motivated, or occurring gradually over time but within a particular limit.

Mercer et al (1989), in a study of transitions in women, conducted extensive retrospective, introspective interviews of 80 women over age 60. Fifty of the women were mothers and 30 were not. As a result of content analysis of the interviews, five major developmental stages were identified by chronological age. Stage one, Launching into Adulthood (ages 16-25) represented the woman's initial departure from their family of origin and was the period with the largest number of transitions. During the second stage, Age-30 Leveling (ages 26-30), many women altered their previously

established life structure. In Stage 3, Age 40-Liberative (ages 36-40), women formulated a life dream of their own, often shifting their focus from husband and children to more gratifying self-development. Women in Stage 4, Regenerational and Redirection, (age 61-65) utilized these years after retirement in pursuit of creative activities, community work and self-development pursuits. Some women assumed responsibility for their elderly parents. During the final phase, Age-80+ Creativity/Destructiveness, women faced transitions initiated by loss of their health, loss of friends and family, and prepared for their own death. This was counterbalanced by a surge of creativity as women found pleasurable ways to enhance their lives (Mercer et al, 1989). In addition to identifying the pivotal transitional periods, Mercer noted that during these times, women were open to interventions designed to facilitate the adaptations required during transition.

Mercer's view of transition is consistent with developmental theory in that transitions are influenced by the age of the person undergoing the change, and by historical and non-normative events. Implicit in Mercer's perspective is the notion that transition involves a process rather than a state of being, and that interaction exists between a woman and her social environment.

Mercer's view shares many similarities with the developmental theory of Erikson (1979). In Erikson's young and middle adulthood stage,

generativity versus stagnation, energy is directed toward nurturing one's own children, other's children or other creative projects. Once the children are on their own, energies turn to creative ventures in one's community. If this goal is not met, individuals become stagnant and self-absorbed. Women in Mercer's second, third, and fourth stage participate in the same type of activities. In Erikson's old age stage, ego integrity versus despair, energy is directed toward developing a sense of satisfaction with the present life and acceptance of the past. If this goal is not met, the individual may succumb to remorse and despair. Similar actions are noted in women during Mercer's final stage (Erikson, 1979; Mercer et al, 1989).

Summary.

Three general perspectives on the concept of transitions have been presented. From the perspective of social psychology, transitions are initiated by events rather than being tied to a particular age and result in changes in an individual's assumptive world. Interventions can be developed to facilitate an individual's passage through the process (Parkes, 1971; Schlossberg, 1987).

Developmental theorists view transition as being related to a specific age, historical event, or non-normative events. Levinson's (1986) notion of transition is closely age-linked. This theory was derived from a longitudinal study of 40 men and the findings have been questionably generalized to women.

Recently nursing scholars have examined the relevance of the concept of transition to nursing. Chick and Meleis' (1986) notion of transition is more closely aligned with the psychosocial perspectives and addresses the process nature of transitions that are event centered, in nursing's case, health or illness centered. The compatibility of transition and nursing theories was explored. Implications for nursing intervention and research were suggested. The view of Mercer et al (1989) on transitions is clearly aligned with developmental perspectives. Transitions in women's lives are seen as being initiated by age, historical events and certain non-normative events.

The major attribute of any transition is that it is a process. The number and name of the stages identified by individual authors vary from the simple definition as a period of instability between two relatively stable periods to more elaborate determination of the steps involved (Chick & Meleis, 1986; Mercer et al, 1989; Parkes, 1971; Schlossberg, 1981).

Transitions involve changes in one's assumptions of the world. Early perceptions of social expectations and behaviors are called into question by the person undergoing the transition (Chick & Meleis, 1986; Mercer et al, 1986; Parkes, 1971; Schlossberg, 1981). The new perceptions that evolve during a transition are influenced by the individual's perception of the meaning of the transition itself, self-concept and the context in which the

transition is taking place (Chick & Meleis, 1986; Mercer et al, 1989; Parkes, 1971; Schlossberg, 1981).

As a process, transitions must come to an end. Transitional processes must have a resolution, and as such, can be considered time delimited. Specific timeframes for passage through a particular transition have been identified in related literature. For example, the transition to widowhood and resolution of the grief after death of a spouse may take one to two years (Chick & Meleis, 1985; Mercer, Nichols, & Doyle, 1989). However, the endpoint of the transition to motherhood is less clear. After giving birth, a woman is always a mother until she dies, even if her children should precede her in death. Mercer (1986a) suggests that the transition to motherhood ends when a woman feels comfortable in her abilities to mother or nurture this particular child, which could take as long as 12 months after the birth.

Transitions are preceded by a relatively stable period in one's life situation (Chick & Meleis, 1986). Particular events such as childbirth or onset of an illness can precede and initiate the transitional process (Parkes, 1971; Schlossberg, 1981). Some transitions are age-related and the transitional process is initiated when one reaches that age, for example, mandatory retirement at age 65 (Levinson, 1986; Baltes, 1979).

The consequences of a transition can be either positive or negative. The return to a relatively stable life organization, an increase in self-

esteem, or stronger self-identity are some of the positive consequences of a transition. Successful completion of a transition occurs when the assumptive world is altered to correspond to the new life space (Parkes, 1971). Diminished self-esteem and continued instability in the life situation are two of the possible negative consequences of a transitional process.

The possibility of developing interventions designed to enhance the positive consequences of a transition is clear. For example, interventions aimed at strengthening an individual's problem-solving abilities can lead to more positive outcomes. Providing knowledge and coordinating various social agencies support, for example, can lead to a positive outcome for a transition initiated by an illness or by childbearing.

Assumptions of Transitions.

One major assumption evident in both the social psychological and developmental perspective is that the person undergoing the transition is interacting with the environment. An occurrence within a person's world, either internal or external, initiates a change. The environment may be internal or external to the self-system. A person can be affected by their external world, as in the case of choosing to move and live in a new location. A person can be affected by their internal environment when illness occurs or when psychological functioning is altered through counseling, for example. A person is influenced passively by their

environment but can actively initiate transitional changes in their own environment, for example, by seeking a career change.

A second underlying assumption is that a person has perceptions of self and of the context in which the transition occurs. These perceptions influence the meaning of the transition for the person. Our perceptions of the transition facing us are influenced by our impressions of similar transitions (Parkes, 1971).

A third assumption is that a person has the ability to adapt. At some point in the person's life, external or internal events will occur that will stimulate adaptive responses. The term adaptation does not necessarily imply positive outcomes. For example, a person's death can be viewed as an adaptive response to a serious illness.

Design and Methodological Issues Related to Studying Transitions.

Researchers strive to design studies that capture the richness as well as the diversity of an individual's experiences during a transition. Baltes and Nesselroade (1979) support the use of longitudinal research designs which aim to describe and explain behavioral consistency and change. The span of time needed for repeated observations varies according to the subject matter under consideration, but typically can cover several months to a year. Longitudinal research is appropriate when the investigator strives to: 1) identify intraindividual change, 2) identify interindividual change, 3) analyze the interrelationships of behavioral change, 4) analyze

the determinants of intraindividual change, and 5) analyze the determinants of interindividual differences in intraindividual change.

Longitudinal design has many limitations. Cook and Campbell (1979) have labeled the simplest form of longitudinal research, pre-test and post-test, as pre-experimental. Sources of error include sampling, history, maturation, testing, instrumentation, statistical regression, and mortality. Baltes and Nesselroade (1979) support the use of more quasi-experimental designs for developmental longitudinal research by: 1) including control groups, 2) including treatment groups via random assignments involving variation beyond that associated with time, and 3) extending the number of observations in the sequence.

Moving towards more quasi-experimental designs is not always desirable in developmental research for several reasons. First, some, if not many aspects of development cannot be fully manipulated. For example, chronological age cannot be randomly assigned, but is considered an important variable in developmental theories. Second, many of the sources of error listed by Cook and Campbell (1979) are important theoretical variables for developmental theories. For example, the process of maturation is important to investigations of transitions.

Longitudinal research is not limited to qualitative analysis of open-ended questions. Quantitative data collection measures are appropriate and used very frequently. Buss (1979) proposed using a three-dimensional

model (person by variable by occasion) that can statistically evaluate the intraindividual differences, interindividual differences, and intraindividual changes. The values obtained on the three dimensions can reveal within-group and between-group differences and change over time, which is one of the goals of developmental research. Stability of the groups can be evaluated by obtaining correlation coefficients between the three dimensions. Traditional regression analysis used to obtain a prediction model is essentially nondevelopmental. Developmental researchers are interested in obtaining regression equations to measure change over time. Regression towards the mean on repeated measures of representative samples involves a decrease in within-group variance (interindividual changes). Between-group variance, i.e., changes in sample means (interindividual differences) may truly reflect changes within the sample (Buss, 1979).

Mixed methodologies are often used in developmental studies. Combining longitudinal samples with cross-sectional samples can provide valuable information by controlling for changes over time thus adding credibility to those changes over time.

Clinical Interventions and Transitions.

All transitions involve change. Some people try to resist change and may require assistance in coping with the demands encountered during the transition.

During transitions, the opportunity for interventions that enhance an individual's travels through the process of change has been acknowledged within a developmental framework. Continued growth and change are emphasized when development is perceived as a process, including anticipation of an event, occurrence of an event, and the aftermath of an event. Interventions can be applied at any of these points in the transition process. Gaffney (1992) offered a nursing practice model based on Meleis's notion of transition to a parental role that can be used to guide nursing assessments of prenatal maternal role characteristics and expectations of infant behaviors. These interventions are designed to strengthen and support a mother during her transition to motherhood and provide a framework for evaluation of both health and developmental outcomes. Appendix A describes several papers detailing interventions to assist the individual through a transition.

Role Theory

Many generic transitions, and particularly for this paper, the transition to motherhood, involve or result in a change in the individual's role in society. Strauss (1959) suggests that individuals define themselves in terms of their roles, i.e., a mother, a wife, a teacher, a doctoral student, etc. The following section will address two theoretical approaches to the concept of role, symbolic interaction and social structure, and evaluate their compatibility with transition theory.

The social-structural perspective on role was described in the early 1950's by Talcott Parsons. Followers of this position believe that as a society becomes larger and more complex, the tasks needed to maintain the adequate functioning of the society become more differentiated. Society outlines these tasks specifically. Roles are seen as the primary means of maintaining the functioning of the social system. Society determines the tasks involved in each role, and persons entering a specific role are expected to act in accordance with the defined tasks in order to keep the society functioning properly. In terms of the parenting role, specific behaviors of parents toward their children are outlined; i.e., parents minimally must provide food, clothing, and shelter for their children or are viewed as neglectful in meeting their role expectations. Roles are the means by which people interact with each other and the larger society. The process of role socialization is essential to the society. The way in which the societal norms and values are acquired by the young affects their ability to assume adult roles and work towards maintaining the society (Hardy & Conway, 1988; Parsons, 1951).

George Mead is considered the founder of the symbolic-interactionist perspective on role theory. From this view, society is seen as constantly changing rather than being rigid. Symbols within the society must have the same meaning to each individual within any given situation in order for the communication (interaction) between them to be effective.

The process of attaining a role identity is complex and not predefined by a larger society. Roles are interpreted on the basis of the meaning of the role to the individual. Individuals can alter their roles and incite changes in the society through their interactions with their environment. The complex nature of human behavior in interaction with society not only influences the choice of roles to be assumed, but also affects a person's unique changes and modifications of usual role behaviors (Hardy & Conway, 1988; Mead, 1934).

The structural-functional approach (S-F) of role differs from the symbolic-interaction (S-I) approach in many aspects. Although a person is seen as interacting with the environment in both approaches, in the S-F approach, the social system defines specific role behaviors and how the environment will be perceived and utilized in relation to meeting role expectations. In the S-I approach, an individual's interactions with and perception of their environment helps in learning and defining role behaviors. From the S-F perspective, roles are clearly defined and must be rigidly adhered to in order to ensure efficient societal functioning. From the S-I approach, roles are defined by an individual's perceptions of specific role expectations and can be modified to meet the individual's particular needs in performing that role. For example, the role expectations of a mother, from the S-F approach, may be to assume responsibility for the childrearing while the father is responsible for

providing for the financial stability of the family. The S-I perspective can more easily explain variants of that pattern of family roles in which the mother of small children may be the major income-earner and the father is the "at home" provider of child care.

Transition theory seems to be more compatible with the symbolic interaction approach to role than with the structural-functional approach. Transitions are initiated by an individual's interaction with their environment either by age-related situations (for example, graduation from high school), by events (for example, loss of a spouse), and by changes in role patterns (for example, role changes that would occur after the loss of a spouse). Likewise, roles are learned through interaction between a person and their environment. Passage through the process of transition is influenced by the individual's perception of the process itself and the context in which the transition is occurring. This can relate to the idea that roles are interpreted on the basis of the meaning of the role to that person. Transitions result in changes in one's assumptive world (Parkes, 1971) and thus, new self-identities are developed and correspondingly, a revision of role patterns must occur. The view that people adapt during a transition is similar to the idea that a person can alter their role to more closely meet their needs. The idea that people interact with their environment, influence and are influenced by others in that environment, and that perceptions of self and others result in behavior that reflects

individual modifications, are at the core of the symbolic-interaction perspective on social behavior as well as transition theory. Thus, transition theory and the symbolic-interactionist approach to role theory can be viewed as philosophically compatible.

Transition to Motherhood

The change from childlessness to becoming a mother is perhaps the most powerful transition experienced by a woman. This transition involves major changes in the woman's role patterns. The impact of this transition not only affects herself and her spouse, but also influences and is influenced by her baby.

Deutsch (1945) distinguishes motherhood from motherliness; the former refers to "the relationship of the mother to her child as a sociologic, physiologic and emotional whole" (p.17), and the latter to a quality in a woman's character that initiates an emotional reaction in response to a child's helplessness and need for care. Deutsch posits that motherliness consists of maternal instinct derived from biochemical sources, and maternal love, which is an affective expression of the relationship to a child.

Motherhood is more closely related to giving birth to a child than is motherliness. A woman may be described as motherly while being childless, but motherhood is not achieved until a child is born.

Motherhood involves specific role behaviors needed in caring for a baby

such as feeding and bodily care. These behaviors can be evaluated along three dimensions: sensitivity to infant cues, consistence of response, and quality of behavior (Brody, 1956).

Oakley (1980) viewed childbirth and the subsequent transition to motherhood as being similar to an individual's response to any life change. The main processes involved in the transition to motherhood (entry into the full adult feminine role and role change from non-mother to mother) are the same processes involved in other major transitions in one's life. Retirement from employment, occupational career change, change in bodily state, entry into "patienthood", experiencing surgery, a "disaster" event, and institutionalization, are commonly associated with childbearing but are associated with other life events as well.

The transition to motherhood has frequently been presented as a series of tasks that must be accomplished for successful completion of the transition. The notion of the sequential tasks which must be achieved emphasizes the process nature of the transition. Appendix B summarizes the various views on specific tasks involved in the transition to motherhood. Only Lederman's (1984) tasks focus solely on pregnancy; for example, facing prenatal fear of loss of control in labor. While Rubin's (1984) tasks occur during pregnancy, there are behaviors specific to each task that are noted after the birth of the baby. For example, binding-in-to-the-baby during pregnancy develops into maternal-infant attachment.

Rubin's maternal tasks of pregnancy were also noted in the analysis of qualitative interviews of women experiencing a high-risk pregnancy (Stainton, McNeil, & Harvey, 1992). Deutsch's (1945) tasks need to be met only after childbirth for example, developing a unity with the child in a harmonious manner; whereas Oakley's (1980) stages begin in early pregnancy and continue past childbirth; for example the rites of incorporation begin during the pregnancy by visiting the obstetrician and continue after birth as evidenced by visits to the pediatrician.

Many factors influence the ease the passage through the transition to motherhood. The behavior of the father toward the mother and baby has been identified as important (Lederman, 1984; Rubin, 1984). Socioeconomic status influences a mother's ability to obtain medical care for herself and her baby, as well as the necessary articles needed for child care. Perhaps the most influential factor in facilitating the transition to motherhood is the temperament of the baby itself (Birns & Hay, 1988). Jones and Lenz (1986) suggested that the best predictor of paternal affection was the infant state at the time of father-infant interaction. Osofsky and Danzger (1974) noted that attentive, sensitive mothers tend to have responsive babies and responsive babies tend to elicit attentive and sensitive behaviors from their mothers. There is a large amount of literature regarding infant temperament and maternal behavior that will not be addressed in detail, but the findings of some pertinent articles are

summarized in Appendix C. The influences of a child's temperament on ease of the transition to motherhood is acknowledged.

Maternal Identity

Concepts that unite transition and role theory are maternal role attainment and the development of a maternal identity. For indeed, becoming a mother is a transition from childlessness to childbearing to childrearing. This transition demands that the woman acquire new skills and behaviors related to the mothering role. While most women successfully achieve a maternal identity, many have difficulty. Inadequate achievement of a maternal identity, along with other factors such as stress, has been related by some researchers to many problems such as child abuse and neglect (Kumar & Robson, 1985; Lerner & Galambos, 1985). In nursing, maternal role attainment has been examined by three primary authors: Reva Rubin, Ramona Mercer, and Lorraine Walker.

Rubin's theory was developed from content analysis conducted on observational process recordings completed by nursing graduate students and hospital staff nurses on more than 6,000 women at a large eastern women's hospital over a period of more than 20 years. The population was sampled from the time of the first missed period until 6 weeks after the birth of the baby (Rubin, 1984).

According to Rubin, who acknowledges the influence of Helene Deutsch on her thinking, becoming a mother involves taking on a new

identity, which in turn, involves a redefinition of the self (1984). The process of redefinition of self involves changes in the woman's self-system. The self-system has three components, 1) the ideal image--"the mother I'd like to be", 2) the self-image--"the mother I am now", and 3) the body image--the notion that how well I am able to mother depends on my body's functional capacity.

The process of forming a maternal identity is interwoven with and interdependent upon the process of developing an emotional tie to the child. Rubin (1984) calls this emotional bond, "binding-in-to-the-child". Both processes are necessary to the woman's self-system of "being a mother" and to the infant for healthy growth and development. The binding-in process begins during pregnancy; that is to say, the development of a maternal identity begins in the prenatal period.

Rubin states that attaining a maternal identity involves the incorporation of a new personality dimension into a woman's self-system. The woman desires this identity change and the motivation to undergo the process is the wish for a child. The transition begins anew with each child. Four processes are involved in the development of a maternal identity. The first process, replication, is the primary means of binding-in to the child. The woman replicates or takes on the behaviors and attitudes toward pregnancy and infants of those people around her. This process is initiated by the woman herself. The woman searches her social circle for

models of pregnant women and mothers. The woman's own mother is the strongest model. Pregnancy behaviors and attitudes vary that is, they are stage specific. For example, early in pregnancy the woman is expected to eat a well balanced diet and seek prenatal care, while later in the pregnancy the woman might attend LaMaze classes in preparation for the imminent childbirth, replicating the behavior and timing of the behavior of those pregnant women she chooses as models.

There are two activities involved in replication. The first, mimicry, is the literal copying of behavior (wearing maternity clothes, seeking or not seeking prenatal care depending on the reference group's actions, or choosing to feed the baby the same type of formula that was started in the hospital). The second activity is role-playing which involves trying on the maternal role. This activity focuses on another person and involves the giving of food, nurturant care and interest. For example, the primiparous woman may babysit for nieces and nephews while the multiparous woman looks at her own child and his/her playmates as experiences of being the mother of more than one child. Multiparous women seem to participate in role-playing to a lesser degree than primiparous women. Rubin labelled this process "taking-on" in her previous writings (1967a, 1967b).

The second process in the development of a maternal identity is fantasy. This is the cognitive exploration of the possibilities in the situation and experience of the self and the child. This process is instrumental for

binding-in to the child and defining self as mother. Some fantasies related to the child are about feeding and clothing the baby, picturing what the baby will look like, and imagining holding the baby. Fantasies are stage specific. Early in pregnancy the woman dreams about the "tentative" child while during the middle of gestation, cues to the gender of the child are sought and the child is described as being playful and generally positive. Toward the end of pregnancy the dreams and fantasies become more frightful, such as dreams of a painful labor or giving birth to a monstrous child. During the puerperium, the fantasies include dreams about the "ideal" family situation or the well behaved newborn. Rubin called this process "taking-in" in her earlier work (1967a, 1967b).

The third process is disengagement which involves the loosening and realigning of affiliative bonds with others. This is accomplished through fantasy, introspection, and talking to a listener. The woman loosens ties with her career self, her spouse (especially with primiparous women), with other children (multiparous women), and with her own pre-pregnant personality and aspirations. Fantasies of "how it will be like to be a mother" not only help the woman bind-in to her child but also allows her to distance herself from her other roles. Rubin called this process "letting-go" (1967a, 1967b).

