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TESTING A NURSING INTERVENTION TO ENHANCE PATERNAL-INFANT INTERACTION AND PROMOTE PATERNAL ROLE ASSUMPTION

A Dissertation

Presented for the Doctor of Philosophy Degree

The University of Tennessee, Knoxville

Mary Margaret Meighan

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DEDICATION

I dedicate this work to my children and to their children who have stood beside me in trying times and continued to inspire me to reach my goals, and to my parents who have loved and nurtured me throughout my life. Especially, I dedicate this to my father, Charles J. Shults.

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ABSTRACT

The purpose of this study was to determine if a nursing intervention designed to help fathers in interacting with their newborn infants could increase the father's understanding about the importance of his role and his confidence and competence in interacting with his infant, thus positively influencing paternal role assumption. King's Dynamic Interacting Systems Model and Theory of Goal Attainment served as the theoretical framework for this study, and a middle range theory, The Theory of Interaction Enhancement derived from King's work was proposed.

To test the theory and the effectiveness of the nursing intervention, 52 first-time families were randomly assigned to either an experimental or a control group. Forty-six families completed the study. The intervention, Demonstration and Development of Skills (DADS) was offered during the first 48 hours after delivery to the fathers in the experimental group, while fathers in the control group received only the customary information provided by the nursing staff at the time of discharge. Information about socioeconomic status, previous experiences surrounding childcare, attitude about pregnancy, and birth experience was also gathered to determine if these factors had any additional influence on paternal role assumption.

It was hypothesized that first-time fathers receiving the DADS nursing intervention in the immediate postpartum period 1) would perceive greater confidence and competence in the paternal role, 2) would demonstrate higher levels of paternal role assumption at 6 to 8 weeks postpartum compared to a control group, and 3) would be perceived by the mother as confident and competent in giving care to the infant compared

to fathers who did not receive the intervention. The following subsidiary questions were also posed: 1) Are observed paternal behaviors consistent with the reported feelings of competence and confidence among first-time fathers?, 2) Does the amount of reported previous learning by first-time fathers correlate with paternal role assumption?, 3) Do first-time father's who perceive a positive birth experience demonstrate higher levels of paternal role assumption?, and 4) How does socioeconomic status correlate with paternal role assumption?

Data collection took place between 6 to 8 weeks postpartum. Gibaud-Wallston and Wandersman's (1978) Parenting Sense of Competency Scale (PSOCS) was used to determine the father's competence and confidence in his role. The mother was asked to rate the father's skills in infant care, and videotaping of paternal infant interaction over a six-minute period was done for later analysis and scoring.

Research assistants who were blind to group assignment were trained in the use of an observational tool developed by the researcher to analyze the quality of paternal infant interaction.

Statistical analysis was accomplished using Pearson's correlation coefficient to determine the correlation between the three dependent variables as described in the hypothesis. Finding no significant positive or negative relationship, the researcher used a multiple regression selection process. R square and Mallows C(p) statistic were used to identify the most significant predictor variables for use in a linear regression model for each of the dependent variables. A model for PSOCS was identified through a backward elimination procedure.

Previous learning was found to be a significant predictor of the father's perception of competence and confidence in his role as measured by the PSOCS (R square= 0.32 p= 0.003) Previous learning was also included in the linear regression models for mother's rating of father's infant care skills and on the video tape scores. The most significant variables in the model for mother's rating were previous learning, and birth experience of the father which could influence his attitude about the infant (R square = 0.35, p = .0038). There was no group effect for either mother's rating or the PSOCS, leading to a rejection of parts 1 and 3 of the hypothesis.

Fathers in the treatment group did demonstrate a higher quality of interaction with their infants than fathers in the control group, however. Predictors for video scores included group, previous learning, and infant state. Model R square was 0.54, p = 0.0001. All variables were significant at 0.049 or less. An interaction between group and previous learning and infant state was noted. Fathers in the control group displayed a positive relationship between previous learning and video scores, while fathers in the treatment group displayed a negative relationship. Mean scores from the videos were higher in the treatment group. Infant state (whether awake or asleep) had a strong effect on video scores in both groups.

Results of this study suggests that previous learning does impact all aspects of paternal role assumption and that the DADS nursing intervention provided for the treatment group did influence paternal-infant interaction. This finding lends support for the Theory of Interaction Enhancement, suggesting that nurses can be influential in helping new fathers as they become acquainted with their newborn infant.

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CHAPTER I

INTRODUCTION

Although fathers earned the right to participate in childbirth in hospital settings many years ago, they have received very little support from health care professionals in assuming the paternal role. Prior to the prepared childbirth movement of the late 1960s, expectant fathers often spent hours in hospital waiting rooms before hearing the announcement that their child had been born. Early contact with the infant was limited to gazing through the newborn nursery windows. They weren't allowed to touch or hold much less get to know the new family member for several days. Today, most men are present at the delivery and have the opportunity to become acquainted with their newborn child before going home from the hospital. Unfortunately, few of these new fathers feel confident in holding and interacting with their newborn infants, much less capable of assuming the role of father (Clinton, 1987; Henderson & Brouse, 1991; Jordan, 1990).

The father's presence at delivery and early contact with the infant has been shown to be beneficial by several researchers. McDonald (1978) reported that fathers who were present at delivery displayed progressively more attachment behavior toward the infant within the first few minutes after birth. Bowen and Miller (1980) observed fathers as they interacted with their infants in the mother's postpartum room and reported similar findings. In addition, Jones (1981) found that early contact with the infant was associated with an increase in nonverbal communication between father and infant at one month.

Today, many fathers play an active role in the childbearing process and in caring for their infants. Even though great strides have been made in allowing fathers to participate during childbirth and in promoting early infant contact, health care professionals may not be meeting the father's needs in assuming his new role. Helping him to realize the importance of his role and to gain confidence and competence in interacting with his infant may be beneficial to all members of the new family.

Importance Of The Paternal Role

The father's role in infant development has been virtually ignored in the past. Freud and his followers greatly minimized the father's influence on child development, claiming that the mother was the central character. In addition, the anthropologist, Margaret Mead (1935) viewed fathers as biological necessities but otherwise unnecessary to the infant's well-being. Even Bowlby (1969) portrayed mother as more important than father for the first three years of a child's life. These ideas continue to influence the conceptualization of fatherhood today.

Biller (1993) pointed out that the father is extremely important in the intellectual, social, and emotional development of his child. The father not only serves as the primary emotional support for the mother, he directly influences the behavior of his child. The father's active involvement in parenting has been credited with increasing the infant's competence and problem solving skills (Easterbrooks & Goldberg, 1984; Pedersen, 1981). Belsky (1980) reported that infants of two-parent families tended to socialize and to explore their environments more often compared to infants who have less

contact with their fathers. Unfortunately, few new fathers realize the importance of their role in infant development.

The Problem

The need for involvement of the father in child care has increased significantly in the past two decades. Today, most two-parent American families depend on the earnings of both husband and wife. With more and more women in the work force, more and more men are attending to and providing care for infants and children. This represents a shift in roles and expectations that is quite different from the role assumed by the man's own father. Unfortunately, this change in the family has taken place with very little guidance from health care professionals.

Changes in the delivery of health care has also had an impact on the new family. As hospital stays have shortened to 24 to 48 hours following delivery, opportunities for first-time parents to obtain guidance from health care professionals have decreased. In the search for ways to cut cost, hospitals have decreased the number of nurses and redistributed the workload among other workers. These changes have seriously limited the nurses' time in teaching and role modeling for new parents. Coupled with the fact that the geographic proximity of extended family is not as prevalent as it once was, these changes leave many new parents completely on their own and with limited knowledge about caring for the infant following discharge from the hospital.

Although maternal-child nurses have attempted to help first-time families in adjusting to the responsibilities of parenthood, most of their efforts have been directed

toward helping the mother rather than the father in providing care for the infant. With few role models to look to, many men are forced to learn about infant care on their own. While most mothers seem to pick up on the infant's cues quickly, fathers who have less contact with the infant in the first few days following delivery may not. Therefore, teaching the father about the interactional capabilities of his newborn infant and providing an opportunity for him to develop skill in interpreting and responding to infant cues may promote paternal role assumption.

Paternal role assumption is a complex process. Several different factors have been found to influence the beginning relationship between father and infant. The father's previous experiences and learning about childbirth and infant care impact his early attempts toward attachment to the infant and role taking (Albrecht, Thomas, & Chadwick, 1980; Ferketich & Mercer, 1995; Maccoby & Jackson, 1974; Rustia & Abbott, 1990) Lamb (1997) states that among the greatest influences on most new fathers is what they learned from their own fathers. In addition, the father's personal preferences and attitude about pregnancy and childbirth may also affect paternal role assumption (Rustia & Abbott). Role theorists stress that assuming a new role, such as fatherhood, requires the man to perform behaviors expected of him by society as well as his mate (Burr, 1976; Sarbin & Allen, 1968). Thorton and Nardi (1975) claimed that role assumption includes both personal perceptions and the expectations of society.

Anderson (1996) and Lewis (1986) reported that the circumstances surrounding the birth of the infant may also influence the father's initial attitude about the infant. It is

not uncommon for a father to experience feelings of anxiety, anger, and helplessness during the birth process (Anderson, 1996; Berry, 1988; Chapman, 1992; Reid, 1994). These feelings may alter the father's interactions with his infant in the immediate postpartum period and could potentially impact paternal role performance. Nurses can play an important role in helping new fathers recognize and deal with these feelings.

Theoretical Framework

King's (1981) Dynamic Interacting Systems Model and Theory of Goal Attainment provide the framework for this study. King's model consists of three dynamic interacting systems, the personal system, interpersonal system, and social system. The Theory of Goal Attainment, which was derived from the conceptual framework of the interpersonal system, is based on communication between nurse and client, mutual goal setting, and action to attain goals.

The personal system, according to King (1981) is "a unified, complex whole self who perceives, thinks, desires, imagines, decides, identifies goals, and selects a means to achieve them" (p. 27). Personal system concepts include self, perception, growth and development, body image, time, space, and learning. The self, according to King (1981, 1996) is an open system that is influenced by both environment and by interactions with others. The self is made up of ideas, values, and attitudes. Perceptions influence the behaviors of the self.

The interpersonal system is composed of two or more people, and its concepts include interaction, communication, transaction, role, stress, and coping. Communication, interaction, transaction, and role are especially important concepts in the application of King's model to families. Communication may be verbal or nonverbal, according to King (1981). In fact, the communication between parent and infant is largely nonverbal and includes touching, gestures, facial expressions, and movements. Crying and other sounds made by the infant are forms of communication to the parent.

King (1981) defines interactions as "the acts of two or more persons in mutual presence" (p. 85). Interactions reveal how a person feels about another person, how each perceives the other, and how each reacts to the other. Interactions between new parents and their infant are purposeful, reciprocal, and lead to the establishment of an interpersonal relationship. King states that transactions are the results of human interactions. Transactions are dependent on perceptual accuracy and role expectation, and they lead to goal attainment. They occur as the end result in the process of human interactions.

King (1981) defined role as "a set of behaviors expected of persons occupying a position in a social system..." (p.147). Role is learned from others within the larger social system, according to King. The role of parent is learned from one's own parents but may be influenced by other role models. The concept of role is both complex and situational. People may perceive role responsibilities differently and often function in a variety of different roles in a single day.

The social system influences and is influenced by the other two systems. It is comprised of the concepts of organization, authority, power, status, and decision-making. King (1981) defines a social system as "an organized boundary system of social roles, behaviors, and practices developed to maintain values and the mechanisms to regulate the practices and rules" (p. 115). Examples of social systems that directly influence the new parents include culture, the extended family, the community, the hospital, and the larger health care system. These systems establish norms, enforce rules, and influence the behavior of individuals. The decisions that new parents make are often dependent on the influence of the social system.

In King's Theory of Goal Attainment, two individuals come together, perceive each other, make judgments, and take actions (King, 1981, 1996). The actions result in a reaction, leading to interaction, and transaction. The process leads to goal setting, exploring how the goals can be met, and agreement on the way the goals will be achieved. In applying King's theory to nursing care in a neonatal intensive care unit, Norris and Hoyer (1992) stated that unless mutual goals are set and achieved, adaptation to the parental role will not occur.

King's framework and theory in research and practice with families:

Hobdell (1995) used King's Interacting Systems Framework and Theory of Goal Attainment in her research on parents of children with neural tube defects to explore relationships between chronic sorrow and accuracy of parental perception. This study focused on the personal systems of the mother, father, and child with a defect. King's

personal system concepts of self, growth and development, and perception were used to examine the responses of parents to their child. King's model was used in combination with person perception theory to understand individual perceptions and adjustments of each parent. This study clearly supported the presence of the components of King's personal system concepts in parents.

King's Interacting Systems Framework has been used in the development of middle range family health theories for use in various situations. Doornbos (1995) used King's work to better understand the experiences and perspectives of parents of a chronically mentally ill child. She conceptualized families as interpersonal systems to explore relationships between the concepts of family stressors, family coping, family perception of the client's health, time since admission, and the outcome variable of family health. Frey (1995), used King's model to study interaction and health in the family system and individual child with chronic illness. Frey examined the nature of the behavior of youths as personal systems using King's personal system concepts of self, growth and development, and stress. These concepts along with adjustment and motivation are important in helping researchers understand youths as personal systems and how personal systems influence behavior and health. Wicks (1995) used King's systems framework in developing a theory to study how families cope with chronic lung disease. The interaction of family members and their ability to cope were the phenomena of interest in her study. King's dynamic interacting systems influence on the whole provided an appropriate framework for analyses.

Norris and Hoyer (1993) used King's conceptual framework in working with parents in the neonatal intensive care unit (NICU). Personal, interpersonal, and social system concepts were used to increase understanding and improve interaction with families. A change model for parenting in the NICU was developed to assist parents in taking over the care of their infant before discharge. Parents of the infant in a NICU are often fearful and doubtful of their capabilities in caring for their infant. The proposed change model helps parents to gain perceptual accuracy through open communication and interactions with nursing staff. Perceptual accuracy leads to mutual goal setting and thus transactions. Transactions increase the parent's power and authority in decision making about the infant and the parent's sense of control is restored.

Using King's framework and theory in working with fathers and infants:

King (1976) stated, "One of the reasons for nurses to develop theories and to conduct systems research is the great complexity of every nursing situation (p. 51)." Theories offer explanations of the behaviors of individuals in particular situations and provide a framework to organize and study the relationships between phenomena. Therefore, theory development is essential if professional nurses are to continue to assume responsibility for delivering health care services (King).

King (1983) defined the family as "a small group of individuals bound together by a common purpose who help in the socialization of children" (p. 179). Although the family serves as a social system, new parents and their infant are initially interpersonal systems as they learn to interact, communicate, and attain goals. Each parent is a personal

system bringing individual ideas and values to the interpersonal system. As a personal system, the new father is guided by his perceptions which are influenced by previous experiences, concept of self, inheritance, educational background, and socioeconomic factors. He is unique as a human being and in his approach to parenthood.

Communication, interactions and transactions occur within the newly formed family. Interactions between parent and infant are especially important in parental role assumption and in establishing the bond between parent and child. King (1981) described interactions between two or more individuals as "a sequence of verbal and nonverbal behaviors that are goal-directed" (p. 60). Interactions are reciprocal in that individuals react to each other as the process continues. In a new family, the infant provides cues to the parents in order to have needs met, and parents learn to respond and react to those cues as they take on their new roles. When providing care for new families, the nurse facilitates the communication between the parents and their infant.

A Theory of Interaction Enhancement

A theory of interaction enhancement is being proposed in this study. This theory is summarized in the following assumptions and propositions. From this theory a research hypothesis has been developed to test the middle range theory.

Assumptions:

1. Interactions between individuals can be both verbal and nonverbal and,
2. Interactions between individuals are necessary for communication and goal setting and,

3. Each individual's personal knowledge, past experiences, needs, perceptions, and expectations influence his or her interactions with others and,
4. An individual's perceptions and judgments about their interactions with another individual will influence their behavior toward that individual and,
5. The father's interaction with his newborn in the immediate postpartum period is both a verbal and nonverbal, goal-directed communication that may influence his perceptions and his behavior toward the infant and the assumption of the paternal role.

Propositions:

1. If interactions between individuals can be improved through increased knowledge and understanding and,
2. If it is possible to assist individuals in the process of interacting with other individuals by improving their knowledge and understanding and,
3. If assisting individuals in interactions is a specific nursing intervention,
4. Then an effective nursing intervention in assisting the father in interacting with his infant can influence his perceptions and judgments about the infant, increase his sensitivity to infant cues, improve the communication process, and promote paternal role assumption.

A Proposed Nursing Intervention

A nursing intervention designed to facilitate paternal-infant interaction by demonstrating the infant's interactional capabilities and helping fathers in developing skills in interpreting infant behavior as they care for the infant is proposed in this study. The intervention, Demonstration and Development of Skills (DADS) is comprised of individualized teaching and assisting the father as he interacts with his infant. A competency-based skills checklist will be used to ensure that the teaching and demonstration are complete and that the father has gained an understanding. A booklet, entitled Becoming a DAD, was developed by the researcher to be given to fathers in the experimental group . The booklet contains information about the importance of the father's role in infant development, infant characteristics, infant capabilities and behavior, and ways to interact with a newborn infant. This booklet serves to reinforce the teaching, demonstrations, and assistance of the father provided by the nurse researcher. The DADS nursing intervention and the booklet will be described in greater detail in Chapter 3.

Hypothesis and Subsidiary Questions

First-time fathers receiving the DADS nursing intervention in the immediate postpartum period 1) will perceive greater confidence and competence in the paternal role, 2) will demonstrate higher levels of paternal role assumption at 6 to 8 weeks postpartum compared to a control group, and 3.) will be perceived by the mother as confident and competent in giving care to the infant compared to fathers who do not receive the intervention.

Subsidiary Questions:

1. Are observed paternal behaviors consistent with the reported feelings of competence and confidence among first-time fathers?
2. Does the amount of reported previous learning by first-time fathers correlate with paternal role assumption?
3. Do first-time father's who perceive a positive birth experience demonstrate higher levels of paternal role assumption?
4. How does socioeconomic status correlate with paternal role assumption?

Purpose of the Study

The purpose of this study was to determine whether the DADS nursing intervention facilitated father-infant interaction and promoted the assumption of the paternal role. The impact of the father's previous learning and his perceptions about the birth experience were also examined. The fathers were randomly assigned to either an experimental group or a control group that received customary or standard postpartum information and nursing care. The experimental group received the DADS nursing intervention in addition to standard care during the postpartum hospital stay. Paternal role assumption was measured at 6 to 8 weeks postpartum by observing paternal-infant interaction, by assessing the father's perceived confidence and competence in the role, and by the mother's rating of the father's infant care skills.

Definitions

For the purpose of this study, the following definitions of terms were used:

Attachment: An emotional bond formed between parent and infant that endures for a lifetime (Bowlby, 1969).

Birthing Unit: An area of the hospital where labor, delivery, recovery, and postpartum care are provided in one room. The infant may remain at the mother's bedside throughout the hospital stay.

Clinical Pathways: A time-framed plan for multidisciplinary hospital care of patients based on diagnosis and designed to reduce cost and length of stay while preserving quality of care. Patients and family members are provided with information about anticipated hospital care and are encouraged to participate in efforts to follow the plan until the day of discharge.

Competency-based skills checklist: A check list of teaching-learning activities to ensure that both teaching and understanding of each element occurs either through return demonstration or through verbalization of an understanding.

En Face position: A face to face position with head in the same plane as the infant's head and attempting to make eye contact.

Fontanels: Areas on the infant's head where bone is not fused, creating a soft spot.

