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**A comparison of perceptions of infant health, reliance on others,
and caregiving by mothers of low birth weight and normal birth
weight infants**

Hu, Jie, M.S.

The University of Arizona, 1994

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A COMPARISON OF PERCEPTIONS OF INFANT HEALTH, RELIANCE ON
OTHERS, AND CAREGIVING BY MOTHERS OF LOW BIRTH WEIGHT
AND NORMAL BIRTH WEIGHT INFANTS

by
Jie Hu

A Thesis Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF SCIENCE

In the Graduate College
THE UNIVERSITY OF ARIZONA

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APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

<u><i>Kathleen M. May</i></u>	<u><i>12-3-93</i></u>
Kathleen M. May	Date
Assistant PROFESSOR	

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ABSTRACT

The purpose of this research was to describe the relationship between maternal perception of infant health, reliance on others and caregiving in mothers of low birth weight (LBW) infants and mothers of normal birth weight infants. A descriptive research design was used for a secondary analysis of data obtained from a larger study of caregiving and help seeking by mothers of LBW ($n = 30$) and normal birth weight infants ($n = 30$) (May, 1993). Significant relationships were found between maternal perception of: infant health and caregiver burden ($R^2 = .29$, $p \leq .001$); confidence in caregiving and caregiver burden (R^2 change = $.12$, $p \leq .01$); infant health and confidence in caregiving (R^2 change = $.18$, $p \leq .001$); and preparation for caregiving and confidence in caregiving (R^2 change = $.10$, $p \leq .02$). A significant difference was found between mothers of LBW infants and mothers of normal birth weight infants in their perception of infant health ($t(58) = -2.02$, $p \leq .05$) and caregiver burden ($t(58) = -3.50$, $p \leq .001$). Maternal perception of infant health and caregiving have an impact on maternal perception of caregiver burden.

CHAPTER I

INTRODUCTION

Low birth weight (LBW) is a major problem contributing to neonatal and infant mortality in the United States (Institute of Medicine, 1985). Low birth weight is defined as having a birth weight of less than 2500 grams at birth and a short gestational period (< 37 weeks of gestation) or having a full gestation but a birth weight of less than 2500 grams (Miller, Fine, & Adams-Taylor, 1989). Very low birth weight (VLBW) is defined as having a birth weight of less than 1500 grams (Schraeder, Heverly, O'Briek, & McEvoy-Shields, 1992).

The infant mortality rate of the United States is 9 deaths per 1,000 live births, which ranks below 20 other countries (Grant, 1993). While the infant mortality rate has declined over the past few decades in the United States, there has been no parallel reduction of the LBW rate (Kliegman, 1990). Two thirds of all infant deaths occur during the neonatal period and one third are postneonatal. LBW infants have a 40 times greater risk of neonatal death than normal birth weight infants (Schwartz, 1990).

Forty thousand infants die each year despite the United States' sophisticated health care system and its substantial network of public health and social programs for poor mothers and children (Brecht, 1989). LBW contributes

to morbidity as well. Neurodevelopmental disabilities such as cerebral palsy, vision loss, mental retardation, hearing loss, and convulsive disorders are reported as common problems among preterm infants of 500 through 1250 grams birth weight (Robertson, Hrynychshyn, Etches, & Pain, 1992).

In the United States the rate of LBW is higher in minority populations than in the White population. In 1990, 5.7% of White live births, 13.3% of African-American live births, 6.1% of American Indian live births, and 6.2% of Hispanic live births were LBW (Department of Health and Human Services [DHHS], 1993). The African-American LBW rate was more than twice that for White infants (18.8% versus 8.9%) in 1990 (DHHS, 1993).

Maternal factors associated with LBW include demographic characteristics, such as low socioeconomic status, low level of education, being young, and unmarried; medical risks; behavioral and environment risks; and inadequate prenatal care (Brown et al., 1989; Collins & David, 1990; Kliegman, Rottman, & Behrman, 1990; Orr, James, Burns, & Thompson, 1989; Willis & Fullerton, 1991).

Statement of the Problem

The survival rate for LBW infants has dramatically changed in the past 20 years in the United States, largely due to both obstetric and neonatal intensive care (McHaffie, 1990). With increasingly advanced medical interventions for

high-risk mothers and premature infants, larger numbers of LBW infants are surviving and discharged to their homes (Leonard, Scott, & Erpestad, 1992). However, in making the difficult transition between hospital and home care, often the families of preterm infants are burdened by anxiety, uncertainty, stress, and suffering (Bryce, Stanley, & Enkin, 1988; Harrison, Sherrod, Dunn, Olivet, & Jeong, 1991). Having a LBW infant and experiencing subsequent postnatal events are likely to constitute a traumatic experience for a family.

Recent study has shown that a mother's perception of her infant's health influences the quality of the parent-infant relationship and developmental outcomes for the child (Leonard et al., 1992). Mothers of infants at neonatal risk have more negative perceptions of their newborns than do mothers of infants not at risk during the early postpartum period (Blumberg, 1980), and they have more concerns about their babies' health issues (Gennaro, York, & Brooten, 1990; Minde, Perrotta, & Marton, 1985). Therefore, mothers and families of LBW infants may benefit from support services and resources (Brown et al., 1989).

The birth of a child has been described as highly stressful, resulting in life changes (Cutrona & Troutman, 1986). Common experiences which may be perceived as negative after an infant's birth include: greater financial

expense, less time to self, changes in sleeping patterns, and possible job and income changes. Additional stress may be experienced by mothers of premature infants (Edwards & Saunders, 1990). Mothers of LBW infants experience more stress during the postpartum period, which can change the quality of the mother-infant interaction (Gennaro & Stringer, 1991). Mothers with higher anxiety may have less confidence in their ability to provide care during the postpartum period (Barnett & Parker, 1986; Kenner & Lott, 1990; McKim, 1993). Parents express worries about the infant's health problem, potential sickness and death (Kenner & Lott, 1990; McHaffie, 1990).

Maternal perception of infants has an impact on maternal problem-solving and interaction with the infants (Pridham & Chang, 1989). Jeffcoate, Humph, and Lloyd (1979) have indicated in their comparative studies of mothers of preterm ($n = 17$) and term infants ($n = 17$) one year after delivery that mothers of premature infants rated their infants more negatively in comparison with full term infants than did mothers of term infants. Infants who are temperamentally difficult decrease maternal confidence in ability to care for the infant (Zahr, 1991b), which may result in maternal depression (Cutrona & Troutman, 1986). Gennaro (1985), in her study of mothers of 35 premature infants, found that maternal anxiety and problem-solving

ability were positively correlated. The results indicated that mothers of premature infants reported decreased confidence in their mothering skills (Gennaro, 1985).

Mothers of LBW infants may feel overwhelmed, anxious, and depressed in the care of their infants, as LBW infants are fragile and have more medical complications, such as high risk for failure to thrive, chronic lung disease, anemia, seizures, and development delays (Robertson, et al., 1992). Therefore, mothers may withdraw from their infants and have less interaction with their infants (Gennaro, York, & Brooten, 1990; Zahr, 1991a). Maternal stress has been found to affect infant health and be related to poor infant growth in the early postpartal period (Gennaro, 1990). Karl (1991) suggested that maternal psychological depression has significantly deleterious effects on parenting. Ventura (1986) proposed that maternal depression may make parents less able to cope effectively with parenting.

Research on burdens of caregivers of chronically ill children identified the following factors contributing to caregiver burdens: heavy time burdens and demands on caregiving, time constraints and demands on resources of single parent families and employed mothers, and chronic illness factors that impair opportunities for family interaction (Brust, Leonard, & Sielaff, 1992; Turner-Henson,

Holaday, & Swan, 1992). Some of these same factors may affect mothers of LBW infants.

Significance of the Problem

Having a LBW infant in the family may have a major impact on mother and family. Negative perception of LBW infant health, caregiver burden, psychological stress in the mother, and depression have been difficulties experienced by mothers of LBW infants (Gennaro, 1985; Gennaro & Stringer, 1991; Leonard et al., 1992; McKim, 1993; Zahr, 1991b). Although the literature provides some findings on maternal perceptions of infant health and maternal confidence in caregiving related to LBW infants, there has been little reported research addressing maternal perceptions of preparation for caregiving, reliance on others, and caregiver burden. A mother's perception of her infant's health may have an effect on parent-child interactions and parental responsiveness to the child's needs (Andrews, 1990).

Thousands of dollars are spent on keeping premature infants alive and well in the neonatal intensive care unit, but little is done for their families after discharge (Zahr, 1991). Very little is known at present regarding factors that promote or impede maternal confidence or readiness to care for LBW infants. There is an urgent need for researchers to identify variables indicative of well-being

or difficulties of mothers of LBW infants. Identification of maternal perceptions of infant health, reliance on others, and caregiving may provide health care providers with direction for developing appropriate strategies to assess maternal stressors, promote maternal adaptation, and facilitate social support systems.

Statement of Purpose

The purpose of this research was to describe maternal perceptions of infant health, reliance on others, and caregiving by mothers of low birth weight infants and to compare their perceptions with those of mothers of normal birth weight infants. This study was conducted by means of secondary analysis of data obtained from a larger study of caregiving and help seeking by mothers of low birth weight and normal birth weight infants (May, 1993).

Research Questions

The research questions to be addressed in this study are:

1. What is the relationship between maternal perception of infant health and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants?

2. What is the relationship between maternal perception of reliance on others and maternal perception

of caregiver burdens in others of LBW infants and mothers of normal birth weight infants?

3. What is the relationship between maternal perception of preparation for caregiving and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants?

4. What is the relationship between maternal perception of confidence in caregiving and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants?

5. What is the relationship between maternal perception of infant health on maternal perception of confidence in caregiving in mothers of LBW infants and mothers of normal birth weight infants?

6. What is the relationship between maternal perception of preparation for caregiving on maternal perception of confidence in caregiving in mothers of LBW infants and mothers of normal birth weight infants?

7. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perceptions of infant health?

8. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of their reliance on others?

9. What is the difference between mother of LBW infants and mothers of normal birth weight infants in their perception of their preparation for caregiving?

10. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perceptions of caregiver burdens?

11. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of their confidence in caregiving?

Definition of Terms

Low birth weight: Infants with a birth weight of less than 2500 grams at birth who are born prematurely (<37 weeks of gestation) or those who are born full-term but are small for their gestational age (Miller et al., 1989).

Very low birth weight: Infants who are born weighing less than 1500 grams (Schraeder et al., 1992).

Normal birth weight: Infants with a birth weight equal to or more than 2500 grams.

Maternal perception of infant health: Maternal impression of an infant's physical, emotional, and developmental well-being (May, 1993).

Reliance on others: Maternal perception of use of help from husband/partner, mother, other family members/relatives, friend, nurse, and physician in providing assistance with care for an infant (May, 1993).

Caregiving: Provision of routine and non-routine care of infants (May, 1993).

Preparation for caregiving: Maternal perception of experience and practice in giving care to other infants and their own infants (May, 1993).

Caregiver burden: Maternal perception of responsibility for caregiving, physical strain, emotional strain, "doing the extras," demands on time, demands on lifestyle, and expectations of fathering (May, 1993).

Confidence in caregiving: "The perception mothers have of their ability to care for and understand their infants" (Zahr, 1991, p. 280).

Stress: "A particular relationship between the person and his or her environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus, & Folkman, 1984, p. 19).

Adaptation: "A changing point that represents the person's ability to respond positively in a situation." (Roy & Andrews, 1991, p. 4).