The final process, dedifferentiation, is the process of trying on pieces of the new image of "myself as Mother." For example, a woman

considering breastfeeding may mentally recall how another woman nursed her baby in public without covering the baby with a light blanket. The pregnant woman would mentally picture herself in the same situation with her own baby and either accept the picture as consistent with her own self-image or reject the idea of not covering the baby as incongruent with her internalized self. In the dedifferentiation process, the woman's mental imaging is on a conscious level and is purposive, as opposed to fantasy, in which the dreams may be expressing subconscious thoughts and fears.

Maternal identity is attained when the woman sees her "self" as a mother in relation to "this child." Rubin notes that "security and confidence develop in knowing self and child in the "we-ness" of two complementary individuals (1984, p. 51).

Binding-in to an affiliative attachment to the child, and formation of a maternal identity are interdependent components of the same process. In order to become a mother, to take on the maternal role, we must bind into the baby, that is, attach to the baby.

After birth, maternal identity is affected by the infant's characteristics as well as the woman's society and significant others. The task of binding-in to the child as a component of attaining the motherhood role continues postpartally. During this period the woman makes a shift from incorporating the infant into her self-system to polarization between mother and baby. This occurs through several operations. Initially, the

mother engages in identification of the infant through the use of the senses (touching, seeing, smelling, hearing, etc). The purpose of identification is to "locate the child in order to locate one's self and one's behavior in relation to this child" (Rubin, 1977, p. 68). Identification organizes maternal behavior and maternal attitudes. This process is completed when the mother "knows" when the child is hungry, wet, comfortable, etc. by hearing, touching, and seeing the baby. During the next operation, claiming, the mother identifies characteristics and qualities of behaviors as "being like" her husband, herself, other children, etc. The purpose of claiming is to tie the child into the woman's intimate social sphere. The last operation, polarization, is the "physical and conceptual separating of the incorporated infant of pregnancy into a separate external and constant entity" (Rubin, 1977, p. 70). All of these processes occur during the puerperal period. The woman also separates herself from her pregnant self-image. There is a psychological need to return to the prepregnant body shape. The restoration of the woman's own intactness and sense of wholeness is a prerequisite for her ability to view her child as intact and whole. The importance of the mother's physical well-being and the infant's behavior/ temperament are closely linked to the successful completion of polarization.

Several attributes of maternal role attainment can be extracted from Rubin's theory: 1) it is a developmental process completed by the end of

the first month postpartum; 2) it is comprised of maternal behaviors; 3) it involves a readjustment of the mother's appraisal of herself and her place in the world; 4) it involves a sense of competency and confidence in her ability to mother; and 5) it is directed toward her child.

As noted previously, Rubin's theory was developed from the analyses of observational process recordings completed by nursing students and hospital staff nurses on more than 6,000 women at a large eastern women's hospital over a period of more than 20 years. The population was sampled either daily or weekly from the first missed period, throughout pregnancy until six weeks after the birth. The women were asked how they felt about themselves at that particular time in their pregnancies and/or postpartum periods. The process recordings were subjected to content analysis. Rubin considered a unit of analysis to consist of an action (attitude or response) coupled with one object or referent of the action (explicit or implicit). Each subject's units could be compared to subsequent intrasubject or intersubject units. Classification of units was carried out until an exhaustive list was developed. Rubin reports an interrater agreement rate of 80-95%.

While Rubin acknowledges that units of behaviors can be subjected to statistical analyses, none were reported. Content analysis procedures were described, but did not follow the steps outlined for naturalistic inquiry, such as establishing an audit trail or providing for peer debriefing

(Lincoln & Guba, 1985). The number of data collectors and the procedure used to train the observers and content raters was not reported. It is unclear exactly how many subjects were involved over exactly what period of time. Furthermore, collecting data over twenty years exposes the findings to the influence of history and maturation.

Despite all these methodological flaws, and based on personal professional experiences with pregnant women and new mothers, this author agrees with many aspects of Rubin's idea of the process involved in the development of a maternal identity. First of all, it is a process that begins in pregnancy, that perhaps takes longer than 1 month postpartum to complete. Maternal identity involves behaviors such as infant care skills and going to the obstetrician. The notion of binding-in-to-the-child is a core feature of a maternal identity for it is the child to whom the behaviors, affect, and cognitions are directed. The woman undergoes a reappraisal and realignment of her self-image, changing from being a childless woman to being a mother. Part of the self-image of "being a mother" involves a sense of competence in one's ability to meet the role demands of motherhood.

Mercer (1986) conducted an extensive longitudinal study using multiple questionnaires (measuring perception of birth, social stress, social support, self-concept, infant temperament, child-rearing attitudes, attachment, and competency) and audiotaped interviews designed to

describe the adaptation to motherhood in primiparous women from 15-42 years of age (N= 242). See Mercer (1986a) for a complete list of instruments (p. 340-341). Mercer (1985) defines maternal role attainment as the "process in which the mother achieves competence in the role and integrates the mothering behaviors into an established role set, so that she is comfortable with her identity as mother" (p. 198). Characteristics of maternal role attainment as delineated by Mercer are: 1) it is a process that occurs over a 3-10 month period; 2) attachment to the fetus is essential (this is similar to Rubin's idea of binding-in-to-the-child); 3) competence in performing mothering tasks is important; and 4) gratification is expressed in the mother-infant interactions. The third and fourth characteristics are similar to Rubin's ideas of polarization and attaining a maternal identity.

The time frame for integration of the maternal role is 3-10 months. This is much longer than Rubin's 1-3 month period for attaining a maternal identity. This discrepancy in the length of time needed to develop a maternal identity could be a reflection of the times in which these projects were completed. Rubin collected data during the 1950's and 60's, a time in which most women abandoned their careers for several years in order to raise their children. In the 1980's, Mercer found that a large portion (55%) of first-time mothers returned to the work force within eight months after birth. These demands of work can cause the woman to

experience role strain and conflict leading to delayed development of a sense of a maternal role. The difference in time frame may also reflect the actual length of data collection. Mercer followed her subjects for one full year while the length of Rubin's data collection is unclear.

According to Mercer, the process of role attainment develops through four phases. In the first phase, the physical recovery phase, physiological adaptation dominates as the woman copes with high levels of fatigue, sleeplessness, and pain. This phase lasts from birth to one month. The achievement phase begins in the second month and lasts until the fourth month. During this phase, adaptation occurs predominately on the psychological and social levels and is characterized by the development of a sense of accomplishment. The woman perceives herself as being skilled and is confident in her ability to care for her newborn. The third phase, disruption, begins from the fifth to the sixth months and peaks at the eighth month. During this time major adaptations occur in the woman's social sphere. These are characterized by role strain as the mother balances marital relationships, work commitments, and the demands of an increasingly active young infant. Psychologically, the mother is not as comfortable in her image of being a "good mother" as in the achievement phase. The final phase, reorganization, begins after the eighth month and is completed by the end of the first year. During this time, on the biological level, the woman usually weans her baby and the infant

continues to explore and gain control of its environment. Psychologically, the woman becomes restless with the time-consuming demands of childrearing. Socially, the mother seeks to resume her prepregnant activities in an effort to redefine the boundaries between herself and her baby (Mercer, 1986a).

The notion of competency is specific to Mercer's viewpoint. Rubin does not address this issue directly. Mercer (1986) emphasizes the importance of a mother's level of competency as essential for attainment of a maternal identity. Competency is influenced by the woman's role-taking ability, repertoire of skills, and complexity of her self-concept. According to the symbolic-interactionist approach to role and developmental theories, competency in the maternal role should increase as the length of time in the role increases and as the woman's self-concept in the role develops (Mercer, 1981, 1986a, 1986b).

Mercer (1986) examined the effect of age, perception of the birth experience, social stress, support systems, self-concept, maternal illness, infant temperament and illness, maternal socioeconomic status, and educational level on the process of maternal role attainment. Social support was a major predictor of maternal role attainment in the early postpartum period. Maternal and infant health status, infant growth and development, and maternal temperament were predictors at one year. Her major finding was that maternal age (16-41 years old) was not a predictor

of maternal role attainment controlling for race, educational level, and marital status.

Walker (1986a, 1986b) also differentiated maternal role attainment from maternal identity. Sixty-four primiparous women and 60 multiparous women were interviewed, using quantitative measures, while in the hospital after birth and again 4-6 weeks later. Perceived role attainment was measured by the Pharis Self-Confidence Scale. Maternal identity was measured by two semantic differential scales (Myself as Mother and My Baby), and demonstrated role attainment was measured by the maternal subscale of the Price's Maternal-Infant Adaptation Scale. Walker viewed maternal identity as a component of maternal role attainment and focused on cognitive and affective attributes of the mother-infant relationship. Maternal role attainment involves the performance of socially-defined maternal tasks with confidence. Not only must the skills be performed adequately, but the mother must perceive her ability to perform the skill appropriately and confidently. The nature of this confidence is influenced by the role models available to the woman, the strength of her self system, and more importantly, by the infant's reception and reaction to her care. Walker operationalized maternal role attainment in terms of self-confidence in role performance.

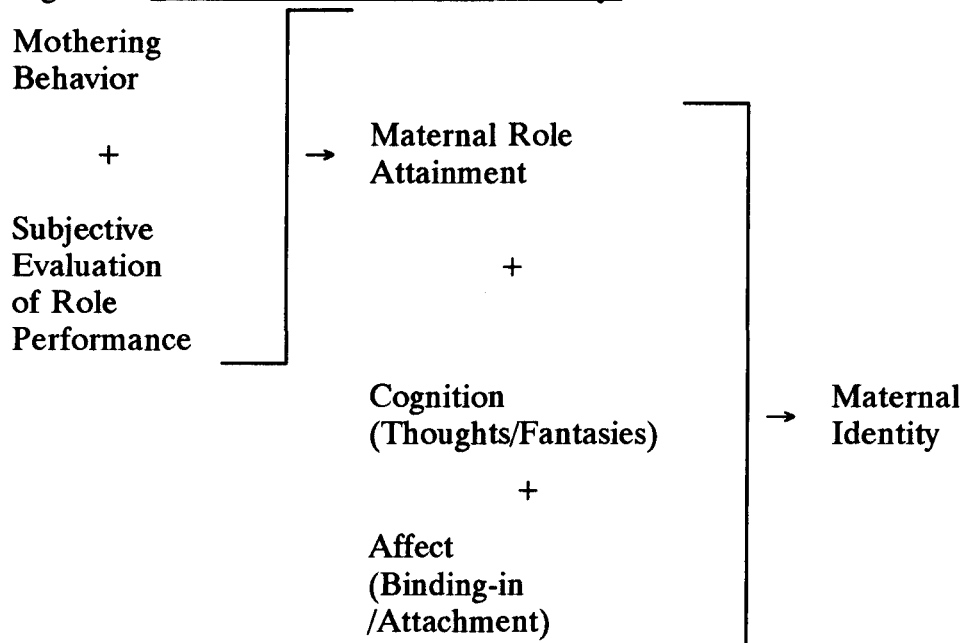
Maternal identity and maternal role attainment have been used interchangeably by Rubin and Mercer. Walker differentiates the two

concepts. This author believes that Walker is correct in noting that maternal role attainment has behavioral and subjective facets related to task performance. Rubin and Mercer do not clearly outline the behavioral aspect involved in the development of a maternal identity but maintain that specific behaviors (e.g., infant care skill) are implicit. A woman's subjective evaluation of her confidence in role performance and attitude toward her infant are indicators of maternal role attainment. This author asserts that there is an error in the assumption that maternal identity is subsumed under maternal role attainment. Rather, the reverse is true. Maternal role attainment, as defined by Walker, is a component of the developing maternal identity. Rubin holds that during the replication operation leading to a maternal identity, the woman learns how to perform the tasks involved in mothering. The subjective evaluation of task performance occurs in the dedifferentiation operation. Figure 1 shows the relationship of these factors to maternal identity as proposed by this author.

Maternal identity involves not only the behavioral and subjective aspects of maternal role performance but encompasses the cognitive and affective dimensions as well. In the model presented in Figure 1, the cognitive aspects include prenatal fantasies of the "wished for" child and of participating in specific mothering tasks such as feeding and clothing the baby. Thoughts are intertwined with fantasy but also address specific

issues such as whether or not to return to work after the baby is born or deciding what baby furnishings are needed.

Figure 1. Transition to a Maternal Identity



The affective component of the model incorporates Rubin's notion of binding-in to the baby. A woman must develop an emotional attachment to her baby, that is, love her baby, for the development of a maternal identity. The development of an attachment to the baby after birth can be impeded by postpartum affect changes experienced by the mother, such as those that occur in postpartum depression. Women suffering a postpartum depression often experience negative perceptions of themselves, their spouse and/or their baby (Boyer, 1990). Kumar and Robson (1984) noted that depressed mothers were more likely to express negative or mixed feelings about their three month old babies than women

who were not depressed. Whiffen and Gotlib's (1989) research suggested that depressed women perceived their babies as being more difficult and bothersome than non-depressed mothers, and babies of depressed mothers were less cognitively competent and expressed more negative emotions than babies of non-depressed mothers. Disturbed affect, thus, can have a negative effect on maternal identity.

Though Walker does not specifically address the starting point for the development of a maternal identity, this author concurs with Rubin (1984) and Leifer (1980) who note that the processes involved in the development of a maternal identity and maternal role attainment begin before birth (Leifer, 1980; Rubin, 1984; Shereshefsky & Yarrow, 1973).

Prenatal Maternal Attachment

Many researchers support the notion that the process of attachment between a mother and her baby begins while the woman is pregnant. Shereshefsky and Yarrow's (1973) repeated-measures study of 60 primiparous women found that a woman's adaptation to pregnancy was predictive of maternal adaptation. Rubin (1977) proposed that the affectional tie between the mother and her child that is so apparent at birth is developed and structured during pregnancy. Similarly, Mercer states that "a woman's adaptation during pregnancy is important because her attachment for her infant begins then" (1983, p. 39). Thus the relationship between prenatal attachment and the mother-infant

relationship is important to nurses caring for the pregnant woman and the new mother.

Leifer (1980) examined 16 primiparous women seven times throughout pregnancy and during the first seven months postpartum. Her findings indicated how prenatal maternal attachment develops and is manifested. Leifer described the behaviors exhibited by the mother and a developmental pattern of her emotional attachment to her fetus. She noted that "the emotional bond with the fetus develops surprisingly soon after conception and, for most women, deepens considerably during pregnancy" (1980, p. 76). During the first trimester, the image of the fetus was impersonal and the affective attachment was tentative. The women displayed an involvement with the fetus by reading about the development of the fetus and sharing this knowledge with their husbands. The majority of the women had dreams or daydreams about the baby, such as wondering what the baby would look like and what it would feel like to hold their own baby.

The turning point in the prenatal attachment process and the development of an affectional tie occurred shortly after quickening was experienced in the second trimester. As the affectional attachment to the fetus deepened, the mental images of the baby shifted to the 'baby as newborn baby' and fantasies and dreams revolved around infant care after birth. Women started to attribute characteristics to the baby such as "calm"

or "playful". They engaged in playful conversations with the fetus. Fetal movements were viewed as a form of communication and interaction.

Women often engaged their husbands in these activities.

By the third trimester of pregnancy, strong emotional attachment to the fetus was evident. During this time, the woman's dreams often portrayed more violent scenes that posed a threat to the mother and baby or in which the baby was lost. Leifer believes that these dreams reflect an anticipation of delivery and the imminent loss of the fetus. Naming the baby is an important activity in the last trimester of pregnancy. Prenatal attachment behaviors, the presence of mother-fetal interactions, and fantasies experienced by pregnant women are highlighted in Leifer's (1980) work.

Two authors have offered a specific definition of maternal-fetal attachment. Cranley defined maternal-fetal attachment as "the extent to which women engage in behaviors which represent an affiliation and interaction with their unborn child" (1981a, p. 65). The behavioral and affective components of attachment are evident in this definition. Vito (1986) defined attachment as a developmental process that begins during pregnancy as maternal-fetal attachment. She assumes that maternal-fetal attachment is a universal process, that all pregnant women engage in it to some degree, and that it can be inferred from the feelings and behaviors of pregnant women (Vito, 1986).

Stainton (1989) explored expectant couples' awareness of the unborn child. Using a grounded theory approach, four levels of awareness were identified by couples in the third trimester of pregnancy. In level I, couples are aware of the unborn baby as an idea. Parents identify perceptions, ideas and fantasies about what is occurring in the developing baby. There is a sense of unreality toward the actual child but many descriptions of the wished-for child are verbalized. In level II, awareness of the unborn infant's presence, parents referred to the fetus in human terms. In response to seeing the fetus during ultrasound imaging, fathers described the baby in objective terms (e.g., the heart) whereas mothers were more subjective (e.g., she has a . . . , or he looks like. . .). Most mothers said they 'talked' directly to their unborn baby. The fetus was referred to by words such as her, she, the baby and by various nicknames. In level III, awareness of specific unborn infant behaviors, parents provided distinct descriptions of the unborn infant's behaviors. Sleep-wake patterns were predicted and the qualities of fetal movement were differentiated (e.g., baby kicks hard when loud music is playing). In level IV, awareness of infant interactional ability, parents described the infant as actively participating in communication with them. For example, the infant was perceived as playful if he kicked the father's hand as he stroked the mother's abdomen (Stainton, 1989). Implicit in this work is the notion of being able to visualize or see the baby, even before ultrasonography or

quickenings, through fantasies and perceptions. Thus, awareness of the baby and the degree of parent-fetal interactions heightens with fetal movement.

Several researchers have developed instruments to quantify maternal-fetal attachment in order to examine the relationships among prenatal attachment, postnatal mother-infant attachment, and the influence of variables such as age, socioeconomic status and social support. Cranley (1981b) studied 71 women in their third trimester of pregnancy and on the third postpartum day. No significant correlation was found between Cranley's Maternal-Fetal Attachment Scale (MFAS) and the Broussard Neonatal Perception Inventory (NPI). Cranley suggested that this lack of significance could be due to the fact that the two scales measure distinctly separate facets of the maternal-child relationship and are not comparable. Also, the variability in the NPI scores was so slight and the difference being studied so subtle that the results may indicate the normal variability in NPI for "low risk" mothers.

Mercer and Ferketich (1990) examined 121 high-risk pregnant women, 61 partners of high-risk women, 182 low-risk women, and 117 partners of low-risk women. They found that prenatal parental attachment, as measured by Cranley's MFAS, was a predictor of early postnatal attachment (as measured by Leifer's "How I Feel About My Baby Now" scale) in all groups except the partners of low-risk women (high-risk

women, $R^2 = .07$; partners of high-risk mothers, $R^2 = .18$; low-risk women, $R^2 = .02$). Mercer challenged the notion that prenatal attachment is an indicator of parental attachment to their growing child, but this explanation is contrary to the existing literature and clinical experience.

Many investigators have questioned the reliability of Cranley's MFAS (Fowles, 1988; LoBiondo-Wood, 1985; Mercer et al., 1988; Vito, 1986). Problems with low reliability on several of the items were noted. There were less than five items on some of the subscales on the tool. Content validity of the MFAS has also been challenged (LoBiondo-Wood, 1985). Several of the items, such as "I wonder if my baby can hear inside me," are not linked with the present theory base for prenatal attachment.

Mueller (1992) compared the results of qualitative analysis of interviews of expectant women's feelings toward their fetus with the MFAS subscales. Three of the categories that emerged from the qualitative data were similar to three subscales on the MFAS ("Attributing Characteristics to the Fetus," "Differentiation of Self from the Fetus," and "Roletaking") while none of the categories corresponded with the remaining subscales ("Giving of Self" and "Interaction with the Fetus"). Mueller questioned the validity of some of the items on the MFAS and encouraged further development of that instrument. Mueller (1993) conducted factor analysis of the MFAS based on two heterogeneous samples, group A (N=371) and group B (N=310), that approximated groups of women that have been

assessed using the MFAS. The results of the analysis revealed factor solutions that differed between the two samples and differed from the arrangement of items within the MFAS subscales, thus further questioning the validity of the MFAS. Therefore, this instrument will not be used to measure prenatal maternal attachment in this study.

Several researchers have responded to the need for further refinement of measures of this concept. Muller (1990, 1993) developed the Prenatal Attachment Inventory (PAI). Items were theoretically derived and content validity was established by a panel of 11 experts. The sample of 310 low-risk pregnant women consisted of ethnically diverse, older (mean = 30 years), well-educated (mean = 15 years), nulliparous (68%), and middle class (60%) women. To assess concurrent validity, the PAI was correlated with total scale scores on Cranley's Maternal-Fetal Attachment Scale (MFAS), the Maternal Adjustment and Maternal Attitudes Scale (MAMA), the Kansas Maternal Satisfaction Scale (KMSS) and the UCLA Loneliness Scale (UCLA). The PAI was positively correlated with Cranley's MFAS ($r = .72, p < .01$), and total scores on the MAMA ($r = .25, p < .01$). The PAI had a negative correlation to loneliness (UCLA) ($r = -.13, p < .05$) and no correlation with the KMSS or somatic symptoms (Somatic symptom subscale on the MAMA). Cronbach's alpha for the PAI was reported as .81 (Muller, 1990).