Healthy Full-term Infant: An infant born at 37 to 42 weeks gestation and without signs of prematurity such as low-birth weight, immature development, or poor response to the environment immediately after birth.

High Risk Factor: A warning sign or symptoms associated with complications and indicating possible problems during pregnancy, childbirth, or the postpartum or neonatal period.

Induction of Labor: The use of pharmacological agents such as intravenous oxytocin to stimulate uterine activity and bring about labor and birth.

Infant Cues: Nonverbal behaviors of the infant such as movement, crying, grimacing, and smiling that attracts and holds the attention of the parent.

Interaction: Verbal and/or nonverbal exchange between two individuals that is perceived to be purposeful and reciprocal (King, 1981).

Low-risk Childbirth: No serious maternal or fetal complications during childbirth and delivery of a healthy infant. Induction or augmentation of labor and cesarean section delivery will be considered low-risk unless complications occur that jeopardize maternal or neonatal outcome and alter the usual postpartum course.

Parental Sensitivity: The ability of the parent to identify and respond to the needs and wants of the infant from the infant's nonverbal behaviors.

Paternal role assumption: The father's role taking as determined by nonverbal cues indicating attachment to the infant, perception of competence in caring for the infant, and verbalization of concern and affection for the infant.

Perception: Each person's representation of reality. "A process of organizing, interpreting, and transforming information from sense data and memory" (King, 1981, p. 24).

Perinatal: Refers to the period of time from mid-pregnancy through the first 28 days of the infant's life.

Previous Learning: Any previous learning about childbirth and infant care from attending prenatal or parenthood classes, past experiences with childbirth or infant care, or learning from family members as role models.

Role: "A set of behaviors expected when occupying a position in a social system" King (p. 89).

Operational definitions of these and other terms will appear in chapter 3.

Limitations And Delimitations

Although many variables have been shown to impact paternal role assumption, this study was confined to examining the influence of assisting fathers to interact with their infants in the early postpartum period and the relationship between socioeconomic factors, previous learning, and birth experience on the paternal role at 6 to 8 weeks postpartum. Personal and interpersonal system concepts and King's Theory of Goal Attainment were used to assist and guide the father as he interacted with his infant during the first days of life.

The DADS nursing intervention was not designed to teach basic infant skills, yet it did attempt to increase the father's competence and level of comfort in holding and

providing care for his infant. The intervention was individualized and varied to some degree based on the father's previous learning and experiences. Since the intervention took place in the mother's room, her input was not excluded, and she may have benefited. However, the nurse will focused primarily on the father's understanding and interaction with his infant. Any benefit gained by the mother was not examined.

Other limitations in this study also exist. The time span from hospital delivery to 6 to 8 weeks postpartum narrowed the focus of the project. Therefore, opportunities to analyze the long term benefits of the nursing intervention did not exist. In addition, this study was limited to a convenience sample of fathers whose mates delivered in a private, not-for-profit hospital and who experienced a low-risk childbirth and postpartum course. Although some families in the study may have limited socioeconomic resources very few of the families delivering in this setting were considered indigent. Thus the results of this research may not be generalizable to some other sectors of the population such as high-risk families and socioeconomically deprived families.

Significance of the Study

Although there are many studies about fathers, infants and assumption of the paternal role, only a few have focused on an intervention to facilitate the process. This study is important in the development of such an intervention to assist nurses in assessing paternal needs and facilitating paternal-infant interaction in order to promote paternal role assumption. Since many fathers today take a more active role in infant care, assisting

them with the initial steps of role transition is a nursing intervention that can be beneficial to families.

Beal (1989) found that demonstration of the Neonatal Behavioral Assessment Scale (NBAS) for first-time fathers in the early postpartum period improved the quality of paternal infant interaction at 8 weeks postpartum. This finding is encouraging in that an intervention to enhance the paternal-infant interaction is possible. However, the NBAS is a lengthy assessment tool, designed for optimal use in healthy full term infants at 3 days of age. In addition, the administration of the NBAS must be at a time when the infant is experiencing minimal stress.

In comparison, the DADS nursing intervention serves to educate the first-time father about infant characteristics and behavior in addition to assisting him in interacting with his newborn infant. While the NBAS requires specialized training and certification, less staff preparation would be required to administer the DADS. The DADS intervention could be carried out in the hospital setting within the first 12 to 36 hours, would be brief and inexpensive, yet beneficial in helping fathers gain confidence in responding to and caring for their infants. Its use would not be limited to specific times, since it would not require as much cooperation from the infant. The father would be given an opportunity to learn and ask questions during the demonstration and would be given a copy of the DADS booklet, Becoming a DAD to reinforce his learning. A skills checklist would be used as the nurse assists him in interacting with his infant to ensure that complete information has been provided and that the father can either perform a task or verbalize an understanding.

The DADS nursing intervention may decrease health care costs by ensuring that hospital discharge within 24 to 48 hour following delivery is safe for the mother and infant under the father's watchful eye. It may also eliminate unnecessary telephone calls and follow-up visits for the infant. The newborn infant's health status is maintained when parents are sensitive to the infant's needs and provide for him appropriately. Although the mother usually fills the role of primary caretaker, the support and assistance of the father can greatly enhance her efforts and can be very beneficial to the infant, thus improving the overall health of the family.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter contains a review of the literature about recent changes in the conceptualization of the paternal role as well as how these changes have been influenced by socioeconomic factors and by changes in the health care delivery system. Literature on paternal role assumption, factors that influence the transition to fatherhood, and the stages of transition to the role of father are included. Finally, research literature about paternal-infant interaction, neonatal behavior and attachment, development of the relationship between father and infant, and the father's contribution to infant development are reviewed. Reports about the effectiveness of various interventions designed to improve the father-infant relationship are presented. Although there are numerous reports in the literature about fatherhood, the review is limited to research considered to be most relevant to this study, which assesses a nursing intervention to enhance paternal-infant interaction.

The Paternal Role

Significant changes have taken place in the past two decades that directly impact the conceptualization of the father's role. Before the late 1960s, the father was considered to be primarily the provider and protector of the family, serving as the support for his mate while having few child care responsibilities himself. Beginning in the 1970s and early 1980s, the father's role expanded to include nurturance and caretaking of the children. These changes were primarily a result of socioeconomic and political forces that

influenced family life. Today, the father's active role in child care has become not only culturally acceptable but an expectation of society, especially in middle-class, working families.

Although economic necessity, women's issues, and other political forces may have initiated this role change, many men seemed to welcome it. In observational studies in the early 1970s, Parke, O'Leary, and West (1972) were surprised to find that fathers were more actively involved in interacting with their infants in the first few days after delivery than the mothers were. Yogman (1982) also noted a greater than anticipated interest in parenting among fathers and suggested that men might actually seek more opportunities for emotional contact with their infants to escape the pressure of their jobs. Finally, Lamb (1985, 1997) also stated that even though the father is viewed as uninterested in the role, most men actually want to be actively involved in child care and parenting.

Over the years, the major focus of researchers has been on the maternal role. It was not until hospitals ended the practice of excluding fathers from the obstetrical unit that the attention turned to the importance of the father's initial relationship with his infant. Prior to that time, his involvement with the infant was considered to be much less important than that of the mother. In fact, Bowlby (1969) claimed that the father's role was minor for the first 3 years of the child's life. This idea has continued to dominate attitudes about fathering today.

Bowlby (1969) believed that biologically driven systems were responsible for the close bond between mother and infant, and that fathers were not programmed in the same

way to take on the responsibility of nurturing their young. Animal behavior seemed to support this notion. In several studies, males in a variety of species were observed behaving differently than females and showing less concern toward their offspring. These observations led researchers to assume that fathers were unimportant in the care of their young. However, other animal observers reported very different findings. For example, Parke (1996) stated that male monkeys of Central and South America were observed displaying nurturing behaviors toward their young, such as carrying, feeding, and grooming. In addition, Rosenblatt, Fleming, and Corter (1969) refuted Bowlby's ideas about fathering behavior. They found no evidence that male and female roles were under the influence of hormones or other biological systems. These researchers compared the behavior of adult male and female rats that had not parented with those that had parented in their behavior toward newborn offspring. Rosenblatt and coworkers concluded that both male and female virgin rats will also show parenting behavior with sufficient exposure to newborn rats.

Even though there is no evidence that parenting behavior is hormonally driven, males and females do seem to approach their parenting roles differently. Parke and O'Leary (1976) observed the behavior of mothers and fathers as they interacted with their newborns in the first two to four days of life. Mothers tended to cradle the infant in their arms, while fathers extended their arms and held their infants out in front of them. Even though mothers were observed smiling more, fathers seemed to make more effort to elicit a response from their infant. Yogman (1982) and Bretherton (1985) also noted that fathers

tended to play with the infant more often than mothers. Fathers of toddlers engaged in more rough and tumble play than mothers did. On the other hand, Graham (1993) stated that mothers were more attuned to nonverbal cues and quicker to respond to the infant's needs than fathers. In his research, Yogman concluded that the infant seems to prefer the mother when they are stressed and the father when they are in a more playful spirit.

There is no evidence that the infant attaches more closely to one parent over the other (Yogman, 1982). However, the amount of time a parent spends with the infant may make a difference. According to Biller (1993), fathers spend less than one-third of the time with the infant compared to mothers. There are varying reports regarding how often fathers interact with their infants, but it appears to be consistently less than mothers do. This is especially true if the mother is breastfeeding. Biller concluded that because the father spends less time in direct care of the infant, the mother tends to be the first attachment figure. The bond between father and infant may be slower to form, developing more gradually overtime. Some fathers have indicated that they feel left out and need the opportunity to catch up after discharge from the hospital in order to attach more closely with their child within the first few months of life (Anderson, 1996; Biller 1993; Gamble & Morse, 1994).

Influence Of The Health Care System on Fathers

Over the past 25 years, the health care system has become more flexible in offering expectant parents greater choice surrounding childbirth. Most of the changes have been in response to consumer demand for more involvement of the family in the birth experience.

Family-centered maternity care and family birthing units have replaced traditional labor and delivery suites in most hospitals, and prenatal classes are routinely offered to prepare couples for the childbirth experience.

In spite of the changes in maternity care, the health care system may not be adequately addressing the needs of the father. Prenatal and parenthood courses may not be as helpful as once thought. Jordan (1990) reported that the men in her study wanted to be involved fathers but did not believe they had gained the necessary knowledge, skills, or support to do so. According to Barclay, Donovan, and Genovese (1996), the greatest concerns of the fathers which included changes in identity, their relationships, and their future role as father were never addressed by prenatal educators. In a focus group run by male midwives, first-time fathers reported that perinatal services tended to focus solely on their partner's labor and birth of the child and neglected the concerns of the father. In fact, these researchers found that most of the fathers in their study were alienated by prenatal education efforts because of the manner in which childbirth information was presented.

Hospital practices today are based on research that shows that the father's presence during birth is beneficial (Berry, 1988; Bowen & Miller, 1980; Chapman, 1992; Jones, 1981; McDonald, 1978, Reid 1994). However, the pressures placed on the father by society and the health care system to actively participate in birth may not be of benefit. In a study of 40 first-time fathers, Berry (1988) found that most men were worried about their spouse and doubtful about their abilities to help her during labor. These expectant fathers described the experience of labor and delivery as progressively more stressful,

stating that they were "wrestling with trying to hide their own feelings" (Berry, p. 354). In a survey of first-time fathers, Reid (1994) found that most men wanted to be present at delivery, but 29% admitted they were afraid. Comments such as "There was very little support for me.", "I felt very alone.", and "Things were not explained very well and I was frightened." were reported (p. 16).

Health care professionals tend to expect fathers to respond and behave in a prescribed manner during labor and delivery. Chapman (1992) found that most men in her study chose a less active role during labor than the role assigned by health professionals but one that met the expectations of his spouse. She concluded that father's role during childbirth should be "congruent with the couple's basic relationship and patterns of interaction" (p. 117), rather than being inappropriately prescribed by others.

According to Lewis (1986), circumstances surrounding childbirth may influence the father's attitude toward the infant. In interviews with first-time parents, Anderson (1996) found that fathers experienced many feelings that could potentially influence the immediate contact with the infant. The fathers in her study reported feelings of anxiety, relief, anger, and helplessness. An opportunity to express those feelings and bring some of them to closure may be needed before the initiation of a new relationship with the infant can take place.

Transition To The Paternal Role

Transition to the role of father introduces uncertainty and anxiety. Not only do fathers feel the pressure of greater responsibility, researchers have consistently reported that transition to the role of father is a stressful event (Clinton, 1987; Henderson & Brouse, 1991; Jordan, 1990). Cronenwett and Wilson (1982) described the transition to fatherhood as taking on an additional role that is often in direct conflict with the role of worker and husband. In addition to the concerns about infant care, Riley (1995) reported that 32% of the men in her study had anxiety about changes in the marital relationship brought about by the baby.

A decline in the health status of the father in the first year of birth has been consistently reported in research focusing on paternal role assumption. Clinton (1987) found a significant decline in health and an increased incidence of emotional discomfort in the immediate postpartum period. Symptoms commonly reported by new fathers in her study included nervousness, irritability, lack of ability to concentrate, headache, fatigue, and insomnia. Ferketich and Mercer (1994, 1995) found that many fathers suffer from depression in the first year after birth. In an attempt to develop a causal model to address the observed decline in health, Ferketich and Mercer (1989) found that self-esteem, mastery of the tasks of parenthood, and either anxiety or depression played a role. Although the conclusions of Ferketich and Mercer regarding the decline in health status in men during the perinatal period is congruent with other research, this study has several flaws. First of all, the health status of these men prior to pregnancy for comparison to

their state of health following pregnancy was not addressed. Secondly, the variation in age of the subjects was never accounted for. Finally, attrition rate over the eight month study was high, resulting in less than optimal subject to variable ratios.

Stages of transition:

Twenty-two first-time parents were interviewed by Henderson and Brouse (1991) to gain a greater understanding of the experiences of the father in the first three weeks after birth. Results of this phenomenological study suggests that fathers go through a predictable three-stage process, including 1) dealing with preconceived notions, 2) facing uncomfortable reality, and 3) deciding to take control by acquiring the skills necessary for their view of fathering. Jordan (1990) also identified phases in men's adaptation to the role of father. According to Jordan, these phases begin before birth with "grappling with the reality of pregnancy and a child " (p. 13). After delivery, the father struggles for recognition as a parent and continues "plugging away at the role-making of involved fatherhood" (p. 15).

Factors influencing transition:

In spite of the difficulties encountered in the transition to fatherhood, most men report that they want to be involved with child rearing (Lamb, 1995, 1997). Rustia and Abbott (1990) hypothesized that the father's involvement in infant care would be influenced by his values about fathering, his personal expectations, expectations of his mate, and his prior learning. According to these researchers, a man's values about parenting did influence his performance in child care, and there was evidence that attitude

and expectations of the mother also influenced paternal involvement in infant care. Biller (1993) and Lamb (1997) reported similar findings in subsequent studies about the influence of the mother on the father's level of involvement. Rustia and Abbott found that prior experience and prior learning did not influence the number of infant care tasks performed by fathers. In a later study, Rustia and Abbott (1993) reported similar results. In addition, they found that sex of the infant was significant in role performance of multiple-time fathers. Fathers appeared to favor male infants over female infants in the amount of care they provided.

In comparing experienced and inexperienced fathers, Ferketich and Mercer (1995) found that experienced fathers demonstrated higher paternal role competence in the first week after birth, but there were no significant differences in the two groups at one, four, and eight months. Experienced fathers also reported less anxiety and depression than inexperienced fathers at four and eight months. In examining predictors of role competence, Ferketich and Mercer (1994, 1995) found that self-esteem, sense of mastery and control over one's life, partner relationships and family functioning, as well as the birth experience were important. There was a positive correlation between paternal competence and attachment to the infant (Ferketich & Mercer, 1994).

The influence of the childbirth experience:

Although Bowlby (1969) focused primarily on the maternal-infant bond, he indicated that paternal attachment to his infant depended on the father's past experiences, his perception of the infant from birth, and the positive or negative emotions he placed on

the birth experience. If the birth experience was associated with pleasant feelings, a father would more likely maintain immediate contact with his infant. Conversely, if the birth experience was unpleasant, he would more likely avoid the infant who reminded him of the displeasure. Lewis (1986) also believed that in some instances the events surrounding the birth psychologically distance the father and impact the initial interaction with his infant. Peterson, Mehl, and Leiderman (1979) determined that birth experience was the most significant predictor among birth-related variables that influence paternal-infant attachment. They also concluded that the more positive the birth experience, the greater the father's attachment to his infant.

Paternal-Infant Interaction

The father's interaction with the newborn immediately after delivery has been observed and studied by many researchers. Among the earliest studies were observations by Parke, O'Leary, and West (1972) of the interactions between mother, father, and infant at two to four days post delivery. Later studies by these researchers focused on the father-infant interaction alone. The results of the initial research shattered the cultural stereotype of father. When mother, father, and infant interacted, the father tended to hold the infant more often than mother, to vocalize more, and to touch the baby more. The mother's behavior exceeded the father only by smiling more often. Otherwise, he was the one most actively involved with the infant. Replication of the observational study in another hospital revealed nearly identical results. For the first time, fathers were noted to be much more interested and involved with their newborn infants than previously thought.

Greenberg and Morris (1974) surveyed fathers immediately after birth. They described the paternal feelings and attachment to the newborn using the term, "engrossment" (p. 520). These researchers reported that the father was especially attracted by the infant's movements, and that he got a sense of communication from the infant's grasp. Engrossment began with the father's visual inspection followed by touching the infant. Awareness of the distinct characteristics of the infant led to the father's perception of the infant as perfect. Greenberg and Morris described the feelings of the fathers they surveyed as having strong attraction to the newborn, extreme elation, and an increased sense of self-esteem or pride. These researchers reported that fathers in their study were emotionally attached to their infants within three days of birth or earlier.

Other researchers have also noted progressive paternal behavior indicating attraction to the infant in the first moments after delivery. McDonald (1978) observed fathers using a video camera during the first nine minutes after delivery. Their behaviors began with hovering over the mother and infant, prolonged gazing at the infant, pointing gestures, followed by finger tip and then palm touch, making visual contact and finally face to face interaction with the infant. Tomlinson, Rothenberg, and Carver (1991) observed first-time fathers in the first 15 minutes after birth identifying four categories of behavior which included proximity, gaze, touch, and movement. Progressive behavior was noted, beginning with increased gaze followed by diminishing gaze and increasing proximity and movement toward the infant. Touching behavior remained low but constant. According to these researchers, fathers who were encouraged to interact with

the infant showed 72% touching in the first three minutes, indicating that nurses may be able to facilitate the attachment process.

Bowen and Miller (1980) observed fathers interacting with their newborns in the mother's hospital room within the first 12 to 24 hours after delivery. They found that fathers who had been present at delivery interacted more positively with their infant, regardless of whether or not they had attended childbirth classes. Jones (1981) also suggested that presence at delivery had a positive effect on paternal-infant relationships, noting that early contact with the infant increased nonverbal communication between father and infant at one month.

Infant Behavior and Attachment

The infant is not a passive participant in the interactions with parents. Attachment theory introduced by Bowlby (1969) conceptualized the infant as active in seeking caregiving and love in order to survive. Kaye (1977) noted that infants display a rhythmic behavior when feeding comprised of bursts of sucking and then a pause which requires a stimulus. This interaction of activity followed by pauses resembles turn-taking and is like a dialogue between infant and caregiver. Brazelton (1979) also noted and studied this very early reciprocal interaction between parent and infant and later observed that during play infants move in rhythm to the parent's voice with similar pauses and turn-taking behavior. These early attempts to respond and interact are believed to be precursors of language development (Brazelton, 1979; Kaye, 1977).