Summary

Recent advances in obstetrics and neonatal intensive care have dramatically improved the survival rate of LBW infants and their eventual discharge to home. Families with a LBW infant have experienced a stressful life event that produces psychological stress related to caregiving and may

require adaptation by the mother as primary caregiver. It is important for health care providers to study how mothers of LBW infants perceive infant health, reliance on others, and caregiving in order to assess maternal stress and facilitate support of the family. Therefore, this research will address perception of infant health, reliance on others and caregiving by mothers of LBW infants, and compare their perceptions with those of mothers of normal birth weight infants.

CHAPTER II

CONCEPTUAL FRAMEWORK AND REVIEW OF THE LITERATURE

The conceptual framework and the review of literature are presented in this chapter. Components of Roy's Adaptation Model (Roy & Andrews, 1991) are used as a conceptual framework, addressed in this chapter at the construct and conceptual levels, and operationalized.

The review of literature includes three sections:

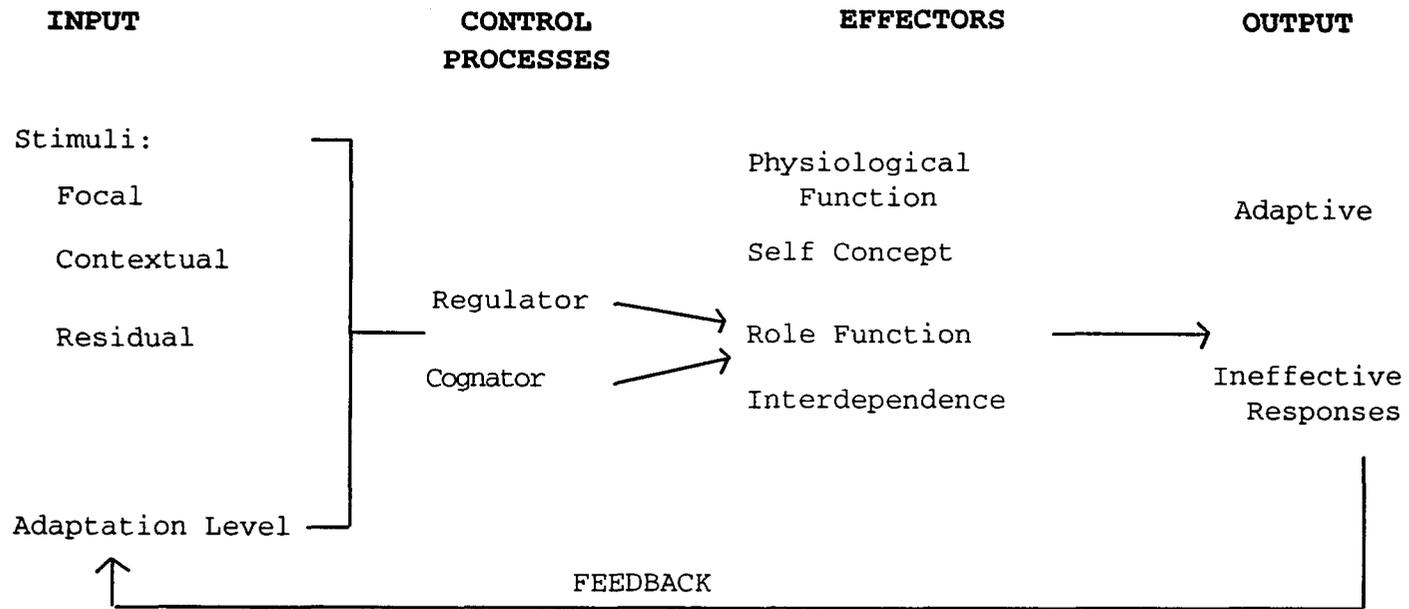
1) Maternal situation: perception of infant health, reliance on others, and preparation for caregiving; 2) Stress: caregiving burden; and 3) Adaptation: confidence in caregiving.

Conceptual Framework

The Roy Adaptation Model

The Roy Adaptation Model is widely used to direct the study of adaptation to constantly changing environmental stress (Fawcett, 1990), as illustrated in Figure 1 (Roy, 1991). The Roy Model is a systems model based on general systems theory and adaptation-level theory (Roy & Andrews, 1991). The Roy Model is partially used as the basis of the conceptual framework for this study. A brief description of the Roy Model is presented, followed by a description of its application in this study.

Figure 1. The Person as an Adaptive System (Roy, 1991)



Adaptation is defined as an individual's ability to positively respond to a changing environment (Roy & Andrews, 1991). Person in the adaptation model is viewed as an holistic adaptive system that utilizes two coping mechanisms: regulator and cognator (Tiedeman, 1989; Roy & Andrews, 1991). Regulator and cognator mechanisms can be observed in four adaptive modes: the psychological, the self-concept, the role function and the interdependence modes (Roy & Andrews, 1991). These modes are not addressed in this study and are not part of the conceptual framework.

Environment is viewed by Roy (Roy & Andrews, 1991) as consisting of internal and external stimuli that influence an individual's adaptation level, which is categorized as the focal, contextual and residual stimuli. The focal stimulus is defined as "the internal or external stimulus most immediately confronting the person" (Roy & Andrews, 1991, p. 8). Contextual stimuli are contributing factors that present themselves in the situation. Residual stimuli are other unknown factors that may influence the situation such as individual beliefs, attitudes, experiences and expectations (Roy & Andrews, 1991). In this study, the focal stimulus is the maternal perception of infant health. Contextual stimuli are maternal perception of reliance on others and caregiver burden related to having a LBW infant. The residual stimulus is maternal perception of preparation

for caregiving, including past experience and practice in infant caregiving.

According to Roy (Roy & Andrews, 1991), a person receives stimuli from the internal and external environment. A changing environment may stimulate the person to make an adaptive response. In this study, perception of infant health is the stimulus that mothers receive from their internal environment. The perception of infant health stimulates mothers to initiate an adaptive response, which is represented by confidence in caregiving.

Roy defined focal, contextual, and residual stimuli as the zone of adaptation or adaptation level. Adaptation is the process of coping with a stressor and is also the end product of coping. The stimuli and adaptive levels serve as input to the person responding as an adaptive system (Roy & Andrews, 1991).

A person's behavioral response or reaction to a situation is output and could be viewed as either effective or ineffective. An effective or adaptation response is: "survival, growth, reproduction, and mastery" (Roy & Andrews, 1991, p. 12). An ineffective response threatens the person's "survival, growth, reproduction, or mastery" (Roy & Andrews, 1991, p. 12). When the stimuli are within the individual's tolerable adaptive zone, responses will be positive. When stimuli are outside the individual's

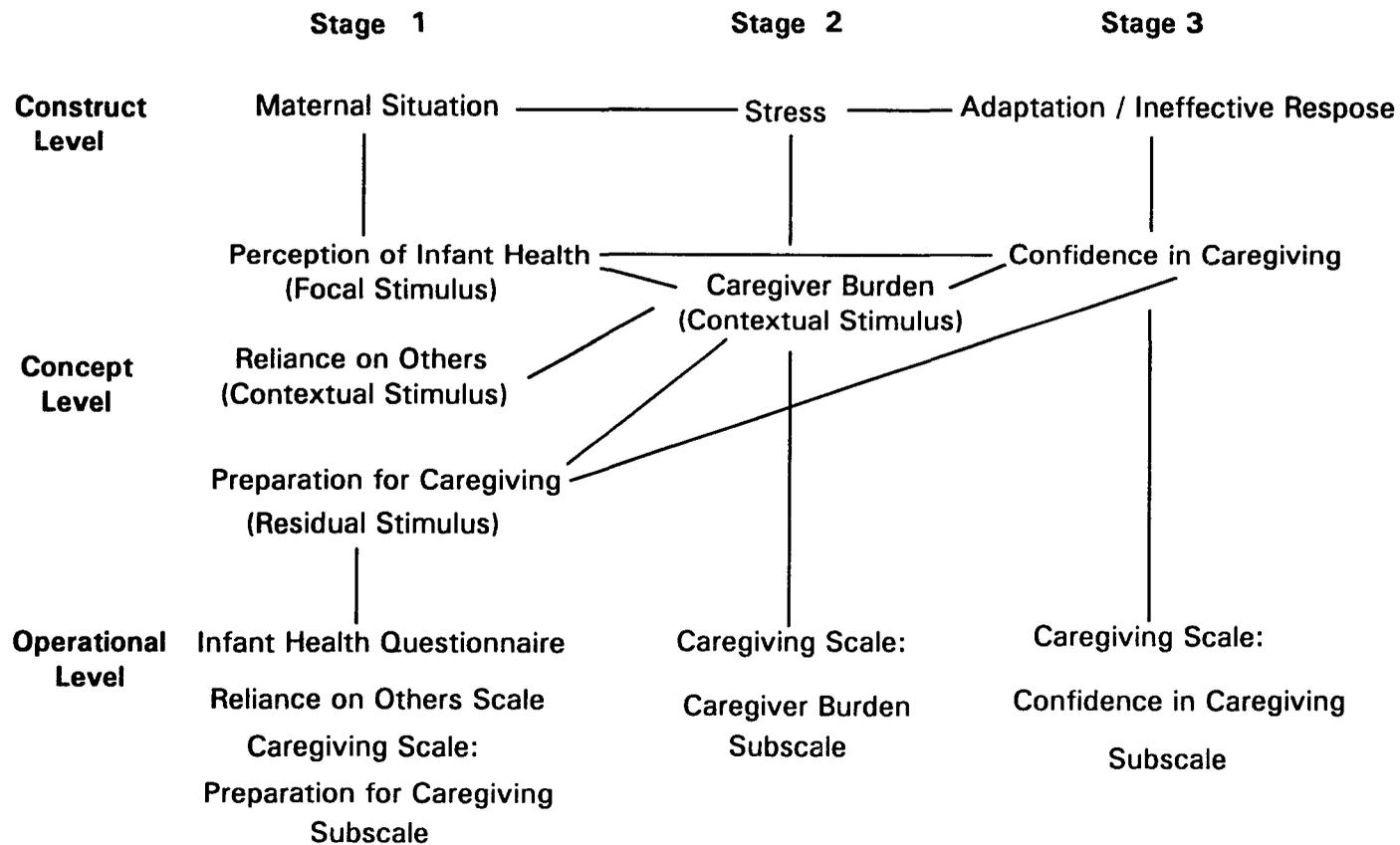
tolerable zone, the response will be negative (Thornbury & King, 1992).

The goal for the client is adaptation. The goal for nursing is intervention that promotes client adaptation (Frederickson, 1993). In this study maternal perception of infant health, reliance on others, caregiver burden, and preparation for caregiving together comprise a mother's zone of adaptation or adaptation level. Maternal adaptation is the process by which mothers cope with their stress related to infant care. Maternal adaptation is represented at the concept level by maternal confidence in caregiving. An ineffective response occurs when the stimuli are outside the mother's tolerable zone, which is reflected in a lack of confidence in caregiving.

Components of the Conceptual Framework

The conceptual framework is presented in Figure 2. and consists of three stages: maternal situation, stress, and adaptation. Stage 1 consists of the maternal situation defined at the construct level as the personal context in which the mother provides infant care. At the conceptual level the maternal situation is represented by: perception of infant health, reliance on others, and preparation for caregiving. At the operational level, perception of infant

Figure 2. Conceptual Framework



health is measured as the score on the Infant Health Questionnaire; reliance on others is measured as the score on the Reliance on Others Scale; and maternal perception of preparation for caregiving is measured as the score on the Preparation for Caregiving Subscale of the Caregiving Questionnaire.