LoBiondo-Wood and Vito (1990) developed the Prenatal Maternal Attachment Scale (PMAS). The conceptual framework for the instrument was derived from Bowlby's attachment theory (1980) and the work of Rubin (1975). Items were generated from theory, the MFAS, previous research and clinical observations. The cross-sectional sample of pregnant women (N=650) was obtained from the eastern and midwestern regions of the United States. Women were questioned at various points throughout pregnancy; 142 women had not experienced quickening while 478 women had reported feeling fetal movement. The instrument consists of 39 Likert-type items, 10 of which are to be given to women only after quickening has been reported. Three subscales (Binding into the Baby, Ambivalence, and Role-Taking) were derived utilizing principal axis factoring extraction followed by oblique rotation, which accounted for 34.5 % of the variance.

Cronbach's alpha for the 29 items tested on a cross-sectional sample (N=650) throughout pregnancy was reported as .87; for 29 items on a sample of women who have not experienced quickening (N=172) the alpha was .90; for 29 items on a sample of post-quickening women (N=478) the alpha was .86; and for the complete 39 item scale on a sample of women experiencing quickening (N=478) the alpha was .83.

In a personal communication, LoBiondo-Wood (1990) reported that the sample obtained for the PMAS was primarily primiparous women of a

younger age and less educated than the women in Mueller's study. The PMAS was chosen for the present study because of the extensive testing and analysis that was conducted during instrument development, and the sensitivity of the tool to differences in perceptions of fetal movement.

The relationships between maternal-fetal attachment and several variables have been examined. Some of the findings are equivocal due to small sample sizes. No association has been found between maternal-fetal attachment and the mother's age (Kemp & Page, 1987; Lerum & LoBiondo-Wood, 1989; LoBiondo-Wood, 1985), educational level, race, or whether the pregnancy was planned or unplanned (Kemp & Page, 1987; Lerum & LoBiondo-Wood, 1989), self-esteem (Cranley, 1984; Koniak-Griffin, 1988; Mercer & Ferketich, 1990), self concept (Gaffney, 1986), maternal risk status (Kemp & Page, 1987; Mercer & Ferketich, 1990), or the mother's experience of symptoms in pregnancy (Lerum & LoBiondo-Wood, 1989; LoBiondo-Wood, 1985). The pregnant woman's perceived stress demonstrated a negative relationship with attachment (Cranley, 1984). Social support was positively associated with maternal-fetal attachment in one study (Cranley, 1984), but failed to demonstrate a significant correlation in another (Koniak-Griffin, 1988). Parity demonstrated similar mixed findings (Cranley, 1984; Grace, 1989; Kemp & Page, 1987; Lerum & LoBiondo-Wood, 1989; Mercer & Ferketich, 1990). Several investigators found no significant increase in attachment scores

after ultrasound or amniocentesis (Heidrich & Cranley, 1989; Mercer, 1985), while one study reported a significant increase in attachment after antenatal testing (Lerum & LoBiondo-Wood, 1989). The relationship between anxiety and maternal-fetal attachment is unclear. Gaffney (1986) found an inverse relationship between anxiety and attachment while Cranley (1984) found no significant relationship.

Only two variables, time and fetal movement, have consistently demonstrated a strong, positive influence on maternal-fetal attachment. Fowles (1988) found that gestational age explained 49% of the variance in maternal-fetal attachment ($N = 47$). Grace (1989) found that maternal-fetal attachment increased with advancing gestational age and perceptions of fetal movement ($F = 712.78 [1,68]$, $p. = <.001$). These findings were similar to those of LoBiondo-Wood (1985) ($F = 84.88 [2,98]$, $p. <.0001$) and others (Heidrich & Cranley, 1989; Kemp & Page, 1987; Lerum & LoBiondo-Wood, 1989; Vito, 1986). These findings are not surprising. As the pregnancy advances and the fetus becomes more active, a woman is more aware of the baby within, and thus faces the thought of impending motherhood. Expectant parents can even identify characteristics of their fetus and ascribe a personality to it (Cranley, 1981; Leifer, 1980; Rubin, 1984; Stainton, 1985). The mental picture of the "baby within" can enhance the initial identification of maternal role behaviors, such as cuddling and feeding the baby.

Measurement Issues.

The proposed study will examine the relationship between the affective and behavioral components of the Maternal Identity model. The behavioral component of the model will be evaluated by using measures of postnatal mothering behavior (Perceived Competence Scale by Rutledge & Pridham, 1987) and subjective postpartum evaluations of maternal role performance (Myself as Mother & My Baby Scales by Walker, Crain, & Thompson, 1986a). The affective component will be assessed using two instruments. A woman's prenatal affect will be assessed using the Prenatal Maternal Attachment Scale (LoBiondo-Wood & O'Rourke-Vito, 1990). Though the main focus of the instrument evaluates woman's affective tie to her child, some items address cognitive aspects of the model such as fantasies of the wished-for child. Postnatal attachment will not be evaluated. The influence of a negative postpartum affect, that is postpartum depression, will be assessed using the Edinburgh Postnatal Depression Scale (Cox, Holden and Sagovsky, 1987).

Walker developed two scales (Myself as Mother and My Baby) as measures of the evaluative dimension of maternal identity using the semantic differential technique. The evaluative dimension of Myself as Mother was identified by factor analysis of responses from 104 medically low-risk, predominantly white, middle-class women attending a well-baby clinic. The scale measuring the evaluative dimension of the concept, My

Baby, was derived from factor analysis of 21 bipolar adjective pairs and resulted in the extraction of seven factors, with the first factor representing the evaluative dimension (loadings from .87 to .47). These instruments were chosen for this study because of their ability to measure the subjective components of maternal identity presented in the model.

Mercer (1986) emphasizes that a mother's sense of competency in performing infant care skills is essential for attainment of a maternal identity (1986). Competence is influenced by the woman's role-taking ability, repertoire of skills, and complexity of self-concept. According to the symbolic-interactionist notion of role and developmental theories, competency in the maternal role should increase as the length of time in the role increases and as the woman's self-concept in the role develops (Mercer, 1981, 1986a, 1986b).

Several factors have been associated with the mother's sense of competence for tasks related to the maternal role. Rooming-in with the baby while in the hospital and hospital-sponsored infant care classes have demonstrated conflicting effects on competency (Greenberg, Rosenberg & Lind, 1973; Jordan, 1973; Pridham & Schutz, 1983). The influence of parity has also had mixed effects. Pridham and Schutz (1983) found that parity had no influence on the extent to which a mother perceived herself to be adequately prepared for infant care while Curry (1983) found that ease in the adaptation to motherhood was greater for the multiparous

woman who had previous infant care experience. Women who experienced an unplanned cesarean birth were less likely to perceive themselves as competent in infant care skills (Brown, 1967). Parents of full-term infants perceived themselves as being more competent in caring for their baby than parents of preterm infants at the time of discharge (Jeffcoate, Humphrey, & Lloyd, 1979). Curry (1983) found that mothers who lacked social support experienced more difficulty during the transition to motherhood while Peterson (1981) and Gibaud-Wallton (1978) noted an increase in perceived competency in women with high perceptions of social support. Maternal attendance at new parent support groups also revealed conflicting findings (Hamilton-Dodd, Kawamoto, Clark, Burke, Fanchiang, 1989; Peterson, 1981). Mercer, (1990) in a longitudinal study of 121 women experiencing a high risk pregnancy and 182 low-risk women, reported that self-esteem accounted for one-third (32-33%) of the variance in parental competency in low- and high-risk women respectively. Parental competence was a major predictor of maternal-infant attachment in high- and low-risk mothers eight months postpartum ($R^2 = .20$ and $.11$, respectively). Postpartum depression demonstrated a consistently negative relationship with parental competence (Gowen, Johnson-Martin, Goldman, & Appelbaum, 1989; Mercer, 1990; Teti & Gelfand, 1991). A mother's perception of self-efficacy demonstrated a mediating effect between maternal psychological variables, infant temperament and perceptions of

competence in the parenting role (Cutrona & Troutman, 1986; Teti & Gelfand, 1991).

These research findings explore the influence of various postpartum factors on a mother's sense of competency. Mercer (1986a) found that only 14% of the variance in maternal perceptions of competency was explained by demographic variables (educational level, marital status, and race) in a mother's first four months after the birth of the baby. After surveying the literature, no research could be found that examined the relationship between prenatal maternal attachment and maternal role competence.

Rutledge and Pridham (1987) developed an instrument, Perceived Competence Scale, that measures a mother's self-perceptions of competency in infant feeding and infant care skills during the immediate postpartum period. The items for this tool are imbedded within the Birthing Questionnaire which was given to 140 postpartum mothers within six days after the birth of their infants. The majority of the mothers were white, married, and middle-class. Two thirds of the women were multiparous and one third were primiparous. Most of the women had 2vaginal deliveries (71%) and 29% delivered by cesarean section. Twenty percent of the women planned to breastfeed exclusively, 25% planned to bottle-feed, and 55% planned to combine feeding methods (Rutledge & Pridham, 1987). This instrument was chosen for the proposed study

because of its ability to quantify the attribute of perceived competence in infant care skills that is a component of maternal identity.

Postpartum Depression

The influence of a negative postpartum affect, such as postpartum depression, on maternal role attainment was addressed earlier in this paper. Infant development is also influenced by a mother's experience with postpartum depression. Infant behavioral difficulties and intellectual deficits have been noted in children of women who suffered depression in the first year after delivery of the child (Caplan, Cogill, Alexandra, Robson, & Kumar, 1989; Cogill, Caplan, Alexandra, Robson, & Kumar, 1986; Wrate, Rooney, Thomas & Cox, 1985).

The prevalence of postpartum psychiatric disorders emphasizes the need to examine the influence of this variable on maternal role attainment. Postpartum "blues" are transient episodes of emotional upset that are characterized by mild mood changes, crying and sadness. Symptoms of the "blues" peak on the fourth to fifth day postpartum and last a few hours to two days. More than three-fourths of all women delivering babies experience the blues. Postpartum depression is characterized by tiredness and exhaustion that is similar to depressive symptoms occurring at other times in a woman's life. The difference between postpartum depression and depression experienced at other times in a woman's life lies in the postpartum mothers' feeling of guilt and inadequacy that are centered

about being an incompetent and inadequate parent. Other symptoms include inability to make decisions, insomnia, anxiety attacks, and diminished libido. Though some women report thoughts of harming the baby, Boyer (1990) noted that this is unlikely to happen. Beck (1993, 1992) conducted qualitative studies initially using a phenomenological approach followed by a grounded theory analysis with a different sample and then triangulated the results. Beck suggested that loss of control was the basic psychosocial problem in postpartum depression. The basic social psychological process involved in postpartum depression is the "process of teetering on the edge which refers to walking the fine line between sanity and insanity" (1993, p. 45). Postpartum depression develops gradually in the first 3-6 weeks postpartum and recovery may take longer than a year. Psychotherapy and psychopharmacological interventions are helpful treatments for these women. Postpartum depression occurs in 10-15% of all childbearing women (Boyer, 1990; Casiano, 1990; Kumar, 1990).

Researchers have attempted to identify predictors of postpartum depression. Demographic and obstetric variables have revealed conflicting findings. O'Hare, Neunaber, and Zekowski (1984) noted that a family history of psychosis, particularly postpartum psychosis in the woman's own mother, may be predictive of postpartum depression. The presence of depressive symptoms during the pregnancy, less adaptive attributional style, lowered stress during the delivery, more stressful life events, and lower

levels of perceived support from the spouse have been linked to postpartum depression ($R^2 = .40$: O'Hara, Rehm, & Campbell, 1982). Primiparous women without a previous psychiatric history are more likely to develop postpartum depression than their multiparous counterparts (Harding, 1989).

Various instruments have been used to measure postpartum depression. The Anxiety and Depression Scale (SAD) by Bedford and Foulds (1978) failed to detect increased depression or anxiety in the first week postpartum in a sample of women ($N = 425$) who rated themselves as being more depressed and anxious on a visual analog scale (Cox, Connor, Henderson, McGuire & Kendell, 1983). The well-known Beck Depression Inventory consists of 21 manifestations of depression in general but does not contain items that pertain specifically to symptoms of postpartum depression.

Cox, Holden, and Sagovsky (1987) developed the Edinburgh Postnatal Depression Scale. This 10-item scale was validated by testing 84 British mothers. The mean age of the sample was 26 years and the mean age of their infants was three months. Cox et. al. reported the instrument's sensitivity in identifying women diagnosed as depressed, when compared to the Research Diagnostic Criteria for depression, as 86%, and specificity as 78%. Harris, Huckle, Thomas, Johns and Fung (1989) screened 147 Welsh women who were 6-8 weeks postpartum for major depression

according to the DSM-III criteria. Their findings revealed the sensitivity of the Edinburgh Postnatal Depression Scale as 95% and specificity as 93%, while the Beck Depression Inventory was noted as being significantly inferior, with a sensitivity of 68% and specificity of 88%.

This researcher feels that it is essential to investigate the influence of postpartum depression on maternal role attainment since the incidence of postpartum depression noted in women several months after the birth of their baby is 10-15% (Kumar & Robson, 1984; O'Hara, Neunaber, & Zekoski, 1984; Pitt, 1968; Whiffen, 1988). The presence of postpartum depressive symptoms at this time can influence the measures of maternal role attainment. The Edinburgh Postnatal Depression Scale was chosen for this study because of its strong sensitivity and specificity in identifying women experiencing postpartum depressive symptoms.

Analysis of the Transition to a Maternal Role

A social psychological approach to the concept of transition was the approach used in this study to understand the phenomena of transition to a maternal role. Transitions are a process which involve changes in one's assumptions of the world and are influenced by the meaning of the transition itself. As a process, transitions have some end point. Transitions are preceded by a relatively stable life situation and can be initiated by a particular event, such as childbirth, or are age-related, such as retirement at age 65. A transition can result in an increase in self-

esteem and an improved life situation or in a more diffuse self identity and continued life distress (Baltes, 1979; Chick & Meleis, 1986; Levinson, 1986; Mercer, Nichols & Doyle, 1986; Parkes, 1971; Schlossberg, 1981).

The symbolic interaction perspective on role is compatible with the social psychological view of transitions. The process of taking on a role is complex and implies a transition in the role taker's life experience.

Individuals are in constant interaction with their environment, which can not only influence the choice of roles to be assumed, but can also modify the individual role behaviors taken on by the individual (Hardy & Conway, 1988; Mead, 1934).

Schlossberg (1981) offers a framework for identifying sets of factors that influence a transition. The first set of factors, influencing one's passage through a transition, are characteristics of the transition itself. In relation to maternal role, the transition may be evaluated using the dimensions identified by Chick and Meleis (1986). The duration of the process has been addressed. Whether or not the pregnancy was planned and desirable can affect the outcome. The successful completion of the transition to a maternal role can be influenced by the value the woman and her significant others place on the transition. The amount of predictability involved in the process also has an impact on the transition. The timing of the pregnancy in a woman's life plan can also influence the ease in making the transition to motherhood. A woman who finds herself pregnant "too

early" in her life plan may have a more difficult time during the transition. A woman who is undergoing several transitions simultaneously may find that difficulties arise. Schlossberg (1981) identifies the potential change in role as one of the factors involved in a transition. For first-time mothers, the changes related to role behaviors and attitudes can be a tremendous source of anxiety and stress or can be eagerly anticipated.

Characteristics associated with the pre/post transition environment include the woman's social support systems, such as her spouse. Marital satisfaction has been related to ease in making the transition to maternal role (Majewski, 1986). The availability of an appropriate social support may affect the attainment of a maternal role in married women.

Characteristics of the woman herself affect the progression through the transition to a motherhood role. It is through a woman's perceptions and recollections of being mothered that she is first able to identify behaviors involved in the maternal role. The behaviors are re-enacted and revised during childhood while engaged in doll and imaginary play. Fonagy, Steele, and Steele (1991) conducted a prospective study of 100 women and found that a woman's perception of her attachment to her own mother was predictive of the infant-mother attachment one year after birth.

Conclusion

The development of a maternal identity is a process, beginning during pregnancy, in which many women experience anxiety and confusion.

Nurses have a unique opportunity to offer interventions designed to ease a woman's passage through this transition, but a clear understanding of the relationship between the components of maternal identity is lacking. This study quantitatively examined the relationship among several of the variables incorporated in a maternal identity.

The model presented in this chapter, displaying the relationship among the variables, guided the research. The relationship among the affective component during pregnancy (prenatal maternal attachment), postpartum affective status (postpartum depression) and behavioral components (maternal role attainment) of maternal identity was examined.

CHAPTER III

METHOD

The purpose of this project was to examine the question: "What are the relationships among prenatal maternal attachment, maternal demographic variables, and presence of postpartum depressive symptoms to measures of maternal role attainment at 3 months after birth?" The specific hypotheses for this study were:

1. Prenatal maternal attachment will be positively related to maternal role attainment.
2. Prenatal maternal attachment will be negatively related to presence of postpartum depressive symptoms.
3. Postpartum depressive symptoms will be negatively related to maternal role attainment.
4. Prenatal maternal attachment will not be related to maternal age.
5. Prenatal maternal attachment will not be related to maternal socioeconomic status.
6. Maternal age will not be related to presence of postpartum depressive symptoms.
7. Maternal socioeconomic status will not be related to presence of postpartum depressive symptoms.

8. Maternal age will not be related to maternal role attainment
9. Maternal socioeconomic status will not be related to maternal role attainment.

Design

A longitudinal, panel design was used to study primiparous women between 24 and 40 weeks of gestation (Time 1) and again 9 to 14 weeks after birth (Time 2). Longitudinal designs follow a cohort of subjects over time (Polit & Hungler, 1991). Baltes and Nesselroade (1979) support the use of longitudinal designs to examine not only the changes within an individual undergoing a transition but also the changes among individuals undergoing similar transitions.

Mercer (1985) reported that 49% of women felt comfortable with the mothering role by 2 months after the birth of the baby, and 64% had internalized the maternal role by 4 months after birth. According to Mercer, it may take from 3 to 10 months after the birth of the baby to attain a sense of comfort with the maternal role. This researcher questioned women at a time when, theoretically, about half of the women should feel comfortable in their role as mother.

Sites

Women were approached for the study while attending prenatal classes sponsored by three hospitals in central Illinois. Hospital A is a 300-bed tertiary regional medical center located near a large university in a city

of 100,000 people. Hospital B is a 236-bed hospital located between a large state university and small private university in a city with a population of 110,000. Hospital C has 425 beds and is in a town of 94,000 in which a small, private university is located. Each of these hospitals' communities contains small industrial sites and is surrounded by rural farmlands. This researcher felt that the sample more closely reflected the diverse socioeconomic levels present in central Illinois by approaching women from the three geographically diverse sites.

Sample

Power analysis was conducted to determine sample size for correlation and regression analysis. For correlation analysis, Cohen (1988) values a small effect size as $r = .10$, a medium effect size as $r = .30$, and a large effect size as $r = .50$. The specific population variance on the variables of interest for this study (maternal prenatal attachment, presence of postpartum depressive symptoms, and maternal role attainment) was not known before conducting the study. Therefore power analysis was based on the findings of previous research. Gowen, Johnson-Martin, Goldman and Appelbaum's (1989) study of mothers of handicapped ($N = 21$) and non-handicapped ($N = 20$) children demonstrated a stronger, negative correlation between postpartum depression (measured by the Center for Epidemiological Studies Depression Scale) and parenting competence (measured by the Parenting Questionnaire by Goldman and Johnson-

Martin, 1983) for mothers of non-handicapped 6-month old children ($r = -.86$, $p. <.001$) than for mothers of handicapped children ($r = -.14$, N.S.). Teti and Gelfand (1991) reported a moderate negative correlation between maternal depression (measured by the Beck's Depression Inventory) and maternal competence (measured by Sense of Competence Scale of the Parenting Stress Index by Abidin, 1986) ($r = -.39$, $p. <.001$) in a sample of 48 depressed and 38 non-depressed mothers of 3-13 month old children.

Based on the findings of these studies and taking a conservative stand, a moderate effect size of $r = .30$, a one-tailed alpha of .05 and a power of .80 were the parameters selected for the correlation power analysis. Using standard tables (Cohen, 1988, p. 101), a sample size of 68 subjects would be needed. No reported statistics could be found in the literature addressing the correlation between prenatal maternal attachment and measures of maternal role attainment, yet theory supports a positive relationship between these variables (Leifer, 1980; Rubin, 1984; Sheresefsky & Yarrow, 1973). Cohen (1988) suggests using a small effect size when actual correlation values are unknown. Power analysis parameters for these variables (effect size of $r = .10$, power of .80, one-tailed alpha of .05) yielded a sample size of 617.

Computer generated calculations were conducted to determine sample size for regression analysis (Borenstein & Cohen, 1988). For regression analysis, Cohen (1988) delineates a small effect size as an R^2 of

.02, a medium effect size as an R^2 of .13, and a large effect size as an R^2 of .26. When regressing the independent variables of this study (prenatal maternal attachment and presence of postpartum depressive symptoms) on the dependent variable (measures of maternal role attainment) with power set at .80, alpha set at .05 and a small effect size ($R^2 = .02$), a sample size of 460 women is needed to reach significance. The previously cited research demonstrated a moderate to strong relationship between postpartum depression and the dependent measure of perceived competence. This supports adjusting the estimated effect size to a midpoint between a small and moderate level. With effect size set at $R^2 = .075$ (midpoint between values for small and moderate effect size), power at .80 and an alpha of .05, a sample of 120 women was needed to reach significance.

