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**Prenatal Education: Examining Issues of
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Alyne R. McCann

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Linda Beth Tiedje
Major professor

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**PRENATAL EDUCATION: EXAMINING ISSUES OF MATERNAL
KNOWLEDGE AND PREPAREDNESS FOR INFANT CARE**

By

Alyne R. McCann

A THESIS

**Submitted to
Michigan State University
in partial fulfillment of the requirements
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ABSTRACT

PRENATAL EDUCATION: EXAMINING ISSUES OF MATERNAL KNOWLEDGE AND PREPAREDNESS FOR INFANT CARE

By

Alyne R. McCann

The purpose of this study was to examine the issues of maternal preparation for infant care and maternal knowledge of jaundice and dehydration, factors which can result in significant morbidity and possible mortality to the newborn in the postpartum period. A convenience sample of 2 groups of primiparous mothers was used; 50 who had completed a prenatal education program and 45 who had not. The study found that primiparous mothers who attended prenatal education classes did not demonstrate a higher level of preparedness for infant care. The study supported the findings that primiparous women who attended childbirth education classes were more likely to recognize signs of infant jaundice, were more competent in the ability to assess health related problems in the newborn and were less likely to seek emergency services inappropriately for matters related to the health of their infant. Implications for advanced practice nursing and future research are also discussed, based on the results of the study.

This manuscript is dedicated with love to my
husband Tom and my dear children Stephanie
and B. J. whose support and concern have
been my strength.

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INTRODUCTION

* Childbearing and childrearing are processes marked by transition. Traditionally, prenatal education programs have been designed to prepare mothers for the transitions unique to pregnancy and labor with the underlying belief that a woman can utilize her mind and body to maintain self-control during childbirth (Lindell, 1988). Recently, many prenatal programs have expanded their educational focus to include information on the transition that follows the birth of a child; that of becoming a parent (Simkin & Enkin, 1989). The purpose of this study was to determine whether there was a difference between women who received prenatal education and those who did not about their perceptions of being prepared to perform infant care and recognize potential dangers to their infant.

Statement of the Problem

Maternal preparedness for infant care and knowledge of potential dangers to the infant are important for the care and safety of newborns. Examining these factors can help clarify appropriate content for prenatal classes and assist nurses and other health educators in designing innovative methods to provide solid preparation for new mothers. New parents desire information related to infant care; they want

to be prepared (Omar & Schiffman, 1995). Shortened postpartum hospitalization has greatly reduced the new mother's exposure to infant care education which was traditionally provided in the period between delivery and discharge, a time when nurses could not only instruct and demonstrate, but counsel and observe mothers providing care to their newborns (Beck, 1991; Young, 1995). Between 1970 and 1992, the length of postpartum hospitalization in the United States dropped from 3.9 to 2.1 days for uncomplicated vaginal deliveries (Young, 1995). This critical time period between the second and fourth postpartum days is now, in most cases, a memory. When mothers today receive infant care instructions very shortly following the birth of their child, they may not fully comprehend these instructions due to their strong personal needs for healing, rest, and psychological adaptation (Handfield, 1995; Lemmer, 1986).

Research indicates that primiparous mothers are known to have many more questions about infant care than multiparous mothers (Freda, Anderson, Damus, & Merkatz, 1993). In addition, new mothers often don't know what to expect about parenthood or what questions to ask (Freda et al., 1993). While many forms of information on all aspects of pregnancy, childbirth, and infant care abounds, what mothers want are clear, personal, attentive explanations from providers (Omar & Schiffman, 1995).

It is important to meet the new mother's need for information related to caring for her infant and being able

to recognize potential dangers. Optimal outcomes related to infant morbidity and mortality are strongly correlated with the caregiving abilities of the mother (Salam, 1995). When a new mother's need for knowledge regarding infant care is not met by health care providers she seeks that information from significant others such as family, friends, and neighbors. Social networks may supply valuable psychosocial benefits to new mothers, however, in light of current scientific information, specific health-related information passed from one lay person to another may not always be correct. In one study, 33 percent of new mothers received advice about infant care and nutrition from members of their social network rather than their health care providers (St. Clair & Anderson, 1989). Interviews showed such advice was often in conflict with generally accepted medical recommendations and when the advice was sound, mothers often did not understand the rationale behind it. Therefore, examining the primiparous mother's level of preparedness for infant care and ability to recognize potential dangers to the infant is important.