Stage 2 consists of the construct of stress, which occurs in caregiving by mothers of LBW infants. At the conceptual level, stress is represented by caregiver burden. Caregiver burden is defined as maternal perception of responsibility for caregiving, physical strain, emotional strain, "doing the extras," demands on time, demands on lifestyle, and expectations of fathering (May, 1993). At the operational level, caregiver burden is measured as the score on the Caregiver Burden Subscale of the Caregiving Questionnaire (May, 1993).

Stage 3 consists of adaptation, which is "a changing point that represents the person's ability to respond positively in a situation" (Roy & Andrews, 1991, p. 4). Maternal adaptation is a mother's positive response to an infant. At the conceptual level, adaptation in this study is represented by confidence in caregiving. At the operational level, confidence in caregiving is measured as the score on the Confidence in Caregiving Subscale of the Caregiving Questionnaire (May, 1993).

Review of the Literature

Maternal Situation

Perception of infant health.

Maternal perception of infant health is defined as a mother's impression of her infant's physical, emotional, and developmental well-being (May, 1993). Infant health is the greatest area of concern for mothers of LBW infants after a LBW infant's discharge to home (Gennaro, Zukowsky, Brooten, Lowell, & Visco, 1990).

An early study on maternal perception of infant health indicated that mothers of LBW infants tended to have a more negative perception of infant health than did mothers of normal birth weight infants (Jeffcoate et al., 1979).

Leonard et al. (1992) conducted a study of maternal perception of first born infants, comparing mothers of term infants with mothers of premature infants. Premature infants were subdivided into a group of infants monitored at home for apnea and a group of infants not monitored. A structured questionnaire on maternal perceptions of current and anticipated infant development and the Neonatal Perception Inventory (Broussard, 1978) were used to assess whether the mother considered her infant "better" or "worse" than the average baby.

The results showed that the mothers of the monitored premature infant group had rated their infants "better" than

the average baby. Their perception of their infant was very similar to that of the mothers of full-term infants ($X^2 = 12.656$, $p(2) = 0.002$). Mothers of non-monitored premature infants had a negative perception, and rated their infants "worse" than average baby, differing significantly from both of the other parent groups. The researchers concluded that the experience of prematurity may provoke a negative maternal perception of the infant in general and in its development, and that without additional intervention, mothers of non-monitored premature infants have negative perceptions of their infants when compared with other mothers. Maternal perception of infants was associated with a higher degree of psychological distress. Findings suggested that early identification of negative maternal perception requires extensive follow-up care (Leonard et al., 1992).

Weingarten, Baker, Manning, and Kutzner (1990) studied married mothers' perceptions of their premature infants ($n=28$) and term infants ($n=37$) and the quality of their relationships with their husbands. Mothers of both premature infants and term infants perceived their infants more positively than average, regardless of the severity of the infant's condition. Maternal perception of infant health was not related to the quality of the relationship

with the husband. However, mothers with negative perceptions of their infants tended to have a difficult marriage. The authors suggested that education, adequate prenatal care, past experience, and a high level of motivation may have a positive impact on maternal perception of infants (Weingarten et al., 1990).

Harrison, Sherrod, Dunn, Olivet, and Jeong (1991) evaluated a short-term, hospital-based instruction on premature infants' behaviors for mothers of premature infants. Thirty-two premature infants hospitalized in a Level III NICU and their mothers were studied by dividing mothers into three groups: 1) mothers who received a hospital-based teaching program on premature infants' behaviors; 2) mothers who did not receive the instruction but received a brief explanation about the Mother's Assessment of the Behavior of her Infant (MABI) and were asked to use it to rate their infants' behavior; and 3) a control group which received routine support from the NICU staff but did not participate in the teaching program on premature infants' behaviors. There was no difference between mothers who participated in the teaching session and mothers who did not receive instruction in their ratings of their mother-infant interaction and their infants' behavior. The findings demonstrated that hospital-based instruction

did not influence maternal perception of infant behavior (Harrison et al., 1991).

In a study of predictors of parental attachment during early parenthood, participants were mothers with a high risk pregnancy ($n=121$), with 56% of their infants born prematurely, and their partners ($n=61$), and low risk mothers ($n=182$), with 4% of their infants born prematurely, and their partners ($n=117$) (Mercer & Ferketich, 1990). High risk mothers rated higher on maternal attachment than did low-risk mothers during early postpartum. The authors concluded that high risk mothers' fear of losing their infants may result in greater concern about their infants during early postpartum. Parental competence and antepartal worry were predictors of parent-infant attachment (Mercer & Ferketich, 1990).

Another study explored parents' perception of vulnerability and the long term outcomes of premature infants (Culley, Perrin, & Chaberiski, 1989). The study examined a possible precursor of the vulnerable child syndrome: "physically healthy children who are perceived by their parents to be at high risk for medical or developmental problems" (Culley et al., 1989, p. 237). The Forsyth Child Vulnerability Scale was used to compare 39 healthy 3-year-old children who had been LBW infants with 41 children who had been born at term and had no neonatal

problems. It was found that even though children in this study were developmentally healthy, mothers of prematurely born children perceived their children as more vulnerable and showed more concern about their children's health than did mothers of full term infants. The results indicate that premature infants' health problems may have long-term effects on parental perception of premature children's well-being, and maternal perceptions have an influence on children's behavior. Children who had been born prematurely were reported by their mothers to "lack self-control", be "insecure", and have "somatic complaints" (Culley et al., 1989, p.243).

Reliance on others.

Reliance on others reflects maternal use of help from husband/partner, mother, other family members/relatives, friend, nurse, and physician in providing care for an infant (May, 1993). Being a mother of a new infant is an experience of transition. Pridham and Chang (1992) studied maternal problem solving and self-appraisal in the first three months of being the mother of a new infant. Two self-appraisals were maternal problem-solving competence, influenced by experience with a new infant, and maternal self-evaluation of parenting, which is maternal satisfaction and perception of the infant. The short-term longitudinal study of 62 mothers of healthy newborns examined maternal

age, education, everyday supports, infant-care experience, number of days the mother worked, and their relationship with maternal self-appraised problem-solving competence. Maternal issues regarding infant-care and parenting were found to be positively related to the number of everyday supports a mother identified. Younger mothers were more likely to identify caretaking issues and to use lay problem-solving help. Mothers with less infant-care experience and more everyday supports were more likely to use lay problem-solving help as well. The authors suggested that family members and friends may assist mothers with problem-solving competence by helping with household responsibilities and childcare (Pridham & Chang, 1992).

A mail survey of 327 mothers of infants on infant care and wives' depressive symptoms showed that a husband's failure to participate in auxiliary child care was associated with maternal depressive symptoms (Lennon, Wasserman & Allen, 1991). A modified version of the Center for Epidemiologic Studies Depression Scale was used to assess symptoms of maternal depression. An instrument of Child Care Measures was used to ask mothers to report the percentages of time wife and husband did child care and housework tasks. It was found that the less the husband was involved in child care and housework, the higher the maternal depressive symptoms. The findings indicated that

wives benefited from their husbands' assistance with child care (Lennon et al., 1991).

Preparation for caregiving.

Gross, Rocissano, & Roncoli (1989) conducted a study with 62 mothers of toddlers born preterm and 70 mothers of toddlers born full term to explore predictors of maternal confidence during toddlerhood. They hypothesized that mothers of preterm children would have lower confidence than mothers of full term children and that mothers' past experience caring for other children and toddler's birth order would be positively related to maternal confidence in both mothers of preterm born and term born children.

The researchers found no difference in maternal confidence between mothers of preterm born children and mothers of term born children. Mothers' past experience in child care was significantly related to maternal confidence ($r=.44$, $p<.001$) (Gross et al., 1989).

The researchers concluded that mothers of first born toddlers with little child care experience had lower confidence in parenting. Children's higher birth weight and mother's older age were reported to be positively related to maternal confidence. Maternal confidence was found to be correlated with toddler birth order and prior child care experience in the preterm group but not in the full-term

group. The authors proposed that perhaps early intervention and follow-up programs for mothers of preterm infants may increase their confidence in caregiving (Gross et al., 1989).

Rutledge and Pridham (1987) examined the relationship between primiparous and multiparous mothers' early postpartum experiences and their perceptions of competence in infant feeding and care ($N=140$). Mothers with hospital preparation had a higher perception of competence in infant care than those who were not prepared (Rutledge & Pridham, 1987).

Stress

Stress and depression of mothers of preterm infants have been investigated in several studies. Maternal stress has an impact on infant's behavior and mother-infant interaction (Crnic, Greenberg, Ragozin, Robinson, & Basham, 1983; Karl, 1991), and may change maternal perception of an infant's temperament from non-difficult to difficult (Andrews, 1990).

Gennaro (1988) examined differences in anxiety and depression in mothers of preterm ($n=41$) and term ($n=41$) infants. Anxiety and depression experienced by mothers of preterm infants during the first postpartal week were reported to be higher than mothers of term infants ($F=6.98$, $p=.002$). However, during the second to seventh week

maternal stress and depression did not differ between mothers of preterm and term infants. The level of maternal stress and depression were found not to be associated with infant's illness in the early postpartum period (Gennaro, 1988).

A longitudinal study on the psychological impact of premature birth on mothers and fathers was conducted to compare high risk pregnant women and low risk pregnant women on their self-esteem, mastery, anxiety, and depression (Aradine & Ferketich, 1990). The high risk pregnant women were divided into two groups: mothers who delivered premature infants ($n=67$) and mothers who delivered infants at term ($n=73$). The low risk pregnant women were those who delivered their infants at term ($n=71$). Their partners were divided into premature partners ($n=38$), high risk partners ($n=35$), and low risk partners ($n=50$). After delivery, anxiety and depression in mothers of premature infants were not higher than in high risk and low risk mothers. The authors explained that maternal emotions may be influenced by infants' developmental progress or illness conditions. Therefore, mothers of premature infants may feel happier, less anxious and depressed when infants progress well (Aradine & Ferketich, 1990).

Gennaro and Stringer (1991) studied depression in mothers of LBW infants ($n=36$) and mothers of VLBW infants

($n=27$). Mothers were compared on number of acute care visits to a physician or emergency room. It was found that mothers of infants with multiple acute care visits had significantly higher depression than the mothers of infants with no acute care or only one acute care visit, $F(2.60)=8.05$, $p<.001$ (Gennaro & Stringer, 1991).

Caregiver burden

Recent research on family caregiver burden or strain has focused on identifying negative consequences on family caregivers of elders (Dellasega, 1991). Little literature addresses caregiver burdens of mothers of LBW infants. In one study of mothers of LBW infants, caregiver burden was defined as responsibility for caregiving, physical strain, emotional strain, doing the extras, demands on time, demands on lifestyle, and expectations of fathering (May, 1993).

Role strain was defined as a "caregiver's felt difficulty in performing the caregiver role" in a study of mutuality and preparedness for caregiving related to caregiver role strain in caring for older adults (Archbold, Stewart, Greenlick, & Harvath, 1990, p. 376). The mutuality and preparedness of 78 older persons and their family caregivers, either a family member or friend was measured using The Family Caregiving Inventory. The results revealed that caregiver strain from direct care, increased tension, and global strain were lower when the caregiver had higher

levels of mutuality and preparedness, which alleviated some role strain (Archbold et al., 1990).

McHaffie (1990) conducted a prospective study to investigate the perceptions of mothers of VLBW infants. There were six phases through which mothers passed: anticipatory grief, anxious waiting, positive anticipation, anxious adjustment, exhausted accommodation, and confident caring. At the positive anticipation phase the mothers began to prepare for the infant's home coming with increased confidence in care and a stronger feeling of attachment to their infant. Mothers at the exhausted accommodation phase expressed overwhelming tiredness, increased tension and anxiety about their infants. When mothers moved to the confident caring phase they felt happy about the adequacy of their caring for their infants. Supports from others in this phase was found to be of great value in coping and relief from caregiving (McHaffie, 1990).