A sample size of 120 women was chosen for this study for several reasons. First, a moderate to strong correlation was noted between the independent variable of postpartum depression and the dependent variable of perceived competence, thus yielding a more moderate effect size for regression power analysis and thereby resulting in a smaller sample size needed to reach significance. Secondly, it would not be feasible to obtain the sample size ($N = 460$) needed when a small effect size is used to obtain a power of .80 for regression analysis, given the time frame of one year for data collection for this dissertation. This researcher acknowledges

this condition as a limitation of the study that may influence the results and increase the chance of a Type II error.

Criteria for inclusion in the sample were:

1. Primiparous women between 24 and 40 weeks gestation, experiencing a medically and obstetrically uncomplicated pregnancy. The women may have experienced no more than 3 spontaneous first trimester abortions. The researcher was attempting to control for confounding variables, such as previous experience with one's own infant or threats to maternal-fetal well-being, by sampling only primiparous women with uncomplicated pregnancies.
2. Able to read and speak English
3. Between 18-35 years of age
4. Living with the father of the child. Previous research has noted the positive effect of perceived social support on the development of a maternal identity. This researcher wanted to control for the potential negative effects that being a single mother may have on maternal role attainment.
5. Capable of giving informed consent.

Subjects were excluded from the study if they were experiencing moderate to severe pregnancy-induced hypertension, gestational diabetes, multiple gestations, placenta previa, incompetent cervix, preterm birth (< 37 weeks), newborn anomalies, or stillbirth. The literature suggested

that women who became pregnant and delivered a baby after infertility treatment demonstrated lower postpartum maternal identity and less self-confidence than never-infertile women (Dunnington & Glazer, 1991). Therefore, women who experienced infertility treatments in order to achieve this pregnancy were excluded from the sample.

Women were followed for the study even if they experienced any one of the following during labor and delivery, as long as they did not result in any of the above exclusions: Cesarean section for cephalopelvic disproportion, failure to progress or breech presentation, multiple variable decelerations, precipitous or prolonged labor, meconium-stained amniotic fluid, or prolonged rupture of membranes (>12 hours), if term.

All of the women who agreed to participate in the study (N = 168) were approached at childbirth classes from September 1, 1992 until January 10, 1993. Of this number, 157 women completed all questionnaires at the second data collection point (9-14 weeks after delivery) for a response rate of 93%.

Thirty-two of the initial sample (N = 168) who completed questionnaires at Time 1 were dropped from the study for various reasons. Six women were older than 35 years of age and one woman was not living with the father of the baby. One woman experienced gestational diabetes and two women suffered pregnancy-induced hypertension severe enough to warrant induction at or earlier than 37 weeks gestation. One woman

experienced an unexpected term stillbirth. Five women had premature rupture of membranes resulting in preterm birth (<37 weeks). Three women experienced preterm labor resulting in preterm birth. Two women had babies experiencing complications (pyloric stenosis, renal disease).

Eleven women did not return the second round of questionnaires. In each case, telephone contact was made to ensure receipt of the packet of questionnaires followed by mailing a second packet of questionnaires. No attempt was made to contact the women after 14 weeks post-delivery as outlined in the procedure section.

After these deletions, a final sample size of 136 was used for analysis of both Time 1 and Time 2 data.

Maternal Demographic Variables

Maternal demographic information is presented in Table 1. Average age was 26 years. Approximately 60% of the women were in Hollingshead's Class III or IV (clerical, sales and semi-skilled workers) for socioeconomic status while 40% were in Class I or II (major and minor professionals). Most of the women were white (92%), married (93%), or not married but living with the father of the baby (7%).

The average gestational age of the women at the initial data collection period was 33 weeks. Nearly all of the women (99%) had at least one routine sonogram during the pregnancy but very few women had experienced an amniocentesis. Most of the women were pregnant for the

Table 1. Maternal Demographic Variables

Variable	Mean	SD	Range
Age (years)	26	3.6	18-35
Weeks Pregnant at Time 1	33	2.9	24-39
	Frequency	%	
Socioeconomic Status			
Major Professionals	9	7	
Minor Professionals	43	32	
Clerical and Sales	56	41	
Semi-skilled Workers	28	21	
Race			
Native American	3	2	
Black	4	3	
Oriental	1	1	
Hispanic	3	2	
White	125	92	
Prenatal Testing-- Yes			
Ultrasound	135	99	
Amniocentesis	2	1	
Miscarriages/ Abortions			
None	124	91	
One	10	7	
Two	2	1	

first time and fewer than 8% of the women had experienced a miscarriage or abortion in a previous pregnancy.

Several of the subjects experienced obstetrical complications in their last month of pregnancy that were not severe enough to warrant induction of a preterm delivery, but required close supervision by the obstetrician. Twenty of the women had mild pregnancy-induced hypertension (15%). In each case, the women did not require any medication therapy and delivered their baby at term. Mild pregnancy-induced hypertension is a relatively benign complication of pregnancy and therefore, this researcher included these women in the sample. Eleven women (8%) stated that they had experienced preterm labor which did not require hospitalization and resulted in the delivery of a healthy baby at term gestation. Twenty-six women (19%) reported rupture of membranes before the onset of labor but they delivered at term. The researcher called these women and clarified that the spontaneous rupture of membranes occurred at term and heralded the onset of labor.

Labor and Delivery Variables

Labor and delivery variables are summarized in Table 2. The average length of labor was 12.24 hours (sd 8.44 hours). Most women had vaginal deliveries (79%) and male babies (53%). Although several women received multiple modes of anesthesia for labor and/or delivery, epidural was the predominant mode of anesthesia for labor (57%) and delivery (50%). Even though all subjects took prenatal childbirth education classes, only 25 women (18%) listed prepared childbirth methods as a method of pain control during labor. Twenty-nine women (21%) had cesarean sections for various reasons: cephalo-pelvic disproportion (N = 7), breech presentations (N = 7), failure to progress (N = 10), genital herpes (N = 1) and fetal factors such as increased fetal heart rate or decelerations (N = 4).

At Time 2 (9-14 weeks postpartum), approximately half of the women were only bottlefeeding (51%) and 16% of the women were only breastfeeding (See Table 3). The remainder of the subjects were breastfeeding with supplemental bottles of either breastmilk (7%) or formula (26%). (Information on work status at Time 2 was not collected in this study.)

Table 2. Labor and Delivery Demographic Variables

Variable		
<hr/>		
Length of Labor	<u>Mean</u> = 12.24 hours	<u>SD</u> = 8.44 hours
<hr/>		
	Frequency	%
<hr/>		
Baby Gender		
Females	64	47
Males	72	53
Type of Delivery		
Vaginal	107	79
Cesarean Section	29	21
Labor Anesthesia*		
IM	11	8
IV	47	35
Epidural	78	57
Prepared Childbirth	25	18
None	14	10
Delivery Anesthesia*		
IV	9	7
Epidural	68	50
Local	20	15
Pudendal	6	4
General	4	3
None	28	21
<hr/>		

* Some women received multiple modes of anesthesia in labor and/or delivery

Table 3. Method of Infant Feeding at 3 Months Postpartum

Method	Frequency	%
Breastfeeding only	21	16
Breastfeeding with formula supplement	35	26
Breastfeeding with breastmilk supplement	10	7
Bottle only	70	51

Variables/Instrumentation

Permission to use each of the tools discussed in this chapter was obtained from the instrument developer.

The independent variables measured in this study were:

1. PRENATAL MATERNAL ATTACHMENT

Conceptual- The degree to which pregnant women engage in behaviors that represent the development of an affectional tie and interaction with their unborn child (LoBiondo-Wood, 1989).

Operational- Total scale score on LoBiondo-Wood's (1990) Prenatal Maternal Attachment Scale. This 4-point Likert-type scale contains 29 items and includes an additional 10 items to be used by women who have experienced quickening. "I feel as if I am already mothering my baby" and "If I were to lose the baby now, it would be like losing a part of myself" are sample items from the 29-item scale. "The baby's movement gives me a sense of well being" and "It

seems my baby kicks and moves to let me know she/he is there" are sample items from the additional 10-item scale given to women experiencing fetal movement. All 39 items were utilized in this study for subjects in their last trimester of pregnancy and had thus experienced quickening.

During initial instrument development by LoBiondo-Wood (1989), the tool was submitted to principal axis factoring with oblique rotation and three factors (subscales) were derived (Binding Into the Baby, Ambivalence, and Role Taking) which accounted for 34.5% of the variance in prenatal maternal attachment. Responses range from Definitely Yes (score = 4) to Definitely No (score = 1). Three items (14, 24, 27) on the instrument are reverse scored. The possible range of scores on the total 39-item tool is 39-156, with a higher score indicating a greater degree of attachment to the baby. LoBiondo-Wood recommends that only total scale scores be used in analysis (See appendix D).

Content validity for the Prenatal Maternal Attachment Scale has been established by a panel of experts consisting of two perinatal clinical nurse specialists, two doctorally prepared nurse researchers in this specific content area and one obstetrical nursing educator (LoBiondo-Wood, 1989).

Cronbach's alpha for the 29 items tested on a cross-sectional sample (N = 650) throughout pregnancy was reported as .87. Cronbach's alpha for the complete 39-item scale on a sample of women experiencing quickening (N = 478) was .83 (LoBiondo-Wood & Vito, 1990). In a personal communication, LoBiondo-Wood (1989) reported measures of internal consistency in a sample of

adolescents (N = 42) as .90. Cronbach's alpha in another sample of women experiencing an uncomplicated (N = 48) pregnancy and a complicated (N = 32) pregnancy was reported as .90 and .89, respectively. Overall measure of internal consistency on the PMA scale during instrument development was .89 (LoBiondo-Wood & Vito, 1990). In the study presented in this paper, Cronbach's alpha coefficient for internal consistency for the Prenatal Maternal Attachment Scale was .90 (N = 136).

Results of psychometric testing, such as retest reliability, and criterion, concurrent or predictive validity, have not been reported. Further testing would strengthen the instrument.

2. POSTNATAL DEPRESSIVE SYMPTOMS

Conceptual- A woman's self-reported feelings of presence or absence of depressive symptoms following the birth of her baby.

Operational- Total scale score on the Edinburgh Postnatal Depression Scale (EPDS)(Cox, Holden, & Sagovsky, 1987). This 10 item scale measures the experience of feelings of depression. Subjects were asked to choose one of four responses that comes closest to how they have felt in the past 7 days. Responses vary according to the question that is asked. A sample item and response is as follows:

I have been anxious or worried for no good reason

No, not at all
Hardly ever
Yes, sometimes
Yes, very often

Responses are scored on a 0-3 scale according to increased severity of the symptom. Seven items (Number 3, 5, 6, 7, 8, 9, 10) are reverse scored. Scores range from 0 to 30 with a higher score indicating the presence of more postpartum depressive symptoms (see appendix G).

Content validity was established by submitting the responses of 63 postpartal women on the original 13 item instrument to factor analysis with rotation. Three items were omitted because they represented a factor other than depression. The resulting 10-item questionnaire was given to women 6 to 8 weeks postpartum (N=84) in Wales. Seventy-two women were diagnosed as having depression according to the Research Diagnostic Criteria, and 12 women did not experience a postpartum mood disorder. A threshold score of 12 to 13 was found to identify all women with an RDC diagnosis of Definite Major Depressive Illness.

Sensitivity of the EPDS was reported as 86% and specificity was 78%. Split-half reliability was .88 and Cronbach's alpha was .87 (Cox, Holden, & Sagovsky, 1987). Harris, Huckle, Thomas, Johns and Fung (1989) screened 140 women in South Wales 6-8 weeks postpartum for major depression according to the DSM-III criteria. The subjects were given the Edinburgh Postnatal Depression Scale, followed by the Beck Depression Inventory. Twenty-two women (15%) met the DSM-III criteria for major depressive disorder. Sensitivity of the EPDS was 95% and specificity was 93%. Performance of the BDI in this sample was markedly inferior, with a sensitivity of 68% and specificity of 88%. In

the study presented in this paper, Cronbach's alpha coefficient for internal consistency for the Edinburgh Postnatal Depression Scale was .84.

3. MATERNAL DEMOGRAPHIC INFORMATION

Conceptual- Characteristics of the woman that may have an impact on attainment of a maternal role.

Operational- Age of the woman at study entry. Socioeconomic status as measured by Hollingshead (1965) two-factor index of social position (educational level and occupation). These two variables will be used for correlational and regression analysis. Other variables, such as type of delivery, length of labor, racial and religious background for example, will be subjected to descriptive analysis. (See appendix E for demographic sheet and appendix F for labor and delivery information sheet).

The dependent variable in this study was:

MATERNAL ROLE ATTAINMENT

Conceptual- A woman's subjective evaluation of confidence in maternal role performance and her attitude toward her infant. Maternal role attainment also includes perceived competency of a woman's ability to carry out infant care tasks and feeding. Competency in infant care is operationally defined as "the extent to which a mother perceives herself to be knowledgeable about and capable of accomplishing the tasks involved in caring for and feeding a newborn" (Rutledge & Pridham, 1987, p. 187).

Operational Three different tools were used to measure this concept: Myself as Mother and My Baby (Walker, 1986a) and Perceived Competence Scale (Rutledge & Pridham, 1987).

1. Myself As Mother

The subjective evaluation of a woman's progress in developing a maternal role was measured by the Myself As Mother Scale (Walker, 1986a; See Appendix H). This scale consists of 11 bipolar adjective pairs embedded within a 22-item, 7-point semantic differential scale. Initially, the evaluative dimension was identified by submitting the responses of women (N = 104) attending a military well-baby clinic to principal axis factoring with varimax rotation. Among the eight factors extracted, two factors represented the evaluative dimension. Because both factors were found to be highly intercorrelated ($r = .66$ to $.68$) in a subsequent sample of new mothers (N = 30) (Walker, 1980), they were combined into one 11 item scale. Walker (1986a) reported internal consistency reliability values from previous research that ranged from .81 to .85. Adjective pairs comprising this scale are: fast-slow, graceful-awkward, weak-strong, kind-cruel, good-bad, successful-unsuccessful, complete-incomplete and mature-immature. Three items are reverse scored to decrease response set bias. The range of possible scores is 11-77. High scores indicate positive maternal self-evaluation. For criterion validity, Walker (1980) reported moderate correlations between the Myself As Mother Scale and the Seashore Self-Confidence Scale one month post-delivery (N = 30, $r = .41 - .62$). Retest reliability estimates derived from four samples

tested at both 1-3 days and 4-6 weeks postpartum (N = 68-91) ranged from .72 to .87 (Walker, 1986). Cronbach's alpha coefficient of internal consistency for the Myself As Mother Scales was .77 in the present study.

2. My Baby

The My Baby Scale measured the mother's evaluation of her infant (See Appendix I). This scale consists of 6 bipolar adjective pairs embedded within a 21-item, 7-point semantic differential scale. The scale was obtained from the same sample of women at a well-child clinic who completed the Myself as Mother Scale. Adjective pairs in this scale are: sick-healthy, sweet-sour, good-bad, pleasant-unpleasant, difficult-easy, and belligerent-peaceful. Three items are reverse scored to decrease the occurrence of response set bias. The range of possible scores is 6-42. High summed scores indicate positive evaluation of one's infant. For construct validity, the My Baby scale correlated negatively with a concurrent measure of perceived infant difficulties using the NPI Your Baby subscale ($r = -.49$ to $-.60$). Retest reliability estimates were derived from four samples (N = 68-91) tested at both 1-3 days and 4-6 weeks postpartum and ranged from .64 to .77 (Walker, 1986a; See appendix I). In the study presented in this paper, Cronbach's alpha coefficient for internal consistency of the My Baby Scale was .71.

3. Perceived Competence Scale

The Perceived Competence Scale (PCS) assessed a mother's perceptions of competence in feeding and infant care tasks. Items for this scale are imbedded

within the Birthing Questionnaire (Rutledge & Pridham, 1987). All items on the Birthing Questionnaire were administered to 140 multiparous and primiparous women before discharge from a midwestern hospital's family-centered unit after their baby's birth. Items not used in this study from the Perceived Competence Scale relate to issues other than competency in infant care. In this study, wording on the items concerned with competency was altered slightly, with permission of the author, to reflect changes in a mother's perceptions of competency occurring 3 months postpartum. For example, items stating "How well prepared do you think you are to deal with each of the following matters related to feeding" was changed to "How competent do you think you are to deal with each of the following matters related to feeding".

The PCS consists of 6 items (See appendix J). A sample item is:

How competent do you think you are in dealing with each of following matters related to feeding? To answer this question, use this scale.

1	2	3	4	5	6
Not at all competent	Slightly	Somewhat	Quite a bit	To a great extent	Completely competent

from scale

- _____ a. How to hold your baby while feeding
- _____ b. How to tell when your baby is hungry
- _____ c. How to tell when your baby has had enough to eat at each feeding
- _____ d. How to burp your baby

- _____ e. How often to feed your baby
- _____ f. What to expect in regard to your baby establishing a regular feeding schedule
- _____ g. How to tell whether your baby is getting enough to eat

Response options range from Not at all competent (score of 1) to Completely competent (score of 6). Four sets of questions measured specific components of feeding and care skill competence. The first set of seven questions measured perceived competence for infant feeding for both bottle feeding and breastfeeding mothers. The second set of five questions measured perceived competence for just bottlefeeding mothers. The third set of 13 questions measured perceived competence for just breastfeeding mothers. The fourth set of 13 questions measured perceived competence in infant care tasks other than feeding. A mother's overall sense of competence in infant feeding and care tasks is assessed with a single 6-point, Likert-type item. Mothers responded to items in either the breastfeeding or bottlefeeding set, or both sets if the woman was breast and bottlefeeding. Total perceived competence scores (TPCS) were the mean of the sum of the items pertaining to a mother's perceived competence to deal with infant feeding and infant care, excluding the score for the subjects response to the single item assessing a mother's overall sense of competency. A high score indicated higher level of perceived competence in infant care.

Convergent validity was established by correlating the single-item score for overall perceived competence in infant feeding and overall perceived competence in infant care tasks to TPCS ($r = .69$ to $.74$; Rutledge & Pridham, 1987).

Reliability on the TPCS (Cronbach's alpha for internal consistency) for infant feeding in general was .91. Reliability on the TPCS for bottlefeeding only mothers was .92. Reliability on the TPCS for breastfeeding only mothers was .99 and reliability on the TPCS for infant care was .94 (Rutledge & Pridham, 1987).

Two items from Rutledge and Pridham's original scale for infant care tasks ("Taking care of your baby's cord and/or circumcision" and "If the baby has been jaundiced, knowing what care or followup is needed") were omitted for this study because these conditions are not included in the care of a 3-month old infant, which resulted in a subscale of 11 items rather than 13. For this study, the possible range of raw scores is 38-228 for women who both bottle and breastfeed. The possible range of raw scores for bottlefeeding only mothers is 25-150. The possible range of raw scores for breastfeeding only mothers is 33-198.

For the present study, mean scores were calculated to measure differences in perceived competency between bottlefeeding and breastfeeding mothers because of the different number of items in each subscale. As stated earlier, all subscales followed the same response format. These scores were obtained by adding the scores of the items related to breastfeeding only, bottlefeeding only, and breastfeeding with bottle supplementation and then dividing by the number of items in that subscale (breastfeeding only = 13 items; bottlefeeding only = 5; breastfeeding with supplementation = 18). This resulted in a score for perceived competency for each specific feeding method that could be compared across groups. Mean scores were also computed for general feeding and infant care in

the same manner (general feeding = 7 items; infant care = 11). The overall mean (AVECOMP) was obtained by averaging each subject's mean score for perceived competency in general feeding (MEANFD), specific feeding method whether breastfeeding, bottlefeeding or both (AVFEED), and infant care (MEANIC). Therefore the possible range of scores on each of the subscales was 1-6. High scores in each subscale indicates a greater sense of competency in infant feeding and care skills. These scores were used in correlation and regression computations.

In this study, Cronbach's alpha coefficient for internal consistency for the various subscales in the Perceived Competence Scale were as follows: general feeding subscale (MEANFD) was .83, specific feeding method subscale for breastfeeding mothers was .86; specific feeding method subscale for bottlefeeding mothers was .84, infant care subscale (MEANIC) was .91. Cronbach's alpha coefficient for total Perceived Competence Scale (AVECOMP) was .93.