Parents seem to spontaneously elicit responses from the infant. Both mothers and fathers tend to use a higher pitched voice when speaking to their infant to get and hold the infant's attention and stimulate a response. Fathers often use more animated facial expressions, speak slowly, and shorten sentences when interacting with their infants. The infant not only attends to the parent's actions but also has been shown to mimic their behaviors. In a study about cognitive development of infants, Meltzoff and Moore (1977) asked fathers to model four gestures to their one week old infants. They observed the infants mimicking the father in protruding the tongue.

Bowen and Miller (1980) noted that sleeping infants elicited less response from their fathers than infants who were awake. In observing 114 fathers in the first four days after birth, Jones and Lenz (1986) found that both infant state and competence had an effect on the way the father interacted. Beal (1989) also concluded that the infant's ability to interact was strongly related to affectional paternal response.

Anderson (1996) determined through interviewing 14 first-time fathers that the infant's ability to respond elicited stronger feelings of "connectedness" or attachment in the father. Receiving feedback from the infant increased the father's self-esteem. Alertness, maintenance of eye contact and responsiveness to the sound of the father's voice was especially exciting to the new father. Some men in Anderson's study said they perceived the infant as an object for the first few weeks, but the turning point in the relationship was when the infant became more responsive, predictable, and familiar. A smile and vocalization at 6 to 8 weeks was especially rewarding.

The Father's Contribution to Infant Development

Lamb (1997) pointed out that one parent is not necessarily more important to infant development than another. He explained that infants benefit most by the presence and attention of two caring parents. According to Lamb, the infant's experience in interacting with two distinctly different individuals provides diverse stimulation that boosts learning. The mother's physical characteristics and interaction style is complemented by that of the father. The father looks, smells, feels, and sounds differently than she does. Parke (1996) explained that the father tends to be more playful, provides a wide range of stimuli, and is usually able to get a heightened response from the infant. Biller (1993) stated that infants with two positively involved parents are more likely to be cognitively advanced and socially adaptable. He found that they were much more willing to explore their environments and felt more secure in interacting with other people. According to Amato (1987) the father's involvement with his infant contributes to the child's self control, increased self-esteem, life skills, and social competence.

Pedersen (1981) found that measures of competence in 6-month old infants were positively correlated with the amount of involvement with their fathers. Belsky (1980) reported similar results in a comparison of two-parent versus single-parent families. He concluded that infants who had more contact with their fathers were generally more sociable and more interested in the world around them. In a study of 22-month old first-born children, Easterbrooks and Goldberg (1984) also found evidence that positive paternal participation influenced the competence of young children. These two researchers

stated that father involvement encouraged autonomy and increased the problem solving skills of their children. In addition, Yogman (1982) noted a positive correlation between active parenting by the father and the developmental level of 8 - 9 month old infants. Finally, Biller (1993) claimed that older children also benefit from having an interested and involved father. He claimed that they are generally more successful in academic, athletic, and social pursuits compared to other children whose fathers are not involved.

According to Lamb (1997) the quality of the relationship between father and infant is more important than the individual characteristics of the father. Biller (1993) is in agreement with this conclusion, stating that the father's active nurturing and commitment is the factor associated with greater success in their children. Easterbrooks and Goldberg (1984) noted that paternal participation in caregiving was not a factor in itself, but the father's overall involvement with the infant was. According to these researchers, the father's sensitivity and acceptance of the child is the most important factor.

Fathers contribute to the development of their children indirectly, as well. Lamb (1997) emphasized that fathers influence their children in multiple ways, including emotionally and economically. Pedersen (1981) found a positive correlation between marital happiness and stability and the maternal-child relationship. Riley (1985) reported similar results in studies of family life. In addition, the economic state of the family can be the source of great concern and growing stress which in turn, impacts the child. In King's (1981) model, the family is a complex social and interpersonal system that reacts to outside forces and to each other. Personal systems within the family affect each other

reciprocally, directly, and indirectly. The father's contribution to infant development must be viewed holistically, within the family framework. King's interacting systems model provides an appropriate lens for understanding the complexity of family life.

Interventions to Foster Paternal Role Assumption

Parke, Hymel, Power, and Tinsley (1979) studied the effect of showing a videotape about the newborn infant's social competence, play techniques, and caretaking skills to a group of fathers. Fathers who saw the video vocalized more to their infants and were more skilled at feeding them. At three months of age, observations of these fathers showed less dramatic results. These researchers concluded that the video increased caretaking only for the fathers of boys, not for the fathers of girls at three months of age.

Pannabecker, Emde, and Austin (1982) studied the effects of educating the new father about the physical and behavioral characteristics of infants and extending the contact with their newborn infant immediately after delivery. Forty-eight fathers were divided into three groups, two experimental and one control group. One group viewed a video about the characteristics of newborns, while the second group received a demonstration of the behavioral characteristics of their own infant. The two experimental groups had extended contact with their infant in the first two days of life. Both groups and a control group were videotaped while interacting with their infants at one month of age. There were no significant differences between the groups, leading the researchers to conclude that additional intervening variables such as sex of the infant and socioeconomic factors exist and should be considered.

Between 1973 and 1985, thirteen intervention studies were done using the Neonatal Behavioral Assessment Scale (NBAS) to educate and enhance the interactions between parents and their infants during the early postpartum period (Worobey, 1985). Results of these studies varied considerably from no association between receiving the intervention and the response of the parents to infant clues to a heightened response of the parents to infant cues following the intervention. Although not all of these studies focused primarily on fathers and infants, the inconsistency of results prompted Lamb (1997) to conclude that short-term interventions for new fathers do not appear to influence paternal behavior or involvement.

The NBAS was developed as a result of Brazelton's interest in the infant's ability to send cues and elicit responses from parents (Brazelton, 1973; Brazelton & Nugent, 1995). First published in 1973, the NBAS was originally developed to assess the infant's contributions to failures in the parenting of a difficult or abnormal infant. The purpose of the NBAS was to help parents better understand their role. Although it has been used primarily as a research instrument, the NBAS has been adapted for clinical use. It serves to help clinicians in assessing newborns and in helping parents get to know their infant's capabilities, thus improving interaction while providing care for the infant.

The NBAS is comprised of 28 items to assess the infant's autonomic, motor, state and attentional systems. These items are arranged in packages to be administered in a sequence that depends on the state of alertness of the infant. The scale includes, habituation, motor-oral, truncal, vestibular, and social-interactive packages. Infant sleep

states, response to stimuli, reflexes, sensory capabilities, and attentiveness are among the assessments performed. Parents who observe the administration of the NBAS are often surprised to learn about the competencies of their infant.

The NBAS was designed for use within a time frame from birth to two months of age. The assessment should take place between feedings and at a time when the infant has recovered from any painful procedures such as circumcision. The third day of life has been considered the optimal time for the initial examination but due to shortened hospital stays is being administered much earlier. Brazelton and Nugent (1995) cautioned that assessment during the first 24 hours is not accurate and should be repeated during the first month of life.

Beal (1989) utilized the Neonatal Behavioral Assessment Scale (NBAS) to demonstrate infant competence to 22 first-time fathers shortly after delivery. When compared to a control group, these fathers displayed a significant increase in quality of interaction with their infant at two months postpartum. In addition, they verbalized a greater understanding of their infant's behavioral cues. According to Beal, nursing interventions that stimulate and enhance parental competence in interacting with the newborn should be encouraged.

Using a portion of the NBAS, Karl, Beal, and Rissmiller (1995) developed a nursing model of the scale to incorporate into clinical practice. This model can be used as either an assessment tool during the first month of life or as an intervention tool for teaching and guiding parents. Cardone and Gilkerson (1989, 1990, 1992) developed a

specialized adaptation of the NBAS for use with families within the first day after delivery. Their adaptation, Family Administered Neonatal Activities (FANA) is offered as an intervention for all first-time families in one hospital. It is comprised of a chart review, parent interview, NBAS application, and integrative summary. The purpose of the FANA is to help new families re-establish a sense of equilibrium following labor and delivery, to enhance parent-infant interactions, and to provide an opportunity to integrate initial parent perceptions and expectations with the infant's present behaviors.

Summary

The literature on paternal-infant interaction and paternal-role assumption is abundant. Most of the research studies were conducted during the late 1970s and early 1980s at a time when the conceptualization of the father's role had first begun to change. Previously researchers erroneously supported the notion that fathers were less important than mothers for the first few months of the infant's life, and subsequently fathers received less attention from healthcare professionals during the childbearing process compared to mothers. Observational studies conducted by Parke, O'Leary, and West (1972) in first few days following birth revealed that fathers were both interested, attracted to, and more actively involved with their newborn infants than previously believed. Greenberg and Morris (1974) also reported that fathers were very attracted to their newborn infants and experienced heightened self-esteem following childbirth. These studies along with consumer demands were influential in changing hospital policies to include fathers in the childbearing process. As hospital care changed, more studies of new fathers were

conducted regarding the impact on the father of being present at the birth. Observational studies led to descriptions of the progressive attachment behavior between the father and his infant.

The growing interest in fatherhood directed the attention of researchers to focus more on the assumption of the paternal role. Transition to the paternal role has been described in the literature as stressful and capable of impacting the health and well-being of new fathers. Both qualitative and quantitative studies have revealed that a number of factors influence the transition to fatherhood, including personal values, prior learning about childcare, expectations of the mother, sex of the infant, self-esteem, birth experience, and the father's sense of competence and mastery over the situation.

Other researchers have focused more on the interaction between the father and infant and claim that the infant is an active participant in the process of interaction and capable of sending many nonverbal cues that enhance survival. Brazelton (1973) developed the NBAS as a result of his interest in the infant's ability to send cues and elicit responses from parents. The NBAS has been used as both an assessment tool and as an intervention to increase the sensitivity of new parents to their newborn infant.

Seminal to this research study are the reports in the literature about the importance of the father's role and his contribution to infant and child development. Several studies have revealed that the infant's experiences in interacting with two parents who are distinctly different individuals provide diverse stimulation that boosts learning (Belsky, 1980; Biller, 1993; Easterbrooks & Goldberg, 1984; Lamb, 1997; Parke, 1996; Pedersen,

1981). The literature reports that the father's active involvement with his infant increases the child's self-esteem, life skills, and social competence, and this is associated with the child's greater success later in life. These research studies support the need for a nursing intervention that could enhance father-infant interaction and promote paternal role assumption.

Parent-infant intervention studies aimed at facilitating interaction and attachment between parent and infant have been reported in the literature with varying results. Most of these studies were done prior to 1989 with the vast majority taking place in the early 1980s. In addition, many of these studies focused on both parents rather than devoting much attention to the father. Issues like fear, anxiety, and exhaustion that fathers describe as problematic for them immediately after delivery were not consistently addressed. Perceptions of the father about the birth and his role as father were seldom considered.

Although there is an abundance of research on fathers and their infants in the literature, this literature review was deliberately limited to those studies most relevant to this research study, which is designed to determine the effectiveness a nursing intervention to enhance paternal-infant interaction.

CHAPTER III

METHODOLOGY

The purpose of this study was to determine if a nursing intervention designed to facilitate father-infant interaction would increase the father's understanding, comfort level, and ability to interact with the infant and thus positively influence paternal role assumption at 6 to 8 weeks postpartum. The study also took into account the father's previous experiences and learning about infant care, his perceptions about the birth of his infant, and the family's socioeconomic status as factors that could influence paternal role assumption. The following hypothesis was tested:

First-time fathers receiving the DADS nursing intervention in the immediate postpartum period, 1) will perceive greater confidence and competence in the paternal role, 2) will demonstrate higher levels of paternal role assumption at 6 to 8 weeks postpartum compared to a control group, and 3) will be perceived by the mother as confident and competent in giving care to the infant compared to fathers who do not receive the intervention.

In addition, this study was designed to determine whether paternal behavior was consistent with reported feelings of competence and confidence among first-time fathers and whether mother's rating of the father's infant care skill was also consistent.

The Research Design

A quasi-experimental, post-test only design was utilized for this study. Fathers and infants were randomly assigned to either an experimental group or a control group to test the effectiveness of a nursing intervention designed to enhance paternal-infant interaction and promote paternal role assumption. The dependent variable, paternal role assumption was measured by determining the father's perceived competence and satisfaction in caring for his infant and by observing his behavior as he interacted with the infant at 6 – 8 weeks postpartum. The mother's opinion of the father's competence in providing infant care and his helpfulness in caring for the infant was also assessed.

The Sample

The study sample was 46 first-time fathers whose mates were considered low risk obstetrical clients and who delivered healthy full-term infants at St. Mary's Women's Pavilion. Although marital status was not considered, the father was expected to be currently living with his mate in a supportive relationship and intending to actively parent his child. First-time fathers who had an adopted child or whose mates had other children in the home were not included in the study.

If high risk factors directly impacting the perinatal outcome were identified at the time of delivery or in the immediate postpartum period, the father and infant were removed from the study. The father was also excluded from the study if any event prevented him from being present during labor and delivery or during the immediate postpartum period. Induction of labor without complications or cesarean section delivery

without additional complications were not cause for exclusion from the study. The father's participation in the study following operative delivery was dependent on mother's physical and emotional comfort in the immediate postpartum period and her willingness to participate in the study.

The Setting

St. Mary's Women's Pavilion was chosen as the setting for this study. The Women's Pavilion is part of St. Mary's Health System, and is located adjacent to St. Mary's Medical Center, which is a 250-bed general hospital in Knoxville, Tennessee. The Women's Pavilion provides family-centered obstetric, gynecologic, and neonatal care. Approximately 1300 to 1400 births occur in this setting annually.

St. Mary's offers private birthing rooms where the labor, delivery, recovery, and postpartum stay take place in one room. Infants remain in the mother's birthing room following delivery rather than being placed in a newborn nursery. Fathers and other family members may visit at anytime, while other visitation is at the discretion of the mother. In this setting, fathers are encouraged to participate in the birthing process and are given many opportunities to hold and interact with their infant. Many of the fathers in this setting remain overnight in the mother's hospital room to help in providing care for their newborn infant.

Mother and infant remain in the hospital for 24 to 48 hours following delivery. Discharge teaching about self-care and infant care is provided by the nursing staff during the hospital stay. At St. Mary's Women's Pavilion, nursing staff follow Clinical Pathways

and prepare the mother for each hospital day as well as for going home. Clinical Pathways, sometimes called "Care Maps," follow specific time-lines from admission to discharge from the hospital to decrease cost and the length of stay, thus standardizing patient care. A discharge instruction sheet on self-care and infant care is provided for each mother. Although the father is often included, the mother is the primary focus of the teaching provided by the nursing staff.

Instrumentation

According to King (1981) perception influences the interaction between individuals. She states, "perception is related to past experiences, to concept of self, to biological inheritance, to educational background, and socioeconomic groups" (p. 20). King emphasized that perceptions greatly influence one' s behavior. Although perceptions of the father can not be directly observed, inferences may be drawn based on the information he provides. To aid in interpretation of the data to answer the research questions, instruments were selected to help determine factors that could influence the perceptions of the father as he interacts with the infant.

General information form:

A general information form was given to each couple for completion at the beginning of the study. The form was designed to elicit information about educational level and occupation of both the mother and the father for use in Hollingshead's Index of Social Status. Their attitudes when first learning about the pregnancy were also obtained on this form.

Hollingshead's Four Factor Index of Social Status was used to determine the socioeconomic level of the family. The Four Factor Index of Social Status was based on the assumption that sex, marital status, education, and occupation reflect a life-style of both individuals and nuclear families. By combining these four factors into a single score, the socioeconomic status of families can be estimated. Education scores range from 1 to 7, with higher scores reflecting higher levels of education. The occupation scale ranges from 1 to 9. A score of 9 represents major professionals or proprietors of large businesses, and a score of one represents laborers, farm workers, and menial service workers. The 1970 census occupational codes were used in the development of the instrument. Although the 1970 census code could be considered to be out-dated, occupational status or level is considered in relation to all other occupations. Even though salaries have increased, very little change in relational status has occurred. The total score for an individual is derived by multiplying the educational score by 3 and multiplying the occupational score by 5 and summing the results. In estimating the social status of families in which both husband and wife work, the scores of both are determined and divided by two.

Reliability of an earlier Hollingshead (1957) instrument, the Two Factor Index of Social Status on which the Four Factor Index is based was established by comparing it with estimates of social status by governmental agencies. Multiple correlation between estimated status and education and occupation was 0.975. The Four Factor Index of Social Status has been compared to the National Opinion Research Center's scores using

Pearson's Product Moment Coefficient of Correlation yielding a score of r = 0.927. The Four Factor Index has been determined to be the most reliable intercommunity measure of social position of adults. (Bonjean, Hill, & McLemore,1967; Miller,1977).

A copy of the General Information form is found in Appendix B.

Previous Learning Scale:

A previous learning scale was developed to assess the influence of paternal role models, formal classes, and other experiences on first-time fathers. This instrument included six items to assess prior experiences with infant care, infant care classes, educational opportunities, the paternal grandfather's involvement in infant care and parenting activities, and the father's perception about the father's role in child care. Item scores ranged from 0 to 2 and overall scores ranged from 0 to 12, with higher scores indicating higher levels of previous learning.

This scale was reviewed by the researcher's peers who were experts in the field and was pilot tested prior to use in the study by asking several male subjects including some new fathers to give their opinions about the questions on the scale. A similar scale to determine previous learning of first-time fathers has been used in research by Rustia and Abbott (1990, 1993).

Labor and delivery information and Birth Experience Perception Scale:

Labor and delivery information regarding date and time of birth, sex of the infant, and the presence or absence of high risk factors was obtained from the hospital nursing staff following delivery. In addition, the father's perception about the labor and delivery

experience was obtained from the question, "What best describes your feelings about your labor and delivery experience?" Fathers were asked to rate their opinions about the experience. Answers to the question could range from very good (a score of 7) to very bad (a score of 1). A variation of this tool has been used by Mercer and Ferketich (1989, 1990b, 1993, 1995a, 1995b) in research involving paternal role assumption and the father's perceptions surrounding the birth of his infant.

Parenting Sense of Competency Scale:

Gibaud-Wallston and Wandersman's (1978) Parenting Sense of Competency Scale (PSOCS) was used to measure the father's confidence in his ability to meet the demands of parenting and his satisfaction in the role at 6 to 8 weeks postpartum. This 17-item instrument utilized a 6-point scale to elicit the opinion of the father from strongly agree to strongly disagree. Scores ranged from 17 to 102, and higher scores indicate higher confidence and competence.

The instrument had two subscales, a skill/knowledge subscale which measures the extent that the parent feels they have acquired the necessary skills of a good parent, and a valuing/comfort subscale which measures the satisfaction and level of comfort in the role of parent. An example of an item from the scale is, "If anyone can find the answer to what is troubling my baby, I am the one."

Gibaud-Wallston and Wandersman's PSOCS was used because of its ease in administering and because of its reliability. It was used often by Mercer, Ferketich, and others (1988; 1990a; 1990b; 1994; 1995) in research about parent-infant attachment and

parental role assumption, especially in studies focusing on the father. Reliabilities of this instrument range from 0.84 to 0.87.

Mother's Rating of Father's Infant Care Skills:

Mother's perception of the father's behavior with the infant was determined by asking her to rate her partner on a scale of 1 to 5 regarding his helpfulness in caring for the infant, his competence and confidence in caring for the infant, and his ability to understand infant cues. Scores of 5 indicate highest levels of helpfulness, competence and confidence and ability to understand cues. Overall scores on this scale range from 3 to 15.

This instrument was developed by the researcher and was reviewed by the researcher's peers and experts in the field. It was piloted tested prior to use in the study by asking new mothers and fathers to answer the questions and offer their opinions about the questions. The rating scale not only appeared to be a useful means of measuring the mother's perception about the father's adaptation to the parenting role, but also served as a means of distracting and removing the mother from the room during the videotaping of father-infant interaction.