Potential dangers that are inherent to every newborn are those of jaundice and dehydration. These physiologic events may be life threatening to the newborn (Andres, 1992; Dietz, 1992). Approximately 60 percent of full term newborns in the United States are estimated to become clinically jaundiced at some time in the postpartum period (Cornell, 1997). Jaundice, a yellowing of the skin, sclera,

and mucous membranes, occurs when bilirubin accumulates in the subcutaneous tissues (Jones, 1989). Jaundice may have a variety of etiologies and may appear in the infant anywhere from within the first 24 hours to 2-3 months after birth (Silverman & Sokol, 1993). There is grave importance in its recognition. Lack of recognition may preclude appropriate treatment and result in kernicterus, a type of permanent brain damage caused from deposits of unconjugated bilirubin in brain tissue (Jones, 1989; Lustig, 1993). Dehydration, also one of the most common problems in infants, presents a similarly serious dilemma. Due to immature thermoregulation, newborn infants may easily become dehydrated in response to a variety of conditions (Charsha, 1997; Lustig, 1993). Dehydration carries with it a high potential for morbidity (Dietz, 1992). These conditions, therefore, become significant dangers to the health of the infant in the postpartum period. Because new mothers and infants are discharged from hospitals much earlier than in the past, recognition of these conditions becomes of paramount importance (Beck, 1991; Cornell, 1997).

Anticipatory guidance, in the form of prenatal education, is pivotal to achieving optimal health for newborns (Foye, 1992). As postpartum hospitalization time has decreased, prenatal education programs have increased their inclusion of information deemed necessary to promote optimal health for the infant in the initial postpartum weeks (Enkin, 1990). The therapeutic alliance formed

between new mothers, prenatal educators and healthcare providers contributes to optimal learning about such matters as infant care, jaundice, and dehydration.

Nurses in advanced practice are appropriate providers of health related information and anticipatory guidance. While many nurses have a component of education in their role, APNs have a greater ability to synthesize knowledge and empower others (Benner, 1984). APNs, therefore, should have a fundamental concern for providing information about infant health and evaluating the effectiveness of health education programs such as prenatal education programs. Through the mechanisms of assessment, research, and program design, APN's can help to ensure optimal health related outcomes for infants, successful role adaptation for new parents, appropriate use of health care resources, and access to programs which support all new mothers. This study is significant, not only because it examines reported levels of knowledge and preparedness for new mothers, but because it examines these issues for primiparous mothers only, therefore eliminating the possible experiential bias of multiparous mothers and enriching understanding of what educational components first time mothers need. The study examines differences between new mothers who have attended prenatal education and new mothers who have not and seeks to clarify understanding of the differences between these two groups. All mothers included in this study who attended prenatal education classes were involved with only one

program administered in the Greater Lansing Area, Lansing, Michigan. The lack of standardized program content is, therefore, minimized. Incorporating education related to infant care is a relatively new phenomenon in prenatal education. The prenatal education program utilized for this study included specific content related to infant care and recognizing potential dangers to the infant's health. The proposed study also aimed to clarify whether delivering infant care information during the prenatal period was helpful to the new mother postnatally.

Research Questions

The following questions were examined by this study:

- 1) Are there differences in perceptions of preparedness to perform infant care in women who receive prenatal classes and those who do not?
- 2) Are there differences in knowledge related to infant jaundice between women who receive prenatal classes and those who do not?
- 3) Are there differences in knowledge related to infant dehydration between women who receive prenatal classes and those who do not?

Review of the Literature

Introduction

A review of the literature revealed accumulated scientific knowledge related to three areas of prenatal education: Pain relief and intrapartal factors, non-intrapartal factors, and infant related factors. Several studies postulated that the primary benefit of prenatal

education was in improving the mother's ability to maintain control and manage pain associated with the childbirth process (Crowe & von Baeyer, 1989; Green, Coupland & Kitzinger, 1990; Lowe, 1991; Mackey, 1995; Walker & Erdman, 1984). Prenatal education has also been linked with decreased obstetrical complications and healthy birth outcomes for infants (Libbus & Sable, 1991; Slager-Earnest, Hoffman & Beckman, 1987). Other authors supported certain psychosocial benefits of prenatal education, such as increased social support, decreased anxiety in the mother about the childbirth process, improved perception of support between the partners, and increased self-efficacy of the mother related to the birthing process (Bryce, Stanley & Enkin, 1988; Coffman, Levitt & Brown, 1994; Cronenwett, 1985; Hiser, 1986; Libbus & Sable, 1991; Lowe, 1991; Lowe, 1993). For purposes of this review, issues related to maternal preparation for infant care and knowledge of danger to the infant were examined more fully.