Procedure

The women were approached while attending prenatal classes at the three sites in central Illinois. At that time, the investigator explained the purpose of the study and inclusion criteria: between the ages of 18 and 35 years of age; able to speak and read English; experiencing a pregnancy uncomplicated by any medical problem, such as diabetes, or obstetrical problems, such as gestational diabetes or pregnancy-induced hypertension; have had fewer than three miscarriages or abortions in the first three months of pregnancy; living with the

father of the child; and that this present pregnancy was not the result of any infertility treatments. If a women met all inclusion criteria according to her self-report and agreed to participate, consent was obtained and she was asked to complete the Prenatal Maternal Attachment Scale (see Appendix D), as well as a demographic sheet (See Appendix E). A letter briefly describing the study and listing the name, telephone number and address of the investigator was distributed to all subjects (see Appendix K).

The investigator was notified of the birth of the baby by telephone reports of cooperating labor nurses and announcements in local papers. Nine weeks after the birth, the final packet of questionnaires was mailed to each subject. This postpartum packet of questionnaires contained: (1) a letter of instruction for completing the packet (Appendix L), (2) a labor and delivery information sheet (Appendix F), (3) Edinburgh Postpartum Depression Scale (Appendix G), (4) Walker's Myself as Mother Scale (Appendix H), (5) Walker's My Baby Scale (Appendix I), and (6) Pridham's Perceived Competence Scale (Appendix J). Completed questionnaires were returned to the investigator in a self-addressed stamped envelope. Subjects failing to return the questionnaires within two weeks of mailing were contacted by telephone and mailed another packet.

Figure 2 is the data collection protocol and illustrates the constructs and instruments that were examined in this study.

Figure 2. Data Collection Protocol

	<u>Time 1:</u> <u>Last Trimester of Pregnancy</u>	<u>Time 2:</u> <u>9-14 Weeks Postpartum</u>
Construct:	Prenatal Maternal Attachment	Postpartum Depressive
Instrument:	(Prenatal Maternal Attachment Scale by LoBiondo-Wood & Vito, 1990).	Symptoms (Edinburgh Postnatal Depression Scale by Cox, Holden & Sagovsky, 1987).
	Maternal Demographic Variables (Prenatal Demographic Sheet, by Fowles, 1992).	Measures of Maternal Role Attainment (My Baby and Myself as Mother by Walker, 1986; Perceived Competence in Infant Care Scale by Rutledge & Pridham, 1987).
		Labor & Delivery Information (Labor & Delivery Information Sheet by Fowles, 1992).

Ethical Considerations

Protection of Human Rights/Confidentiality.

This study was approved by the Institutional Review Boards for the Protection of Human Rights of Loyola University of Chicago (Lake Shore Campus), and research committees at Carle Foundation Hospital, BroMenn Regional Medical Center, and Decatur Memorial Hospital.

Questionnaires were code-numbered to ensure confidentiality. The investigator retains a list of names and corresponding numbers which will be destroyed one year after data analysis was completed.

Risk/Benefit

There were no risks and no benefits to study participants; however, the increase in knowledge provided by the data will provide the rationale for the development of nursing interventions designed to ease the transition to motherhood for future mothers and infants.

Limitations

The major limitations of this study are related to the sampling procedure. The convenience sample was subject to self-selection by the subjects who attended prenatal classes. Women attending LaMaze classes are often more educated and highly motivated in their desire to become a mother. Also, the largely middle-class sample, drawn from urban areas in central Illinois, reduces the generalizability of the findings to other populations such as the indigent, rural or inner-city pregnant women. However, use of three different types of sites enhances generalizability.

Sample mortality is a limitation of the longitudinal design. Initial personal contact with the subjects by the investigator hopefully generated interest in the study. Contact by telephone and mail during the data collection period aided in maintaining subject's interest in continuing participation in the study. Also,

women were eliminated from the study as a result of catastrophic events during labor and delivery or failure to meet all inclusion criteria.

CHAPTER IV

RESULTS

Statistical results presented in this section are based on a sample size of 136 women who completed all questionnaires during the prenatal period and between 9-14 weeks after delivery. The Statistical Package for the Social Sciences for Personal Computers, Version 4.0 (SPSS/PC) was used for analysis.

Missing Data

Several instances of missing data were noted. Several subjects ($N = 9$) who were breastfeeding and using breastmilk for bottle supplementation rather than formula did not answer two items in the bottlefeeding subscale related to the preparation and feeding of formula. Based on the strength of the internal consistency for those questions (Question 2c, 2d, 2e in Perceived Competence Scale) in the subscale, the individual's mean scores for the remaining items related to bottlefeeding were substituted for the unanswered items.

Six subjects omitted responses to one or two random items on the Prenatal Maternal Attachment scale even though they were asked not to leave any blank. Based on the strength of internal consistency for that questionnaire, the individual's mean score for all the remaining items was substituted for the missing values.

All mean scores that were substituted for missing values were hand calculated and manually inserted into the data set as the mean for that subject's missing score. No other missing data were noted.

Descriptive Analysis

Mean scores and the possible and actual range of scores on each of the instruments used in this study are presented on Table 4.

In this study, scores from the Prenatal Maternal Attachment Scale ranged from 83-155 (mean = 130.8, sd = 13.1). The mean indicates that subjects in this study demonstrated a strong positive relationship with their unborn child by the last trimester of pregnancy.

Scores for the Edinburgh Postnatal Depression Scale ranged from 0-22 in this study (mean = 6.8, sd = 4.1). Thirteen of the women (10%) in this study scored 13 or greater and thus could be considered to meet the criteria for a diagnosis of depression. This is consistent with other studies that report a 10-15% incidence of postpartum depression in the general population (Kumar & Robson, 1984; O'Hara & Zekoski, 1988; Pitt, 1968). After data collection was completed, the researcher contacted the women with high depression scores by telephone to determine if they were receiving care. If not, the names of local mental health services were shared and suggested as possible resources.

In this study, the scores on the Myself as Mother Scale ranged from 41-77 (mean = 64.8, sd = 6.8). The mean score indicated that the women

demonstrated strong positive perceptions of themselves as a mother by 9-14 weeks after the birth of their baby.

Scores for the My Baby Scale ranged from 21-42 in the present study (mean = 37.5, sd = 3.8). The mean score indicated that the women in this study had a positive perception of their babies by 10-14 weeks after birth.

As expected, most of the mothers felt competent to a great extent (score of 5.0 -5.9 in 56% of the subjects) or completely competent (score of 6 in 7%) with general feeding (MEANFD) by 9-14 weeks after the birth of the baby. Similarly, most of the women felt competent to a great extent (score of 5.0-5.9 in 56% of the subjects) or completely competent (score of 6 in 11%) in their specific method of feeding (AVFEED). There was no significant difference in perceived competence for specific feeding method (AVFEED) between breastfeeding mothers (mean = 4.96) and bottlefeeding mothers (mean = 5.24); ($t = 1.52$, $p = NS$). Perceived competency in infant care skills (MEANIC) followed a similar pattern. Most of the subjects felt competent to a great extent (score of 5.0-5.9 in 56%) or completely competent (score of 6 in 6%). Since the score for total perceived competence in all aspects of infant feeding and infant care (AVECOMP) is a mean of the scores for perceived competence in general feeding, specific feeding method and infant care, subjects followed similar patterns as stated above. Most of the mothers perceived themselves as competent to a great extent (score of 5.0-5.9 in 60%) or completely competent

(score of 6 in 4%) in all measured aspects of infant feeding and care. (See Appendix M for Frequency Data for Each Instrument.)

Table 4. Descriptive Statistics All Instruments

Subscale	Mean	SD	Possible Range of Scores	Actual Range of Scores
PMATOT	130.8	13.1	39-176	83-155
EPDTOT	6.8	4.1	0-33	0-22
METOT	64.8	6.8	11-77	41-77
BABTOT	37.5	3.8	6-42	21-42
<u>Perceived Competence Scale</u>				
MEANFD	5.075	.60	1-6	3.1-6.0
AVFEED	5.075	.71	1-6	2.2-6.0
Bottlefeeding	5.242	.76		
Breastfeeding	4.962	.66		
MEANIC	5.088	.63	1-6	2.8-6.0
AVECOMP	5.074	.57	1-6	3.0-6.0

PMATOT = Total Score for Prenatal Maternal Attachment Scale

EPDTOT = Total Score for Edinburgh Postnatal Depression Scale

METOT = Total Score for Myself as Mother Scale

BABTOT = Total Score for My Baby Scale

MEANFD = Mean Score for General Feeding Questions

AVFEED = Mean Score for Specific Feeding Questions

MEANIC = Mean Score for Infant Care Questions

AVECOMP = Mean Score for General Feeding, Specific Feeding, and Infant Care Questions

Correlation Analysis

Correlation analysis using the Pearson product moment correlation (r) was conducted on the following variables: maternal age (AGE) and socioeconomic status (SES), scores on the Prenatal Maternal Attachment Scale (PMATOT), Myself as Mother Scale (METOT), My Baby Scale (BABTOT), the Edinburgh Postnatal Depression Scale (EPDTOT), mean scores on the Perceived Competence Scale for general feeding (MEANFD), specific feeding method (AVFEED), infant care (MEANIC), and overall perceived competence (AVECOMP).

Research Hypotheses

Table 5 displays the results of hypothesis testing.

Hypothesis No. 1 was supported. Prenatal maternal attachment demonstrated a significant positive relationship to all measures of maternal role attainment: Myself as Mother ($r = .25$); My Baby ($r = .37$); Perceived Competence for General Feeding ($r = .37$); Perceived Competence for Specific Feeding Method ($r = .33$); Perceived Competence for Infant Care ($r = .38$); Perceived Competence for Feeding and Infant Care ($r = .40$).

Hypothesis No.2 was not supported. Prenatal maternal attachment did not correlate significantly with postpartum depression, although the relationship was inverse as hypothesized ($r = -.13$).

Table 5. Intercorrelations Between Maternal Demographic and Psychological Variables and Maternal Role Attainment

	AGE	SES	PMATOT	EPDTOT	METOT	BABTOT	MEANFD	AVFEED	MEANIC	AVECOMP
AGE	1.00	-.24*	-.01	-.07	-.19*	-.04	-.22*	-.19*	-.22*	-.24**
SES		1.00	.06	.06	.04	.14	.15	.14	.03	.13
PMATOT			1.00	-.13	.25***	.38****	.37****	.33****	.38****	.40****
EPDTOT				1.00	-.22**	-.35****	-.24**	-.20*	-.26***	-.27***
METOT					1.00	.43****	.44****	.39****	.53****	.50****
BABTOT						1.00	.48****	.33***	.50****	.48****
MEANFD							1.00	.63****	.73****	.87****
AVFEED								1.00	.68****	.88****
MEANIC									1.00	.90****
AVECOMP										1.00

* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$

NOTE:

AGE = Maternal Age

SES = Maternal Socioeconomic status

PMATOT = Score on Prenatal Maternal Attachment Scale

EPDTOT = Score on Edinburgh Postnatal Depression Scale

METOT = Score on Myself As Mother Scale

BABTOT = Score on My Baby Scale

MEANFD = Average Score for General Feeding Items

AVFEED = Average Score for Specific Feeding Method Items

MEANIC = Average Score for Infant Care Items

AVECOMP = Average Score of General Feeding, Specific Feeding Method and Infant Care Items

Hypothesis No. 3 was supported. The presence of postnatal depressive symptoms demonstrated a significant negative relationship to all measures of maternal role attainment: Myself as Mother ($r = -.22$); My Baby ($r = -.35$); Perceived Competence for General Feeding ($r = -.24$); Perceived Competence for Specific Feeding Method ($r = -.20$); Perceived Competence in Infant Care ($r = -.26$); Perceived Competence in Feeding and Infant Care ($r = -.27$).

Hypothesis No. 4 was supported. Prenatal maternal attachment was not related to maternal age ($r = -.01$).

Hypothesis No. 5 was supported. Prenatal maternal attachment was not related to maternal socioeconomic status ($r = .06$).

Hypothesis No. 6 was supported. Presence of postpartum depressive symptoms was not related to maternal age ($r = -.07$).

Hypothesis No. 7 was supported. Presence of postpartum depressive symptoms was not related to maternal socioeconomic status ($r = .06$).

Hypothesis No. 8 was not supported. Maternal age demonstrated weak but statistically significant negative relationships with perceptions of Myself as Mother ($r = -.19$); Perceived Competency in General Feeding ($r = -.22$); Perceived Competency for Specific Feeding Method ($r = -.19$); Perceived Competency for Infant Care ($r = -.22$); Perceived Competency in Feeding and Infant Care ($r = -.24$). Maternal age was not related to perceptions of My Baby ($r = -.04$).

Hypothesis No. 9 was supported. Maternal socioeconomic status was not related to a woman's perceptions of herself as a mother ($r = .04$); perceptions of

her baby ($r = .14$); Perceived Competence in General Feeding ($r = .15$); Perceived Competence in Specific Feeding Method ($r = .14$); Perceived Competence in Infant Care ($r = .03$); and overall competence ($r = -.12$).

Regression analysis

The results of this analysis provide a description of the amount of variability in maternal role attainment explained by prenatal maternal attachment, maternal demographics, and presence of postpartum depressive symptoms. Separate stepwise regression equations were calculated for each of the measures of maternal role attainment. The dependent variables were: Myself as Mother (METOT), My Baby (BABTOT), Perceived Competence in general feeding skills (MEANFD), specific feeding method (AVFEED), infant care skills (MEANIC), and overall competence (AVECOMP). The independent variables were: maternal age (AGE), socioeconomic status (SES), prenatal maternal attachment (PMATOT), and presence of postpartum depressive symptoms (EPDTOT).

Assumptions of Regression

Histograms and scatterplots of the residuals were examined in order to determine whether or not the data met the assumptions of normality, linearity and homogeneity of variance. Also, the tolerance and variance inflation factors were inspected for each of the regression models to assess multicollinearity among the independent variables. Tolerance is the amount of variance in the independent variables not explained by other independent variables in the regression model and, as such, may detect any multicollinearity that may be

present. Therefore, a high tolerance, closer to 1.00, would indicate that the independent variable does not share a multicollinear relationship to the other independent variables in the model (Tabachnick & Fidell, 1983). The variance inflation factor (VIF) is the degree of precision that the amount of explained variance (R^2) presented in the model is degraded by multicollinearity. A VIF value of 1.0 indicates an absence of multicollinearity while a larger VIF, in excess of 10, may indicate multicollinearity (Schroeder, 1990).

A discussion of the assumptions for regression and evidence of multicollinearity will be presented for each of the dependent variables.

Myself as Mother.

The histogram of the residuals revealed a normal distribution. Examination of the scatterplots of the standardized predicted scores and the standardized residuals revealed no specific pattern, thus indicating a linear relationship and equality of variance for the variables in the regression model. The tolerance and variance inflation factors (see Table 6) for this model indicated that the independent variables did not share a multicollinear relationship.

Table 6. Tolerances and Variance Inflation Factors for Myself as Mother

Variable	Tolerance	VIF
PMATOT	.999	1.01
AGE	.999	1.01

Note:

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

My Baby.

Examination of the residuals histogram revealed a slight positive skew with most residuals found between 0.00 and +1.00 standard deviations from the mean. Norusis (1990) noted that it is unreasonable to expect observed residuals to be exactly normal due to sampling variation. However, the F tests used in regression analysis are usually quite insensitive to moderate departures from normality (Norusis, 1990). The decision not to transform the data, even though positively skewed, was based on this view.

Examination of the scatterplots of the standardized residuals and standardized predicted scores revealed a suggestion of a pattern indicating some inequality of variance. Subsequent examination of scatterplots of standardized

residuals and the individual independent variables indicated that linearity and homogeneity of variance existed.

The tolerance and variance inflation factors indicated that multicollinearity among the independent variables did not exist (see Table 7).

Table 7. Tolerances and Variance Inflation Factors for My Baby

Variable	Tolerance	VIF
PMATOT	.976	1.02
EPDTOT	.976	1.02

Note:

PMATOT = Score on Prenatal Maternal Attachment Scale

EPDTOT = Score on Edinburgh Postnatal Depression Scale

Perceived Competence for General Feeding.

The histogram of the residuals revealed a normal distribution.

Examination of the scatterplots of the standardized predicted scores and the standardized residuals revealed a specific pattern indicating a linear relationship and equality of variance for the variables in the regression model. The tolerance and variance inflation factors (see Table 8) for this model indicated that the independent variables did not share a multicollinear relationship.

Table 8. Tolerances and Variance Inflation Factors for General Feeding

Variable	Tolerance	VIF
PMATOT	.976	1.02
AGE	.995	1.01
EPDTOT	.972	1.03

Note:

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

EPDTOT = Score on Edinburgh Postnatal Depression Scale

Perceived Competence for Specific Feeding Method.

Examination of the residuals histogram revealed a slight positive skew with most residuals found between 0.00 and +1.00 standard deviations from the mean. However, examination of the scatterplots of the standardized predicted scores and standardized residuals indicated that linearity and homogeneity of variance existed. As noted earlier, the F test used in regression is robust against minor deviations from normality; therefore, data was not transformed. The tolerances and variance inflation factors (see Table 9) for the independent variables indicated that multicollinearity did not exist.

Table 9. Tolerances and Variance Inflation Factors for Specific Feeding Method

Variable	Tolerance	VIF
PMATOT	.999	1.01
AGE	.999	1.01

Note:

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

Perceived Competence for Infant Care.

The histogram of the residuals revealed a normal distribution.

Examination of the scatterplots of the standardized predicted scores and the standardized residuals revealed a specific pattern indicating a linear relationship and equality of variance for the variables in the regression model. The tolerance and variance inflation factors (see Table 10) for this model indicated that the independent variables did not share a multicollinear relationship.

Table 10. Tolerances and Variance Inflation Factors for Infant Care

Variable	Tolerance	VIF
PMATOT	.976	1.02
AGE	.995	1.01
EPDTOT	.972	1.03

Note:

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

EPDTOT = Score on Edinburgh Postnatal Depression Scale

Perceived Competence in Feeding and Infant Care.

An examination of the histogram of the residuals revealed a normal distribution. Examination of the scatterplots of the standardized predicted scores and the standardized residuals revealed a specific pattern indicating a linear relationship and equality of variance for the variables in the regression model. The tolerance and variance inflation factors (see Table 11) for this model indicated that the independent variables did not share a multicollinear relationship.

Table 11. Tolerances and Variance Inflation Factors for Overall Competence

Variable	Tolerance	VIF
PMATOT	.976	1.02
AGE	.995	1.01
EPDTOT	.972	1.03

Note:

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

EPDTOT = Score on Edinburgh Postnatal Depression Scale

Regression Results

A discussion of the regression models for each of the dependent variables will be presented. The independent variables entered into the regression were: prenatal maternal attachment, presence of postnatal depressive symptoms, maternal age and socioeconomic status.

Myself As Mother.

Table 12 is the model generated to explain the variance in a woman's perceptions of herself as a mother. The significant predictors of the subject's perception of herself as a mother postnatally were greater prenatal maternal attachment and a younger maternal age. These variables explained 11% of the variance in Myself as Mother.

Table 12. Multiple Regression Equation for Myself as Mother

Outcome Variable	R	R ²	Increase in R ²	Standard Beta	Beta	F	p
PMATOT	.34	.11	.08	.277	.141	10.52	.002
AGE			.03	-.194	-.352	8.1	.000

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal age

My Baby.

Table 13 is the regression model generated to explain a woman's perception of her baby 10-14 weeks after birth. Predictors of a mother's perception of her baby were positively related to prenatal maternal attachment and negatively related to the presence of postnatal depressive symptoms. This combination of variables explained 23% of the variance in the perception of My Baby.

Table 13. Multiple Regression Equation for My Baby

Outcome Variable	R	R ²	Increase in R ²	Standard Beta	Beta	F	p
PMATOT	.48	.23	.14	.327	.098	20.87	.000
EPDTOT			.09	-.305	-.286	19.04	.000

PMATOT = Score on Prenatal Maternal Attachment Scale

EPDTOT = Score on Edinburgh Postnatal Depression Scale

Perceived Competence for General Feeding.

Table 14 is the model generated to explain the variance in a woman's perceived competence in general feeding. The significant predictors of the subject's perceived competence in general infant feeding matters were greater prenatal maternal attachment, less postpartum depression and younger maternal age. This combination of variables explained 23% of the variance in general feeding competence.

Perceived Competence for Specific Feeding Method.

The results of the regression equation are presented on Table 15. Predictors of the mother's perceived competence in her specific feeding method were greater prenatal maternal attachment and younger maternal age. This combination of variables accounted for 16% of the variance in specific feeding competency.

Table 14. Multiple Regression Equation for General Feeding

Outcome Variable	R	R ²	Increase in R ²	Standard Beta	Beta	F	p
PMATOT	.48	.23	.15	.370	.017	23.32	.000
AGE			.05	-.233	-.039	16.26	.000
EPDTOT			.03	-.160	-.023	12.46	.000

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

EPDTOT = Score on Edinburgh Postnatal Depression Scale

Table 15. Multiple Regression Equation for Specific Feeding Method

Outcome Variable	R	R ²	Increase in R ²	Standard Beta	Beta	F	p
PMATOT	.40	.16	.12	.356	.019	18.31	.000
AGE			.04	-.196	-.03	12.44	.000

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

Perceived Competence for Infant Care.