Observation of paternal-infant interaction:

An observational tool patterned after an instrument developed by Bowen (1978) was used to score the videotaped interactions between the father and his infant in his home at 6 to 8 weeks postpartum. Bowen's original tool was based on behavior reported in the literature as indicative of attachment to the infant. Since the original tool was developed for use in the first few days after birth, it was revised to be more appropriate in observing

fathers interacting with infants at 6 to 8 weeks. The instrument was also altered in a way to determine the quality of interactions rather than quantity.

Bowen's observational tool consisted of six paternal behaviors including holding, inspection, verbalization, tactile, smiling, and en face. Infant state was also noted at the same time, because of its possible influence on paternal behavior. Bowen's original tool was revised for this study to include holding, visualizing, vocalizing, touching, showing pride/pleasure, and demonstrating sensitivity and responsiveness. The observation period was shortened to six minutes from Bowen's original 15 minutes after pilot testing revealed that this was adequate in determining the quality of interactions between father and infant at 6 to 8 weeks postpartum.

Each behavior was rated from 0 to 2, so that higher ratings indicated a higher quality of interaction. Each behavior or concept was defined by the researcher in the following way:

1. Holding: The manner in which the father holds and handles the infant and his ability to confidently readjust the position of his infant to maintain the infant's comfort.
2. Visualizing: The manner in which the father looks at the infant and whether or not he attempts to make eye contact or assumes an en face position.
3. Vocalizing: The manner in which the father talks about his infant or talks to his infant or adjusts his voice tone or synchrony as he interacts with his infant.

4. Touching: The manner in which the father touches, strokes, pats, caresses, kisses, or tries to elicit the grasp reflex as he interacts with the infant.

5. Showing Pride and Pleasure: The verbal or nonverbal expression of happiness or pride in being a father, such as smiling, laughing, boasting, or showing off for others to see by turning the infant toward the camera.

6. Sensitivity and Responsiveness: The manner in which the father comforts, responds, reacts to the infant state, or demonstrates concern for the comfort and well-being of the infant.

These behaviors are among those reported in the literature as indicators of parental-infant attachment by many researchers. Klaus and Kennell (1976) described fondling, gazing, kissing, holding closely, and en face position as indicators of maternal attachment. They further stated that these behaviors may also be observed in others who interact with newborn infants. Parke (1996) described how fathers were observed holding, talking to, and attempting to elicit responses from their newborn infants in the mother's hospital room in the first few postpartum days as they became acquainted with their child. McDonald (1978) reported that immediately after birth fathers tried to maintain face-to-face visual contact and touched and stroked their infants. Tomlinson, Rothenberg, and Carver (1991) stated that proximity of the father to infant, including holding and hugging, was also an important observation indicating a positive paternal infant interaction. In describing the attributes of paternal engrossment, Greenberg and Morris (1974) also noted the importance of visual and tactile behaviors of fathers.

Any behavior falling outside the six previously described categories was recorded with a check mark at the time of occurrence and was explained on the back of the observation form. With observations every thirty seconds, total behavior scores were between 0 to 24 points for each behavior with a highest possible overall score for all observed behaviors of 144. Infant state was recorded simultaneously. Observers recorded the infant state every 30 seconds, but did not assign a numeric score. See Appendix B for the observation tool and more information about assigning scores.

Six infant states were first described by Wolff in 1959. These states are deep sleep, light sleep, drowsy, quiet alert, active alert, and crying. Since Bowen and Miller (1980) and Jones and Lenz (1986) reported that the infant state influences the father's behavior, infant state was recorded simultaneously. Even though effort was made to talk with and videotape fathers during a time when the infant was awake and alert, this was not always possible, and infant state was considered as a potential influence on the father's overall score. Like, Bowen's original observation tool, the infant sleep states were combined making a total of five infant behaviors. The infant states for this observational instrument were defined as follows:

1. Sleeping - infant lying still, minimal muscle movement, with eyes closed.
2. Drowsy - state prior to falling asleep when there is reduced activity, brief spurts of movement, eyes open and close intermittently and appear to be unfocused.
3. Quiet Alert - appears relaxed and relatively inactive, seems attentive with eyes open. Doesn't smile or grimace but seems to be observant.

4. Active - awake and alert and moving about but not crying. Smiling, cooing, attempting to interact with father.

5. Crying - crying vocalization.

Pilot Testing:

The revised observational tool was reviewed by both Bowen and others in the maternal-child nursing field and was pilot tested to determine its appropriateness for use in this study. Several observers who were both novices and experts in the field were asked to analyze the videotaped interactions of a father and infant over a 10 minute period using the tool. The number of agreements and disagreements among observers for each 30 second interval were compared. If the number of agreements in a behavior category was less than 85%, the description of the behavior was refined and revised for greater clarity. A second videotaped interaction using the same father and infant over a shorter duration (5 minutes) was examined. Based on the pilot test the observation period was established as six minutes and the behavioral elements were redefined. The form for rating the father-infant interaction was revised. See Appendix B for a full description of the tool for observing paternal-infant interaction.

Three Master's in Nursing students were selected as research assistants to view and rate the videotaped interaction between father and infant. These research assistants were selected based on their interest in the project, educational preparation in maternal-child nursing, and work experiences in perinatal and pediatric settings. The research assistants were provided with an explanation and written overview of the purpose of the

study but were blinded to group assignment of the subjects. Assistants were given an opportunity to view the content of some of the videotapes and were trained in the use of the rating scale during the first session. Each research assistant was given copies of two tapes to rate individually before the next meeting.

Interrater Reliability:

Interrater reliability was established by examining each 30 second time block for agreement or disagreement between the observers. The number of agreements and disagreements were then totaled for each of the six behaviors over the 6 minute time span. The six behavior agreements and disagreements were then summed for an overall score of interrater agreement. Agreements were divided by the number of agreements and disagreements according to the formula:

$$\frac{\text{Agreement}}{\text{Agreement} + \text{Disagreement}} \times 100$$

Agreement between the three research assistants scores on the first two videotapes were 82% and 85% respectively. Retraining was carried out by reviewing and redefining each of the behavioral categories. Observers were then asked to rate two videotapes simultaneously and openly discuss and compare their ratings in the presence of the researcher. Subsequent agreements were at 90% and 92%.

All three observers were asked to analyze and score all videotapes. All scores were considered, and a composite score based on the mean score was assigned by the researcher. Videotape scores with a range of more than 20 points were automatically

re-analyzed by an outside observer with expertise in parent-infant interaction. Scores were readjusted by dropping the most extreme score, and retaining the three most homogeneous scores.

Every tenth tape was reexamined for interrater agreement, and the researcher met with the research assistants periodically to discuss any additional problems in analyzing the videotapes. Out of the 46 videotapes, 12 were reanalyzed (26%). Only seven videotape scores varied more than 30 points (15%). Three scores varied more than 20 points but less than 25, and two varied more than 25 points but less than 30 points.

Procedure

The research project proposal was reviewed and approved by the Institutional Review Committee at St. Mary's Medical Center and by the University of Tennessee Institutional Review Board. Mothers and fathers were invited to participate in the study in the last trimester of pregnancy or soon after delivery prior to going home from the hospital. Participation in the study was entirely voluntary, and both parents were free to withdraw at anytime without any penalty to them or their newborn infant. Information about the research project was provided in prenatal classes and in private obstetricians' offices. In some instances the researcher visited the new parents following delivery and reminded them about the study and invited them again to participate. The study was explained to both the mother and father, and written consent was obtained from both parents. Appendix A contains the Invitation to Participate and the consent forms that were used.

Both mother and father were asked to complete the General Information Form about educational preparation, occupation, and attitude about pregnancy. The father was asked to complete the Previous Learning Scale. Prior to hospital discharge, the father was asked to rate his perception of the birth experience, telephone numbers and contact information was updated, and directions to the couple's home was obtained to arrange the follow-up visit at 6 to 8 weeks postpartum.

Randomization:

Assignment to experimental or control groups was accomplished by flip of the coin after delivery in order to equalize groups according to sex of the infant. Twenty-six fathers and infants were randomly placed in the experimental group, and 26 fathers and infants were placed in the control group. If the father was placed in the experimental group by flip of the coin, the next father having an infant with the same sex was automatically placed in the control group.

Two father-infant dyads were eliminated from the study shortly after delivery because of the infant's high-risk condition. Four other fathers decided to drop out of the study after discharge from the hospital because of demanding work schedules and lack of time to participate in the follow-up visit. Forty-six first-time families completed the study.

Fathers in the treatment group received the DADS nursing intervention consisting of a review of the DADS booklet, a brief demonstration about normal neonatal characteristics and behaviors, and individualized assistance by the researcher to make the new father more comfortable in interacting with his newborn infant. Fathers in the control

group were asked about their perceptions about the birth of the infant, and directions to the home, but did not receive the DADS booklet or individualized nursing intervention.

Design of the DADS Nursing Intervention

A booklet, entitled Becoming a DAD and a competency-based skills checklist was developed to use in assisting fathers to understand the importance of their role in child development, how to interact with their newborn infant, and how to respond to infant cues. The purpose of the booklet and intervention was to serve as a visual aid during the nursing intervention and as a reminder about the information provided after leaving the hospital. The booklet and intervention were not designed to teach basic infant care except to help the father in feeling more confident as he interacted with his baby.

After reviewing the booklet and demonstrating basic principles of providing infant care and comfort, the researcher began assisting the father as he interacted with his own child. The infant was called by first name, and the researcher assisted the father in eliciting behavioral responses as discussed and demonstrated. To ensure that the father understood the elements presented during the intervention, a competency-based skills check list was used. The researcher answered any additional questions the father posed and assisted with and provided positive feedback regarding the father's ability to handle his infant. Although it varied according the father's responses to teaching and occasional interruptions, the intervention lasted approximately 30 to 45 minutes. Appendix C contains the script for Becoming a DAD and competency-based skills checklist.

Elements Of The DADS Nursing Intervention

Importance of the father's role in infant development:

Although many people conclude that the father's love and emotional support is extremely helpful to the mother, few new parents realize how important the father is to infant development. By pointing out how the father's active participation in parenting benefits his child, the DADS nursing intervention was designed to promote father involvement. Fathers who realize that they are as important in their own right compared to the mother, may be encouraged to interact more often and be more active in caring for their infant.

The fact that fathers interact differently and are perceived differently by the infant was also stressed. It was pointed out that the infant learns to recognize the father by sight, sound, smell, and touch. In addition, the researcher explained how a father tends to play with the infant more than the mother and how this is believed to be important to the infant's learning. Father's were told that research shows that infants of actively involved fathers are more likely to explore their surroundings, tend to learn more quickly, and have higher levels of self confidence.

Basic infant care:

Most first-time fathers receive some instructions and assistance with basic infant care either through prenatal classes or standard hospital instructions. The goal of the DADS nursing intervention was to reinforce this teaching and to help the father gain

confidence in his ability to provide basic care. The DADS intervention began with a discussion of basic care in order to identify areas that the father felt uncertain about.

The father's comfort in holding and handling his infant was assessed. Both cradling and the football hold were discussed and demonstrated. Since supporting the infant's head and "soft spots" are frequently areas of concern for new fathers, a discussion and demonstration centering on these topics was carried out. The father was shown where anterior and posterior fontanels are and was assisted in locating them. He was taught that touching the fontanel and shampooing over this area was not harmful.

A brief review of care of the umbilical cord, circumcision care, diapering, and feeding was carried out. The father was asked, "What have you been told about taking care of the umbilical cord?" Similar questions about circumcision care (if applicable), diapering, and feeding were asked. Effort was made to make the father feel confident in his ability to provide care. The researcher attempted to correct errors in understanding or performance in a manner to preserve the father's self-confidence.

Infant sleep-wake cycles:

The six infant states of deep sleep, light sleep, drowsy, quiet alert, active alert, crying were reviewed using the DADS booklet, Becoming a DAD. Each state was described in the booklet. At the end of the review, the nurse asked the father to identify the state his infant seemed to be in at the moment. The quiet alert state was discussed in more detail since it is a period of time when the infant is awake, attentive, and more interested in interacting with the environment.

Infant reflexes and responses:

Although there are other newborn reflexes, only the most noticeable were pointed out to the father, such as the moro reflex, rooting reflex, sucking reflex, and palmar grasp. Each of these reflexes was discussed or demonstrated. Since the palmar grasp is especially rewarding for most fathers, the father was taught to place his finger in the palm of the infant's hand to demonstrate how his infant can grasp his finger.

For many years, researchers failed to recognize the infant's ability to see or hear, leading to an underestimation of the newborn's capabilities. In order to demonstrate that the infant can see and hear, the father was shown how the infant is able to visually track an object such as a bright colored toy and how the infant seeks the source of a sound. During the DADS intervention, every effort was made to assist the father in eliciting both visual and auditory tracking as described above. If the infant was sleeping soundly or crying, the attempts were postponed until he or she was in a more cooperative state.

Posture and movement:

Flexion and muscle tone were discussed briefly. The father was shown how his infant's arms and legs quickly return to a flexed position when straightened. The fact that the infant's arms and legs become straighter (less flexed) with age was also discussed. The father was told that the infant isn't able to reach for objects immediately after birth but will make reaching attempts as early as 2 to 3 weeks of age. The ability of an infant to remove an object covering the face was discussed briefly but was not demonstrated, because it can

be stressful to the infant and because the response is not especially useful in enhancing paternal infant interaction.

The inability of a newborn infant to roll over was discussed. The father was told that the size and weight of the infant's head makes it difficult for the neck muscles to support it for the first few weeks of life. The importance of properly positioning the infant in the crib was discussed briefly. Research on sudden infant death syndrome as it relates to infant positioning was stressed. The father was told that contrary to past practices, placing an infant on the abdomen is no longer recommended. The father was made aware that placing an infant on a pillow, a water bed or other soft surface should also be avoided. The importance of placing an infant on their side with a small blanket roll behind their back after feeding was reinforced during the DADS nursing intervention.

Infant interactional capabilities:

Many new fathers are unaware of the newborn's interactional capabilities. Anderson (1996) stated that the participants in a qualitative study about becoming a father referred to their infant as "it" for the first three weeks of life. These fathers were excited when they recognized any deliberate response from their baby. The DADS nursing intervention was designed to help the father understand that his newborn infant not only sees and hears him but is able to interact with him in a number of ways.

The researcher pointed out how the infant feeds in spurts of vigorous sucking interrupted by pauses that elicit a response from the parent. Fathers were told that this turn-taking ritual was likely an early communication effort. Infants learn quickly that they

can elicit a response from the parent by simply pausing. The researcher explained that this resembles human behavior during conversation. When a person speaks to another person, they pause momentarily awaiting a response before they resume talking.

The infant's ability to mimic the facial expressions of another person was described or demonstrated. Fathers were told about research conducted by Meltzoff and Moore in 1977 that demonstrated the infant's ability to mimic the father in protruding his tongue. The father was told that his infant would learn many new things from him. He was encouraged to try a harmless experiment such as making a face or protruding his tongue to see if his infant could mimic his actions.

Individuality of infants

Fathers in the experimental group were told that their infants were unique individuals with their own personalities. During the intervention the researcher made it a point to use the infant's name and use gender-appropriate terminology. The booklet, Becoming a DAD was written in two versions, a blue-covered booklet for fathers of boys and a pink-covered booklet for fathers of girls. The infant's name and date of birth were placed in the booklet to underscore the importance of individuality. A general discussion about family characteristics and the infant's own individual strengths was carried out to help the father appreciate the uniqueness of his newborn child.

Although individuality plays a role in each of the developmental milestones, the researcher provided some general guidelines about what to expect. Fathers were told that smiling may be seen occasionally beginning shortly after birth, but smiling in response to

pleasure usually does not occur for 4 to 6 weeks. Fathers were told that no one really knows why infants are observed smiling before then. The researcher explained that cooing and laughing are usually not heard until an infant is about six weeks old, but that it is not uncommon to hear squeaks, sighs, and other noises before then.

Infant cues:

Infant cues or signals to parents were described and discussed. The researcher pointed out to the father that the infant makes deliberate attempts to let him know what he needs and wants beginning immediately after birth. Among the examples given were sucking on a fist, crying, turning the head away when tired, or just remaining quiet and attentive. Fathers were told that it takes time to understand the infant's signals. As father and child become better acquainted it becomes easier.

A general discussion about crying was carried out. Fathers were told that cries differ depending on the infant's need and that he will be better able to distinguish between different cries as time goes on. The researcher explained to the father that he may not always know how to comfort his child. Some of the infant's self-quieting abilities were described.. The topic of spoiling an infant followed the discussion of crying, and fathers were told that they should dismiss this idea completely. Spoiling does not occur because of holding, rocking, or playing with an infant.

The father was told again how he contributes to his infant's learning and development through playful interactions. Playing with the infant was encouraged, but the father was also taught how to recognize cues that the infant needs to rest. Breaking eye

contact and attentiveness, turning the head away, or restlessness were described as some of the cues that the infant has had enough stimulation for the time being. The researcher also cautioned the father about the dangers of rough play that involves vigorous bouncing, jostling or shaking very young infants because of the risk of cranial hemorrhage.

Finally, the research regarding the competencies of infants who have an active, involved father was re-emphasized. The researcher reinforced that research shows that infants and children benefit in numerous ways from being around a loving, caring father.

Data Collection at 6 to 8 Weeks Postpartum

A home visit by the researcher was done between the 6th and 8th week after delivery at a time that was both convenient for the family and that was favorable for observing the father as he interacted with the infant. During the visit, the father was asked to complete the 17-item Gibaud-Wallston and Wandersman's Parenting Sense of Competency Scale, and the interaction between father and infant was videotaped over a six minute period.

The videotaped session began with a brief discussion between the researcher and the subject about his role as father, followed by a period of uninterrupted interaction between father and infant. The purpose of the discussion was to increase the father's comfort level in front of the camera. The discussion was limited to about three minutes. Two or three open-ended questions were asked by the researcher as time allowed. The researcher began the conversation by stating, "Tell me how things have been going since you came home from the hospital." The next question was "Is being a father like what you

expected?" The final question was "Knowing what you know now, what advice would you give another first-time father-to-be?" Questions and comments varied slightly, depending on the father's responses. If time was exceeded, not all questions were asked. The father was given time to finish his answer to the last question before ending the discussion session. After approximately three-minute of discussion, the researcher said, "I would like to just videotape you and your baby, now." At that time, the researcher stopped talking and moved to another room to talk with the mother and obtain her ratings of the father's infant care skills. Videotaping of uninterrupted father-infant interaction was continued for an additional three minutes.

The researcher provided an opportunity during the home visit for the parents to view some of the videotape through the camera's view finder. As an incentive and reward for participation in the study, families were sent a copy of the videotape by mail. Couples were asked for permission for the researcher to store the videotape for possible future analyses, and written consent was obtained. A copy of this consent form is in Appendix A.

Statistical Analysis of the Data

Descriptive statistics were used to analyze the demographic and general characteristics of first-time fathers. Frequency counts were obtained on all categorical variables to investigate equality between groups, and to assist with data screening. Central tendencies were obtained on numerical variables. Results were examined for variability,

skewness, and kurtosis. Pearson's correlation coefficients were computed to determine positive or negative relationships between the dependent and independent variables.

Initially, the researcher examined the level of agreement between the instruments selected to determine paternal role assumption. Scores on the PSOCS, the Mother's Rating of the Father's Infant Care Skills, and the observed paternal-infant interaction (videotape scores) were compared using Pearson's product moment correlation. After finding no significant correlation among the dependent variables, each was examined separately using multiple linear regression analysis.