Infant Care

Understanding the interrelationships of findings concerning infant care is vital to providing direction for further study and synthesis of new knowledge. From the research, it is apparent that new mothers have the greatest number of questions related to infant care in the initial postpartum period (Bull, 1981; Walker, Crain & Thompson, 1986). Primiparous mothers' concerns have been shown to differ from those of multiparous mothers (Bull & Lawrence,

1985; Walker et al., 1986). Primiparous mothers today may not know what questions to ask of health care providers or other support persons and have demonstrated decreased perceptions of maternal self-confidence in the postpartum period (Freda et al., 1993; Salam, 1995; Walker et al., 1986). Overwhelmingly, concerns primiparous mothers have for their infants focus on areas of feeding, physical care, infant behaviors, infant growth and development, and signs of illness (Bull & Lawrence, 1985; Lemmer, 1987).

A recent study examined the effect of shortened hospital stays and maternal perceptions of ability to perform infant-care (Salam, 1995). Primiparous mothers consistently perceived themselves as less prepared than multiparous mothers for feeding (both breastfeeding and bottlefeeding) and for infant care. Perceptions of competence were higher in primiparous mothers who had the advantage of prior experience with infants less than 3 months of age.

In light of the current trend toward postpartum stays of 2 days or less, it is important to evaluate maternal preparation for infant care and ensure that maternal needs are being met.

Knowledge of Danger

Both jaundice and dehydration are potentially dangerous to the newborn's health (Andres, 1992; Dietz, 1992; Harris, 1993; Muchmore, 1993; Zukowsky, Smith & Christoff, 1993). Because of concern over shortened postpartum hospital stays

and the implications these problems may have for the newborn in the first days and weeks of life, prenatal education programs have adjusted their curricula to include information on infant health issues such as jaundice and dehydration which were previously addressed as part of hospital based postpartum education programs (Beck, 1991).

Research currently indicates that a significant increase in the number of infants requiring outpatient serum bilirubin determinations and phototherapy has been noted for newborns involved in early discharge programs (Lemmer, 1987). An overall lack of knowledge by new mothers related to care and appropriate follow-up for infant jaundice has also been demonstrated (Salam, 1995).

Less is known about maternal knowledge of the signs, symptoms, and treatment of infant dehydration. This may be because dehydration is included broadly within the context of infant illnesses. Little information exists in the literature which specifically examines the frequency of infant dehydration related to early discharge.

Currently the literature indicates that recognizing illness in the baby is a high concern for new mothers and that primiparous mothers involved in short postpartum stay programs contact their infants' care providers more often than multiparous mothers with concerns related to the infant's health (Sheil et al., 1995; Lemmer, 1987). Other research has shown that adolescent mothers who do not participate in prenatal education programs may have more

difficulty recognizing and seeking appropriate treatment for conditions which may predispose the infant to dehydration such as infection, temperature disturbance and other complications (Slager-Earnest et al., 1987). Therefore, although more research is necessary to evaluate the frequency and impact of infant dehydration in light of shortened postpartum stays, there is evidence to indicate that it is a component of the health related problems infants experience in the postpartum, that mothers have documented concerns related to those health problems, and that prenatal education programs may influence the mother's ability to recognize and seek treatment for infant illnesses such as dehydration.

Currently, teaching methods exist that enable parents to learn how to recognize dangers to their infant's health, report illnesses appropriately, and provide suitable infant care (Delgado & Lutzker, 1988; Owens, 1996). In one study (Delgado & Lutzker, 1988) strategies such as modeling, role-playing, and practice sessions increased parental success in being able to recognize and correctly report their children's illnesses.