Mothers of premature infants have found the first week at home to be difficult and stressful (McKim, 1993). In McKim's descriptive study of 56 mothers of high-risk premature infants, mothers had more difficulty during the first week when infants were more premature and infant illness was more severe. Mothers considered the infant's prematurity as a major reason why the first week was difficult. McKim found that mothers felt guilty, worried

about their infants, and feared the death of their infants. The study demonstrated that maternal responsibility for caring for premature infants was perceived as stressful. Lack of support increased maternal anxiety and decreased maternal confidence in ability to care for a premature infant (McKim, 1993).

Brust, Leonard, and Sielaff (1992) studied maternal time and the care of disabled children ($N=133$). The instrument used in this study had four sections: demographics, medical care requirements, caregiving tasks, and perceptions about caregiving. Parents were asked the time they spent providing extra caregiving tasks on a daily, weekly, and monthly basis. Measurement of the child's disability was determined by parents' descriptions of the child's disability and medical conditions. In addition, a scale was used to measure the child's dependency. The impact of resources on time spent in caregiving was measured by demographic variables.

The results showed that mothers of disabled children spent 12 hours and six minutes on tasks providing care for their disabled children, and increased caregiving time was related to having a disabled child. The authors concluded that the disability influenced the time spent on caregiving, type of tasks required, and the perception of burden.

"Caring for disabled children requires more time and is more

demanding than caring for healthy children" (Brust et al., 1992, p. 177).

Adaptation

Mothers of LBW infants may have a difficult time adapting to their infants. Factors contributing to maternal adaptation are maternal problem-solving ability, parent support and social support (Gennaro, 1985; McHaffie, 1992).

Adaptation to premature infants was demonstrated in a study of 35 mothers of premature infants (Gennaro, 1985). The researcher attempted to determine how maternal problem-solving ability and maternal anxiety were related to maternal adaptation in the early postal period. The State-Trait Anxiety Inventory, Means-Ends Problem Solving Procedure, and Self-Evaluation Questionnaire were used to evaluate maternal problem-solving ability, maternal anxiety and maternal adaptation. Maternal anxiety and problem-solving were not correlated. Maternal anxiety was significantly correlated with problem-solving ($r=.35$, $p=.05$), indicating that mothers who had a higher anxiety level had better problem-solving ability (Gennaro, 1985).

Confidence in caregiving

Maternal confidence in caregiving is defined as "the perception mothers have of their ability to care for and understand their infants" (Zahr, 1991b, p. 280). It has also been described as "the mother's perception of her

effectiveness in managing parenting tasks" (Gross, et al., 1989, p. 4.). In a study of maternal anxiety, problem-solving ability and adaptation to premature infants, Gennaro (1985) found that mothers of preterm infants had less confidence in their mothering abilities than mothers of term infants ($t=3.48$, $p<.05$).

Zahr (1991b) investigated the relationship between maternal confidence, maternal behaviors and skills, and infant temperament in mothers of 60 premature infants with a birth weight under 2200 grams. The results indicated that the infant's birth weight, gestational age, days on respirator, and length of hospitalization were not related to maternal perception of confidence. However, mothers with higher levels of education, social support and past experience with infants perceived themselves as more confident in their parenting role than did mothers with less education, no previous child care, less experience, and less social support. The results showed that mothers with a positive perception of confidence in care perceived their infants as less difficult and more adaptable. The author proposed that infants with difficult temperaments may decrease maternal confidence in caregiving (Zahr, 1991b).

Froman and Owen (1990) demonstrated in their study of mothers' ($n=200$) and nurses' ($n=200$) perceptions of mothers' infant care skills that mothers who had experience caring

for infants had stronger perceptions of their efficacy than did mothers with no experience with child care. The more skill preparation in infant care, the greater confidence mothers had in their ability to perform infant care tasks. The authors suggest that extra time may be needed to build confidence in infant care for primiparous mothers before discharge to home (Froman & Owen, 1990).

Another study indicated that mothers had more self-confidence during the postpartum period from birth to four to six weeks than during the antepartum period (Walker, Crain, & Thompson, 1986). They perceived their infants more positively at the end of the postpartum period than at the beginning. Multiparas demonstrated more confidence in caring for their infants than primiparas and had a more positive attitude toward their infants (Walker et al., 1986). In a study of mother's perceptions of problem-solving competence for infant care of primiparous ($n = 47$) and multiparous ($n = 40$) mothers of term infants, multiparous mothers had a higher perception of competence in solving infant care problems at two months than did primiparous mothers. However, primiparas perceived themselves as very highly competent in solving infant care problems as their infants grew from two to four months old (Pridham & Chang, 1991).

Summary

This chapter is a presentation of the conceptual framework and the literature review in the areas of maternal situation (perception of infant health, reliance on others, and preparation of caregiving), stress (caregiver burden), and adaptation (confidence in caregiving). The findings of research on maternal perceptions of infant health indicate that having a LBW infant may provoke negative maternal perceptions of infant health, which is associated with maternal stress and less maternal confidence in caregiving. Maternal preparation of caregiving has been shown to increase maternal confidence in parenting. Mothers with less infant care experience were reported to be more likely to use help. Caring for premature infants has been perceived by mothers as stressful. Mothers of LBW infants have higher level of anxiety and worry than mothers of normal birth weight infants. Maternal depression has been found to be related to a husband's failure to participate in child care. Mothers of premature infants have less confidence in their ability to care for infants. The research reported here is an attempt to extend the findings reported in this chapter by examining the relationships among maternal perception of infant health, reliance on others, and caregiving (preparation for caregiving, caregiver burden, and confidence in caregiving).

CHAPTER III

METHOD

In this chapter the research design, setting, sample, data collection method and plan for data analysis are presented. Data collection methods and instruments are described. The plan for data analysis is presented in relation to the research questions for the study.

Research Design

A correlational descriptive design using secondary data analysis of data was used to examine and describe the perceptions of infant health, reliance on others, and caregiving by mothers of low birth weight and normal birth weight infants.

Setting and Sample

The sample ($N = 60$) was drawn from the postpartum unit and the Neonatal Intensive Care Unit of a large southwestern urban medical center. The setting for data collection was in places convenient for the participants. Of 60 mothers, 59 were interviewed in their homes and one at a restaurant near her home.

A convenience sample of 30 mothers of LBW infants and 30 mothers of normal birth weight infants was obtained. The criteria for inclusion of mothers in the sample were:

1. The natural mother (birth mother);
2. Able to speak and read English;

3. Living in the county in which the hospital was located.

In addition to the criteria for mothers, the LBW infants met the following criteria:

1. Received care from the Neonatal Intensive Care Unit of the Medical Center used as the site for recruitment;
2. Discharged to live with the natural mother (birth mother);
3. Singleton birth (not a twin or other multiple birth infant);
4. Birth weight < 2500 grams.

In addition to the criteria for mothers, the normal birth weight infants met the following criteria:

1. Discharged to home from the Newborn Nursery, not receiving care from the Neonatal Intensive Care Nursery;
2. Discharged to live with the natural mother (birth mother);
3. Singleton birth (not a twin or other multiple birth infant);
4. Birth weight of 2500 grams or more.

Data Collection Method

The study was approved by the Human Subjects Committee of The University of Arizona (Appendix A) and the Research Committee of the College of Nursing of the University of Arizona (Appendix A). Prior to data collection, informed

consent was obtained by giving the mother a verbal explanation and written disclaimer (Appendix B). Both the verbal and the written information included an explanation of the study, assurance of confidentiality and the right to refuse to answer any questions. At the completion of data collection the participants were given \$5.00 as partial compensation for participation in the research.

Data collection occurred from August, 1992, through April, 1993. Mothers of normal birth weight infants who met the sample selection criteria were recruited through the postpartum unit. After receiving a verbal explanation of the study, if the mother agreed to participate, a telephone call by the researcher to arrange an appointment was made within a week after maternal discharge from the hospital.

Mothers of LBW infants who met the sample selection criteria were recruited through the Neonatal Intensive Care Unit. After the researcher had been notified by the hospital personnel that an infant was within a few days to two weeks of discharge from the Neonatal Intensive Care Unit, the mother was contacted by the researcher through a note left at the infant's bedside. If the mother answered on the note that the researcher could call her, the researcher made a telephone call to explain the research and arrange an appointment soon after the infant was discharged from the hospital.

Secondary Analysis of the Data

Secondary analysis of data is defined as a further analysis of existing data for the purpose of presenting interpretations, conclusions, or knowledge from the primary study (Leske, 1990; McArt & McDougal, 1985). Secondary analysis of data also provides the opportunity to look at questions not addressed by the original researcher, to address the same questions but analyze them using different methods, or to look at them from two different theoretical perspectives (McArt & McDougal, 1985). The limitation of secondary data is its reliability and validity, which is a problem common to all data sets (Brown & Semradek, 1992). Although the secondary data of this study are derived from a larger study of mothers of low birth weight infants (May, 1993), data were analyzed for this study using Roy's Adaptation Model as a conceptual framework to investigate perception of infant health, reliance on others, and caregiving by mothers of LBW and normal birth weight infants.

Instruments

The instruments used in this study were: Demographic Questions (Appendix C), Infant Health Questionnaire (Appendix C), Reliance on Others Scale (Appendix C), and Caregiving Questionnaire (Appendix C). The items for the Infant Health Questionnaire and Caregiving Questionnaire

were derived from qualitative data in a preliminary study (May, 1993).

Demographic Questions

The Demographic Questions consisted of 28 items addressing infant health, family living arrangement, employment, financial support, health insurance, source of infant health care, and maternal age, marital status, education, ethnicity, and religious preference.

Infant Health Questionnaire

The Infant Health Questionnaire developed by May (1993) is an eighteen item unidimensional scale to measure maternal perception of infant health. The response format is a four item Likert scale with "strongly agree" and "strongly disagree" as anchors. Respondents are asked to rate their perception of infant health, including physical health and developmental status. Eight positively-worded items indicate positive health status and ten negatively-worded items indicate negative health status. Reverse scoring is used on negatively-worded items to attain a summated score for the scale. A total score is obtained by dividing the total score by the number of items to obtain the mean.

Content validity is supported by the qualitative data from which the 18 items are derived (May, 1993). Internal consistency reliability in this study was indicated by a Chronbach's alpha coefficient of .87.

Reliance on Others Scale

The Reliance on Others Scale developed by May (1993) is a six-item unidimensional scale measuring the mother's perception of her reliance on others. The persons on whom the mother may rely include husband/partner, mother, other family members/relatives, friends, nurse, and physician. The response format is a five item Likert scale with "a great deal" and "not at all" as anchors. The internal consistency reliability estimate using Chronbach's alpha coefficient was .57.

Caregiving Questionnaire

The Caregiving Questionnaire developed by May (1993) is a 37 item multidimensional scale with three subscales measuring maternal perception of: Preparation for Caregiving, Caregiver Burdens and Confidence in Caregiving. The response format is a five item Likert scale with "always" and "never" as the anchors. The negatively worded items are reverse scored. Internal consistency reliability in this study was indicated by a Chronbach's alpha coefficient of .84. Content validity for the caregiving questionnaire is supported by the qualitative data from a preliminary study (May, 1993). Descriptions of the three subscales follow.

Preparation for caregiving subscale.

The Preparation for Caregiving Subscale has three positively worded items on maternal hospital practice and past experience with infant caregiving. Chronbach's alpha coefficient for this subscale was .60.

Caregiver burdens subscale.