Mallows C(p) statistic and R square were used to determine the optimal subset of predictors for each of the three dependent variables, which included PSOCS, video scores, and mother's rating. Predictors included in the selection process were Hollingshead's index of social status, father's attitude about pregnancy, previous learning, sex of the infant, father's perception of the birth process, group, and the infant state. Potential interaction terms were also considered.

Subsidiary questions were investigated both by correlation and by determining the significance of the variable during regression analysis. Following linear regression, plots of the predicted values were obtained to clarify findings and help in answering subsidiary questions.

CHAPTER IV

RESULTS

In this chapter, descriptive data for the sample and tests of the hypothesis and subsidiary questions are presented. Results of the correlational analysis among the dependent variables PSOCS, Mother's Rating of the Father's Skills, and total videotape scores based on the observation tool devised for this study are discussed. The impact of the father's previous learning, birth experience, and socioeconomic status on paternal role attainment are included. Results of the multiple linear regression on each dependent variable are presented along with the rationale for selection of the predictor variables used in the models. Additional analyses and the results are also included. A summary of the findings concludes this chapter.

Descriptive Statistics for the Total Sample

A total of fifty-five first time families agreed to participate in the study, and 46 families completed the project. Three fathers dropped out of the study before delivery. Two additional father-infant dyads were eliminated because the infants were admitted to the neonatal intensive care unit. Four other fathers were unable to schedule time for the home visit due to work demands.

Of particular interest was the unequal number of male and female infants. Although the researcher had planned on equalizing groups as closely as possible by randomly assigning according to sex of the infant, there were 32 male infants and only 14 female infants in the study. The experimental group had 17 male infants and 7 female infants for a

total of 24 father-infant dyads, and the control group had 15 male infants and 7 female infants for a total of 22 father-infant dyads. Attrition explains the inequality between the experimental and control groups, but it is not known if fathers of male infants were more likely to participate in the project than fathers of female infants or if more males were born to first-time families in the research setting at that time. Although couples were invited to participate in the study during prenatal classes, the majority of them gave written consent after delivery of the infant. Among the couples that entered the study before delivery, most knew the sex of the infant from the prenatal ultrasound.

Examination of univariate descriptive statistics on Hollingshead's index of socioeconomic status and on the previous learning scale revealed relatively normal distributions. Both were skewed slightly to the right toward the higher end of the scale. There were no major outliers. Other variables in the study were also examined in this manner. The means, medians, modes, standard deviations, and minimum and maximum scores for all the variables were examined. Table 1 presents these findings. A comparison of group means for all the variables is found in Table 2.

Correlational Analyses

Correlation coefficients among the independent and dependent variables in the study are shown in Table 3. Previous learning scores and PSOCS indicated positive correlation (previous learning $r = 0.48$, $p = 0.0006$). Previous learning and the mother's rating of the father's skills also indicated a positive correlation (previous learning

TABLE 1

SUMMARY OF VARIABLES USED IN THE STUDY

VARIABLE	N	MEAN	MED	MODE	STD DEV	RANGE
Socioeconomic Index	46	47.3	52	52	10.8	19 - 67
Attitude about Pregnancy	46	2.9	3	3	0.31	2 – 3
Birth Experience	46	6.1	7	7	1.5	1 – 7
Previous Learning	46	7.3	8	8	2.6	0 – 12
PSOCS	46	77.1	76.5	66	1.5	55 – 100
Subscales:						
skill	46	32.7	33	35	5.8	22 – 47
valuing	46	43.7	44	42	6.5	27 – 53
Mother's Rating	46	12.9	13	14	1.8	8 – 15
Observation Tool (video scores)	46	87.9	87.5	78	17.4	53 – 120

TABLE 2

COMPARISON OF THE MEANS OF STUDY VARIABLES BY GROUP

	Control Group			Experimental Group		
VARIABLE	MEAN	MIN	MAX	MEAN	MIN	MAX
Socioec. Index	47.8	23	67	46.9	19	58
Attitude	2.9	2	3	2.9	2	3
Birth exp.	6.3	2	7	5.8	1	7
Prev. Learning	7.4	4	12	7.3	0	12
PSOCS	78	55	93	76	56	100
Skill	34	36	42	31	22	47
Valuing	44	27	52	44	28	53
M. Rating	13	8	15	12.8	8	15
Video Scores	84	53	119	92	56	120

TABLE 3

CORRELATIONS BETWEEN INDEPENDENT AND DEPENDENT VARIABLES

	DEPENDENT VARIABLES		
	Parenting Sense of Competence	Mother's Rating	Observation of Paternal-Infant Interaction
INDEPENDENT VARIABLES			
Hollingshead (socioeconomic)	0.15	0.34*	-0.08
Previous Learning	0.48**	0.40**	-0.05
Birth Experience	0.31*	0.28	-0.10
Attitude about pregnancy	0.28	0.34*	0.06

*p < .05
**p < .01

$r = 0.40$, $p = 0.0048$). Socioeconomic index and the mother's rating of the father's infant care skills was $r = 0.34$, $p = 0.02$. There were no significant correlations between any of the other variables in the study.

Correlations between the three dependent variables PSOCS, mother's rating, and paternal-infant interaction scores from the videotape analysis (video scores) were also examined and revealed no significant positive or negative relationships. This was an unexpected finding, since one would anticipate a positive relationship between the father's behavior with the infant and the father's perception of his ability to take care of his infant. Paternal behavior and the father's perceived confidence and competence were also examined using both the total scores on the PSOCS and the two subscales of knowledge/skill and valuing/comfort. No correlation was noted.

One would also expect to find a positive relationship between the father's behavior with the infant, his perceived confidence, and the mother's rating of his ability, but this was also not found. Mothers did tend to rate the ability and helpfulness of their mates on the upper end of the scale. Mean scores were 12.9, with minimum and maximum scores of 8 to 15.

Tests of the Hypotheses and Subsidiary Questions

The hypothesis that first-time fathers receiving the DADS nursing intervention in the immediate postpartum period 1) will perceive greater confidence and competence in the paternal role, 2) will demonstrate higher levels of paternal role assumption at 6 to 8 weeks postpartum , and 3) will be perceived by the mother as confident and competent in

giving care to the infant compared to fathers who do not receive the intervention was tested using multiple regression analysis.

Since there were no correlations between the dependent variables, all three were analyzed separately. Potential regression models were explored by performing all subsets regressions on the variables hypothesized to have effects on the dependent variables. In addition, group was included in all models. Candidate models for each of the dependent variables were selected based on R square and on Mallow's C(p) statistic. Reasonable models were examined more closely.

Results of PSOCS (competence and confidence in the paternal role):

Although group was included in the model, the only effect on PSOCS was determined to be previous learning. An elimination procedure removed all other variables and resulted in R square of 0.32, F value 10.06, and p. 0.003. A plot of the predicted values of PSOCS against previous learning is displayed in Figure 1. Generally, the greater the father's previous learning, the higher he rated himself on confidence and competence in caring for the infant. There was no difference in groups based on PSOCS. Although Figure 1 shows higher scores on PSOCS among the control group subjects, this difference was not significant. An analysis of covariance was done to examine this more closely, resulting in no significant difference after controlling for previous learning ($p = 0.42$).

Results of videotape scores (demonstration of paternal role assumption):

The best candidate model selected for the videotape score contained group and the predictor variables of previous learning, infant state, and an interaction term between

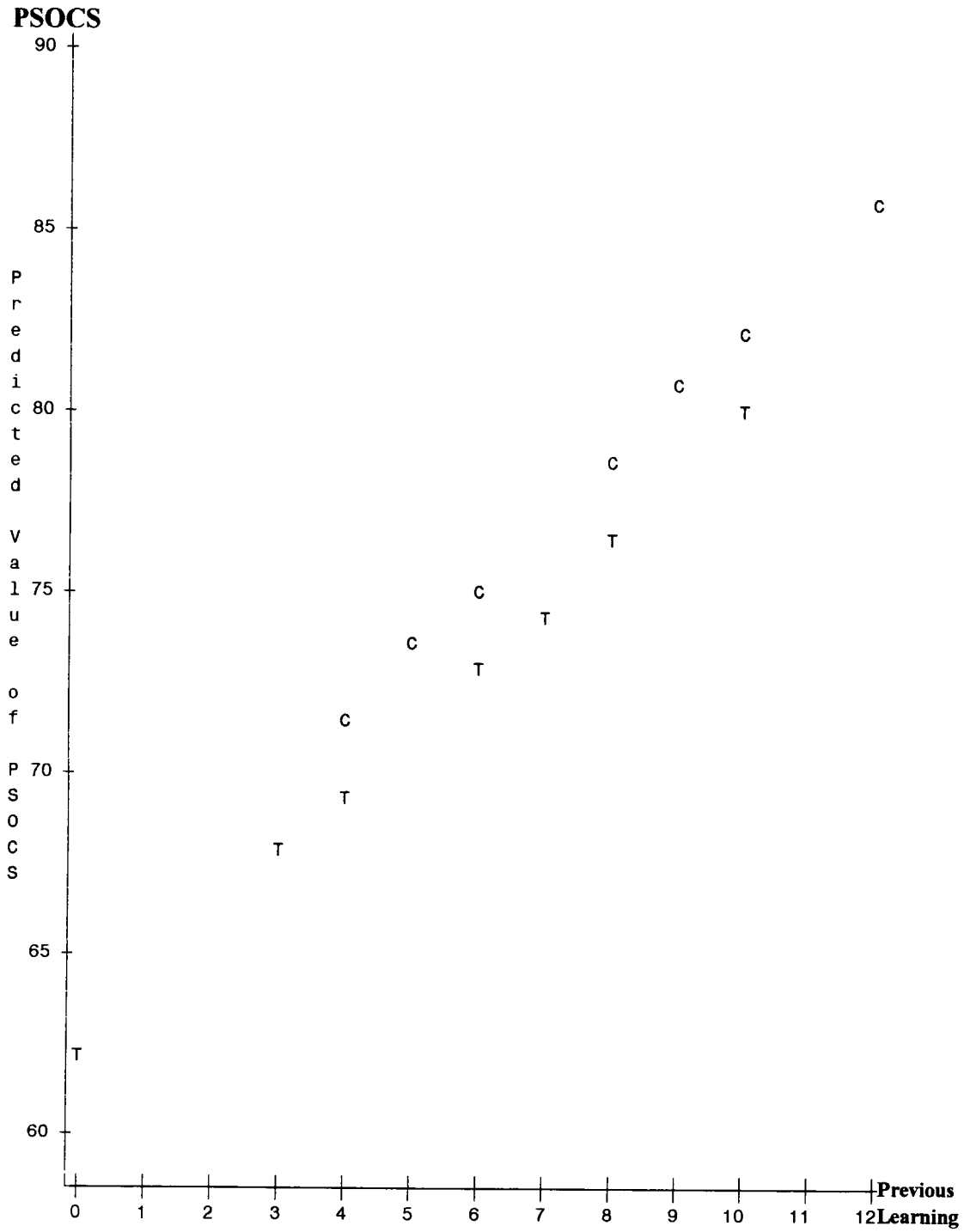


Figure 1 PARENTING SENSE OF COMPETENCY BY PREVIOUS LEARNING

NOTE: 26 obs hidden T = TREATMENT GROUP C = CONTROL GROUP

group and previous learning (R square = 0.54, C(p) = 0.91). A linear regression resulted in a model with F value = 10.294 and p = 0.0001, and all predictor variables in the model were significant. See Table 4. A plot of the predicted values based on the model is shown in Figure 2. Infant state effect was strong in both groups creating an unusual interaction pattern as displayed in Figure 2. Symbols indicate group (T = treatment, C = control). The figure has also been labeled according to infant state for clearer understanding of the interaction that is taking place.

TABLE 4

SUMMARY OF THE RESULTS OF LINEAR REGRESSION ON VIDEO SCORES

R square	Adjusted R square	F value	Prob > F
0.54	0.49	10.294	0.0001
VARIABLE			p.value
Intercept			0.0001
Group			0.0015
Prev. Learning			0.0495
Infant State			0.0001
Group x Prev. Learning			0.0102

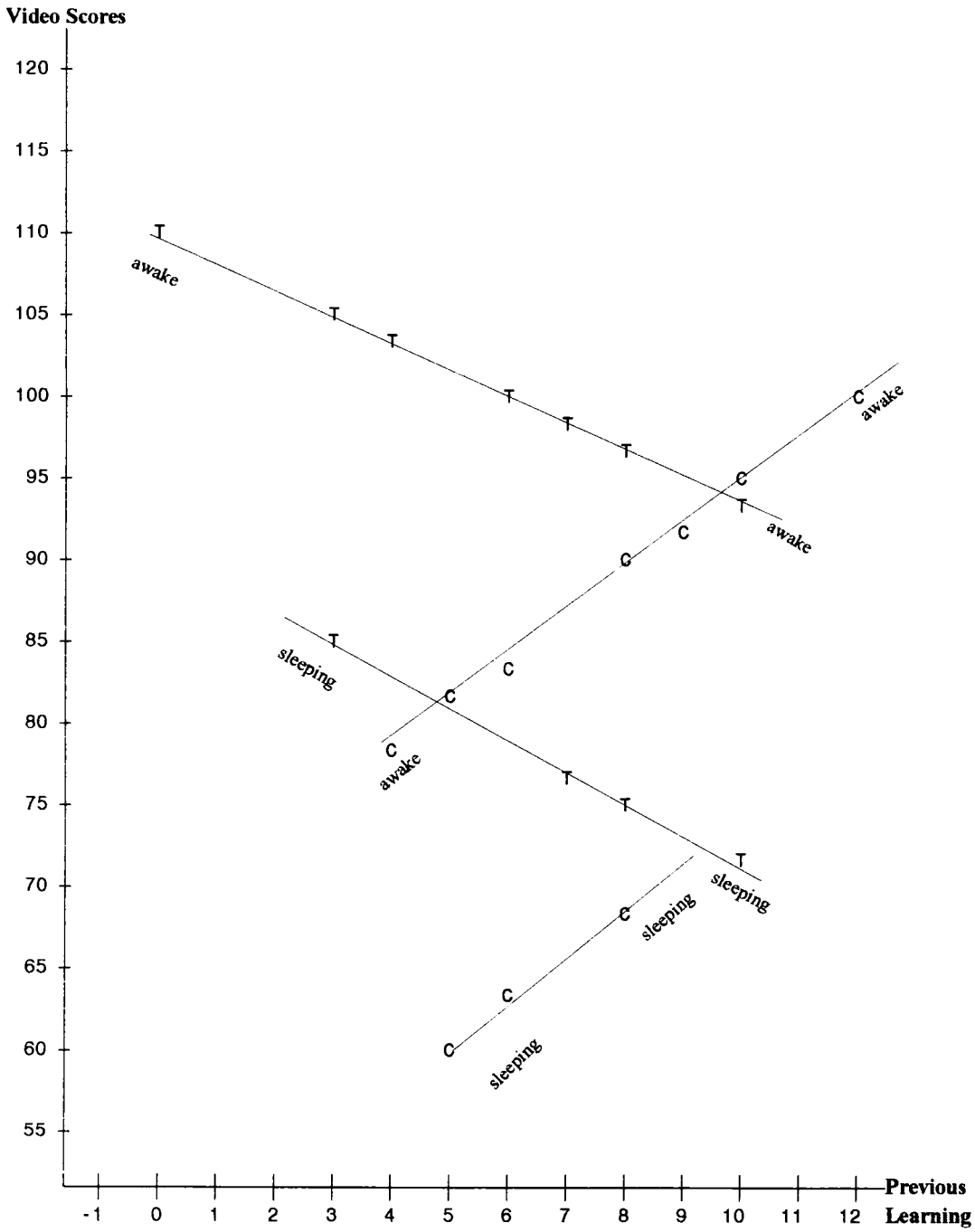


FIGURE 2 PATERNAL INTERACTION BEHAVIOR BY PREVIOUS LEARNING BASED ON INFANT STATE

NOTE: 19 obs hidden. T = TREATMENT GROUP C = CONTROL GROUP

Group means were significantly different with treatment group mean scores higher than control group. However, the previous learning effect on the treatment group indicated a decline in video scores as previous learning increased. In contrast, the control group video scores increased as previous learning increased. A possible explanation of this finding is that fathers in the treatment group with little previous experience were more likely to incorporate the information provided during the DADS nursing intervention. Fathers with more previous learning may have developed patterns of interaction from past experiences that were not dramatically changed by the information they received during the nursing intervention.

Results of the Mother's Rating of the Father's Infant Care Skills:

The process for determining a candidate model to predict mother's rating scores resulted in selection of previous learning, birth experience, and an interaction term between group and previous learning to go along with group. This candidate model was selected based on R square of 0.35 and C(p) of 6.86. The inclusion of birth experience as determined by the father's perception of the labor and delivery was considered appropriate for this model based on the assumption that perception impacts attitude, and the father's attitude would influence the mother's rating of his ability and helpfulness. Results of this linear regression indicated F value = 4.713 and p = 0.0038. These results are displayed in Table 5. All variables in the model except previous learning were significant. The lack of significance in previous learning can be seen to be masked by an interaction effect, as depicted in Figure 3.

TABLE 5

SUMMARY OF THE RESULTS OF LINEAR REGRESSION ON MOTHER'S RATING OF FATHER'S SKILLS

R square	Adjusted R square	F value	Prob > F
0.35	0.28	4.713	0.0038
VARIABLE			p.value
Intercept			0.001
Group			0.0343
Prev. Learning			0.7847
Birth Experience			0.0125
Group x Prev. Learning			0.0568

A positive relationship between mother's rating and the father's previous learning exists among subjects in the treatment group. However, there was no positive or negative relationship between mother's rating and previous learning in the control group. The researcher proposes that mothers who were present during the DADS intervention tended to evaluate their mate's skills more critically than the mothers in the control group. The expectation among the mothers whose mates were in the control group was not as high, so they tended to be more generous in their ratings. It was concluded that the DADS nursing intervention did not significantly alter the mother's rating of her mate's infant care skills.