Summary

Based on the findings of the literature and the fact that many primiparous mothers rely on prenatal education classes as their primary source of education for both childbirth and the early transition to parenting (Simkin & Enkin, 1989), that hospital stays for both vaginal and

cesarean deliveries have decreased dramatically in the last few years (Enkin, 1990; Young, 1995), and that dehydration and jaundice are grave threats to the infant's health in the initial postpartum period (Foye, 1992; Muchmore, 1993; Salam, 1995; Zukowsky et al., 1993), this author believes that the proposed study to examine whether there is a difference between primiparous women who receive prenatal education and those who do not related to their perceptions of being prepared to perform infant care and their ability to recognize potential dangers to the infant's health is of grave importance.

Critique of the Literature

Two primary areas of concern present themselves from the review of the literature; concern with the age of the studies, and concern with the research methods incorporated in the studies.

Many of the studies related to infant care are over a decade old and deal with identifying maternal concerns related to infant care (Bull, 1981; Bull & Lawrence, 1985; Walker et al., 1986). In light of changes in medical technology, communications technology, the health care environment, decreasing lengths of postpartum hospitalization, and the impact these entities may have on new mothers, it is difficult to generalize the conclusions reached years ago to today's primiparous mothers.

No investigation considers the current extent of prenatal information available at places other than prenatal

classes (i.e. video stores, magazines and books) to new mothers in terms of controlling for bias. Subjects were exposed to various types and amounts of information depending on what was provided by their primary care providers, obstetricians, various prenatal classes, hospitals, and overall community environment. Methods of presentation, format, timing, individual instructor variables, and reinforcement techniques may all impact how new mothers value and retain information. Attempts to control these variables have been limited.

Recent investigations have been performed related to the effects of decreased lengths of postpartum hospitalization on maternal concerns and perceptions of competence to perform infant care (Lemmer, 1987; Salam, 1995). Competence and preparedness for infant care may share similar attributes which bear further conceptual clarification and investigation. Further research is necessary before findings related to shortened lengths of postpartum hospitalization can be generalized.

Several methodological concerns exist related to the samples included in the studies. All of the investigations had small sample sizes. Larger samples tend to be more likely to represent a given population (Polit & Hungler, 1995). Therefore, these small samples limit the generalizability of the results. In addition, studies mention the loss of a considerable number of participants (25 to 40 percent) primarily due to postpartum

complications. Loss of respondents could have significantly skewed the outcomes of the research (Bull & Lawrence, 1985; Salam, 1995). All of the studies included in the review of the literature were based on convenience samples. It is impossible to know whether mothers who chose not to participate in the research may have had particular demographic traits or trends in their responses which were different from those who did participate. This fact along with specific inclusion criteria related to race, marital status, education, and language may have contributed to samples with an inherent bias (Bull & Lawrence, 1985; Salam, 1995). Of the literature reviewed, no studies attempted to control for sampling bias by using probability sampling techniques to ensure an adequate cross section of subjects from the general population. Lack of control for possible sampling bias also limits the generalizability of the findings.

Also of concern is the fact that samples were often inherently dissimilar in terms of age of the participants (Bull & Lawrence, 1985; Salam, 1995). Ages of the subjects varied by almost 20 years. Developmentally these women may have been at very different points in their lives (Erikson, 1980; Mercer, 1985). Different developmental stages may have impacted the participant's perceptions of themselves, their infants, and issues related to infant care.

In some studies both primiparas and multiparas were included (Bull & Lawrence, 1985; Salam, 1995). Although

findings were, at times, extracted for mothers by parity, conclusions based on the collective results of the responses in these studies may actually have distorted differences unique to primiparous and multiparous women.

Conceptual Definitions

Three concepts are fundamental to this study. 1) Prenatal Education - A form of anticipatory guidance given in a structured setting and provided for individuals expecting the birth of a child with the goal of improving the knowledge of parents or significant others related to aspects of pregnancy, labor and delivery, maternal self-care, infant-care, and recognizing potential dangers to maternal and newborn health (Enkin, 1990; Handfield & Bell, 1995; Maloney, 1985); 2) Maternal Perceptions of Preparedness to Perform Infant Care - The mother's self-assessment related to feelings of being ready to provide suitable care for her infant in the first postpartum week in order to promote the infant's optimal health (Bull & Lawrence, 1985; Maloney, 1985; Salam, 1995); 3) Knowledge of Danger Signs Related to the Infant's Health - An ability to recognize and understand signs and symptoms of illness in the newborn which may indicate a potential threat to extrauterine adaptation and result in significant morbidity or mortality (Andres, 1992; Dietz, 1992; Harris, 1993; Lustig, 1993; Muchmore, 1993).