The model explaining the variance in a woman's perception of competency in infant care is displayed in Table 16. The significant predictors of a mother's perceived competence in infant care skills were greater prenatal maternal attachment, younger maternal age, and less postpartum depression. These variables explained 24% of the variance in perceived competency for infant care.

Table 16. Multiple Regression Equation for Competence in Infant Care

Outcome Variable	R	R ²	Increase in R ²	Standard Beta	Beta	F	p
PMATOT	.49	.24	.16	.373	.018	24.39	.000
AGE			.05	-.233	-.040	16.75	.000
EPDTOT			.03	-.189	-.029	13.52	.000

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

EPDTOT = Score on Edinburgh Postnatal Depression Scale

Perceived Competence for Feeding and Infant Care.

The results of regression analysis explaining the variance in overall perceived competence can be seen in Table 17. Predictors of subject's overall perceived competence in general feeding, specific feeding method and infant care

were greater prenatal maternal attachment, younger maternal age and less postnatal depressive symptoms. This combination of variables accounted for 27% of the variation in perceptions of competency in general feeding, specific feeding method and infant care.

Table 17. Multiple Regression Equation for Overall Competence

Outcome Variable	R	R ²	Increase in R ²	Standard Beta	Beta	F	p
PMATOT	.52	.27	.18	.399	.017	28.25	.000
AGE			.06	-.257	-.040	20.13	.000
EPDTOT			.03	-.187	-.026	15.91	.000

PMATOT = Score on Prenatal Maternal Attachment Scale

AGE = Maternal Age

EPDTOT = Score on Edinburgh Postnatal Depression Scale

In each regression, prenatal maternal attachment was the first variable to enter the equation, thus explaining the largest percentage of the variance for each outcome variable. When appearing as a predictor variable, prenatal maternal attachment had a positive effect on the outcome variables, while presence of postpartum depressive symptoms and maternal age had a negative effect. Even though these variables significantly influenced the different measures of maternal role attainment, they explained only a small percentage of the variance for these measures ($R^2 = .11-.27$). Assessing the influence of other variables, such as

infant temperament and social support, in addition to those measured in this study, may provide a more complete explanation of factors affecting maternal role attainment.

Summary of Important Findings

The findings of this study indicated that:

1. Prenatal maternal attachment had a significant positive relationship to maternal role attainment.
2. Prenatal maternal attachment was not related to postpartum depressive symptoms.
3. Presence of postpartum depressive symptoms had a negative relationship to all measures of maternal role attainment.
4. Neither prenatal attachment nor presence of postnatal depressive symptoms was related to maternal age or socioeconomic status.
5. Prenatal maternal attachment had a positive relationship to all measures of perceived competence for infant feeding and care.
6. Maternal age was negatively related to a woman's perception of herself as a mother and her perceptions of competency in infant feeding and care.
7. Maternal socioeconomic status was not related to maternal role attainment.
8. Prenatal maternal attachment was the primary predictor of maternal role attainment.

9. Maternal age was a predictor variable for all measures of maternal role attainment except for a woman's perceptions of her baby.
10. Presence of postnatal depressive symptoms was a predictor for all measures of maternal role attainment except for a woman's perceptions of herself as a mother and perceived competence in specific feeding method.

CHAPTER V

DISCUSSION

This study examined the relationship of maternal role attainment to maternal demographic variables, prenatal maternal attachment, and postpartum depressive symptoms.

Descriptive Results of Instruments

Prenatal Maternal Attachment Scale

Scores for prenatal maternal attachment were similar to scores in other studies (Cranley, 1984; Grace, 1989; Fowles, 1988; Kemp & Page, 1987; Lerum & LoBiondo-Wood, 1989). The findings indicated that women in the present study demonstrated a strong attachment to their fetus during the last trimester of pregnancy.

Edinburgh Postnatal Depression Scale

Ten percent of the population in the present study had postnatal depressive symptom scores above the 12/13 threshold that may indicate a clinical diagnosis of an actual depressive illness. This finding is consistent with other studies (Cox et al, 1987; Holden et al, 1989; Pitt, 1963).

Myself As Mother

Scores on this scale indicated that the women in this study had a strong positive perception of themselves as a mother 3 months postpartum. This result

is similar to Mercer's study (1986a) in which over half of the women reported positive feelings about themselves as a mother 4 months postpartum.

My Baby

Almost half of the subjects scored above 38 (42 is the possible maximum score) indicating they had a very positive perception of their baby 3 months after birth. This result is similar to Mercer's (1986a) subjects who demonstrated strong attachments to their babies 4 months after birth.

Perceived Competence for General Feeding

As expected, most of the mothers felt competent to a great extent in matters related to general feeding 9-14 weeks after the birth of the baby. Initial feeding problems, such as loss of weight due to formula intolerances or persistent vomiting resulting from pyloric stenosis, are typically identified and treated by this time. The mother of a 3-month old healthy newborn is usually able to tell when the baby is hungry, hold their baby properly during a feeding, burp their baby, and assess when the child has had enough to eat at a feeding.

Perceived Competence for Specific Feeding

In this study, most of the subjects felt competent to a great extent in their specific feeding method. Breastfeeding mothers felt somewhat less competent than bottlefeeding mothers but the difference was not significant. This result conflicted with other studies which found that breastfeeding mothers experienced less anxiety and more mutuality than bottlefeeding mothers with their infants four to six weeks after birth (Virden, 1988). Also, the small percentage of women who

were only breastfeeding at 3 months postpartum as compared to the number of bottlefeeding mothers made it difficult to adequately assess the differences in perceived competency for specific feeding method.

Perceived Competence for Infant Care

Almost half of the subjects in this study felt competent to a great extent in infant care skills. This finding is consistent with Mercer's (1986a) study in which nearly half of her sample felt they were able to adequately care for their 4 month old babies.

Perceived Competence for Overall Competence in Infant Care and Feeding

Since the score for overall competence was derived from the scores for perceived competence for general feeding, specific feeding method, and infant care, the distribution of scores for this scale follows the pattern described above.

Prenatal Maternal Attachment

The findings of this study support Rubin's theory (1984) that a woman's attachment to her fetus, i.e., "binding-in-to-the-baby" during pregnancy, is related to the development of maternal identity. Prenatal maternal attachment was significantly related to all six measures of maternal role attainment (Myself as Mother, My Baby, Perceived Competence for General Feeding, Specific Feeding Method, Infant Care, and Overall Perceived Competence). Prenatal maternal attachment was the major predictor of maternal role attainment, and accounted for 8-18 % of the variance in maternal role attainment. This was also consistent with Rubin's theory of maternal identity. Rubin noted that although

binding-in-to-the-baby is the primary motivating force in the development of a maternal identity, other factors such as availability of role models and the woman's cognitive abilities, influence the redefinition of one's self as a mother. If these variables were assessed in the present study, more of the variance in maternal role attainment may have been explained. Maternal role attainment is one of the components of maternal identity presented in the model in Figure 1. Many other variables, such as infant temperament, parental self-esteem, and social support have been positively related to various measures of maternal-infant interactions (Houldin, 1987; Jones & Lenz, 1986; Mercer, 1981, 1985, 1990; Osofsky, 1976). A more complete assessment of all the variables which may influence the development of a maternal identity could provide a more thorough explanation of the construct.

The results of this study are similar to Fuller's (1990) study of 32 women at low-risk for obstetrical complications. She found that maternal-fetal attachment during the last trimester of pregnancy (using the Maternal-Fetal Attachment Scale by Cranley) was positively related to mother-infant interactions three days after delivery, as measured by the Nursing Child Assessment Feeding Scale ($r = .73$) and the Funke Mother-Infant Interaction Assessment ($r = .69$).

In the present study, prenatal maternal attachment was related to the mother's perception of her baby 2-3 months after birth. This differs from the Cranley (1981) study which did not find a relationship between prenatal maternal attachment and perceptions of the baby after birth, as measured by the Broussard

Neonatal Perception Inventory (NPI). However, the NPI measures aspects of the maternal-child interactions that differ from components of postnatal attachment and maternal role attainment (Mercer, 1986a). Cranley (1981) suggested that the NPI may measure aspects of the mother-infant relationship that are not comparable to maternal-fetal attachment. The NPI measures a mother's perceptions of her baby's temperament as being either easy or difficult. Also, frameworks for the development of these tools may be incongruent. In the present study, the developers of the measures of prenatal maternal attachment (Prenatal Maternal Attachment Scale, LoBiondo-Wood, 1990) and perceptions of the infant (My Baby, Walker, 1985) consistently identified Rubin's notion of maternal identity as the guiding framework. The NPI was not based on Rubin's theory of maternal identity.

Difficulties in measuring maternal prenatal attachment were addressed in Chapter 2 of the paper. In the present study, Cronbach's alpha values (.90, N=136) for the Prenatal Maternal Attachment Scale (LoBiondo-Wood, 1990) demonstrated an acceptable level of internal consistency for a new tool. The results of this study support further use of this instrument for assessing prenatal attachment. Mueller (1993) suggested that continued research is necessary to identify the various components of maternal prenatal attachment (behaviors, feelings and attitudes) and for instrument development that is sensitive to all aspects of the construct. Once measurement issues are adequately addressed, appropriate assessment of a woman's attachment to her fetus can be conducted

and interventions can be designed and studied for their effectiveness in enhancing the attachment process.

Postpartum Depression

Contrary to the hypothesis for this study, there was no statistically significant negative relationship between prenatal maternal attachment and presence of postpartum depressive symptoms. In the present study, sample scores revealed a low incidence of postnatal depressive symptoms, similar to the general population. Since the study sample did not have a larger number of women who were clinically depressed, this hypothesis was not tested adequately and is acknowledged as a limitation of this study. Future research could examine the level of prenatal maternal attachment in a population of women with a diagnosis of depression during their pregnancy and the postpartal period. Prospective studies, following large samples of women during pregnancy and the first year postpartum, may result in a sufficient number of depressed women needed to adequately test the relationship between prenatal maternal attachment and presence of postnatal depressive symptoms.

It is important to differentiate between postnatal depressive symptoms and postnatal depression. The Edinburgh Postnatal Depression Scale used in this study measures the level of depressive symptoms in postpartal women. Cox et al. (1987) reported that women with scores above the threshold of 12/13 had a clinical diagnosis of either Definite Major Depressive Illness or Probable Major Depressive Illness according to the Research Diagnostic Criteria. In the present

study, 10% of the subjects had high scores that indicate they suffer from the illness of postpartum depression. However, more than 90% of the sample experienced two or more depressive symptoms (see Appendix M) at time 2.

Many variables not evaluated in this study have been found to be related to the development of postpartum depressive symptoms, such as a personal history of mental illness or a family history of mental illness, particularly postpartum depression in the woman's own mother (Boyer, 1990). Feelings of depression during the pregnancy have also been found to be predictive of postpartum depression (O'Hara et al., 1984). Marital dissatisfaction or single parenthood, life stress, primiparity, and cesarean section have all been suggested as predictors of the presence of postpartum depressive symptoms (Kendall, Chalmers, & Platz, 1987; Whiffen, 1988). Information regarding marital status, parity and cesarean section was obtained for demographic purposes in the present study. The relationship of parity and type of delivery to the presence of postpartal depressive symptoms was not one of the research questions guiding this study and therefore, was not analyzed. The influence of these factors on prenatal maternal attachment and the presence of postnatal depressive symptoms should be examined in future studies.

As hypothesized, significant negative relationships between postpartum depressive symptoms and all six measures of maternal role attainment (Myself as Mother, My Baby, Perceived Competency for General Feeding, Specific Feeding Method, Infant Care and Overall Perceived Competence) were found. Feelings of

inadequacy as a parent and hostility toward the baby are some of the symptoms noted in a woman with postpartum depression (Kumar, 1990; Kumar & Robson, 1984). As the model in Figure 1 suggests, maternal role attainment consists of observable maternal caregiving behaviors, as well as a subjective evaluation of a woman's ability to perform those behaviors. In this study, the concept of maternal role attainment was assessed by examining perceptions of one's self as a mother, perceptions of the baby, and perceptions of competency in various aspects of caring for the baby. In terms of the model, it is logical to propose that depression would alter the woman's perceptions of herself as a mother and her sense of competency in the performance of maternal role behaviors. Furthermore, it can be suggested that perceptions of self as an inadequate mother might further exacerbate depressive feelings. Further research to clarify the relationship between postpartum depressive symptoms and maternal role attainment is essential.

The negative relationship that was found in this study between the presence of postpartum depressive symptoms at 3 months after the birth of the baby and maternal role attainment emphasizes the need to evaluate all postpartum women for depressive symptoms at this point. Many women are only seen by their obstetricians within two weeks after delivery, often before the symptoms of postpartum depression develop. After this point, many have minimal contact with healthcare providers, except those providing care to the infant. This study points to the need for continuing assessment by health care

providers during the first two to three months after delivery of a baby. This assessment should focus on the woman's physical status and also her mental and emotional health. Early detection and treatment of postpartum depression may ease the symptoms during the course of the illness, thereby improving the mother's interactions with her baby. Improved mother-infant interaction can then lead to improved perceptions of competence in infant care skills by the mother and to a healthier emotional environment for the

Neither maternal age nor socioeconomic status was related to the presence of postpartum depressive symptoms in this study. Boyer (1990) noted that studies examining the influence of maternal demographic variables on postpartum depression have yielded conflicting results. Screening all postpartum women for depression is important, considering 10-15% of these women suffers its symptoms (Pitt, 1968).

However, methodological problems in the assessment of postpartum depressive symptoms exist. The Beck Depression Inventory (BDI) and the Center for Epidemiological Studies--Depression (CES-D) tool have been frequently used in studies to identify women with postpartum depression. While both instruments screen for depression, neither tool is specific for postpartum depression. The Edinburgh Postnatal Depression Scale was developed by Cox et al. (1987) solely to identify women demonstrating postpartum depressive symptoms, and as reported in chapter 2 of this paper, is a specific and sensitive measure of the construct. Holden (1991) found this scale to be a valuable screening tool that

was easy to use in postpartum women. The tool accurately identified women with postpartum depressive symptoms but did not assess for severity. Using the Edinburgh Postnatal Depression Scale, the majority of women in the present study reported some depressive symptoms by 3 months after delivery while only 10% of the subjects scored above the threshold (12/13) indicating the probable presence of a depressive illness. It is unknown if subjects scoring above the threshold were actually diagnosed as having a depressive illness. This information would be necessary to evaluate the predictive validity of this tool.

Beck (1992) cautioned against the widespread use of depression scales to screen postpartal women. Beck noted that none of these instruments addressed all of the themes and behaviors identified in her qualitative study of seven women from a postpartum depression support group. Beck noted that the Edinburgh Postnatal Depression Scale assessed only thoughts of harming oneself, anxiety and fear, but failed to examine themes such as unbearable loneliness, inability to concentrate, and loss of control over one's emotions, and others themes that were identified in her study. The need for further development of screening instruments that are specific and sensitive for postpartum depression is apparent.

Maternal Role Attainment

Maternal role attainment was the dependent variable in this study. As presented in Figure 1, maternal role attainment consists of specific mothering behaviors related to infant care, as well as the subjective evaluation of role performance as measured by Walker's (1986) *Myself as Mother and My Baby*

Scales, and Rutledge and Pridham's (1990) Perceived Competence for General Feeding, Specific Feeding, Infant Care and Overall Perceived Competence.

Most of the women (60%) in this study felt competent to a great extent in the areas of infant feeding and infant care at 3 months after delivery. This is greater than Mercer's (1985) findings in which only 49% of her sample felt comfortable in the mothering role at 2 months postpartum but closer to the 64% of her sample that had internalized the motherhood role by 4 months.

Differences in the comprehensiveness of measurement of the concept in this study and Mercer's could explain this variation. The present study only measured perceived competency in specific behaviors related to infant feeding and infant care as components of maternal role attainment. Mercer, on the other hand, examined the influence of more than maternal attachment. Mercer measured maternal attachment (Broussard's Neonatal Perception Inventory, Leifer's How I Feel About My Baby Now, and the Child Trait Checklist), maternal competency (Disbrow's Ways Parents Handle Irritating Child Behaviors, Blank's Maternal Behavior Rating Scales and infant growth and development), and acceptance of obligation of the role (subject's verbal reports) as components of maternal role attainment. The percentage of women in the present study who felt comfortable with their mothering role may not have been as large if they had been assessed on all the factors identified in Mercer's research or at an earlier postpartal time. Mercer's measurement of maternal competency and maternal role attainment was

more comprehensive and precise. This author did not assess these factors in similar depth as Mercer and this is acknowledged as a limitation of this study.

In addition, Mercer's sample was more heterogeneous in terms of maternal age and educational level. Mercer's (1986) sample consisted of three age groups: 15-19 years old (N = 40), 20-29 years old (N = 114) and 30-42 years old (N = 88). The older the subject, the more likely they were to be Caucasian, married, more educated (some college), and have higher incomes than younger subjects. Forty-two percent of the teenage subjects had not finished high school. The subjects in the present study were between 18 and 35 years old (mean = 26), all had finished high school, and many had some college. Mercer's teenage subjects tended to have fewer financial resources, felt less enthusiastic about motherhood, and had lower observed competence in maternal behaviors than older subjects. The larger percentage of women who felt competent in mothering skills in the present study may be due to the exclusion of a large teenage population (only 5% of this sample were under 20 years of age).

Other variables that were not assessed in this study may have contributed to the high level of perceived competence in infant feeding and infant care behaviors reported at 3 months postpartum. Pridham and Chang (1992) suggest that mothers who are attuned to their infant's growth, development and temperament were likely to have a more positive evaluation of their parenting skills and to feel more competent in problem-solving skills related to infant care than women who were less knowledgeable about their infant's characteristics.

Mercer (1986) also noted that maternal competence peaked at four months in all age groups. The majority of women in the present study felt competent to a great extent in infant care and feeding skills. Perhaps after two to three months caring for their new babies, the women in the present study were able to identify infant attributes and temperament which, in turn, made them feel more competent in their parenting role.

Although prenatal maternal attachment was a predictor of maternal role attainment, only a small amount of the variance (8-18%) was explained. Prenatal maternal attachment accounted for more of the variance in measures of maternal role attainment associated with perceptions of the baby (My Baby) and infant feeding and care (Perceived Competence for General Feeding, Specific Feeding , Infant Care and Overall Perceived Competence; $R^2 = .12-.18$) than in measures of perceptions of self as a mother (Myself as Mother; $R^2 = .08$). It could be proposed that prenatal maternal attachment, as a measure of the relationship between the woman and her fetus, is more directly related to situations of interaction between the new mother and the infant as she provides food and care to her baby. Koniak-Griffin (1993) suggested that additional factors that are particular to the mother herself, such as self-esteem, availability of social support, and stress from negative life events may influence a woman's perception of herself as a mother.

The presence of postpartum depressive symptoms explained a small percentage of the variance in maternal role attainment measures related to

perceptions of the baby ($R^2 = .09$) and perceived competency for general feeding issues, infant care and overall perceived competency ($R^2 = .03$ in all cases), but did not enter the regression equation for a woman's perceptions of herself as a mother nor perceptions of competency in specific feeding method. Kumar and Robson (1984) found that depressed women had a more negative feeling toward their 3 month old babies. The findings of the present study supported others in which maternal depression had a negative relationship with a woman's confidence in the mothering role (Cutrona & Troutman, 1986). In the present study most of the subjects had a positive perception of themselves as a mother while only 10% of the sample demonstrated postpartum depressive symptoms above the threshold at which actual depression can be diagnosed. Therefore the relationship between these two variables could not be tested adequately.

In the present study, maternal age demonstrated a negative relationship to all measures of maternal role attainment and entered the regression equation for a woman's perceptions of herself as a mother, perceived competency in general feeding, specific feeding method, infant care and overall perceived competence ($R^2 = .03-.06$), but not for the woman's perceptions of her baby. Research examining the relationship of maternal age to satisfaction with parenting has been conflicting. Ragazon, Basham, Crnic, Greenberg and Robinson (1982) noted that older mothers demonstrated greater satisfaction with the parenting role. Others noted that older mothers verbalized high expectations regarding the parenting

role but derived less gratification from motherhood when role expectations were not met (Russell, 1974; Steffensmeier, 1982).

Many other factors need to be considered when explaining the development of a maternal identity. Such factors as, whether or not the pregnancy was planned, perceptions of the birth experience, spousal assistance with household and/or infant care tasks, life stress, trait anxiety and role strain caused by the return to work may influence the development of a maternal identity (Mercer, 1985). In addition, Rubin (1984) suggests that the availability of acceptable role models who demonstrate appropriate parenting behaviors is necessary to a developing an identity as a mother. Further, qualitative and quantitative research are needed to confirm the relationship of these and other factors to the development of maternal identity.

Maternal Demographic Variables

The relationship of maternal age to other study variables was also of interest. As predicted, maternal age and socioeconomic status were not related to prenatal maternal attachment. Thus, the results of this study support others in which similar findings were reported (Kemp & Page, 1987; Lerum & LoBiondo-Wood, 1989; LoBiondo-Wood, 1985). As noted in Chapter 2, some of these findings are equivocal due to small sample sizes. The comparatively large sample size and geographic variability of the subjects in this study, as compared to many other studies, strengthens the support for this finding.