The Caregiver Burdens Subscale has 30 items addressing seven dimensions of caregiver burdens: responsibility for caregiving; physical strain; emotional strain; doing the extras; demands on time; demands on lifestyle; and concern about fathering. Chronbach's alpha coefficient for this subscale was .83 in this study.

Confidence in caregiving subscale.

The Confidence in Caregiving Subscale has four items including three positively worded items and one negatively worded item, which is reverse-scored. This subscale measures maternal confidence in providing care to infants. Chronbach's alpha coefficient for this subscale was .70.

Data Analysis Plan

Descriptive statistics were used to describe the sample. Multiple regression analysis was used to address the following research questions:

1. What is the relationship between maternal perception of infant health and maternal perception of

caregiver burden in mothers of LBW infants and mothers of normal birth weight infants?

2. What is the relationship between maternal perception of reliance on others and maternal perception of caregiver burdens in mothers of LBW infants and mothers of normal birth weight infants?

3. What is the relationship between maternal perception of preparation for caregiving and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants?

4. What is the relationship between maternal perception of confidence in caregiving and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants?

5. What is the relationship between maternal perception of infant health on maternal perception of confidence in caregiving in mothers of LBW infants and mothers of normal birth weight infants?

6. What is the relationship between maternal perception of preparation for caregiving on maternal perception of confidence in caregiving in mothers of LBW infants and mothers of normal birth weight infants?

Multiple regressions were used to analyze the relationship between: maternal perception of infant health and maternal perception of caregiver burden; maternal

perception of reliance on others and maternal perception of caregiving burdens; maternal perception of preparation for caregiving and maternal perception of caregiver burden; maternal perception of confidence in caregiving and maternal perception of caregiver burden; maternal perception of infant health and maternal perception of confidence in caregiving; and maternal perception of preparation for caregiving and maternal perception of confidence in caregiving, in mothers of LBW infants and mothers of normal birth weight infants. The alpha level of significance was set at $p < .05$.

Student's independent t-tests were used to address the following questions:

7. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of infant health?

8. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of their reliance on others?

9. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of their preparation for caregiving?

10. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of caregiver burden?

11. What is the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of their confidence in caregiving?

Summary

A descriptive research design was used to investigate perceptions of infant health, caregiving, and reliance on others by mothers of LBW and normal birth weight infants. The inclusion criteria and characteristics of the sample of 60 subjects were described. The protection of human subjects and data collection method were discussed. Three instruments were used to measure the variables studied in this research. Descriptive statistics, multiple regression, and independent t-tests were used in the data analysis.

CHAPTER IV

RESULTS OF ANALYSIS OF DATA

The results of data analysis are presented in this chapter. The level of significance in this study was set at $p < .05$. Multiple regression and Student's independent t -tests were used to analyze the data and research questions.

Description of Sample

Characteristics of Low Birth Weight Subsample

The age of the mothers ($n = 30$) of LBW infants ranged from 16 to 40 ($M = 27.5$, $SD = 6.28$). Their years of education ranged from 9 to 18 ($M = 12.93$, $SD = 2.07$). Twenty (66.7%) were married, eight (26.7%) were single or never married, and two (6.7%) were divorced or separated. Ethnicity of the mothers included Mexican American (63.3%), Caucasian (26.7%), African American (3.3%), Native American (3.3%), and other (3.3%). Their religious preferences were Catholic (60%), Protestant (13.3%), no affiliation (6.7%), and other (16.7%).

Employment status of the "head of household" (if the "head of household" was someone other than the mother) and mother is presented in Table 1. Twenty-three (76.7%) of the mothers and infants lived with the mother's partner or husband; five (16.7%) lived with their families or relatives; and two (6.7%) lived by themselves.

Table 1

Employment Status of the Head of Household and Mother (Low Birth Weight Infants)

Variables	<u>n</u>	Percent
Head of household		
Skilled	8	26.7
Unskilled	8	26.7
Professional	4	13.3
Business	1	3.3
Other	3	10.0
Total	24*	80.0
Mother		
Homemaker	9	30
Unskilled	6	20
Professional	5	16.7
Clerical	4	13.3
Business	2	6.7
Skilled	1	3.3
Other	2	6.7
Total	29**	96.7

* Not applicable/missing data = 6

** Missing data = 1

The LBW infants' gestational ages ranged from 26 to 37 weeks ($M = 32.37$, $SD = 2.95$). Fourteen infants (46.7%) were the mother's first baby; eight infants (26.7%) were the mother's second baby; five infants (16.7%) were the mother's third baby; two infants (6.7%) were the mother's fourth baby; and one infant (3.3%) was the mother's fifth baby.

Fifteen LBW infants (50%) were female and 14 (46.7%) were male ($n = 1$ missing data). They had arrived home from the hospital at one to 21 weeks of age ($M = 5.13$, $SD = 4.70$). Age of the infants at the time of data collection ranged from one to 21 weeks ($M = 6.83$, $SD = 4.52$). Their birth weights of the LBW infants ranged from 16-87 ounces ($M = 59.60$, $SD = 18.65$) which was a range of 620 to 2465 grams ($M = 1712.17$, $SD = 519.01$). Twelve LBW infants (40%) were on a monitor, nine (30%) on medication, two (6.7%) on oxygen, one (3.3%) on G-tube, one (3.3%) using a harness for the hips, and one (3.3%) using other equipment.

Nineteen (63.3%) LBW infants received health care from private pediatricians and 10 (33.3%) from hospital clinics. Only 20% ($n = 6$) of the infants had been seen by a physician or nurse for illness or health problems once since coming home, and 10% ($n = 3$) had been seen twice. Sixteen (50.3%) infants had been seen by health care providers for well-baby check-ups or immunizations.

Fifteen LBW infants (50%) were financially supported by the mother's partner or husband; six (20%) by both parents' money; five (16.7%) by AFDC or other public support; and four (13.3%) by the mother's own money. Eleven (36.7%) infants' health care was paid by AHCCS or other public support; 10 (33.3%) by the mother's own money or insurance; and six (20%) by the mother's partner or husband. Nineteen (63.3%) infants received health care from a private pediatrician; 10 (33.3%) from hospital clinics; and one (3.3%) from the public health department.

Characteristics of Normal Birth Weight Subsample

The age of the mothers ($n = 30$) of NBW infants ranged from 15 to 34 ($M = 25.47$, $SD = 5.69$). Their years of education ranged from 7 to 18 ($M = 13.20$, $SD = 2.61$). Seventeen (56.7%) were married, 12 were (40.%) single or never married, and one was (3.3%) divorced or separated. Ethnicity of the mothers included Caucasian (50%), Mexican American (40%), African American (3.3%), Native American (3.3%), and other (6.7%). Their religious preferences were Catholic (43.3%), no affiliation (23.3%), Protestant (13.3%), and other (20%).

Employment status of the "head of household" (if the "head of household" was someone other than the mother) and mother is presented in Table 2. Twenty-two (73.3%) of the

Table 2

Employment Status of the Head of Household and Mother(Normal Birth Weight Infants)

Variables	<u>n</u>	Percent
Head of household		
Professional	8	26.7
Unskilled	6	20.0
Skilled	4	13.3
Business	3	10.0
Homemaker	2	3.7
Other	1	3.3
Total	24*	77.0
Mother		
Unskilled	9	30
Homemaker	6	20
Clerical	5	16.7
Professional	4	13.3
Skilled	3	10.0
Other	2	6.7
Total	29**	96.7

* Not applicable/known/missing data = 6

** Missing data = 1

mothers and infants lived with the mother's partner or husband; six (20%) lived with their families or relatives; and two (6.7%) lived by themselves.

The normal birth weight infants' gestational ages ranged from 36 to 49 weeks ($\bar{M} = 39.77$, $SD = 2.24$), according to the mothers' reports. Twelve infants (40%) were the mother's first baby; eight (26.7%) were the mother's second baby; eight (26.7%) were the mother's third baby; and two (6.7%) were the mother's fourth baby.

Twenty-one infants (70%) were male and nine (30%) was female. They had arrived home from the hospital during their first week after birth ($\bar{M} = .03$, $SD = .18$). Age of the infants at the time of data collection ranged from one to six weeks ($\bar{M} = 1.83$, $SD = 1.02$). Their birth weight ranged from 90-143 ounces ($\bar{M} = 121.07$, $SD = 12.45$) as reported by the mothers, which was a range of 2520 to 4004 grams ($\bar{M} = 3389.73$, $SD = 348.58$). Only one infant (3.3%) was on medication, and one was using "other" equipment (3.3%).

Only 20% ($n = 6$) infants had been seen by a physician or nurse for illness or health problems once since coming home, and 13.3% ($n = 4$) of the infants had been seen twice. One infant (3.3%) had been re-hospitalized and one (3.3%) had had an accident. Seventeen (56.7%) of the infants had been seen by health care providers for well-baby check-ups or immunizations.

Eleven infants (36.7%) were financially supported by both parents' money; nine (30%) by the mother's partner or husband; five (16.7%) by AFDC or other public support; and one (3.3%) by the mother's own money. Fifteen (50%) infants' health care was paid by AHCCS or other public support; eight (26.7%) by the mother's own money or insurance; and five (16.7%) by the mother's partner or husband. Eighteen (60%) infants received health care from a private pediatrician and 10 (33.3%) from hospital clinics.

Results Related to the Research Questions

Research Question One

The first research question explored the relationship between maternal perception of infant health and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants. A significant relationship ($R^2 = .29$, $p \leq .001$) (Table 3) was found between maternal perception of infant health and maternal perception of caregiver burden. Infant health ($\beta = .54$) accounted for 29% of the variance in maternal perception of caregiver burden. A significant change in R^2 occurred when group membership (LBW vs. normal birth weight) was included in the equation (R^2 change = .08, $p \leq .008$). The positive coefficient ($B = .29$) indicates that mothers of normal birth weight infants have a higher score on the Caregiver

Table 3

Multiple Regression Analysis of Maternal Perception of Infant Health and Maternal Perception of Caregiver Burden in Mothers of LBW Infants and Mothers of Normal Birth Weight Infants

<u>Variable Entered</u>	<u>Dependent Variable- Caregiver Burden</u>						
	R ²	R ² (Change)	F (Change)	Sig F (Change)	Beta	F	p
Infant Health	.29	.29	23.73	≤.001	.54	23.73	≤.001
Infant Birth Weight	.37	.08	7.61	≤.01	.30	17.02	≤.001
Interaction	.41	≤.04	3.59	.06		13.06	≤.001

Burden Subscale (high values on the Caregiver Burden Subscale indicate low perception of burden) than the mothers of LBW infants. No significant increase in R^2 occurred when the interaction of group and maternal perception of infant health was added ($R^2 = .04$, $p \leq .06$).

Research Question Two

The second research question explored the relationship between maternal perception of reliance on others and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants. No statistically significant relationship ($R^2 = .00$, $p \leq .79$) (Table 4) was found between maternal perception of reliance on others and maternal perception of caregiver burden. A significant change in R^2 occurred when group membership (LBW vs. normal birth weight) was included in the equation (R^2 change = .17, $p \leq .001$). The positive coefficient for the dummy variable for group ($B = .41$) indicates that the mothers of normal birth weight infants have a higher score on the Caregiver Burden Subscale than the mothers of LBW infants (high values on the Caregiver Burden Subscale indicate low perception of burden). No significant increase in R^2 occurred when the interaction of group and reliance on others was added ($R^2 = .00$, $p \leq .94$).