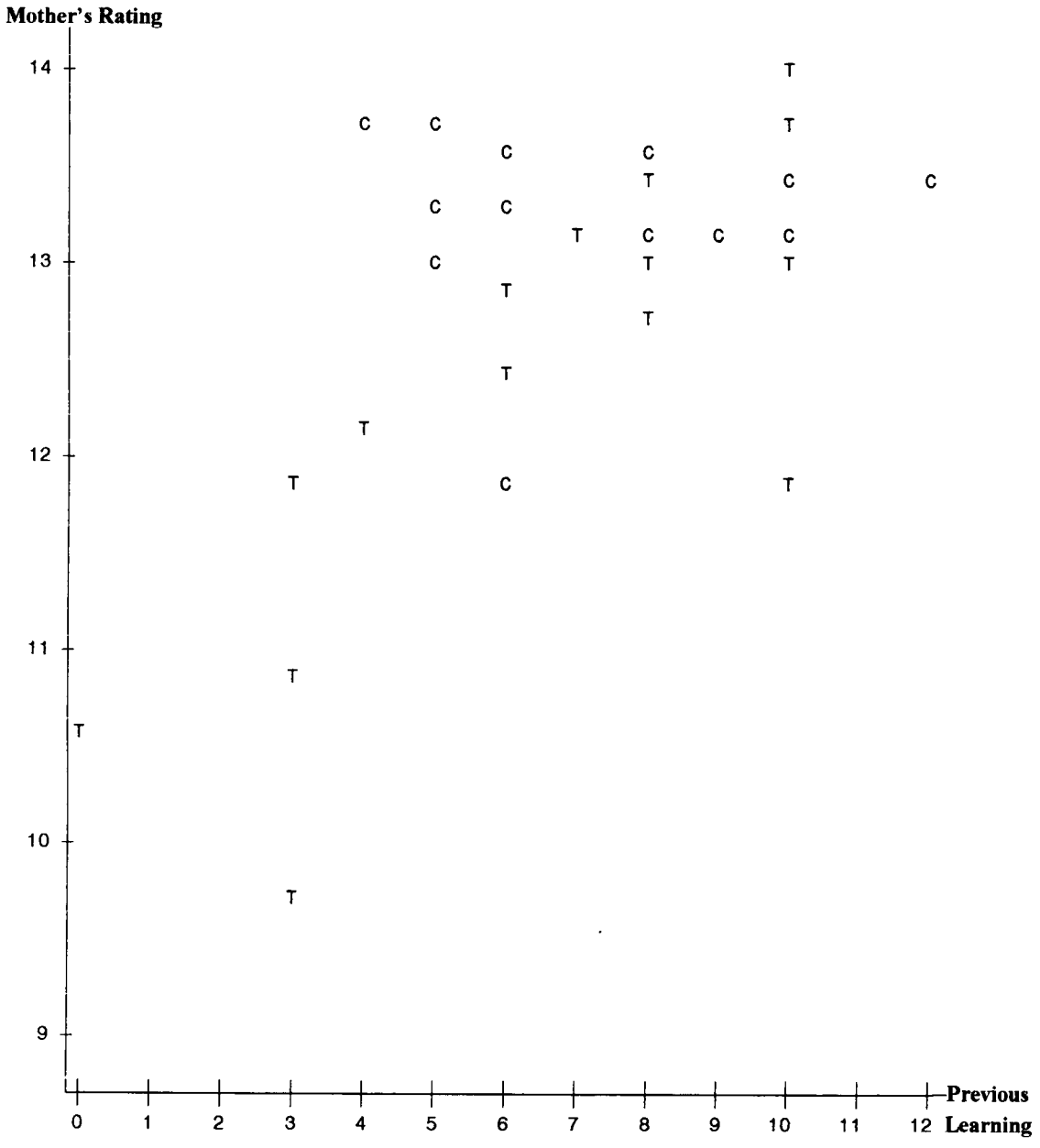


FIGURE 3 MOTHER'S RATING OF FATHER'S SKILLS BY PREVIOUS LEARNING

NOTE: 12 obs hidden. T = TREATMENT GROUP C = CONTROL GROUP

Subsidiary Questions:

Subsidiary question 1: The question, "Are observed paternal behaviors consistent with the reported feelings of competence and confidence" was answered using Pearson correlation coefficients. No positive correlation was noted. A scatterplot of video scores and PSOCS revealed no trend in either direction. Therefore, it was concluded that paternal behavior as determined by video scores was not consistent with his perceived competence and confidence in caring for the infant.

The lack of positive correlation between perceived confidence and competence and paternal behavior could be attributed to the wording on some items in the PSOCS. Statements like, "I honestly believe I have all the skills necessary to be a good father," would be answered more positively by fathers with previous infant care experience. Figure 1 supports the conclusion that confidence and competence as determined by the PSOCS are positively related to previous learning. In contrast, behavior of the father as he interacts with his infant could be influenced by more recent learning and role modeling provided in the DADS nursing intervention. The PSOCS and the observation tool appear to be measuring two different aspects of paternal role assumption.

Subsidiary question 2: The question, "Does the amount of reported previous learning by first-time fathers correlate with paternal role assumption" was answered by determining the effect of previous learning in regression models on all three dependent variables. There was a positive relationship between previous learning and the father's feelings of confidence and competence as measured by the PSOCS and the Mother's Rating of the

Father's Infant Care Skills. The direction of the relationship between previous learning and the observed paternal-infant interaction as determined by video scores was mixed as previously described. It was concluded that previous learning does impact paternal role assumption.

Subsidiary question 3. The question, "Do first-time fathers who perceive a positive birth experience demonstrate higher levels of paternal role assumption" was answered using Pearson correlation coefficients. The correlational analysis indicated a weak positive trend in the relationship between birth experience and PSOCS ($r = 0.31$, $p = 0.04$), but selection models for PSOCS and for video scores did not identify birth experience as significant among the subsets of all predictor variables. However, birth experience was included in the model to explain the mother's rating. It was concluded that birth experience may have an impact of the father's attitude, thus influencing his behavior. It could not be concluded that a positive birth experience leads to the demonstration of higher levels of paternal role assumption.

Subsidiary question 4. The correlation between socioeconomic status and paternal role assumption was examined using Pearson correlation coefficient and by the regression selection process. Socioeconomic status was weakly correlated with mother's rating of the father's skills ($r = 0.34$, $p = 0.02$), but socioeconomic index was not identified as a significant predictor for any of the dependent variables during the model selection process. It was concluded that socioeconomic status did not significantly impact paternal role assumption as determined by PSOCS, video scores, or mother's rating.

Additional Analyses

The videotaped interaction between father and infant was analyzed for consistency of infant state and consistency of paternal behavior throughout the six-minute period. These analyses were carried out to ensure validity of the observation instrument and accuracy of the findings.

Paternal-infant interaction:

During the first few minutes of taping the father was occupied with the researcher's questions and sometimes with the presence of his mate. In the remaining three minutes of taping, there was less distraction because the researcher deliberately left the room or turned away to allow uninterrupted interaction with the infant. Scores for the two times were compared using repeated measures analysis of variance. It was determined that there was no significant differences in the two scores ($p = 0.27$). Therefore scores for the full 6 minutes of observation were included in the analysis.

Influence of infant state on paternal behavior:

Bowen and Miller (1980), Jones and Lenz (1986) and Beal (1989) all reported that infant state influenced paternal behavior. To examine the influence of infant state in this study, the predominate state of the infant during each of the three minute intervals was recorded. To simplify the analysis of effect of infant state on paternal behavior, the five infant states were further reduced to three states. Infants in the "quite alert" and "active alert" states were categorized as "awake". Infants in the "drowsy" or "sleep" state were categorized as "sleeping". The category of "crying" initially remained unaltered. See

Figure 4 for a plot of video scores by infant state.

Since the plot in Figure 4 showed a positive relationship between video scores and infants in either the "awake" or "crying" state, it was determined that infant state should be included in the linear regression model for video scores. To obtain an overall infant state for the full six minutes of observation, infant states for the two periods were combined. All but five infants remained in a consistent state. These five infants were dropped. Only one infant remained in a predominately "crying state" throughout the six minutes. This infant was subsequently dropped, leaving only two states, "awake" or "sleeping". A frequency table was obtained to determine state by group. It revealed that there were 18 infants left in the control group (14 were awake and 4 were asleep), and there were 22 infants left in the treatment group (16 were awake and 6 were asleep). These forty subjects were included in the previously described regression models.

Summary of the Findings

The findings of this study indicate that previous learning has an effect on paternal role assumption in regard to the amount of confidence and competence the father perceives, in his behavior as he interacts with the infant, and in the mother's rating of his skills. Although there was no evidence that the DADS nursing intervention had any effect on the PSOCS or mother's rating, a group effect did exist for video scores. There appears to be support for the Theory of Interaction Enhancement based on these findings. Fathers in the treatment group displayed more positive interactions with their infants compared to

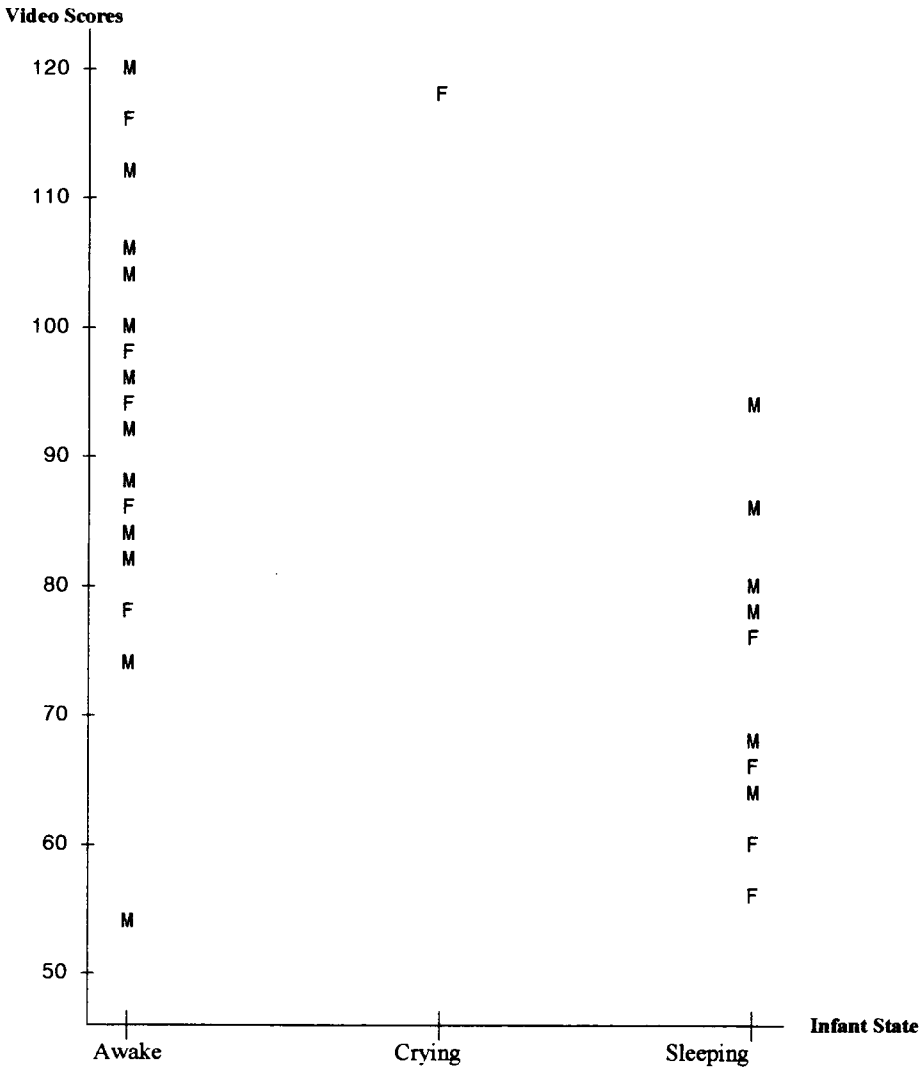


FIGURE 4 PLOT OF VIDEO SCORES BY INFANT STATE

Symbol = sex of the infant

fathers in the control group. In addition, this research project suggests that nurses can influence paternal behavior and role assumption by taking steps to ensure a positive birth experience and by providing assistance as the father learns to interact with the infant. Implications for these findings will be discussed in Chapter 5.

CHAPTER V

DISCUSSION

The purpose of this research project was to determine if a nursing intervention aimed at helping fathers in becoming acquainted and learning to interact with their newborn infant would promote the assumption of the paternal role. Other researchers have shown that active involvement of the father is very beneficial to the developing child. The father's presence and consistent interaction has been credited with fostering learning and enhancing the self-esteem of the child, leading to later successes in life. Although much research has focused attention on paternal role assumption, little has been done to develop a practical approach to help fathers with the first steps of parenthood.

Discussion of the Theory of Interaction Enhancement

The effect of the father's previous learning, his attitude, and the responsiveness of the infant have been explored in previous research, so the evidence in this study that these variables impact paternal role assumption is not new. However, the demonstration of a higher quality of interaction with the infant among fathers who received the DADS nursing intervention lends support to the Theory of Interaction Enhancement. This middle range theory, derived from King's Dynamic Interacting Systems Model and Theory of Goal Attainment holds that it is possible to assist individuals in the process of interacting with others by increasing their knowledge and understanding.

The DADS nursing intervention was designed to test this theory by teaching and assisting new fathers as they became acquainted with their newborn infants. The

intervention specifically focused on the importance of the father's role and attempted to help him become aware of the infant's capabilities and how to respond to infant cues. Fathers who received the intervention in the immediate postpartum period did demonstrate a higher quality of interaction skills than fathers in the control group who received only the customary infant care instructions from hospital nursing staff.

A study conducted by Beal in 1989 yielded similar results. After demonstration of infant competence using the NBAS, Beal observed fathers interacting with their infants at 8 weeks postpartum. She concluded that the demonstration of infant competence led to higher quality of interactions between father and infant. Based on her research, Beal encouraged similar interventions to assist with paternal role assumption. The DADS nursing intervention was designed for that purpose. While the NBAS requires certification of practitioners prior to use, DADS does not. Because of its simplicity and brevity, the DADS is a practical intervention that can easily be incorporated into perinatal nursing practice along with the Theory of Interaction Enhancement.

Discussion of Procedural Problems

Soliciting subjects:

Pregnancy and childbirth have long been described as a life "crisis" because of the vast changes that take place in the lives of young parents. Dramatic, emotionally charged changes affect perspective fathers as well as mothers-to-be. The crisis of childbirth became very obvious in the attempts to solicit subjects for this research project. Although childbirth classes provided an ideal opportunity to talk with potential participants, very

few couples were ready to commit to the project at that time. It became obvious that the major focus was on successfully going through the childbirth process. One father explained that "the uncertainty" kept him from participating before delivery, but knowing that "every thing is OK," he was ready to sign the consent forms. Since more couples were interested in the project and willing to participate after delivery than during the last trimester of pregnancy, the plan for soliciting subjects was altered slightly to include visiting couples soon after delivery to remind them of the project.

Attrition:

Although some attrition was expected due to the study design requiring data collection at 6 to 8 weeks postpartum, the researcher was concerned about the circumstances surrounding the withdrawal of some subjects. The pressures placed on new fathers from their work settings, including long hours and high work demands caused four fathers to withdraw from the study before the eighth week postpartum. Others had difficulty in scheduling a convenient time for a home visit. In addition, three couples relocated before the infant was four weeks old due to the father's job. Fewer than seven fathers were able to take any time off to help the mother or become better acquainted with their child. Because of these demands on the father, the researcher collected data during late evening or weekend hours and in some instances traveled more than 100 miles to complete the home visit. Unfortunately, few of the fathers' supervisors or managers seemed to realize the importance of the father's role in helping his mate or in fostering infant development.

Research instruments:

To investigate the variables of interest in this study, it was necessary to find appropriate instruments as well as to develop newer, unproven tools. Among the established instruments borrowed for the study were the Hollingshead (1976) Index of Social Status and the Parenting Sense of Competency Scale (Gibaud-Wallston and Wandersman's, 1978). Unfortunately these tools sometimes failed to address societal and health care changes that impact families today. An example is the changing job market that includes newer fields based on growing technology that are not found in the Index of Social Status. In addition the PSOCS questions did not always address the conditions or concerns of new fathers. While a few fathers in this study were totally responsible for infant care during the mother's time at work, most of them provided infant care only occasionally. Therefore, the questions on the PSOCS were sometimes confusing and difficult for the men to answer.

The observation tool to judge the quality of interaction between the father and infant was developed specifically for this study. Although this instrument was based on a tool devised by Bowen (1978), changes were necessary to address paternal-infant interaction at 6 to 8 weeks postpartum. In addition, the need to judge quality rather than quantity of interaction became apparent based on the Theory of Interaction Enhancement and led to another alteration. Although the revised instrument was pilot tested and reviewed by experts in the field, more work is needed. It was beyond the limits of this

project to establish validity and reliability at the desired level. However, a modest attempt to achieve interrater reliability was undertaken.

Discussion of Results

The hypothesis that fathers receiving the DADS nursing intervention would perceive a higher level of confidence and competence in the paternal role was rejected based on group responses on the PSOCS. Feelings of confidence and competence occur over time and are more closely related to previous experiences than recent learning. The positive relationship between PSOCS and previous learning as displayed in Figure 1 seems to support this. There was no difference in group responses to PSOCS but both groups reported more confidence and competence based on their previous learning and experiences.

The finding that fathers demonstrate a higher quality of interaction after receiving the DADS nursing intervention not only supports the Theory of Interaction Enhancement but also suggests that the intervention is an important first step especially when the father has little previous experience or learning. The linear regression model for video scores and the plot of the means as displayed in Figure 2 suggests that unlike inexperienced fathers, fathers with more previous learning about childcare are less likely to incorporate new information. It may take longer and require more reinforcement to change the long-term perceptions of more experienced fathers.

The hypothesis that fathers receiving the DADS nursing intervention would be rated more highly by the mother in regard to infant care skills was not supported.

However, findings suggest that the mother's rating was based on his previous learning and to some degree on his attitude as influenced by the birth experience. Although the focus of the intervention was on the father's understanding, most of the mothers listened and participated as well. The lack of support for this hypothesis may be because the mother's rating was more closely aligned to her mate's usual behavior and attitude than on his more recent learning. The researcher proposes that the presence of the mother during the intervention altered the results by raising her expectations of her mate. In addition, the dynamics of the marital dyad was not considered and could have had an impact on the mother's opinion of her mate's competence and helpfulness.

Results of this study suggests that attitude about the pregnancy and socioeconomic status have no influence on paternal role assumption. Birth experience had only minimal effect in only one aspect of paternal role assumption, the Mother's Rating of Father's Skills. These results may be due to the sample that tended to be predominately low risk, well-educated, and upper-middle class. Replication of this study with a different population could yield different results. Birth experience was generally rated six or seven out of a seven point scale. In another setting with at risk families, the birth experience could have more impact on paternal role assumption.

Other Findings

An attempt was made during this study to incorporate the infant state as an influential variable on paternal behavior. Plots of video scores according to infant state revealed that infant state had a stronger effect than anticipated. This finding suggests that

any parental observation instrument should take the responsiveness of the infant into account. More work is needed in developing valid and reliable tools for observation of fathers and mothers with infants.

Strengths and Limitations of the Study

The major strength of this study is that it was a theory driven project, and as such decisions and changes inherent in any study were based on the theoretical framework. The Theory of Interaction Enhancement derived from King's Model and theory served as the basis for the development of the intervention and the choices of research tools. This overriding frame of reference helped in maintaining some consistency throughout the project. The DADS nursing intervention was developed within the Dynamic Interacting Systems Framework introduced in King's model and takes into account the socioeconomic, cultural, and health care changes that influence young families today. The intervention was designed to be a practical approach in helping men to become involved fathers beginning shortly after birth.

Other strengths of this research project include its replicability. The use of videotape as a method of data collection makes reanalysis possible and serves as a springboard for other studies. It lays a foundation for the refinement of the observation tool devised for use in this study to determine the quality of interaction between father and infant.

The researcher's direct involvement in data collection at 6 to 8 weeks postpartum added credence to the findings, because of her years of experience in maternal-child

nursing. It was possible to consider the impact of breast feeding on the father's involvement in infant care and to assess whether or not the infant was developmentally on time. Unusual concerns about the infant's behavior or health were not encountered during data collection.

Limitations of the study included sample size and population. Paternal role assumption is multifactorial, and a limited sample size prevented the consideration of all of the many intervening variables. In this study, only the factors considered most influential were included. In addition, the sample was limited to low risk families that were not considered economically deprived. Although infant sex was equally distributed between the treatment and control group, the disproportionate number of male infants may have had an effect. Therefore, results of this study may not be generalizable to other populations.

Another limitation of the study was the need to choose from available instruments that were developed in the late 1970s or early 1980s or to develop new and untested instruments. Among the tools devised for use in this study were the Previous Learning Scale, the Attitude about Pregnancy Scale, the Birth Experience Perception Scale, and the Observation of Paternal-Infant Interaction Tool. The restricted range on the Attitude about Pregnancy Scale and the limited range of responses on the Birth Experience Perception Scale and the Mother's Rating of the Father's Infant Care Skills could have skewed some results. Another consideration is the role expectation placed on the father and the influence on his responses to rating his attitude about pregnancy and birth

experience. Although initial attempts to establish validity and reliability of the instruments used in this study were undertaken, more work was needed in this area than could be readily addressed during this project.