Theoretical Basis

Orem's Self-Care Deficit Nursing Theory provides the theoretical basis for this research. In this model, Orem describes the components of nursing's paradigm in the following way: 1) Person - The proper object or recipient of nursing activities (Orem, 1995, p.8); 2) Environment - Physical, chemical, biologic and social features continuously or periodically interactive with men, women, and children (Orem, 1995, p.51); 3) Health - A condition of integrated human functioning. A state characterized by soundness or wholeness of developed human structures, bodily, and mental functioning (Orem, 1995, p.97, 101); 4) Nursing - A practical and didactic art and human service through which the practitioner gives specialized assistance to persons with disabilities that require more than ordinary assistance to meet daily self-care needs (Orem, 1995, p.7, 47).

Orem views the individual as needing continuous self-maintenance and self-regulation which is termed "self-care". To participate in self-care activities one must have certain requisite abilities or "agency" to take action in one's own behalf. Self-care is a learned activity which may be affected by individual factors such as age, developmental stage, health state, environment, and medical care (Orem, 1995).

Orem proposes that certain needs are present for all living human beings. These needs include materials to

support life processes and structural/functional integrity and are based on one's ability to manage within the environment. Needs that are necessary to maintain life are termed "self-care requisites". These requisites fall into three categories; "Universal Self-Care Requisites", "Developmental Self-Care Requisites", and "Health-Deviation Self-Care Requisites" (Orem, 1995).

Just as the provider of self-care is termed "self-care agent", so the provider of care to those who are not able to optimally care for themselves is called the "dependent-care agent". A need for dependent-care may result from immature physical, psychological or psychosocial systems or from significant insults to those systems resulting from age, infirmity, or disease (Orem, 1995).

Nurses, according to Orem's theory, possess "nursing agency", a power developed through specialized education and training to provide for the needs of others or help others meet a need for action. Nursing agency is employed in dependent-care situations through the provision of direct care or the provision of education and support which enables the individual to ultimately care for one's self or another.

Dependent-care situations involving newborns often require nursing agency. Legitimate use of nursing agency occurs when a nurse provides education, role modeling, or practice situations for a new mother that assist her in meeting the needs of her infant. These dependent-care needs are present as universal self care requisites such as:

Maintenance of sufficient air, water and food; prevention of hazards to life and well-being; maintenance of balance between activity and rest; and provision of care associated with elimination processes. They are present as developmental self care requisites which include: Provision of a physical and psychosocial environment that ensures feelings of safety and comfort; maintenance of conditions that promote and sustain affective and cognitive development; regulation of the environment to prevent states of fear, anger or anxiety; and providing conditions that prevent sensory deprivation or overload. Finally, nursing agency can be utilized to help new mothers meet the health-deviation self care requisites of the infant by teaching them prenatally when it is appropriate to seek and secure medical assistance; ways to assess and attend to jaundice and dehydration, and ways to deal with discomforts or negative effects associated with medical care.

Figure 1 illustrates the conceptualization of Orem's theory as it relates to the effects of nursing agency on an individual who would fall into ordinary parameters in terms of physical and mental health, cognitive function, and social support. The nurse can directly affect the patient's ability to successfully meet personal self-care requisites as well as the dependent-care requisites of others in their environment. Self-care and dependent-care demands are illustrated by interrupted lines as there is a changeable quality to these demands based on the overall status of the