Table 4

Multiple Regression Analysis of Maternal Perception of Reliance on Others and Maternal Perception of Caregiver Burden in Mothers of LBW Infants and Mothers of Normal Birth Weight Infants

<u>Variable Entered</u>	<u>Dependent Variable- Caregiver Burden</u>						
	<u>R²</u>	<u>R²</u> <u>(Change)</u>	<u>F</u> <u>(Change)</u>	<u>Sig F</u> <u>(Change)</u>	<u>Beta</u>	<u>F</u>	<u>p</u>
Reliance on Others	.00	.00	.08	≤.79		.08	≤.79
Infant Birth Weight	.18	.17	11.96	≤.001	.42	6.02	≤.004
Interaction	.18	≤.001	.01	.94		3.95	.01

Research Question Three

The third research question explored the relationship of maternal perception of preparation for caregiving and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants. No significant relationship ($R^2 = .00$, $p \leq .63$) (Table 5) was found between maternal perception of preparation for caregiving and maternal perception of caregiver burden. A significant change in R^2 occurred when group membership (LBW vs. normal birth weight) was included in the equation (R^2 change = $.18$, $p \leq .001$). The positive coefficient for the dummy variable for group ($B = .41$) indicated that the mothers of normal birth weight infants had a higher score on the Caregiver Burden Subscale (high values on the Caregiver Burden Subscale indicate low perception of burden) than mothers of LBW infants. A significant increase in R^2 occurred when the interaction of group and preparation for caregiving was added (R^2 change = $.08$, $p \leq .02$).

Research Question Four

The fourth research question explored the relationship between maternal perception of confidence in caregiving and maternal perception of caregiver burden in mothers of LBW infants and mothers of normal birth weight infants. A significant relationship ($R^2 = .12$, $p \leq .01$) (Table 6) was

Table 5

Multiple Regression Analysis of Maternal Perception of Preparation
for Caregiving and Maternal Perception of Caregiver Burden in Mothers
of LBW Infants and Mothers of Normal Birth Weight Infants

<u>Dependent Variable- Caregiver Burden</u>							
<u>Variable Entered</u>	R ²	R ² (Change)	F (Change)	Sig F (Change)	Beta	F	p
Preparation for Caregiving	.00	.00	.24	≤.63		.24	≤.63
Infant Birth Weight	.184	.18	12.60	≤.001	.43	6.44	≤.003
Interaction	.26	.08	5.66	.02		6.53	≤.001

Table 6

Multiple Regression Analysis of Maternal Perception of Confidence in
Caregiving and Maternal Perception of Caregiver Burden in Mothers of
LBW Infants and Mothers of Normal Birth Weight Infants

<u>Variable Entered</u>	<u>Dependent Variable- Caregiver Burden</u>						
	<u>R²</u>	<u>R²</u> (Change)	<u>F</u> (Change)	<u>Sig F</u> (Change)	<u>Beta</u>	<u>F</u>	<u>p</u>
Confidence in Caregiving	.12	.12	7.69	≤.01	.34	7.09	≤.01
Infant Birth Weight	.28	.17	13.24	≤.01	.41	11.28	≤.001
Interaction	.30	.01	.90	.35		7.80	≤.001

found between maternal perception of confidence in caregiving and maternal perception of caregiver burden. Maternal perception of confidence in caregiving ($\beta = .34$) accounted for 12% of the variance in maternal perception of caregiver burden. A significant increase in R^2 occurred when group membership was included in the equation (R^2 change = .17, $p \leq .01$). The positive coefficient for the dummy variable for group ($B = .40$) indicated that the mothers of normal birth weight infants had a higher score on the Caregiver Burden Subscale (high values on Caregiver Burden Subscale indicate a lower perception of burden) than the mothers of LBW infants. No significant increase in R^2 occurred when the interaction of group and confidence in caregiving was added (R^2 change = .01, $p \leq .35$).

Research Question Five

The fifth research question explored the relationship between maternal perception of infant health and maternal perception of confidence in caregiving in mothers of LBW infants and mothers of normal birth weight infants. A significant relationship ($R^2 = .18$, $p \leq .001$) (Table 7) was found between maternal perception of infant health and maternal perception of confidence in caregiving. Maternal perception of infant health ($\beta = .42$) accounted for 18% of the variance in maternal perception of confidence in

Table 7

Multiple Regression Analysis of Maternal Perception of Infant Health and Maternal Perception of Confidence in Caregiving in Mothers of LBW Infants and Mothers of Normal Birth Weight Infants

<u>Dependent Variable- Confidence in Caregiving</u>							
<u>Variable Entered</u>	R ²	R ² (Change)	F (Change)	Sig F (Change)	Beta	F	p
Infant Health	.18	.18	12.41	≤.001	.42	12.41	≤.001
Infant Birth Weight	.18	.01	.47	≤.50		6.38	≤.003
Interaction	.18	<.001	<.001	.99		4.18	.01

caregiving, ignoring the differences between mothers of LBW infants and mothers of normal birth weight infants. Neither dummy variable for group nor the interaction of group and perception of infant health was statistically significant (R^2 change = .01, $p \leq .50$ and R^2 change $\leq .001$, $p \leq .98$).

Research Question Six

The sixth research question explored the relationship between maternal perception of preparation for caregiving and maternal perception of confidence in caregiving in mothers of LBW infants and mothers of normal birth weight infants. A significant relationship ($R^2 = .10$, $p \leq .02$) (Table 8) was found between maternal perception of preparation for caregiving and maternal perception of confidence in caregiving. Maternal perception of preparation for caregiving ($\beta = .31$) accounted for 10% of the variance in maternal perception of confidence in caregiving. Neither the dummy variable for group nor the interaction of group and perception of preparation for caregiving was statistically significant (R^2 change $\leq .00$, $p \leq .66$ and R^2 change = .01, $p \leq .38$).

Research Question Seven

The seventh question examined the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of infant health. An

Table 8

Multiple Regression Analysis of Maternal Perception of Preparation for Caregiving and Maternal Perception of Confidence in Caregiving in Mothers of LBW Infants and Mothers of Normal Birth Weight Infants

<u>Dependent Variable- Confidence in Caregiving</u>							
<u>Variable Entered</u>	R ²	R ² (Change)	F (Change)	Sig F (Change)	Beta	F	p
Preparation for Caregiving	.10	.10	6.10	≤.02	.31	6.10	≤.02
Infant Birth Weight	.10	.00	.20	≤.66		3.11	≤.53
Interaction	.11	.01	7.93	.38		2.33	.08

independent t test was performed, comparing the mean of mothers of LBW infants (2.34, SD = .35) with that for mothers of normal birth weight infants (2.54, SD = .40) in their perception of infant health. The difference was statistically significant, t (58) = -2.02, $p \leq .05$ (Table 9).

Research Question Eight

The eighth research question examined the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of their reliance on others. An independent t test was performed, comparing the mean of mothers of LBW infants (1.59, SD = .63) with that for mothers of normal birth weight infants (1.77, SD = .80) in their perception of confidence in caregiving. The difference was not statistically significant, t (58) = -.93, $p \leq .36$ (Table 10).

Research Question Nine

The ninth question examined the difference between mother of LBW infants and mothers of normal birth weight infants in their perception of their preparation for caregiving. An independent t test was performed, comparing the mean of mothers of LBW infants (3.27, SD = .72) with that for mothers of normal birth weight infants (3.13, SD = .82) in their perception of preparation for caregiving. The

Table 9

Independent t-Test of Group Difference (Mothers of LBW
Infants and Mothers of Normal Birth Weight Infants) in
Perception of Infant Health

	Mean Raw Score	Standard Deviation	Range	<u>t</u>	<u>p</u>
LBW	2.34	.35	1.61-2.89		
Normal Birth Weight	2.54	.40	1.89-3.11	-2.02	≤.05

Table 10

Independent t-Test of Group Difference (Mothers of LBW
 Infants and Mothers of Normal Birth Weight Infants) in
 Perception of Reliance on Others

	Mean Raw Score	Standard Deviation	Range	t	p
LBW	1.59	.63	.50-3.67		
Normal Birth Weight	1.77	.80	.17-3.00	-.93	≤.36

difference was not statistically significant, $t(58) = .67$, $p \leq .51$ (Table 11).

Research Question Ten

The tenth question examined the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of caregiver burden. An independent t test was performed, comparing the mean of mothers of LBW infants (2.07, SD = .49) with that for mothers of normal birth weight infants (2.47, SD = .40) in their perception of caregiver burden. The difference was statistically significant, $t(58) = -3.50$, $p \leq .001$ (Table 12).

Research Question Eleven

The eleventh research question examined the difference between mothers of LBW infants and mothers of normal birth weight infants in their perception of their confidence in caregiving. An independent t test was performed, comparing the mean of mothers of LBW infants (3.35, SD = .65) with that for mothers of normal birth weight infants (3.38, SD = .54) in their perception of confidence in caregiving. The difference was not statistically significant, $t(58) = -.22$, $p \leq .83$ (Table 13).

Table 11

Independent t-Test of Group Difference (Mothers of LBW
 Infants and Mothers of Normal Birth Weight Infants) in
 Perception of Preparation for Caregiving

	Mean Raw Score	Standard Deviation	Range	t	p
LBW	3.27	.72	1.67-4.33		
Normal Birth Weight	3.13	.82	1.33-4.00	-.67	≤.51

Table 12

Independent t-Test of Group Difference (Mothers of LBW
 Infants and Mothers of Normal Birth Weight Infants) in
 Perception of Caregiver Burden

	Mean Raw Score	Standard Deviation	Range	t	p
LBW	2.07	.49	.90-2.70		
Normal Birth Weight	2.47	.40	1.37-3.03	-3.50	≤.001

Table 13

Independent t-Test of Group Difference (Mothers of LBW
 Infants and Mothers of Normal Birth Weight Infants) in
 Perception of Confidence in Caregiving

	Mean Raw Score	Standard Deviation	Range	<u>t</u>	<u>p</u>
LBW	3.35	.65	1.25-4.00		
Normal Birth Weight	3.38	.54	2.25-4.25	-.22	≤.83

Summary

In this study significant relationships existed between maternal perception of: infant health and caregiver burden; confidence in caregiving and caregiver burden; infant health and confidence in caregiving; and preparation for caregiving and confidence in caregiving. The relationship between maternal perception of preparation for caregiving and maternal perception of caregiver burden was different in mothers of LBW infants and mothers of normal birth weight infants. A significant difference was found between mothers of LBW infants and mothers of normal birth weight infants in their perception of infant health and perception of caregiver burden.

CHAPTER V

DISCUSSION

The findings of the study are presented in this chapter. The discussion of results for the research questions is presented in relation to conceptual framework. Limitations and implications for nursing are addressed and recommendations for future research are presented.

Findings

Perception of Infant Health and Caregiver Burden

According to the conceptual framework, maternal perception of infant health is related to perception of caregiver burden. The strong relationship between maternal perception of infant health and maternal perception of caregiver burden suggested that the higher the mother's perception of infant health, the lower her perception of caregiver burden. There was a difference in maternal perception of caregiver burden between mothers of LBW infants and mothers of normal birth weight infants for a given infant birth weight. Mothers of normal birth weight infants had a lower perception of caregiver burden than mothers of LBW infants. The relationship between maternal perception of infant health and maternal perception of caregiver burden was the same for mothers of LBW infants and mothers of normal birth weight infants.

This finding was congruent with those of McKim (1993) and Brust et al. (1992), who studied mothers of high-risk premature infants and mothers of disabled children. McKim (1993) found that infant illness was perceived as stressful by mothers of premature infants. The reason that mothers considered the first week at home difficult was due to the infant's health condition. Maternal stress was associated with the infant's prematurity and the severity of illness. In the Brust et al. (1992) study, the perception of caregiver burden was related to the increased caregiver time and caregiving tasks parents performed for disabled children.