Implications of the Study

Implications for nursing practice:

Results of this research project indicates that previous learning has a positive influence on paternal role assumption. Based on this finding, pre-pregnancy and prenatal education should be encouraged for fathers-to-be. Information about the importance of the role of the father should be provided in both formal classes and during informal discussions with new parents. In addition to offering the DADS nursing intervention, there are several other opportunities for nurses to intervene and assist new fathers in assuming their role. Opportunities to include the father in teaching infant care skills exists throughout the postpartum period. Although the primary focus of perinatal nurses has been on the mother, fathers should also be included in learning to interact with their newborn infant soon after birth.

The father's perceptions surrounding the birth of the infant have been shown to influence his feelings about the child. While this study did not specifically conclude that birth experience had an overall effect, birth experience was found to predict the Mother's Rating of the Father's Infant Care Skills. Nurses in birthing room settings have an opportunity to support and help fathers as well as mothers during labor and delivery in order to ensure a more positive perception of the birth process.

The DADS nursing intervention could be offered by nursing staff in the immediate postpartum period prior to discharge from the hospital. Extensive training and certification of nursing staff would not be required to administer the intervention, and less than an hour of nursing time would be needed. The booklet, becoming a DAD could serve as reinforcement to the teaching and demonstration of infant capabilities.

Nurses in many other settings should also place more emphasis on the father's role in child development. Most of the fathers receiving the DADS nursing intervention commented that they were not aware of how much a father influenced a child's self-esteem, learning, and long term development. Nurses can promote a greater awareness of the findings of many of the studies that focused on the father's role in child development. This action along with helping fathers as they learn to interact with their child may be very beneficial.

Implications for society:

The importance of the father's role in the childbirth process and in childcare is often disregarded in society, especially in the work setting. Education of the public about the need for support and involvement of fathers in the lives of their children could bring about needed changes. In this study, the researcher was disconcerted by the demands on new fathers by their place of employment. Several men in this study were very limited in the amount of time available to spend with their child. Unfortunately, a child's need for paternal involvement does not diminish over time. More emphasis on the importance of

the father as well as the mother in child rearing is needed to bring about changes in work settings.

Implications for future research:

Many opportunities for future research based on the findings of this study exist. Fathers in this study were eager to share their perceptions beyond the limits of the survey instruments they completed. More than one father expressed disappointment that he could not explain in more detail how he felt about the birth of his child rather than attempt to rate the experience on a scale of 1 to 7. Others wanted to express in more detail than the three minutes time limit at the beginning of the video taping allowed what it was like to go home from the hospital with a new baby. There is an obvious need for qualitative research in this area.

Additional research for the refinement of the tools developed for this study is also needed. Specifically, the observation tool should be retested and refined. Although Fassnacht (1982), emphasized the limitations and subjectivity inherent in rating scales, an instrument to measure quality rather than quantity of interactions appears to be the most appropriate way to measure parental role assumption. In addition, the inclusion of infant state and responsiveness in judging how parents interact must be considered.

Comparison of mother-infant and father-infant interaction could provide more information as to whether fathers behave any differently with the infant. Reanalysis of the father-infant interaction using an ethnographic or other observational framework could possibly reveal more detail about paternal behavior with infants. Finally, replication of this

study in a different setting is needed to test the effectiveness of the DADS nursing intervention in other segments of the population.

The DADS nursing intervention was based on the experiences of the researcher in working with numerous young couples and their newborn infants for more than thirty years, as well as on the results of both qualitative and quantitative research. The elements of the DADS nursing intervention included the concerns and interests that the researcher has heard frequently from new parents. The new fathers in this research study who received the DADS nursing intervention were both appreciative of the information they received and enthralled with the responses they were able to obtain as they interacted with their infant. Hopefully, the development of this intervention will continue to be beneficial.

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APPENDICES

APPENDIX A

INFORMED CONSENT

CONTACT INFORMATION

Paternal-Infant Interaction and Assumption of the Paternal Role
Consent Form

We understand that the purpose of this research study is to learn more about how fathers become acquainted with their newborn infants and learn to respond to them. If we choose to participate, we understand that we will be asked to:

a.) Fill out a brief form giving some general information about our occupations, educational level, and feelings about pregnancy. In addition, the father will be asked about his knowledge regarding infant care before the delivery of our infant.
b.) Permit the researcher to visit our hospital room after delivery at a time that is convenient to both of us to talk to the father about his experiences during childbirth and about becoming a father.
c.) Permit the researcher to obtain information from the hospital nursing staff about the date and time of delivery, sex of the infant, and whether or not there were any unexpected events or problems at the time of birth.
d.) Permit the researcher or a trained assistant to visit our home when our baby is 6 - 8 weeks old at a time that we both agree to in order to ask us to complete a brief questionnaire about our experiences in providing infant care.
e.) Permit the researcher or a trained assistant to conduct a 6-minute video- tape recorded interview and observation of father and our 6-8 week old infant at the time of the visit to our home.

We understand that if we choose to participate, we will be asked for a name, address, and telephone number so that the researcher may contact us. However, we have been told that this information will be kept strictly confidential. We have been informed that all information, including written or recorded responses to questions and video- tape recordings of the father and infant will be identified by numeric code only and will be stored in a locked file in the researcher's office. Neither of our names nor our infant's name will be used in the recording of data or in the reporting of the results of this study.

Eighty (80) first-time fathers, their infants, and their mates will be asked to participate as subjects for this research project. We understand that if we agree to be in this study, we will be randomly assigned to one of two groups to test the effectiveness of a teaching strategy. However, no one will be prevented from receiving all the customary information and preparation given to first-time parents.

There is no known risk for being in the study. However, the father might experience brief initial discomfort during the six minute video-taping. A separate consent form explaining how the video-tapes will be used is attached and will be explained to us.

We understand that participation in this research study is voluntary, and there is no reimbursement except for a copy of the video- tape. However, both of us may benefit from the experience of being in the study by learning more about fathers and infants.

We have been informed that either one of us may withdraw from this study at any time without any penalty to us or to our infant. Withdrawal of consent by either of one of us will end our participation in the research study. We have been given a copy of this consent form along with a telephone number where the researcher can be contacted at any time during the study.

We have been informed that we may contact the Chairman of the Institutional Review Board at St. Mary's Health System at (423) 545-7935, as a non-biased source, for further information regarding our rights in this experimental study.

We have read the above conditions and agree to participate in this study with our newborn infant.

_____ _____
father's signature date

_____ _____
mother's signature date

Principal Investigator: Molly Meighan RNC, MSN
Doctoral Candidate
University of Tennessee, Knoxville
(423) 974-7581 or (423) 471-4779
email: mmeighan@utk.edu

Paternal-Infant Interaction and Assumption of the Paternal Role
Consent Form for Video-taping

We understand that the purpose of the video-taping of the father as he holds our 6 - 8 week old infant is to learn more about how fathers and their newborn infants interact with each other. If we give our permission for the researcher to obtain this video-taped interview and observation, we understand that it will begin with a few brief questions directed to the father about his experiences thus far in being a father. These questions will not be of a deeply personal nature. The father may decide not to answer a question at any time without any penalty to us or our infant. We understand that the video-taping will be approximately 6 minutes long, and there will also be a 3 - 4 minute period of video-taping of the father with his infant when the researcher and others will not be present in the room.

We understand that our names and our infant's name will not be used in this study and will not appear on the video-tape or any labels. The video-tapes will be identified by numeric code and will be kept in a locked file in the researcher's office and will never be released in any form for public viewing. Although video-tapes will not be viewed openly by people who are not involved in this study, faculty advisors or experts in the field could be asked to assist in interpreting data. Although names of the subjects will not be used, recognition of the father and infant by someone viewing the tape could be possible. If anyone other than the researcher views the video-tapes, they will be asked to sign the attached statement that they will maintain confidentiality and not discuss the video-tapes with anyone other than the researcher.

There is no known risk imposed by the video-taping of the father or the infant. However, the father might experience brief initial discomfort at the beginning of the video-taping. We understand that the father may stop participating at any time he wishes, and the video-taping will be stopped immediately without any penalty to us or our infant.

We have been told that we may view the video-tape before giving our permission for it to be used. We have also been told that we will be given a copy of our video-tape as a gift for being in the study, but there is no other monetary reward.

We have been given a copy of this consent form and telephone numbers where we can reach the researcher. We understand that we may contact the researcher and withdraw our permission for video-taping at any time without any penalty to us or to our infant.

We have read the conditions in this consent form and give our permission for video-taping of father and infant and for use of the video-tape in this research project to learn more about the behavior of fathers and infants.

_____ _____
father's signature date

_____ _____
mother's signature date

Principal Investigator: Molly Meighan RNC, MSN
Doctoral Candidate
University of Tennessee, Knoxville
(423) 974-7581 or (423) 471-4779
email: mmeighan@utk.edu

Pledge of Confidentiality for Viewing of the Video Tape of Father and Infant

As a viewer of video-tapes and rater for this research project, I understand that I will be hearing and viewing tapes of confidential sessions in which data were recorded. The information on these videotapes was provided by research subjects who participated in this project with the understanding that the data collected in these sessions would remain strictly confidential. I understand that I have a commitment to honor this confidentiality agreement. I hereby agree not to share any information on these tapes with anyone other than the principal investigator or the project director of the project "Testing a Nursing Intervention to Enhance Paternal-Infant Interaction and Promote Paternal Role Assumption". Any violation of the agreement would constitute a breach of ethical standards, and I pledge not to do so.

Viewer/Rater Date

Paternal-Infant Interaction and Assumption of the Paternal Role
Consent Form for the Storage and Future Use of the Video-Tape of Father and Infant

We have given our permission for video-taping of the father and infant. We understand that in this research project the video-tape will be used to better understand how fathers interact with their newborn infants. We have been told that if we do not want this video-tape to be used, we can request that it be destroyed immediately without any penalty to us or to our infant.

We understand that although there is no anticipated use of the video-tape at the present time other than for the purposes of this study, we have been informed that the researcher will store the tapes in a locked file for possible future analysis. If we do not want our video-tape stored for future viewing, we can tell the researcher to destroy the tape after completion of this study or at any time without any penalty to us or to our infant.

We have been informed that the video-tape will never be released in any form for public viewing. Anyone who views the tape for the purpose of helping with analysis of data will be asked to sign a statement that confidentiality will be maintained. We have been told that our names or the name of our infant will not be used on the video-tape or in connection with this study or any future study using the video-tape.

We have been informed that we may view the video-tape before giving permission for it to be used for this study or any future study.

We have viewed the video-tape and approve of its contents. _____(initials)____(initials)

We have elected not to view the video-tape but approve of its use _____(initials)____(initials)

We have read the conditions in this consent form, and give our permission for the researcher to keep this video-tape and to store it for possible future analysis.

_____ _____
father's signature date

_____ _____
mother's signature date

Principal Investigator: Molly Meighan RNC, MSN (423) 974-7581
Doctoral Candidate
University of Tennessee, Knoxville email: mmeighan@utk.edu

RESEARCH PROJECT ON FATHERHOOD

DEAR MOTHER AND FATHER-TO-BE:

You are invited to participate in a research study about how first-time fathers get to know their new babies and learn how to respond to them. The purpose of the study is to develop a way to help fathers to become acquainted with their new babies immediately after birth and to feel more comfortable and confident in taking care of them. By agreeing to be in this study, you may help increase the understanding about how nurses and other health care workers can assist new fathers as they take on this very important role in life.

If you agree to be in this study, you will be asked to:

1. Give written consent and fill out two brief questionnaires before delivery
2. Permit the researcher to visit and talk to you in the hospital after delivery
3. Provide some information about the experience of childbirth and permit the researcher to collect some information from the nursing staff about the date and time of delivery, sex of the infant, and whether or not there were any unexpected events surrounding the birth.
4. Permit the researcher or a trained assistant to visit your home to do a 6-minute video-tape of father and infant at a time that is convenient for you.
5. Complete a brief questionnaire during the home visit.

All information that you provide will be kept strictly confidential including the video-taping of father and infant.

As a token of appreciation for participating in the study, the researcher will provide a copy of the videotape of father and baby after the study for you to keep. Although there is no additional monetary reward for participating in this study, interacting with the researcher and trained assistant may be beneficial to both of you, and you may be helping future fathers-to-be.

If you would be willing to participate in this important study, please complete the information sheet. You will be contacted by me to obtain additional information.

Please feel free to call me if you have any other questions about this project.

Sincerely,

Molly Meighan RNC, MSN
Doctoral Candidate
University of Tennessee, Knoxville
College of Nursing

(423) 689-4335 home
(423)471-4779 office
email: mmeighan@utk.edu

Paternal-Infant Interaction and Assumption of the Paternal Role
Contact Information

Date: _____

Name: _____ Mate's name: _____

Address: _____ Home Phone: _____

_____

_____ Work Phone: _____

_____

Due Date: _____ Doctor: _____

Other Means of Contact: _____

_____

_____

APPENDIX B

INSTRUMENTS

Paternal-Infant Interaction and Assumption of the Paternal Role
General Information

ID: _____ Date: _____
(To be filled in by researcher)

FATHER:

Occupation: _____

Place of Employment: _____

If self-employed, is the size of your business considered large, medium, or small?_____

Educational Level: (circle answer) Highest level attained:
(1) 7th grade or below (2) finished 9th grade (3) completed 10th or 11th grade
(4) high school graduate (5) some college or completed special training (6) college graduate
(7) graduate degree

Attitude about Childbirth: (circle answer)
When I first learned about the pregnancy, I was:
(3) happy, (2) neutral (neither happy or unhappy) (1) unhappy

---

MOTHER:

Occupation: _____

Place of Employment: _____

If self-employed, is the size of your business considered large, medium, or small?_____

Educational Level: (circle answer) Highest level attained:
(1) 7th grade or below (2) finished 9th grade (3) completed 10th or 11th grade
(4) high school graduate (5) some college or completed special training (6) college graduate
(7) graduate degree

Attitude about Childbirth: (circle answer)
When I first learned about the pregnancy, I was:
(3) happy, (2) neutral (neither happy or unhappy) (1) unhappy

---

To be completed by the researcher:

occup._____ x 5 = _____		occup._____ x 5 = _____	
educ. _____ x 3 = _____		educ. _____ x 3 = _____	

Paternal-Infant Interaction and Assumption of the Paternal Role
Father's Previous Learning

ID _____ Date_____

circle your answer 0 = no 1 = uncertain 2 = yes

I have been around a baby and know what it is like to take care of one.	0	1	2
I have taken an infant care class.	0	1	2
I have read books or seen audiovisual programs about infants and child care.	0	1	2
I have been responsible for taking care of a baby or a younger child by myself in the past.	0	1	2
My father was responsible for taking care of me or other young children on occasion during my childhood.	0	1	2
I feel confident that I can provide care for my infant without the help of others.	0	1	2

TOTAL _____

Labor and Delivery

ID _____ Date _____

FOR USE BY NURSING STAFF:

There were _____ were not _____ any unusual events or circumstances surrounding the birth of the infant or in the immediate postpartum period that would place the mother or her infant in an at-risk category or cause this family to be inappropriate candidates for this study.

Delivery date and time _____ Sex of the Infant _____

FOR USE BY THE FATHER:

What best describes your feelings about your labor and delivery experience?

1 = very bad ⟷ 7 = very good

1 2 3 4 5 6 7

MOTHER'S RATING OF FATHER'S INFANT CARE SKILLS

ID _____ Date _____

Please rate each of the following by circling your answer. This information will not be shared with the father unless you choose to do so.

1. How helpful is your partner in caring for the baby since you came home from the hospital?

(1= not at all 2 = only helps when asked 3 = sometimes 4 = usually 5 = extremely helpful)

1 2 3 4 5 _____

2. How competent and confident is your partner in taking care of the baby?

(1= not at all 2 = only slightly 3 = fair 4 = good 5 = extremely competent)

1 2 3 4 5 _____

3. How often is your partner able to tell what the baby wants or needs?

(1= not at all 2 = only occasionally 3 = sometimes 4 = usually 5 = almost always

1 2 3 4 5 _____

TOTAL SCORE _____

PARENTING SENSE OF COMPETENCY SCALE
("BEING A PARENT")

ID _____ Date _____

Listed below are a number of statements. Please respond to each item, indicating you agreement or disagreement with each statement in the following manner:

If you strongly agree, circle the letters SA
If you agree, circle the letter A
If you mildly agree, circle the letters MA
If you mildly disagree, circle the letters MD
If you disagree, circle the letter D
If you strongly disagree, circle the letters SD

item	subscale								Direction
1.	1	The problems of taking care of a baby are easy to resolve once you know how your actions affect your baby, an understanding that I have acquired.	SD	D	MD	MA	A	SA	**A**
2.	2	Even though being a parent could be rewarding, I am frustrated now while my child is only an infant.	SD	D	MD	MA	A	SA	**R**
3.	2	(When I take care of the baby,) I go to bed the same way I wake up in the morning -- feeling I have not accomplished a whole lot.	SD	D	MD	MA	A	SA	**R**
4.	2	I do not know why it is, but sometimes when I'm supposed to be in control (of taking care of the baby) I feel more like the one being manipulated.	SD	D	MD	MA	A	SA	**R**
5.	2	My father was better prepared to be a good father than I am.	SD	D	MD	MA	A	SA	**R**
6.	1	I would make a fine model for a new father to follow in order to learn what he would need to know in order to be a good parent.	SD	D	MD	MA	A	SA	**A**
7.	1	Being a parent is manageable, and any problems are easily resolved.	SD	D	MD	MA	A	SA	**A**

PARENTING SENSE OF COMPETENCY SCALE ("BEING A PARENT")

item	subscale								Direction
8.	1	A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.	SD	D	MD	MA	A	SA	**R**
9.	2	Sometimes I feel like I'm not getting anything done.	SD	D	MD	MA	A	SA	**R**
10.	1	I meet my own personal expectations for expertise in caring for my baby.	SD	D	MD	MA	A	SA	**A**
11.	1	If anyone can find the answer to what is troubling my baby, I am the one.	SD	D	MD	MA	A	SA	**A**
12.	2	My talents and interests are in other areas, not in being a parent.	SD	D	MD	MA	A	SA	**R**
13.	1	Considering how long I've been a father, I feel thoroughly familiar with this role.	SD	D	MD	MA	A	SA	**A**
14.	2	If being a father of an infant were only more interesting, I would be motivated to do a better job as a parent.	SD	D	MD	MA	A	SA	**R**
15.	1	I honestly believe I have all the skills necessary to be a good father to my baby.	SD	D	MD	MA	A	SA	**A**
16.	2	Being a parent makes me tense and anxious.	SD	D	MD	MA	A	SA	**R**
17.	2	Being a good father is a reward in itself.	SD	D	MD	MA	A	SA	**A**

Scale Range: 17 - 102

Subscales:

1 = Skill/knowledge subscale (range: 8 - 48)
2 = Valuing/comfort subscale (range: 9 - 54)

Direction:

A = (add item) 1 = SD, 2 = D, 3 = MD, 4 = MA, 5 = A, 6 = SA

R (reverse item) 6 = SD, 5 = D, 4 = MD, 3 = MA, 2 = A, 1 = SA

PATERNAL-INFANT OBSERVATIONAL TOOL

PATERNAL BEHAVIOR	1 min	2 min	3 min	4 min	5 min	6 min	TOTAL
1. Holding							
2. Visualizing							
3. Vocalizing							
4. Touching							
5. Showing Pleasure/Pride							
6. Demonstrating Sensitivity/ Responsiveness							
7. Other							
TOTAL							
INFANT STATE							
1. Sleeping							
2. Drowsy							
3. Quiet alert							
4. Active							
5. Crying							

Observation of Paternal Infant Interaction

After beginning the video-tape recorded interaction between father and infant, the rater will observe paternal behavior for 30 seconds and then stop the tape to record on the Paternal-Infant Observational Tool. After recording all behaviors listed on the tool, the tape will be restarted and stopped again at the end of 30 seconds. This will be repeated until the end of the six-minute observation period. Each behavior is rated only once during the 30 second time period using a scale of 0 – 2. The tape may be reversed and replayed if necessary to analyze each of the six behaviors listed on the observation tool. A time-counter is in the upper right-hand corner of the video-tape to facilitate this, or a stop-watch may be used. If an unlisted behavior is seen that the rater perceives as noteworthy, it will noted with a check mark at the time of occurrence under "7. Other" and an explanation will be written on the back of the Observational Tool.