As predicted, maternal age was not related to the presence of postpartum depressive symptoms. Boyer (1990) noted that studies of the relationship between postpartum depressive symptoms and maternal age have been inconsistent.

The literature reveals diverse findings of the effect of age on mothering behaviors. In the present study, maternal age had a negative relationship to most measures of maternal role attainment, whereas Mercer (1986a) found that age was not a factor in the perception of maternal role attainment.

Further research is needed to measure the observable mothering skills of younger and older first time mothers and compared to the woman's perceptions of her own level of competency to determine if the older mother's negative perceptions are valid. Such research could also test the validity of the model proposed in this paper, by confirming the relationship of perceptions of role performance to actual mothering skills as components of maternal role attainment.

As hypothesized in this study, maternal socioeconomic status had no relationship to prenatal attachment, presence of postpartum depressive symptoms, or maternal role attainment. These results agree with other studies. An examination of the literature revealed no relationship between socioeconomic status and prenatal maternal attachment (Fowles, 1988; Kemp & Page, 1987; Lerum & LoBiondo-Wood, 1989). Studies of the relationship between postpartum depressive symptoms and socioeconomic status have been conflicting (Boyer, 1990). Although Mercer (1985) found a negative relationship between

gratification with the maternal role and educational level in women over 30 years of age (educational level which is sometimes used as an indicator of socioeconomic status), socioeconomic status, per se, was not related to taking on a maternal role.

Other Issues

Additional issues related to the findings of the study but not related to the specific research questions can be identified. First, the percentage of subjects who were only breastfeeding or breastfeeding with bottle supplementation of breastmilk (24%) at Time 2 of data collection was much lower than expected. The American Academy of Pediatrics, the World Health Organization, and the American Nurses Association have supported breastfeeding as the best method of supplying adequate nutrition to the infant for the first six months of life. No data were collected on prenatal desire to breastfeed. Many women in the sample may have decided during the pregnancy to bottlefeed rather than breastfeed for a variety of reasons. Although data regarding employment at this data collection point was not obtained, one possible explanation is that many mothers may have returned to work. Recent studies have identified the negative influence of employment on duration of breastfeeding (Duckett, 1992; Kearney & Cronenwett, 1991; Kurinu, Shiomo, Ezrine, & Rhoads, 1989).

Second, the percentages of women receiving epidural anesthesia for pain control during labor (56%) and delivery (48%) were higher than expected. Despite the increased risks to maternal and fetal status over less invasive methods

of pain control, such as psychoprophylaxis or even local anesthesia, obstetrical use of epidural anesthesia is increasing (Taylor, 1993). It is interesting to note that all the subjects of this study were recruited during LaMaze prenatal classes. The effectiveness of LaMaze classes in reducing the amount of drug therapies used by laboring women should be questioned. The influence of receiving epidural anesthesia on a woman's perception of her birth experience and subsequent development of a maternal identity has not been examined. Research designed to assess these various factors is needed in order gain a more complete understanding of the relationship between pain control methods during labor and delivery to the postpartal transition to motherhood.

Maternal Identity Model

This author offered a model based on the work of Rubin (1984) and Mercer (1986a) (see Figure 1) to illustrate the relationship between maternal role attainment and maternal identity. This relationship provided the framework for this research. The attainment of maternal role behaviors and the concurrent development of a maternal identity are processes involved in the transition from being childless to becoming a mother. The process of acquiring maternal role behaviors is influenced not only by the woman's interaction with her environment, i.e., relying on support from significant others and/or replicating the behaviors and attitudes of her chosen role models, but also by her perceptions of those role behaviors. The development of a maternal identity relies on the interaction

between the cognitive, affective, and behavioral factors involved in becoming a mother.

The study presented in this paper examined the relationships between the affective component of the model during the prenatal period (prenatal maternal attachment), the cognitive and affective component during the postnatal period (presence of postpartum depressive symptoms), and the postnatal behavior component of the model by measuring the subjective evaluation of maternal role performance two to four months after delivery. As hypothesized, a significant positive relationship between prenatal maternal attachment and the postpartal subjective evaluation of maternal role performance was noted. Also, the proposed negative relationship between the presence of postpartum depressive symptoms and subjective evaluation of maternal role attainment was found.

The results of this study provided empirical support for the relationships proposed by the model and for the theoretical assumptions that are foundational to the model. Maternal role attainment is in itself a developmental process that begins during pregnancy and is completed at some time during the first year after delivery. As proposed in the model, maternal identity is influenced by behavioral, cognitive and affective factors. The affective component involves the development of an affiliative attachment to the child during the prenatal and postnatal periods. The cognitive aspects include fantasies a woman has toward her baby and her thoughts regarding her self image of being a mother before and after the baby's birth. The behavioral aspects may include prenatal behaviors

such as visits to the obstetrician and stroking the abdomen as the fetus kicks, in addition to the actual postpartal role-related tasks involved in mothering, such as feeding and diapering the newborn, as well as a woman's subjective evaluation of her ability to carry out these tasks (Mercer, Nichols, & Doyle, 1986; Rubin, 1984; Walker, Crain, & Thompson, 1986a, 1986b).

The behavioral component in the postnatal period is comparable to Walker's notion of maternal role attainment. Contrary to Mercer's notion, this author asserts that maternal role attainment is an element of maternal identity. Maternal role attainment involves perceived competence in one's ability to carry out the tasks associated with mothering. The relationship between a mother and her child is at the center of maternal role behaviors and the development of a maternal identity (Leifer, 1980; Mercer, 1986; Rubin, 1984; Walker, Crain, & Thompson, 1986a, 1986b). The model provides a framework for research designed to provide a scientifically based understanding of the relationships among the behavioral, subjective, cognitive, and affective components of maternal identity during the prenatal and postnatal period, thus enhancing theory development.

The model presented in this study can be used to guide further research on maternal identity. Koniak-Griffin (1993) suggests that "maternal role attainment may contain discrete affective and behavioral dimensions" (p.261). This researcher proposes that the construct of maternal identity, not maternal role attainment, is more encompassing and contains behavior, cognitive, and

affective dimensions. Testing the model of maternal identity presented in this paper is necessary for several reasons. First, validation of the accuracy of the components of maternal identity is needed. The question of "Are cognitive processes involved in the development of a maternal identity and, if so, how?" needs to be examined. Also, research on the model could lead to the identification of additional variables that influence maternal identity, such as maternal employment. Examining the relationships between prenatal and postnatal elements of each component presented in the model can lead to further clarification of the model. For example, examining the impact of the presence of depressive symptoms during the prenatal and postnatal period on prenatal and postnatal maternal attachment, as well as perceptions of maternal role performance, could add significant support to the validity of the model. Continued testing of the model could lead to the development of assessment tools and interventions designed to assist the woman as she progresses through this vital transition in her life.

Implications for Practice

The findings of this study provide direction for nurses caring for childbearing and childrearing women. The results demonstrated that a woman's attachment to her fetus during pregnancy may be an indicator of her competency in infant feeding and infant care. Interventions designed to make the pregnant woman more aware of her developing fetus, such as asking her to identify fetal

movement patterns or discuss names for the baby, may enhance her sense of competency when actually caring for the baby after birth.

Helping the pregnant woman prenatally to identify the potential difficulties she may face in feeding and caring for her infant after birth may strengthen her infant caretaking abilities. Community-based educational programs for expectant women outlining infant states and behaviors in the early months after birth could facilitate the development of a sense of competence in the maternal role.

Nurses could facilitate support groups for new families designed to discuss coping strategies for anxiety related to infant care, such as relaxation techniques, planning time to be alone without the baby, and various parenting issues, such as balancing time and energy between baby, spouse, and self.

The results of this study indicated that maternal age had a negative impact on perception of competency in infant feeding and care. This finding emphasizes the importance of assessing perceptions of competency with infant care for the older primiparous mothers as they may need additional support in passing through the transition to motherhood.

Nurses working with childbearing women should evaluate a woman's feelings toward her fetus during the pregnancy. Although many factors influence the development of a maternal identity, feelings toward her fetus is an important factor in the woman's developing identity of herself as a mother. In the present study, prenatal maternal attachment demonstrated a positive relationship to all measures of maternal role attainment. Therefore, a woman with negative or

ambivalent feelings toward her baby in the last trimester of pregnancy should be closely monitored for her feelings of competency for infant care and adequacy of herself as a mother in the early months after birth.

Interventions designed to strengthen a woman's care-giving abilities, such as educational programs related to infant states and behaviors (Brouse, 1988; Rees, 1992) may foster the beginning of an affective tie to the child and could be evaluated for their effectiveness. Congruency between subjective evaluation of role performance and observed role behaviors could be evaluated and counselling provided to enhance maternal role attainment.

Nurses must become more involved in strategies that support breastfeeding. Nurses are primary health care providers responsible for patient education to new mothers regarding self care, infant care and feeding practices. Nurses, as well as other health-care providers, need to become politically involved to encourage local businesses to offer facilities and support that encourage breastfeeding by new mothers while still employed. For example, on-site daycare for infants would allow a woman to actually breastfeed her baby several times during the working day. In addition, providing an appropriate location for breast pumping and breastmilk storage would be supportive. Community-based educational programs could be developed would that offer suggestions on how to continue breastfeeding while working.

Implications for Research

Many implications for research, such as the relationships between the presence of depressive symptoms during pregnancy and prenatal maternal attachment, the effects of parity on prenatal maternal attachment and maternal role attainment and the need to clarify the relationship between prenatal maternal attachment and maternal role attainment, have already been presented in this chapter. Additional issues related to the transition to motherhood need to be examined. The relationships among maternal perceptions of infant temperament, measures of maternal role attainment and postnatal depressive symptoms should be examined. Previous research has suggested significant relationships among these variables (see Appendix C). The findings of this research could validate the application of the symbolic interaction perspective of role theory to the transition to motherhood.

The need for continued methodological studies has been identified. The development of reliable and valid measures of prenatal maternal attachment, presence of postnatal depressive symptoms, and maternal role attainment would contribute to theory development in maternal identity.

Additionally, the results of this study partially support the model for maternal identity presented in Figure 1. Further testing of the prenatal and postnatal components of the model is needed to provide clarification of the construct of maternal identity. The model could also provide a framework from which to develop interventions designed to ease the transition to motherhood.

Summary

The major conclusion of this study was that prenatal maternal attachment related positively to and was a predictor of maternal role attainment, as measured by perceptions of oneself as a mother, perceptions of her baby, and perceptions of competency in infant care and feeding. As hypothesized, prenatal maternal attachment was not related to maternal age nor socioeconomic status. However, prenatal maternal attachment did not demonstrate the hypothesized negative relationship with the presence of postnatal depressive symptoms.

The presence of postnatal depressive symptoms consistently demonstrated a negative relationship to all measures of maternal role attainment and was a predictor of a mother's perceptions of her baby and perceptions of competency for general feeding and infant care.

As hypothesized, maternal age was not related to prenatal maternal attachment nor the presence of postnatal depressive symptoms. However, maternal age demonstrated a negative relationship to measures of maternal role attainment. Maternal socioeconomic status was not related to any of the variables in the present study.

The findings of this study partially support the model presented in Figure 1. Although further testing of the model is indicated, the model can provide a framework to guide research and the development of interventions designed to ease the transition from being childless to becoming a mother.

Appendix A Interventions Enhancing Growth During Transition

Author(s)	Year	Findings
Danish, S. Smyer, M. Nowak, C.	1980	Before event occurs: -Enhancement strategies - self-help books & materials -Primary prevention - stress management seminars During event: -Support groups - LaLeche League -Secondary prevention & treatment - mammography After the event: -Professional counseling -Psychotherapy
Silverman, P.	1982	Support groups providing guidance Linkage agents to connect people in need Opportunity for role change from affected to helpers Multiple help organizations such as AA Professional counseling
deVliert, E. Allen, V.	1984	Two levels of approaches in the management of role strain: 1) individual strategies which consist of direct action oriented toward changing environmental condition causing the strain or indirect responses that reduce strain without changing underlying cause and 2) intervention techniques which consist of a planned set of activities in which an outside agent tries to improve the social or psychological functioning of a group or individual. Individual and intervention strategies were listed for use with the various components of role transition (changing antecedent conditions, facilitating role transitions, reducing role strain, altering reactions, and optimizing consequences).

Appendix A (Cont).

Brammer, L. Abrego, P.	1981	Five categories in the Taxonomy and Description of Coping Skills were listed: <ol style="list-style-type: none">1. Skills for perceiving and responding to transitions.2. Skills for assessing, developing and utilizing external systems.3. Skills for assessing, developing and utilizing internal support systems.4. Skills for reducing emotional and psychological distress.5. Skills for planning and implementing change.
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Appendix B Summary of Tasks Involved in the Transition to Motherhood.

Author	Year	Tasks/Description
Deutsch, H.	1945	1. Develop a unity with the child in a harmonious manner. 2. Dissolve the unity with the child at a later point in a harmonious manner.
Oakley, A.	1980	1. Rites of separation-medical recognition of pregnant patienthood, purchasing and wearing of maternity clothes, giving up work. 2. Rites of Transition-pregnancy itself, labor and childbirth. 3. Rites of Incorporation --for the baby-circumcision rituals, baptism --for the mother-leaving the hospital, visiting the pediatrician
Rubin, R.	1984	1. Seeking and ensuring safe passage through the pregnancy and childbirth for the woman and baby 2. Obtaining acceptance of the baby by others (spouse, family and friends). 3. Binding-In to the Child 4. Giving of oneself

Appendix B (Cont.)

Author	Year	Tasks/Description
Lederman, R.	1984	<ol style="list-style-type: none">1. Acceptance of the pregnancy2. Identification of a motherhood role3. Reconciling the relationship to one's own mother4. Clarifying the relationship to the husband in Light of the Baby5. Preparing for labor6. Facing prenatal fear of loss of control in labor7. Facing prenatal fear of loss of self-esteem in labor

Appendix C Summary of Research regarding the Relationship between Perceptions of Infant Temperament and Maternal Response.

Author (Year)	Sample Size	Findings
Osofsky, J. Danzger, B. (1974)	51 mothers observed from 2-4 days after birth	-Infant state as measured by the BNAS was related to behaviors during a feeding event. -Alert infants who respond to auditory cues spent an increased time looking at the mother. -Attentive, sensitive mothers tend to have responsive babies and responsive babies tend to draw out attentive and sensitive behaviors from their mothers.
Osofsky, J. (1976)	134	-An overall pattern of consistency was noted, that is, babies with increased responsiveness on the BNAS demonstrated increased responsiveness to their mothers and mothers tended to provide more stimulation. Mothers with increased attentiveness to their babies during a feeding were more sensitive in stimulating them.

Appendix C (Cont.)

Author (Year)	Sample Size	Findings
Jones, L.C. Lenz, E. (1986)	144 father-infant dyads were observed 2-4 days after birth	<ul style="list-style-type: none"> -Infant state at the time of father-infant interaction was the best predictor of affection/comforting behaviors in the father. -Infant orientation scores helped predict touch-stimulation behaviors and state scores predicted touch-affectional behaviors in the fathers. -Paternal competence was a predictor of stimulation behavior.
Cutrona, C. Troutman, B. (1987)	55 women were interviewed in their last trimester of pregnancy and at 3 months after birth.	Infant temperament difficulty was related to mother's level of postpartum depression.
Houldin, A. (1987)	20	<ul style="list-style-type: none"> -There was no significant difference in the quality of the HOME environment between infants rated as difficult or easy temperament. -There was a positive relationship between infants perceived as "easier-than-average" by their mothers and maternal organization and stimulation as measured by the HOME.

Appendix C (Cont.)

Author (Year)	Sample Size	Findings
Kemp, V. (1987)	28 mother-infant dyads were observed at 8 and 12 months after birth	-Temperament scores (Cary Infant Temperament Questionnaire) significantly predicted membership into either avoidant, secure, or anxious mother-child attachment groups.
Whiffen, V. Gotlib, I. (1989)	25 depressed and 25 non-depressed mothers were seen at 2 months after birth.	-Women with depression perceived their babies as being more difficult and bothersome than non-depressed women. -Babies of depressed mothers were less cognitively competent and expressed more negative emotions during testing than babies of non-depressed women.
Andrews, A. (1990)	202	-A combination of maternal psychological characteristics (depression, anxiety, and self-esteem), parenting attitudes (Adult-adolescent Parenting Inventory), stress and social support correctly predicted women who would change their perceptions of infant temperament from non-difficult to difficult during the first year after birth.

Appendix D Prenatal Maternal Attachment Scale (LoBiondo-Wood, 1990)

Code Number _____

Directions: I would like you to respond to the list of items below about yourself and the baby you are carrying. Check the response that best describes your feelings, thoughts or what is most true about you at this point in your pregnancy. It is your first impression that counts. There are no right or wrong answers. Please do not leave any questions blank.

	Definitely Yes	Yes	No	Definitely No
1. I am preparing (or have prepared) a room for the baby.	___	___	___	___
2. I try to picture what the baby will look like.	___	___	___	___
3. I imagine myself taking care of the baby.	___	___	___	___
4. I see my baby as a newborn.	___	___	___	___
5. I talk to my unborn baby.	___	___	___	___
6. I picture myself feeding the baby.	___	___	___	___
7. I read books on baby care.	___	___	___	___
8. This is a perfect time for the baby to be coming into my life.	___	___	___	___
9. I have decided on a name for the baby.	___	___	___	___
10. I dream about the baby.	___	___	___	___
11. The baby seems to know when I feel tense or anxious.	___	___	___	___
12. I picture myself bathing the baby.	___	___	___	___

		Definitely Yes	Yes	No	Definitely No
13.	I feel excited about my baby.	—	—	—	—
14.	I am uncertain about being pregnant	—	—	—	—
15.	I feel as if I am already mothering my baby	—	—	—	—
16.	I soothe the baby by stroking my abdomen	—	—	—	—
17.	I refer to my baby by a nickname	—	—	—	—
18.	I feel as though the baby and I are one.	—	—	—	—
19.	I rub my stomach to feel the baby.	—	—	—	—
20.	I imagine what my life will be like with the baby.	—	—	—	—
21.	This baby won't seem like a real person to me until it is born.	—	—	—	—
22.	I fantasize about my baby.	—	—	—	—
23.	I have a personal relationship with my baby.	—	—	—	—
24.	I can't imagine myself taking care of the baby.	—	—	—	—
25.	I wonder if the baby thinks and feels inside of me.	—	—	—	—
26.	I can hardly wait to hold the baby.	—	—	—	—
27.	I will wait until after the baby is born to get some clothes.	—	—	—	—
28.	I picture myself playing with the baby.	—	—	—	—

		Definitely Yes	Yes	No	Definitely No
29.	If I were to lose the baby now, it would be like losing a part of myself.	—	—	—	—
30.	The baby's movement gives me a sense of well being.	—	—	—	—
31.	The baby responds to the sound of my voice.	—	—	—	—
32.	I wonder if the baby feels cramped in there.	—	—	—	—
33.	I enjoy watching my tummy jiggle as the baby kicks inside.	—	—	—	—
34.	I can almost guess what my baby's personality will be from the way he/she moves around.	—	—	—	—
35.	It seems my baby kicks and moves to let me know he/she is there.	—	—	—	—
36.	I poke my baby to get him/her to kick back.	—	—	—	—
37.	I stroke my tummy to quiet the baby when there is too much kicking.	—	—	—	—
38.	I have bought, borrowed or acquired most of the things I will need for the baby after she/he comes.	—	—	—	—
39.	I feel and pat my abdomen in order to try to figure out where the baby's head, back, arms, and legs are.	—	—	—	—

Appendix E Demographic Information Sheet (Fowles, 1992)

Code Number _____

1. Today's date: (Fill in) ____/____/____
 month day year

2. Your age: _____
 Years

3. Marital Status: _____ Married
 _____ Partnered, living together
 _____ Partnered, not living together
 _____ Single/ never married, no partner
 _____ Widowed
 _____ Separated
 _____ Divorced

4. What is the highest grade of school or year of college you completed?
 grade in school _____, or year of college _____

5. What is the highest grade of school or year of college the baby's father completed?
 grade in school _____, or year of college _____

6. My occupation is: (Fill in) _____

7. The occupation of my baby's father is: (Fill in) _____

8. My last menstrual period began: (Fill in) ____/____/____
 month day year

9. I am carrying only one baby (Circle response) Yes / No

10. My baby is due to be born on: (Fill in) ____/____/____
 month day year

11. At which hospital do you plan to deliver your baby:(Fill in)

12. Is this your first baby? (Circle one) Yes No

13. Do you have any of the following: (Circle appropriate response)

- High Blood Pressure Yes / No
- Diabetes Yes / No
- Heart Disease Yes / No
- Seizures Yes / No
- Cancer Yes / No
- Other Health Problems
(Please Explain) _____

14. During this pregnancy, have you had: (Circle appropriate response)

- a. An Ultrasound Yes / No
 If yes, please answer the following questions
 When was the ultrasound done? _____
 Why was the ultrasound done? _____

 What were the results? _____

 What was the calculated due date? _____
 Were any abnormalities noted? Yes/ No
 If so, what were they _____

- b. An amniocentesis Yes / No
 If yes, please answer the following questions
 When was the amniocentesis done _____
 Why was the amniocentesis done? _____

 What were the results? _____

15. I have had the following in the past: (Circle appropriate response)

- Miscarriage Yes / No If yes, How many _____
- Abortion Yes / No If yes, How many _____
- Infertility Problems Yes / No

16. Racial Background: (Note background for each parent)

a. Yours

- Native American
 Black/ African-American
 Oriental
 White Hispanic
 Black Hispanic
 White, not Hispanic

b. Baby's Father

- Native American
 Black/ African-American
 Oriental
 White Hispanic
 Black Hispanic
 White, not Hispanic

17. Religious preference: (Note preference for each parent)

a. Yours

- Protestant
 Catholic
 Jewish
 Other
 None

b. Baby's Father

- Protestant
 Catholic
 Jewish
 Other
 None

Appendix F Labor and Delivery Information Sheet (Fowles, 1992)

Code Number _____

1. Today's date ____/____/____
month day year
2. What date was your baby born ____/____/____
month day year
3. What time was your baby born? _____
4. Please complete the following information about your baby
 - a. Sex of baby _____
 - b. Birth weight _____
 - c. Length at birth _____
 - d. Any problems with the baby _____
5. What type of delivery did you have? (Circle appropriate answer)

Vaginal

Cesarean Section

If you had a vaginal delivery, did you also have an episiotomy?
(Circle appropriate answer)

Yes / No

If you had a cesarean section, why was it done? (please describe)

6. Were there any problems that arose during your labor or delivery?
(Please use this space for your answer).
7. What type of pain relief did you get during labor?
(Circle appropriate response)
- a. Injection in buttocks
 - b. Injection into intravenous line
 - c. Epidural
 - d. Prepared childbirth
 - e. None
8. What type of pain relief did you receive during the delivery?
(Circle appropriate response)
- a. Injection in buttocks
 - b. Injection into intravenous line
 - c. Epidural
 - d. Local (injection into tissue below the vagina)
 - e. Pudendal (Injection into tissue inside the vagina)
 - f. Spinal anesthesia
 - g. General anesthesia
 - h. None
9. How long was your labor: _____ (hours)
10. During the last month of your pregnancy, did you experience:
(Circle appropriate response)
- a. Pregnancy-induced hypertension
(High blood pressure, sometimes called toxemia or pre-eclampsia)
 - b. Symptoms of diabetes
 - c. Placenta previa
 - d. Preterm Labor
 - e. Premature Birth (baby born 3 weeks or earlier of due date)
 - f. Bag of waters broke on its own before labor began
 - g. None

11. How are you feeding your baby now?
(Circle appropriate response)
- a. Breastfeeding only
 - b. Breastfeeding with formula supplements in a bottle
 - c. Breastfeeding with breastmilk supplements in a bottle
 - d. Bottlefeeding with formula
12. Is there anything about your labor and delivery that is still bothering you?
(Please use this space for your response).