Mothers of LBW infants perceived more caregiver burden than mothers of normal birth weight infants in this study, as in McKim (1993)'s, and Brust et al. (1992)'s studies. This finding indicates that perception of poor infant health is related to maternal perception of caregiver burden.

Perception of Reliance on Others and Caregiver Burden

According to the conceptual framework, maternal perception of reliance on others is related to perception of caregiver burden. The findings of the study indicated that maternal perception of reliance on others was not significantly related to maternal perception of caregiver burden. Maternal perception of reliance on others and maternal perception of caregiver burden were significantly

different in mothers of LBW infants and mothers of normal birth weight infants for a given birth weight. Mothers of normal birth weight infants had a lower perception of caregiver burden than mothers of LBW infants. The relationship between maternal perceptions of reliance on others and maternal perception of caregiver burden was the same for mothers of LBW infants and mothers of normal birth weight infants.

The finding that the relationship between maternal perception of reliance on others and maternal perception of caregiver burden was the same for mothers of LBW infants and mothers of normal birth weight infants did not support findings reported in the literature. Pridham & Chang (1992) pointed out in their study that younger mothers were more likely to use help, which was not examined in this study.

Perception of Preparation for Caregiving and Caregiver Burden

According to the conceptual framework, maternal perception of preparation for caregiving is related to perception of caregiver burden. Findings of this study indicated that maternal perception of preparation for caregiving was not significantly related to maternal perception of caregiver burden. The mean maternal perception of caregiver burden was different for mothers of LBW infants and mothers of normal birth weight infants for a

given infant birth weight. Mothers of normal birth weight infants had a lower perception of caregiver burden than mothers of LBW infants. The relationship between maternal perception of preparation for caregiving and maternal perception of caregiver burdens was different between mothers of LBW infants and mothers of normal birth weight infants.

The findings of the present study supported the results of a study of mutuality and preparedness for caregiving as related to the level of the caregiver's role strain in older persons and their family caregivers (Archbold, et al., 1990). In the Archbold study, a caregiver's strain was lower when the caregiver had higher levels of mutuality and preparedness. In this study, mothers of normal birth weight infants had a lower perception of caregiver burden than mothers of LBW infants, although maternal perception of preparation did not contribute to perception of less caregiver burden.

Perception of Confidence in Caregiving and Caregiver Burden

According to the conceptual framework, maternal perception of confidence in caregiving is related to perception of caregiver burden. Maternal perception of confidence in caregiving had a significant relationship with maternal perception of caregiver burden. The positive Beta weight indicated that the higher the mother's perception of

confidence, the lower her perception of caregiver burden. The mean maternal perception of caregiver burden was different for mothers of LBW infants and mothers of normal birth weight infants for a given infant birth weight. Mothers of normal birth weight infants had a lower perception of caregiver burden than mothers of LBW infants. The relationship between maternal perception of confidence in caregiving and maternal perception of caregiver burden was the same for mothers of LBW infants and mothers of normal birth weight infants.

The explanation may be that having a LBW infant may decrease maternal confidence in caregiving (Zahr, 1991b). McHaffie (1990) found that mothers of VLBW infants moved to a confident caring phase when they felt happy about the adequacy of caring for their infants.

Perception of Infant Health and Confidence in Caregiving

According to the conceptual framework, maternal perception of infant health is related to perception of confidence in caregiving. Maternal perception of infant health had a significant relationship with maternal perception of confidence in caregiving. The positive Beta weight indicated that the higher the mother's perception of infant health, the higher the mother's perception of confidence in caregiving. The mean maternal perception of confidence in caregiving was the same for mothers of LBW

infants and mothers of normal birth weight infants for a given infant birth weight. The relationship between maternal perception of infant health and confidence in caregiving was the same for mothers of LBW infants and mothers of normal birth weight infants.

The findings were congruent with previous research (Zahr, 1990) on the relationship between confidence in caregiving and perception of infant health. Zahr (1990) concluded that infants with difficult temperaments may decrease maternal confidence in caregiving. McKim (1993) investigated the difficulty the first week at home with a premature infant. The author found that mothers of premature infants perceived caring of premature infants as stressful and lack of support decreased maternal confidence in ability to care for a premature infant (McKim, 1993).

The results of the present study did not show a difference between mothers of LBW infants and mothers of normal birth weight infants in the relationship of perception of infant health to perception of confidence in caregiving. This may reflect a possible perception by mothers of LBW infants in this study that their infants were progressing well. Aradine and Ferketich (1990) reported that an infant's progress in development may decrease maternal anxiety and depression.

Perception of Preparation for Caregiving and Confidence in Caregiving

According to the conceptual framework, maternal perception of preparation for caregiving is related to perception of confidence in caregiving. Results of the study indicated a significant relationship between maternal perception of preparation for caregiving and maternal perception of confidence in caregiving. The positive Beta weight indicated that the higher the mother's perception of preparation for caregiving, the higher her perception of confidence in caregiving. This finding supported the Gross et al. (1989) study, in which mothers' past experience with child care was related to maternal confidence. Rutledge and Pridham (1987) noted in their study that mothers with hospital preparation for infant care had a higher perception of competence in infant care than mothers who did not receive preparation.

The mean perception of maternal confidence in caregiving was the same for mothers of LBW and mothers of normal birth weight infants for a given infant birth weight. The relationship between perception of preparation for caregiving and confidence in caregiving was the same for mothers of LBW infants and mothers of normal birth weight infants. The results of the study were consistent with Gross et al. (1989), who found no significant difference in

maternal confidence between mothers of preterm infants and mothers of term infants. However, they found that maternal confidence was correlated with toddler birth order and prior child care experience in the preterm group (Gross et al., 1989).

Perception of Infant Health

Mothers of normal birth weight infants had a higher perception of infant health than mothers of LBW infants. The findings of previous research (Culley et al., 1989; Jeffcoate, 1979; & Lenard et al., 1992) indicated that mothers of LBW infants tended to have a more negative perception of infant health than mothers of normal birth weight infants. These findings are in contrast to Weingarten et al. (1990)'s study, in which both mothers of premature infants and mothers of term infants perceived their infants more positively than average, regardless of the severity of the infants' conditions. The authors suggested that past experience, adequate prenatal care, and education had an positive impact on maternal perception of the infant (Weingarten et al., 1990).

Perception of Reliance on Others

Maternal perception of reliance on others was the same for mothers of LBW infants and mothers of normal birth weight infants in this study, which may indicate that having a LBW infant did not contribute to the maternal perception

of reliance on others in taking care of infants. The reliability of these results, based on the Reliance on Others Scale, is limited due to the low reliability of the instrument (Chronbach's alpha coefficient = .57), suggesting the need for further instrument testing or revision.

Perception of Preparation for Caregiving

Maternal perception of preparation for caregiving was the same for mothers of LBW infants and mothers of normal birth weight infants, which may indicate that having a LBW infant did not influence maternal perception of preparation for caregiving. However, the reliability of the Preparation for Caregiving Subscale (Chronbach's alpha coefficient = .60) needs to be further tested before conclusions can be drawn.

Perception of Caregiver Burden

Mothers of normal birth weight infants had a lower perception of caregiver burden than that of mothers of LBW infants. This was expected and in agreement with the Brust et al. (1992); Gennaro (1988); and McKim (1993) studies. Brust et al. (1992) reported that caring for disabled children required more time and was more demanding than caregiving for healthy children. Gennaro (1988) found that mothers of preterm infants experienced higher anxiety and depression during the first postpartal week than mothers of term infants. However, LBW infants in this study were not

all in their first week of age ($M = 4.33$). The adjustment to giving care to LBW infant was perceived as stressful by mothers of LBW infants (McKim, 1993). The author reported that mothers of LBW infants perceived the first week difficult after the infant's discharge. McKim (1993) noted that maternal anxiety and depression were due to the fact that premature infants had lower birth weights, early gestational age, longer stays in hospital, and a history of apnea. However, this finding was contradictory to Aradine and Ferketich's (1990) finding that anxiety and depression in mothers of premature infants were not higher in high risk mothers than in low risk mothers.

Perception of Confidence in Caregiving

The lack of difference in maternal perception of confidence in caregiving in mothers of LBW and normal birth weight infants did not support the findings of Gennaro (1985), who had found that mothers of preterm infants had less confidence in their mothering abilities than did mothers of term infants. Gross et al. (1989) found that maternal confidence was correlated with mother's age and toddler's birthweight and suggested that mothers of preterm infants may gain confidence if they have previously carried a child to term and parented that child through toddlerhood (Gross et al. 1989). The explanation of the findings in

this study may be due to maternal demographic variables which were not explored in this study.

Limitations

When interpreting the findings, the limitations of the study must be recognized. One limitation was the small sample size and the lack of random selection. Another limitation was that this study was a pilot test of newly developed instruments. Therefore, the reliability and validity of the instruments had not been established, although validity was supported in the derivation of the items of the Infant Health Questionnaire and Caregiving Questionnaire from qualitative data.

Implications for Nursing

A LBW infant appears to have a more negative impact than a normal birth weight infant has on maternal perception of infant health and perception of caregiver burden. Mothers of LBW infants may lack confidence in caregiving. Perception of caregiver burden in mothers of LBW infants was significantly higher than in mothers of normal birth weight infants.

Nurses should be aware that mothers of LBW infants may have more concern about their infants' health than do mothers of normal birth weight infants. Therefore, they may have increased anxiety and depression, which may lead to ineffective adaptive responses. During the antepartum

period, nursing intervention should emphasize assessing a mother's needs and providing resources in preparation for the newborn. The nursing goal is to increase maternal confidence in caregiving by enhancing parenting skills and encouraging parental involvement in caregiving. Health care providers should help mothers of LBW infants prepare for infant care, in an effort to decrease perception of caregiver burden.

Nurses should assess maternal perceptions of infant health and caregiver burden in order to identify barriers that may affect maternal adaptation. Education programs should be established for mothers of LBW infants to become familiar with the care of LBW infants in order to decrease the potential for caregiver burden. Nurses can assist mothers of LBW infants in adapting by offering home visits by community health nurses. Counseling following the birth of a LBW infant may help decrease the perception of caregiver burden.

Recommendations

Further research is needed to explore variables that may influence maternal perception of infant health and perception of caregiver burden; maternal perception of confidence in caregiving and perception of caregiver burden; maternal perception of infant health and perception of confidence in caregiving; and maternal perception of

preparation for caregiving and perception of confidence in caregiving. Demographic variables may have an impact on maternal perception of infant health, reliance on others, and caregiving. Specific variables having an impact on maternal perceptions need to be identified (Weingarten, et al., 1988).

Further research with a larger sample is needed to test a model of maternal perception of infant health, reliance on others, and caregiving. Additional variables that may contribute to maternal perception need to be added to the model for theory development in order to further identify sources of variance. In this study maternal perception of infant health explained only 29% of the variance in maternal perception of caregiver burden; maternal perception of confidence in caregiving explained 12% of the variances in maternal perception of caregiver burden; maternal perception of infant health explained 18% of the variance in maternal perception of confidence in caregiving; and maternal perception of preparation for caregiving explain 10% of the variance in maternal perception of confidence in caregiving.

Longitudinal studies need to be completed at different stages of child development to identify the long-term effect of maternal perception of infant health, reliance on others, and caregiving related to LBW infants. Diverse ethnic groups should be studied further, expanding on what is known

about the mothers of LBW infants in this study, who were 63.3% Mexican American.

Research on maternal perception of reliance on others, preparation for caregiving, caregiver burden, and confidence in caregiving can contribute to nursing knowledge regarding how to facilitate maternal adaptation. A more comprehensive study of reliance on others in relation to caregiving by mothers of LBW infants may help in identifying factors associated with perception of caregiver burden.