Six paternal behaviors will be analyzed for both presence and quality. The six behaviors and the scoring system are as follows:

Holding:

Score 0: There is reluctance to hold the infant. The baby is not held firmly. The father seems uneasy in holding the infant or uncomfortable. The baby is cradled loosely or away from the body or held across the lap.

Score 1: Father holds the infant firmly with the head well supported. May use either the cradle hold or the football hold or hold the infant out in front. Handles the infant confidently and appears comfortable with holding the infant. Readjusts positions easily.

Score 2: Father seems to embrace and hold the infant snuggly and close to his body. He hugs the infant or rocks the infant. Father readjusts the position easily. Father may move the infant out in front of him as he speaks or looks at the infant but continues to hold firmly with the head well supported and shows concern for the infant's comfort.

Visualizing::

Score 0: Father doesn't look at the infant. Father looks at the camera or looks around the room and seems disinterested in the infant. Father may glance at the infant briefly but looks away from the infant for most of the observation period

Score 1: Father looks at the infant but not in the en face position. Inspects the infant by looking at the head or body but doesn't make an effort to make eye contact with the infant. Father looks at the infant most of the observation period even though he may also look away briefly during that time.

Score 2: Father looks at the infant's face and makes an attempt to make eye to eye contact. Father adjusts his head to the same plane as the infant's head in a face to face position (en face). Inspects the infant or gazes at the infant for the entire observation period. Seems fascinated with the infant and pleased with the infant's appearance.

Vocalizing:

Score 0: Father does not talk about the infant during the video-taped interview or speaks negatively about the infant, such as "he/she cries all the time" or "he/she keeps me awake every night". Father makes no effort to talk to the infant.

Score 1: Father talks positively about the infant or talks positively about fatherhood. Father describes his baby's behavior or appearance in a positive manner, such as "he/she makes cute sounds when waking up" or "has the cutest little face." Father talks to the baby briefly but doesn't adjust tone of voice and doesn't continue to talk to the infant.

Score 2: Father talks to the infant. Father adjusts the tone or pattern of his voice while talking to the infant.

Touching:

Score 0: Father holds the infant but doesn't stroke or pat the infant.

Score 1: Father strokes or pats the blanket or the infant lightly. He may rest his finger tips on the infants body. Record this behavior if noted only briefly during the observation period.

Score 2: Father strokes, pats, massages, caresses, or kisses the infant directly. Father holds the infant's hand or attempts to elicit the grasp reflex or holds the infant's foot.

Showing Pleasure/Pride:

Score 0: No verbal expression of happiness or pride about being a father is detected during the interview. Father does not smile.

Score 1: Father smiles slightly and displays a pleasant expression while holding his infant. Father expresses happiness or pride about being a father during the interview. Father smiles at the infant.

Score 2: Father smiles at the baby most of the observation period. Father laughs at the infant or during the interview. Father boasts or shows off for the camera, turns the infant toward the camera, brags about his infant.

Demonstrating Sensitivity/Responsiveness:

Score 0: Father holds the infant but makes no effort to comfort, communicate, or get a response from the baby. Doesn't seem concerned about the infant's comfort, doesn't adjust the blanket or adjust the infant's position.

Score 1: Father shows concern for the infant's comfort. Father checks the infant's position, readjusts or straightens blanket or infant's clothing. Makes brief attempt to communicate with the infant by playfully poking or jostling the infant but doesn't sustain his efforts.

Score 2: Father tries to get a response by playing, prodding, poking, jostling, or talking to the infant. Father consoles the infant or expresses concern or the infant's comfort. Father expresses verbally or non-verbally an attempt to understand what the infant feels or thinks.

Other Observations:

Behaviors not listed in the six categories may take place. In some instances the behavior may be noteworthy. For example, the father could seem to be extremely annoyed or angry with the infant or the father could seem overly concerned about the infant. If the observer sees a behavior that is either positive or negative that should be noted, a check mark should be placed on the Observational Tool at the time interval it occurs. The observer should make a note on the back of the Observational Tool and alert the researcher that the behavior has been noted. The researcher will review the tape.

	Score 0	Score 1	Score 2
1. Holding	Loosely cradled or across lap	Head well supported, comfortably cradled, or held firmly out in front	Held snuggly and close to body, hugged, rocked
2. Visualizing	Looks away, looks at camera	Looks at the baby (not en face)	En face position or gazes at infant continuously
3. Vocalizing	Says nothing about baby	Talks positively about the baby	Talks to the baby, Adjusts speech pattern and tone
4 Touching	No stroking, patting, or caressing	Strokes lightly	Holds hand, strokes, pats, massages, or caresses
5. Showing Pleasure/ pride	No verbal or nonverbal expression of feelings	Pleasant expression, slight smile	Smiles at baby, laughs, shows off for the camera, boasts, seems proud and happy
6. Sensitivity/ Responsiveness	No effort to comfort, communicate, or get a response from baby	Checks baby, adjusts position, show concern for baby's comfort	Tries to get a response from baby consoles, plays, attempts to understand what baby feels or thinks. Attempts to interact
7. Other Observation	Mark any other positive or negative behavior not listed at the time of its occurrence and explain on the back of the Observation Tool		

APPENDIX C

NURSING INTERVENTION

BECOMING A DAD BOOKLET

COMPETENCY-BASED CHECKLIST

D.A.D.S

(Demonstration and Development of Skills)

A nursing intervention to help first-time fathers in

BECOMING A DAD

by Molly Meighan RNC, MSN
Doctoral Candidate
University of Tennessee, Knoxville
College of Nursing

CONGRATULATIONS TO: _____

ON THE BIRTH OF:

_____

ON

_____

BECOMING A DAD

Being a father is more important than most people realize. For years, families were led to believe that a father's role was to protect and provide for his family, but interacting with and taking care of his child wasn't important. That was the mother's role. Not long ago, most authorities said that the mother was a more important figure for the child. They believed that a father had very little to do with a baby's development for the first three years of life. Today, we realize that a father makes a very important contribution beginning with the baby's birth.

Not only is the father important in providing love and emotional support for the mother, psychologists have found that a baby who interacts with his father is more likely to explore his surroundings and to learn more quickly. There is also evidence that the father stimulates his baby to feel more comfortable with the world in general. His presence encourages independence and fosters the development of a healthy self-concept in his child. There is a playful side to the father that is different than what a mother offers, and it is particularly invigorating for a developing child. The father helps his child to learn to deal with the complexity of society and to develop the problem solving skills needed later in life.

MY BABY

Not too long ago, experts also believed that babies were so helpless and immature that they could not communicate with their parents except to cry when they were hungry or uncomfortable. Now, we know that infants are wonderfully equipped to interact with their parents and others, and that they know a lot more than we thought they did. Some of the past myths were: 1.) Babies can't see, 2.) Babies can't smell, 3.)

Babies can't communicate with us, and 4.) Babies don't recognize their mother or father. The purpose of this little booklet is to tell you more about what your baby is capable of and how you can respond in a positive way.

SLEEP-WAKE CYCLES

Babies do sleep a lot, but they have periods of wakefulness too. There are six states or ways of being in the world for babies:

1.) deep sleep - Baby is sleeping soundly and not moving about.

2.) light sleep - Baby is asleep but there is some movements of the mouth or the eyes even though they are closed.

3.) drowsy - Baby is between wakefulness and going to sleep.

4.) quiet alert - Baby is awake and attentive and not crying

5.) active alert - Baby is awake and moving about or sucking a fist but not crying

6.) crying - Baby is letting you know he needs your help to make him more comfortable.

During the states of quiet alert and active alert your baby is very attuned to what is going on around him and is learning more about the environment and the people in it. You may be surprised to see how your baby turns to look at an object or to hear the sound of your voice while in the alert states. You can try some of these things and see how well your baby responds to you:

1.) Hold a bright colored toy or ball in front of the your baby's face and move it to the left a little bit. Pause for a moment to let him turn and find it again. Then move it to the right and pause long enough for him to reorient and find the object again.

2.) Talk to your baby and watch his eyes as you speak. Then move to the left side of your baby and talk. Give him time and he will turn to the sound of your voice. You can do the same thing with a rattle or a squeaky toy.

BABY RESPONSES AND REFLEXES

As mentioned previously, babies are wonderfully equipped for being in the world. They have special responses that seem to enhance their survival. These responses are called reflexes. They are strong and noticeable right now, but most of them will eventually fade away. One of these reflexes is sucking. Notice how stroking the side of your baby's cheek makes him turn and open his mouth to suck. When the nipple is placed in his mouth, he will begin sucking to take in nourishment for survival. He practiced this feat long before he was born.

Other reflexes that you will notice include:

1.) The Moro Reflex - a startle reflex that is sometimes elicited when you bump the side of the bassinet or make a loud noise.

2.) Rooting Reflex - the baby searches for the nipple by moving his head about and opening his mouth. This is the reflex that is stimulated when you stroke the cheek.

3.) Grasping Reflex - the baby clasps your finger when you place it in the palm of his hand. He can grip your finger tightly enough to be lifted off the surface of the mattress slightly.

POSTURE AND MOVEMENT

A baby's arms and legs are flexed against his body for the first months. The legs are flexed at the knee and hip and the arms are flexed at wrist and elbows up against the body. If the arm or a leg is extended or pulled out straight, it returns to a flexed position.

This position may be protective and may help your baby stay warm. Arms and legs will become straighter as your baby gets older.

Babies move their arms and legs around, but it doesn't seem to be with a purpose. They don't reach for objects right away. You may notice your baby making some efforts to reach toward an object he is interested in at three to four weeks. Even though a baby isn't able to reach and grasp an object, he can manage to remove a blanket covering his face by thrashing the arms about. He will gain the ability to use his hands more as time goes on.

Since the baby's head is bigger in proportion to the rest of the body, he will not be able to raise it until he gets more strength in neck muscles. He may be able to wiggle around some, but he won't be able to roll over until he is several months old.

It is best to lay your baby on his side or on his back, not his abdomen. Although we used to put babies on their stomachs, it is no longer recommended. After feeding, place your baby on his side with a small blanket rolled up against his back. This will keep him from getting choked if he spits up. It is also important to avoid placing your baby on a pillow, bean bag, or water bed, because there have been reports of babies smothering on these soft surfaces

LEARNING TO INTERACT WITH OTHERS

The baby's first interaction with his parents begins immediately after his birth. He is getting to know you as you are getting to know him. In the first hour after delivery, the baby is usually in a quiet alert state. He seems to look around, look at his parents, and try to make sense of the world. Later, he will learn who you are and who his mother is by

the sense of touch and sense of smell. As he grows and develops, he will watch his parents and begin to mimic their actions and eventually their words.

Behavioral specialists have found that babies prefer to look at the human face over other objects. They tested this by placing two patterned objects in front of an infant in the quiet alert state and determined that the baby gazed longest and more intently at the pattern resembling a human face. It is believed that this strong attraction to facial features is important to development of interaction skills.

Babies even eat in a way to encourage interaction. Notice that your baby feeds in bursts of vigorous sucking followed by a pause in which he waits for you or his mother to pat him or jiggle him to encourage him to take more. It is like taking turns. He nurses and stops. He receives a pat or encouragement and then begins again only to repeat that same cycle. Some newborn specialists believe this turn-taking ritual is at the root of learning to communicate.

Other behavioral specialists have tested the baby's ability to mimic his parents at a very early age. The father was asked to hold his newborn baby out in front of him, and slowly protrude his tongue. Amazingly, very young infants were seen mimicking this action and protruding their tongues in response. Attempts to repeat this experiment are not always successful. However, it is a harmless experiment that you might try with your baby sometime.

YOU AND YOUR BABY

Although your baby shares some things in common with other babies, he is still unique and different from any other baby. You will get to know him better each day and will learn to recognize the cues he sends to you. He will cry when uncomfortable or

hungry and you will learn to recognize how these cries are different as time goes on. You will begin to see that he has a set of behaviors and a personality all his own even though he is just a few days or weeks old.

He will get to know you at the same time. He knows right now that you feel and smell differently than his mother does. He also knows that the sound of your voice is different too. He may not speak or smile right now, but he is getting to know you just like you are getting to know him. He will recognize you from other people right away, because you are also unique and different.

SMILING: A real smile is usually not obvious until about 5-6 weeks of age. You may see a facial expression resembling a smile. No one knows what stimulates this early smile and much about how it really develops, but that smile that is in response to your voice or your actions is especially wonderful. It lets you know that your baby is pleased.

COOING AND LAUGHING: You can expect cooing and laughing to occur a little later on too. Both are usually heard at 6-8 weeks. That doesn't mean that your baby doesn't appreciate your antics before then. It simply means he hasn't learned how to let you know for sure yet. He does like it when you talk to him and make faces right now though.

SQUEAKS AND OTHER SOUNDS: Many babies make funny squeaky sounds, especially when they first wake up and stretch. Each sound seems to be unique and can be quiet entertaining

RESPONDING TO YOUR BABY'S CUES

Your baby likes to be held and talked to. It lets him know that you are there to take care of him and respond to his needs. You won't SPOIL YOUR BABY by holding him or playing with him. Don't let anyone tell you that. It simply isn't true.

Playing is important. It teaches your baby many different things about the world around him. Researchers have found that infants and children benefit from playing with their parents by being less shy, learning more quickly, and having more self-esteem. Fathers are especially good at playing with their babies.

To offer a word of caution, rough play that involves vigorous bouncing, shaking, or jostling should be avoided while your baby is very young. Since his head is larger and heavier compared to the rest of his body, neck muscles can't support it easily. If your baby's head is shaken rapidly back and forth, it can tear blood vessels and cause bleeding into the brain.

Although your baby likes to be entertained, sometimes he needs to rest too. Some babies send a signal that they are tired by simply turning their heads or looking the other way. This just means the baby needs a break. All you need to do is to give him time, and let him set the pace. As he grows older, his attention span and energy level will increase.

When he cries, it can be a little frustrating until you know what to do to make him feel better. Crying is a way of saying that he needs something. It could be that he is hungry, wet, or a little uncomfortable. Notice that he will try and comfort himself by putting his hand to his mouth. Sometimes, it just means that he wants to be picked up and held for a little while. He needs to know that you are there and will try to take care of

whatever is troubling him. Don't be discouraged if you can't figure out exactly what that is right away.

Congratulations on becoming a DAD. It is a lot of responsibility but holds a lot of reward too. Your little boy is something special, and you will be something special to him too. You can make a big difference in his life. He will look to you for many things, and he will learn a lot from you. Good luck as you take on the very special role of father.

DADS COMPETENCY CHECK LIST

FATHER'S ROLE:

Discussed

Importance of Father's Role as a Support for Mother _____
Importance of Father's Role for Infant Development _____
- Infant more likely to explore _____
- Infant learns more quickly _____
- Value of play interactions _____
- Improves infant's self-concept _____

PROVIDING CARE AND COMFORT

Demonstrated		Return demonstration
1. Holding	_____	_____
Cradling	_____	_____
Football hold	_____	_____
2. Fontanels	_____	_____
3. Cord Care	_____	_____
4. Circumcision Care	_____	_____
5. Diapering	_____	_____
6. Feeding	_____	_____

SLEEP WAKE CYCLES

Discussed

1. Deep Sleep _____
2. Light Sleep _____
3. Drowsy _____
4. Quiet Alert _____
5. Active Alert _____
6. Crying _____
7. My Baby's Present State _____

REFLEXES AND RESPONSES

Demonstrated		Return demonstration
1. Moro reflex	_____	_____
2. Rooting reflex	_____	_____
3. Sucking reflex	_____	_____
4. Grasp	_____	_____
5. Flexion and Tone	_____	_____
6. Visual Tracking	_____	_____
7. Auditory Tracking	_____	_____

POSTURE AND MOVEMENT:

Demonstrated		Return demonstration
1. Flexion	_____	_____
2. Reaching	_____	_____
3. Rolling over	_____	_____
4. Positioning	_____	_____
after feeding	_____	_____

prone position avoiding pillows and soft surfaces _____ _____

INTERACTING WITH YOUR BABY

Demonstrated		Return demonstration
Infant Capabilities:		
Sight	_____	_____
Smell	_____	_____
Touch	_____	_____
Hearing	_____	_____
Recognition of parents	_____	_____
Preference for faces/patterns	_____	_____
Turn-taking	_____	_____
Mimicry	_____	_____

Discussed

About My Baby

- Unique Personality _____
- Smiling _____
- Cooing/Laughing _____
- Squeaks/Sighs _____

Infant Needs and Cues

Discussed		Verbalizes understanding
Crying	_____	_____
Self-quieting	_____	_____
Spoiling	_____	_____
Playing	_____	_____
Need for Rest	_____	_____
Learning infant cues takes time	_____	_____

VITA

Mary Margaret Meighan was born in Knoxville, Tennessee on January 2, 1939. The oldest of two daughters of Margaret and Charles Shults, Mary was nicknamed Molly, the name she has become known as. Molly 's early education was in Knoxville public and private schools. After high school, she attended St. Mary's School of Nursing in Knoxville and earned a diploma in 1958.

She married Joseph Clinton Meighan Jr. in 1959. The marriage resulted in six children, Teresa Ann, Mary Colleen, Joseph C. III, Julia Marie, Patrick Matthew, and Charles Daniel. After more than 20 years, the marriage ended in divorce, but the family has remained very close and supportive of each other.

In 1982, Molly returned to school part-time, earning a bachelor's degree in nursing from East Tennessee State University in 1987. By 1989, she earned a Master's degree in nursing from the University of Tennessee, Knoxville, followed by a Ph.D. in nursing in 1998.

Molly's nursing career has included staff and management positions in a variety of maternal-child settings. From 1977 until 1985, she served as the East Tennessee Perinatal Coordinator developing high risk obstetrical services and professional education opportunities for Knoxville and the surrounding 27-county area. Between 1985 and 1995, she was the Clinical Director for Obstetrical and Pediatric Nursing at the University of Tennessee Medical Center in Knoxville. Molly is an active member in the Association of Women's Health Obstetric and Neonatal Nursing (AWHONN), The American Nursing Association, Sigma Theta Tau, and Southern Nursing Research

Society. In 1996, she won first place in the student poster session at Southern Nursing Research Society's 11th Annual Convention for her directed research project, "Postpartum Depression: The Father's Experience." In 1997, Molly was awarded a grant from AWHONN for her dissertation research on "Testing a Nursing Intervention to Enhance Paternal-Infant Interaction and Promote Paternal Role Assumption."

Molly's love for her own family and her work with new families inspired this effort to help father's realize the importance of their role and to help them become more closely attached to their infant. The role of father is changing, and he is expected to take on more and more child care responsibilities. Molly believes that nurses can and should facilitate this change.

Molly is presently teaching and working with undergraduate nursing students in Maternal-Infant and Child-Health nursing at Carson-Newman College, Jefferson City, Tennessee. She also teaches in the graduate nursing program, sharing her experience and knowledge in management and leadership.