Do you want a copy of the results of this study when it is done?
(Circle your response)

Yes / No

Appendix G Edinburgh Postnatal Depression Scale (Cox, Holden, Sagovsky, 1987)

Code Number _____

Since you recently had a baby, I would like to know how you are feeling. Please CHECK the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

Here is an example, already completed.

I have felt happy:

- Yes, all the time
 Yes, most of the time
 No, not very often
 No, not at all

This would mean: "I have felt happy most of the time" during the past week. Please complete other questions in the same way.

In the past 7 days:

1. I have been able to laugh and see the funny side of things
 - As much as I always could
 - Not quite so much now
 - Definitely not so much now
 - Not at all

2. I have looked forward with enjoyment to things
 - As much as I ever did
 - Rather less than I used to
 - Definitely less than I used to
 - Hardly at all

3. I have blamed myself unnecessarily when things went wrong
 - Yes, most of the time
 - Yes, some of the time
 - Not very often
 - No, never

4. I have been anxious or worried for no good reason
 - No, not at all
 - Hardly ever
 - Yes, sometimes
 - Yes, very often

5. I have felt scared or panicky for no good reason
 Yes, quite a lot
 Yes, sometimes
 No, not much
 No, not at all
6. Things have been getting the better of me.
 Yes, most of the time I haven't been able to cope at all
 Yes, sometimes I haven't been coping as well as usual
 No, most of the time I have coped quite well
 No, I have been coping as well as ever
7. I have been so unhappy that I have had problems sleeping
 Yes, most of the time
 Yes, sometimes
 Not very often
 No, not at all
8. I have felt sad or miserable
 Yes, most of the time
 Yes, quite often
 Not very often
 No, not at all
9. I have been so unhappy that I have been crying
 Yes, most of the time
 Yes, quite often
 Only occasionally
 No, never
10. The thought of hurting myself has occurred to me
 Yes, quite often
 Sometimes
 Hardly ever
 Never

Appendix H Myself as Mother

Word Meanings

The purpose of this questionnaire is to measure what certain things mean to you. I am interested in what these ideas mean to you. There are no right or wrong answers. Each page that follows has a different idea printed at the top followed by pairs of opposite words below it to describe each idea. Each pair of opposite words is separated by seven spaces. We call these spaces scales. See the example below for the idea "my home".

My Home

neat _____ : _____ : _____ : _____ : _____ : _____ : _____ messy

You are requested to respond to what the idea means to you on each of the scales below it. For example, taking the idea, "My Home", if to you its meaning is very closely related to "neat", you would mark it this way:

My Home

neat X : _____ : _____ : _____ : _____ : _____ : _____ messy

If its meaning is closely related to "messy" to you, then you would mark it this way:

My Home

neat _____ : _____ : _____ : _____ : _____ : _____ : X messy

If its meaning is slightly related to "messy" to you, then you would mark it this way:

My Home

neat _____ : _____ : _____ : _____ : X : _____ : _____ messy

If its meaning is at a midpoint between "neat" and "messy" to you, then you would mark it this way:

My Home

neat _____ : _____ : _____ : X : _____ : _____ : _____ messy

Please work at a fairly high speed through the form. Do not worry or puzzle over any item. It is your first impression that we want. Do every page and please place a mark on each scale of paired words.

(Go on to the next page please.)

Code Number _____

MYSELF AS A MOTHER

Fast	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Slow
Pessimistic	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Optimistic
Graceful	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Awkward
Weak	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Strong
Kind	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Cruel
Hopeless	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Hopeful
Good	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Bad
Hard	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Soft
Successful	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Unsuccessful
Unwilling	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Willing
Tough	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Fragile
Vigorous	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Feeble
Dangerous	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Safe
Complete	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Incomplete
Far	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Near
Rugged	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Delicate
Severe	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Lenient
Mature	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Immature
Active	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Passive
Calm	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Excitable
Cold	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Hot
Moving	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Still

(Please go on to next page)

Appendix J Perceived Competence Scale (Rutledge & Pridham, 1987)

Code Number _____

1. How competent do you think you are in dealing with each of following matters related to feeding? To answer this question, use this scale.

1	2	3	4	5	6
Not at all competent	Slightly	Somewhat	Quite a bit	To a great extent	Completely competent

from scale

- _____ a. How to hold your baby while feeding
- _____ b. How to tell when your baby is hungry
- _____ c. How to tell when your baby has had enough to eat at each feeding
- _____ d. How to burp your baby
- _____ e. How often to feed your baby
- _____ f. What to expect in regard to your baby establishing a regular feeding schedule
- _____ g. How to tell whether your baby is getting enough to eat overall

2. If you are bottlefeeding, or breastfeeding plus giving a bottle of either formula or breast milk occasionally, please answer the following questions from the scale below: How competent do you think you are to handle each of the following aspects of bottlefeeding? To answer this question, use this scale.

1	2	3	4	5	6
Not at all competent	Slightly	Somewhat	Quite a bit	To a great extent	Completely competent

from scale

- _____ a. Caring for the feeding bottles and nipples
- _____ b. Adjusting the milk flow from the bottle when feeding your baby
- _____ c. Deciding what kind of formula to use
- _____ d. Preparing the formula
- _____ e. How much formula to give at one feeding

MOTHERS WHO ARE BOTTLEFEEDING THEIR BABIES SHOULD SKIP TO QUESTION #4 ON THE NEXT PAGE

3. If you are breastfeeding, how competent do you think you are for each of these aspects of breastfeeding your baby? To answer this question, use this scale.

1	2	3	4	5	6
Not at all competent	Slightly	Somewhat	Quite a bit	To a great extent	Completely competent

from scale

- _____ a. How to care for your nipples
- _____ b. How to maintain or increase your milk supply
- _____ c. How to help your milk let-down
- _____ d. How to get your baby to start breastfeeding (latch on to your nipple)
- _____ e. What to do when your breasts are too full (engorged)
- _____ f. What to do when your nipples leak milk.
- _____ g. What to do when the baby seems to want to feed very often
- _____ h. Knowing which medications affect breast milk
- _____ i. Knowing which foods in your diet may affect your baby when you are breastfeeding
- _____ j. Recognizing a breast infection
- _____ k. How to give an occasional bottle feeding
- _____ l. Collecting and storing breast milk for bottle feeding
- _____ m. Breaking the baby's suction from your nipple

4. On the whole, how competent do you think you are to bottlefeed and/or breastfeed your baby? Please circle the number on this scale that best fits your feelings of competence.

1	2	3	4	5	6
Not at all competent	Slightly	Somewhat	Quite a bit	To a great extent	Completely competent

5. How competent do you think you are for each of the following infant care tasks? Please use this scale to answer this question.

1	2	3	4	5	6
Not at all competent	Slightly	Somewhat	Quite a bit	To a great extent	Completely competent

from scale

- _____ a. Diaper care, including washing of cloth diapers, care of diaper rash, when to change diapers, etc.
- _____ b. Bathing your baby, including water temperature, use of soap, oil, etc., and frequency
- _____ c. Deciding how to dress your baby appropriately for the weather conditions
- _____ d. Deciding when it's okay to take your baby outside
- _____ e. Figuring out what your baby's cry means
- _____ f. Playing with your baby
- _____ g. Knowing what to expect regarding your baby's development (for example, how well you baby sees, when you baby will roll over)
- _____ h. Managing day-to-day problems your baby may have (for example, diaper rash, spitting up, colic)
- _____ i. Recognizing when your baby is sick
- _____ k. Knowing when you should call or see the doctor about your baby
- _____ l. Knowing how to keep your baby safe (for example, appropriate travel arrangements, clothing and toys)

6. How competent do you think you are to be in charge of the overall care of your baby? Circle the number on this scale that best fits your feelings of competence.

1	2	3	4	5	6
Not at all competent	Slightly	Somewhat	Quite a bit	To a great extent	Completely competent

_____ How many weeks old is your baby when you completed this questionnaire.

Appendix K Letter of Introduction and Consent

Dear Expectant Mother

I am a doctoral student in nursing at Loyola University of Chicago. I am interested in examining the feelings a woman has during her first pregnancy and shortly after the baby is born. It is my hope that with a clearer understanding of these feelings, nurses can be more effective in helping women care for themselves and their babies.

I would like you to help me by completing the questionnaires and letter of consent in this packet. I have enclosed a pencil in the packet for your use. For the first form (yellow pages), follow the directions written after each question, that is, check the appropriate line or supply short fill-in answers. For the second form (light green pages), follow the directions at the top of the first page. When you are finished, fold the questionnaires and place them in the envelope marked #2. Seal the envelope and return it to me. You may keep this letter for your own information.

You will be asked to complete another group of questionnaires when your baby is about 3 months old. I will contact you by telephone just before the second group of questionnaires is mailed to you.

I will assume that by returning the completed questionnaire today, you are consenting to participate in the study and to my use of the information. All surveys are code-numbered so that the responses are kept confidential. You will in no way be identified to others. Completing the questionnaires involves no risks but may take a few minutes of your time to complete. There are no immediate benefits to you from participating in the study but, again, the knowledge gained from the study will provide nurses with information that will improve their care to families during childbirth and childrearing. You have the right to refuse to participate now or in the future without any change in your care

I appreciate your time and cooperation. I anticipate that the study will be completed within a year. At that time the results of what I learned will be made available to you if you would like the information. Should you wish more information or have any questions or concerns, please feel free to contact me at my home (309-452-9497) or leave a message at my office (309-829-0715).

Sincerely,

Address: 206 Foster Drive
Normal, IL 61761

Eileen R. Fowles, R.N., M.S.N.
Doctoral Student
Loyola University of Chicago

LETTER OF CONSENT

I read and understood the letter explaining the purpose of the study, procedures involved, risks and benefits. I understand that I may withdraw from the study at any time without any effect on my care.

If I have any questions or concerns, I understand that I may contact the investigator (Eileen Fowles) at any time.

PLEASE FILL OUT YOUR NAME, ADDRESS AND TELEPHONE

AND RETURN IT WITH THE QUESTIONNAIRES

NAME

ADDRESS

**TELEPHONE
NUMBER**

CODE NUMBER _____

Appendix L Postpartum Letter

Dear _____

Congratulations to you on the birth of your first baby. I hope that you are now enjoying the process of getting to know each other.

It is now time to fill out the second group of questionnaires related to how you are feeling about yourself and your baby. It is my hope that with a clearer understanding of these feelings, nurses can be more effective in helping women care for themselves and their babies.

There are four (4) questionnaires to complete at this time including one asking for information about your labor and delivery. Directions are on each questionnaire.

It should take about 15-20 minutes to complete all the forms. Please fill in the forms within the next week. When you are finished, return the completed questionnaires in the self-addressed stamped envelope that is included.

As I mentioned earlier, the anticipated date for completion of the study will be in a year. If you would like a copy of the result summary, please check the appropriate box on the first questionnaire.

Thank you kindly for your cooperation at this busy time in your life. If you have any questions or concerns, please feel free to contact me at home (309-452-9497) or leave a message at my office (309-829-0715).

Sincerely,

Address: 206 Foster Drive
Normal, IL 61761

Eileen R. Fowles, R.N., M.S.N.
Doctoral Student
Loyola University of Chicago

Appendix M. Frequency Tables for All InstrumentsFrequency Distribution of Scores for the Prenatal Maternal Attachment Scale

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
83	1	1	1	130	4	3	41
91	1	1	1	131	5	4	45
102	1	1	2	132	5	4	49
103	1	1	3	133	3	2	51
104	2	1	4	134	4	3	54
105	1	1	5	135	2	1	55
108	2	1	6	136	8	6	61
110	1	1	7	137	7	5	66
112	1	1	8	138	6	4	71
114	1	1	9	139	7	5	76
115	1	1	10	140	3	2	78
116	1	1	11	141	1	1	79
117	3	2	13	142	5	4	82
118	1	1	13	143	5	4	86
119	2	1	15	144	1	1	87
120	1	1	15	145	3	2	89
121	3	2	18	146	2	1	90
122	2	1	19	147	2	1	92
123	2	1	21	148	1	1	93
124	3	2	23	149	2	1	94
125	7	5	28	150	2	1	96
126	3	2	30	151	1	1	96
128	8	6	36	153	3	2	99
129	3	2	38	154	1	1	99
				155	1	1	100

Frequency Distribution for Scores on Edinburgh Postnatal Depression Scale

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
0	4	3	3	10	9	7	84
1	6	4	7	11	7	5	89
2	12	9	19	12	2	1	90
3	15	11	27	13	5	4	94
4	5	4	31	14	2	1	96
5	10	7	38	16	1	1	96
6	19	14	52	17	2	1	98
7	15	11	63	18	1	1	99
8	9	7	70	19	1	1	99
9	10	7	77	22	1	1	100

Frequency Distribution of Scores on the Myself as Mother Scale

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
41	1	1	1	64	4	3	45
51	2	1	2	65	11	8	53
52	1	1	3	66	8	6	59
53	3	2	5	67	10	7	66
55	2	1	7	68	7	5	71
56	2	1	8	69	9	7	78
57	10	7	15	70	3	2	80
58	3	2	18	71	11	8	88
59	7	5	23	72	4	3	91
60	6	4	27	73	4	3	94
61	6	4	32	74	3	2	96
62	10	7	39	75	4	3	99
63	4	3	42	77	1	1	100

Frequency Distribution of Scores for the My Baby Scale

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
21	1	1	1	36	9	7	32
27	2	1	2	37	12	9	41
29	3	2	4	38	14	10	51
31	6	4	9	39	13	10	61
32	2	1	10	40	20	15	76
33	3	2	13	41	12	9	85
34	7	5	18	42	21	15	100
35	11	8	26				

Frequency Distribution for Mean Scores for General Feeding (MEANFD)

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
3.1	1	1	1	4.9	14	10	37
3.6	2	1	2	5.0	15	11	48
3.7	3	2	4	5.1	11	8	56
3.9	1	1	5	5.3	11	8	64
4.0	2	1	7	5.4	14	10	74
4.1	2	1	8	5.6	8	6	80
4.3	2	1	10	5.7	13	10	90
4.4	11	8	18	5.9	5	4	93
4.6	7	5	23	6.0	9	7	100
4.7	5	4	26				

Frequency Distribution for Mean Scores for Specific Feeding Method (AVFEED)

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
2.2	1	1	1	4.7	5	4	30
2.9	1	1	1	4.8	6	4	35
3.4	1	1	2	4.9	5	4	38
3.6	1	1	3	5.0	10	7	46
3.7	1	1	4	5.1	4	3	49
3.8	3	2	6	5.2	10	7	56
3.9	1	1	7	5.3	3	2	58
4.0	2	1	8	5.4	11	8	66
4.1	4	3	11	5.5	2	1	68
4.2	3	2	13	5.6	14	10	78
4.3	1	1	14	5.7	2	1	79
4.4	4	3	17	5.8	11	8	88
4.5	5	4	21	5.9	2	1	89
4.6	8	6	26	6.0	15	11	100

Frequency Distribution for Mean Scores for Infant Care (MEANIC)

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
2.8	1	1	1	4.7	11	8	26
2.9	1	1	1	4.8	7	5	31
3.4	1	1	2	4.9	9	7	38
3.5	1	1	3	5.0	10	7	45
3.7	1	1	4	5.1	8	6	51
3.8	1	1	4	5.2	7	5	56
3.9	1	1	5	5.3	6	4	60
4.0	1	1	6	5.4	9	7	67
4.1	3	2	8	5.5	13	10	76
4.2	3	2	10	5.6	6	5	81
4.3	1	1	11	5.7	7	5	86
4.4	2	1	13	5.8	7	5	91
4.5	5	4	16	5.9	4	3	94
4.6	2	1	18	6.0	8	6	100

Frequency Distribution for Mean Scores for Overall Competency (AVECOMP)

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
3.0	1	1	1	4.9	9	7	36
3.1	1	1	1	5.0	7	5	41
3.5	1	1	2	5.1	12	9	50
3.9	1	1	3	5.2	10	7	57
4.0	3	2	5	5.3	9	7	64
4.1	2	1	7	5.4	13	10	74
4.2	3	2	9	5.5	11	8	82
4.3	3	2	11	5.6	7	5	87
4.4	4	3	14	5.7	5	4	90
4.5	1	1	15	5.8	3	2	93
4.6	9	7	21	5.9	5	4	96
4.7	7	5	26	6.0	5	4	100
4.8	4	3	29				

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VITA

The author, Eileen R. (Bielawski) Fowles, was born in Chicago, Illinois. She is presently employed in the School of Nursing at Illinois Wesleyan University in Bloomington, Illinois.

In September, 1968, Ms. Fowles entered Evangelical School of Nursing in Oak Lawn, Illinois and received her diploma in June, 1971. In January, 1978, Ms. Fowles entered Elmhurst College, receiving the degree of Bachelor of Science in nursing in June, 1980.

Ms. Fowles entered the graduate program at Loyola University of Chicago in January, 1985 and received the degree of Master of Science in Nursing in January, 1988. While attending Loyola University, Ms. Fowles was elected a member of Sigma Theta Tau, the international nursing honor society.

In September, 1989, Ms. Fowles entered the first class of the doctoral program in nursing at Loyola University of Chicago. She was awarded a research assistantship in nursing which enabled her to complete the Doctor of Philosophy degree in Nursing in January, 1994.

APPROVAL SHEET

The dissertation submitted by Eileen R. Fowles has been read and approved by the following committee:

Dr. Dona Snyder, Ph.D., R.N., Director
Associate Professor, Nursing
Loyola University of Chicago

Dr. Diane Boyer, Ph.D., C.N.M.
Associate Professor, Nursing
Loyola University of Chicago

Dr. Anne Jalowiec, Ph.D., R.N., F.A.A.N.
Professor, Nursing
Loyola University of Chicago

Dr. Geri LoBiondo-Wood, Ph.D., R.N.
Associate Professor, Nursing
University of Texas, Houston

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Nov. 18, 1993
Date

Dona J. Snyder
Director's Signature