Summary

The findings of the research are discussed related to the conceptual framework. Conclusions are based on significant relationships between maternal perception of: infant health and caregiver burden; perception of confidence in caregiving and caregiver burden; infant health and confidence in caregiving; and preparation for caregiving and confidence in caregiving. The relationship between maternal perception of preparation for caregiving and perception of caregiver burden was different between mothers of LBW infants and mothers of normal birth weight infants. Mothers of LBW infants and mothers of normal birth weight infants also differed in their perception of infant health and caregiver burden. The findings of this study supported the conceptual framework in the relationships between maternal perception of: infant health and caregiver burden;

confidence in caregiving and caregiver burden; infant health and confidence in caregiving; and preparation for caregiving and confidence in caregiving. Limitations of the study were discussed, implications for nursing were addressed, and recommendations for further research were made.

APPENDIX A
HUMAN SUBJECTS APPROVAL

College of Nursing

Tucson, Arizona 85721
(602) 626-6154

MEMORANDUM

TO: Jie Hu

FROM: Leanna Crosby, D.N.Sc., R.N. Director of Intramural Research

A handwritten signature in cursive script, appearing to read "Leanna Crosby".

DATE: September 30, 1993

Your request to complete a secondary data analysis of the data collected by Dr. Kathleen May has been approved by the Office of Nursing Research.

We wish you success in your research.

LC/ms

Human Subjects Committee



1690 N. Warren (Bldg. 526B)
Tucson, Arizona 85724
(602) 626-6721 or 626-7575

December 12, 1991

Kathleen M. May, D.N.Sc., R.N., C.
Division of Family and Community Nursing
College of Nursing, Room 320
Arizona Health Sciences Center

RE: DEVELOPMENT OF AN INSTRUMENT TO MEASURE HELP-SEEKING

Dear Dr. May:

We received documents concerning your above cited project. Regulations published by the U.S. Department of Health and Human Services [45 CFR Part 46.101(b)(3)] exempt this type of research from review by our Committee.

Please be advised that approval for this project and the requirement of a subject's consent form is to be determined by your department.

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely yours,


William F. Denny, M.D.
Chairman,
Human Subjects Committee

WFD:sj

cc: Departmental/College Review Committee

College of Nursing

Tucson, Arizona 85721
(602) 626-6154

MEMORANDUM

TO: Kathleen May D.N, Sc., R.N., C.

FROM: Leanna Crosby, D.N.Sc., R.N., Director of Intramural Research 

DATE: December 16, 1991

SUBJECT: Human Subjects Review: "Development of an Instrument to Measure Help-Seeking"

Your research project has been reviewed and approved by William Denny, M.D., Chairman of the University of Arizona Human Subjects Committee, and deemed to be exempt from review by their full committee. You will be receiving a confirmation letter from Dr. Denny. In addition, your project has been reviewed and approved by the College of Nursing Human Subjects Review Committee. A disclaimer may be used versus a signed consent form. Please be certain that the subjects read the disclaimer prior to giving their oral consent to the research.

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

LC/ga

Human Subject Committee



1690 N. Warren (Bldg. 526B)
Tucson, Arizona 85724
(602) 626-6721 or 626-7575

August 3, 1992

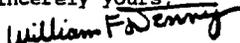
Kathleen M. May, D.N.S.C., R.N., C.
Division of Family & Community Nursing
College of Nursing, Room #320
Arizona Health Sciences Center

RE: EXEMPT STUDY/DEVELOPMENT OF AN INSTRUMENT TO MEASURE HELP-SEEKING

Dear Dr. May:

We received your 30 July 1992 memo and accompanying revised version of the Help Seeking Questionnaire and the Parenting Care Questionnaire with addition of item #4. Approval is granted effective 3 August 1992.

Sincerely yours,



William F. Denny, M.D.
Chairman
Human Subjects Committee

WFD:sj

cc: Departmental/College Review Committee

APPENDIX B
SUBJECT DISCLAIMER

DISCLAIMER

Development of an Instrument to Measure Help-Seeking

You are invited to participate in a study of mothers of infants. The purposes of this research are: 1) to learn about the ways mothers of infants get the help they want when they have an infant for whom they are providing care; and 2) to evaluate the usefulness of the questionnaires and interview guide used in this study

If you agree to participate, you will meet the nurse researcher at a convenient place to answer questions on getting help related to caring for an infant, the relationships that are important to you, and general questions like your age and experiences in giving care to your infant. It will take about 30-60 minutes to answer the questions. You may choose not to answer some or all of the questions, if you desire. You may ask questions or stop at any time without affecting your infant's or your own treatment or care by your health care providers. Your identity will be kept anonymous and confidential by the nurse researcher. Your name will not be on the answer sheets. Your answer sheets will be seen only by the nurse researcher and possibly by her faculty sponsor for the research.

There are no known risks or costs except the time it takes to answer the questions. At the end of the questions you will receive \$5.00 in cash. There are no other known benefits for you except the chance to share your ideas in this research, which may help others.

If there are any questions, please contact:
Kathleen M. May, DNSc, RNC
College of Nursing
The University of Arizona
Telephone: (602) 626-2707

APPENDIX C
INSTRUMENTS

27. Mother's Ethnic Background
- _____ 1. Asian
 - _____ 2. Black
 - _____ 3. White
 - _____ 4. Mexican American
 - _____ 5. Native American
 - _____ 6. Other (Specify) _____
28. Mother's Religious Preference
- _____ 1. Protestant (Specify) _____
 - _____ 2. Catholic
 - _____ 3. Jewish
 - _____ 4. Other (Specify) _____
 - _____ 5. None

Infant Health Questionnaire

Date: _____ Code _____

(For each statement, please circle the answer that applies.)

1. My baby has eye problems.

strongly agree	agree	disagree	strongly disagree
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2. My baby is hard to feed.

strongly agree	agree	disagree	strongly disagree
-------------------	-------	----------	----------------------

3. My baby's development is progressing well.

strongly agree	agree	disagree	strongly disagree
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4. My baby has stomach problems.

strongly agree	agree	disagree	strongly disagree
-------------------	-------	----------	----------------------

5. My baby shows a personality.

strongly agree	agree	disagree	strongly disagree
-------------------	-------	----------	----------------------

6. My baby eats well.

strongly agree	agree	disagree	strongly disagree
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7. My baby has breathing problems.

strongly agree	agree	disagree	strongly disagree
-------------------	-------	----------	----------------------

8. My baby is healthy.

strongly agree	agree	disagree	strongly disagree
-------------------	-------	----------	----------------------

9. My baby is growing well.

strongly agree	agree	disagree	strongly disagree
-------------------	-------	----------	----------------------

10. My baby's health problems are serious.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
11. My baby is gaining enough weight.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
12. My baby cries a lot.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
13. My baby gets sick easily.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
14. My baby is happy.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
15. My baby sleeps well.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
16. My baby will outgrow present problems.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
17. Using date of birth, my baby is small for this age.
- | | | | |
|-------------------|-------|----------|----------------------|
| strongly
agree | agree | disagree | strongly
disagree |
|-------------------|-------|----------|----------------------|
18. My baby is small for adjusted age (adjusted for prematurity).
- | | | | |
|-------------------------------------|-------|----------|----------------------|
| strongly
agree
does not apply | agree | disagree | strongly
disagree |
|-------------------------------------|-------|----------|----------------------|

Reliance on Others Scale

1. I rely on my husband/partner for help with my baby's health needs:

a great deal	quite a bit	moderately	a little	not at all
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2. I rely on my mother for help with my baby's health needs:

a great deal	quite a bit	moderately	a little	not at all
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3. I rely on other family members/relatives for help with my baby's health needs:

a great deal	quite a bit	moderately	a little	not at all
-----------------	----------------	------------	----------	---------------

4. I rely on friends for help with my baby's health needs:

a great deal	quite a bit	moderately	a little	not at all
-----------------	----------------	------------	----------	---------------

5. I rely on a nurse for help with my baby's health needs:

a great deal	quite a bit	moderately	a little	not at all
-----------------	----------------	------------	----------	---------------

6. I rely on a physician for help with my baby's health needs:

a great deal	quite a bit	moderately	a little	not at all
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Caregiving Questionnaire

Date: _____ Code: _____

(For each statement, please circle the answer that applies to you.)

1. My past experience giving care to a baby gives me confidence in giving care to this baby.

always usually half the rarely never have no
time experience

2. I had practice giving care to my baby in the hospital.

always usually half the rarely never
time

3. My practice giving care to my baby in the hospital gives me confidence in giving care to the baby at home.

always usually half the rarely never had no
time practice

4. My husband/partner talks freely about any concern he may have about the baby.

always usually half the rarely never have no
time husband/partner

5. I worry about whether I can handle the equipment (for example, monitor, oxygen, g-tube) my baby needs.

always usually half the rarely never uses no
time equipment

6. My husband/partner helps with the care of the baby.

always usually half the rarely never have no
time husband/partner

7. When the doctor or nurse tells me my baby is doing well, I have confidence that I am giving good care to the baby.

always usually half the rarely never not seen by
time doctor or nurse

8. Giving care to my baby requires more adjustment by my husband/partner than is common with most babies.

always usually half the rarely never have no
time husband/partner

9. To protect my baby, I limit who can come into my home.

always usually half the rarely never
time

10. I am the one responsible for watching my baby for any health problem.

always usually half the rarely never
time

11. Compared with giving care to most babies, giving care to my baby requires more worry.

always usually half the rarely never
time

12. Compared with other babies, my baby needs more protection from illness than most babies need.

always usually half the rarely never
time

13. It is hard for me to have to spend as much time as I do at home with the baby.

always usually half the rarely never
time

14. Because of my baby, I work less than I want to work at a job outside the home.

always usually half the rarely never
time

15. Having my baby at home has required a change in home routines.

always usually half the rarely never
time

16. Giving care to my baby takes more physical energy than would be needed for giving care to most babies.

always usually half the rarely never
time

17. Compared with other babies, my baby needs more care than most babies.

always usually half the rarely never
time

18. My concern about my baby makes it hard to sleep at night.

always usually half the rarely never
time

19. I get a break from giving care to my baby when I want.

always usually half the rarely never
time

20. I worry about my baby's health.

always usually half the rarely never
time

21. Giving care to the baby takes all my time.

always usually half the rarely never
time

22. I worry that my baby may be slow in learning or developing.

always usually half the rarely never
time

23. I worry about my baby when I am not with the baby.

always usually half the rarely never
time

24. I get enough sleep.

always usually half the rarely never
time

25. I do not know if I can give the care my baby needs.

always usually half the rarely never
time

26. I am the one who takes my baby for check ups and other health care.

always usually half the rarely never
time

27. Compared with most babies, my baby requires more change in home routines.

always usually half the rarely never
time

28. I keep a positive attitude about giving care to my baby.

always usually half the rarely never
time

29. I stay at home with my baby.

always usually half the rarely never
time

30. I spend a lot of time taking my baby to appointments with health care and other professionals.

always usually half the rarely never
time

31. I feel well.

always usually half the rarely never
time

32. I am the one who feeds my baby.

always usually half the rarely never
time

33. I am the one who gives other care to my baby.

always usually half the rarely never
time

34. My baby needs more appointments with health care and other professionals than most babies need.

always usually half the rarely never
time

35. I feel confident that I can give the right care to my baby.

always usually half the rarely never
time

36. Giving care to my baby takes more time than most babies need.

always usually half the rarely never
time

37. My baby's progress gives me confidence that I am giving good care to the baby.

always usually half the rarely never
time

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