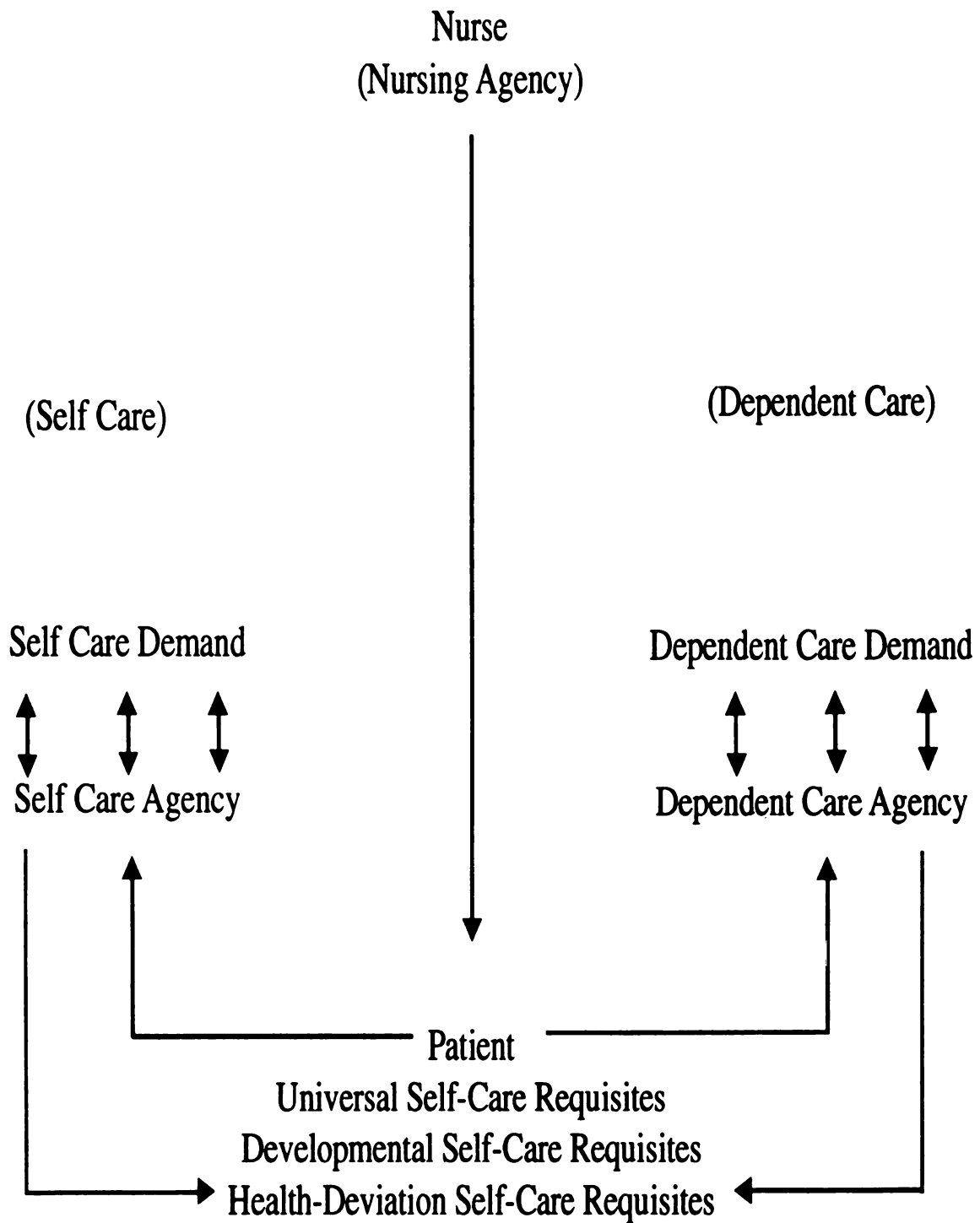


Figure 1. Conceptualization of Orem's Self-Care Deficit Nursing Theory (Orem, 1995).

individual or dependent others. After accepting the benefits of nursing agency the patient becomes strengthened in knowledge and ability to meet self-care and/or dependent-care demands that are depicted by the solid lines from the patient to the agency.

Figure 2 illustrates the application of Orem's Self-Care Deficit Nursing Theory to the situation of a primiparous mother who provides for the dependent-care needs of her infant. This diagram integrates the concept of prenatal education. The nurse's direct impact is on the mother who must possess ability to understand and meet the requisites of the newborn. Figure 2 depicts the mother as the infant's primary dependent-care agent with the support of the nurse through the function of prenatal education. With the education and assistance offered through nursing agency the mother becomes capable of providing for the infant's dependent-care needs and meeting the requisite areas of universal self-care for adequate nutrition and daily care including skin, circumcision and umbilical cord care. The mother is also capable of providing for developmental self-care requisites by using measures that promote psychosocial adaptation such as comforting and soothing. With the nurse's guidance the new mother can recognize significant threats to the infant's health such as dehydration and jaundice thereby addressing the infant's health-deviation requisites. Because the newborn is unable to provide its own care due to immaturity, dependent-care

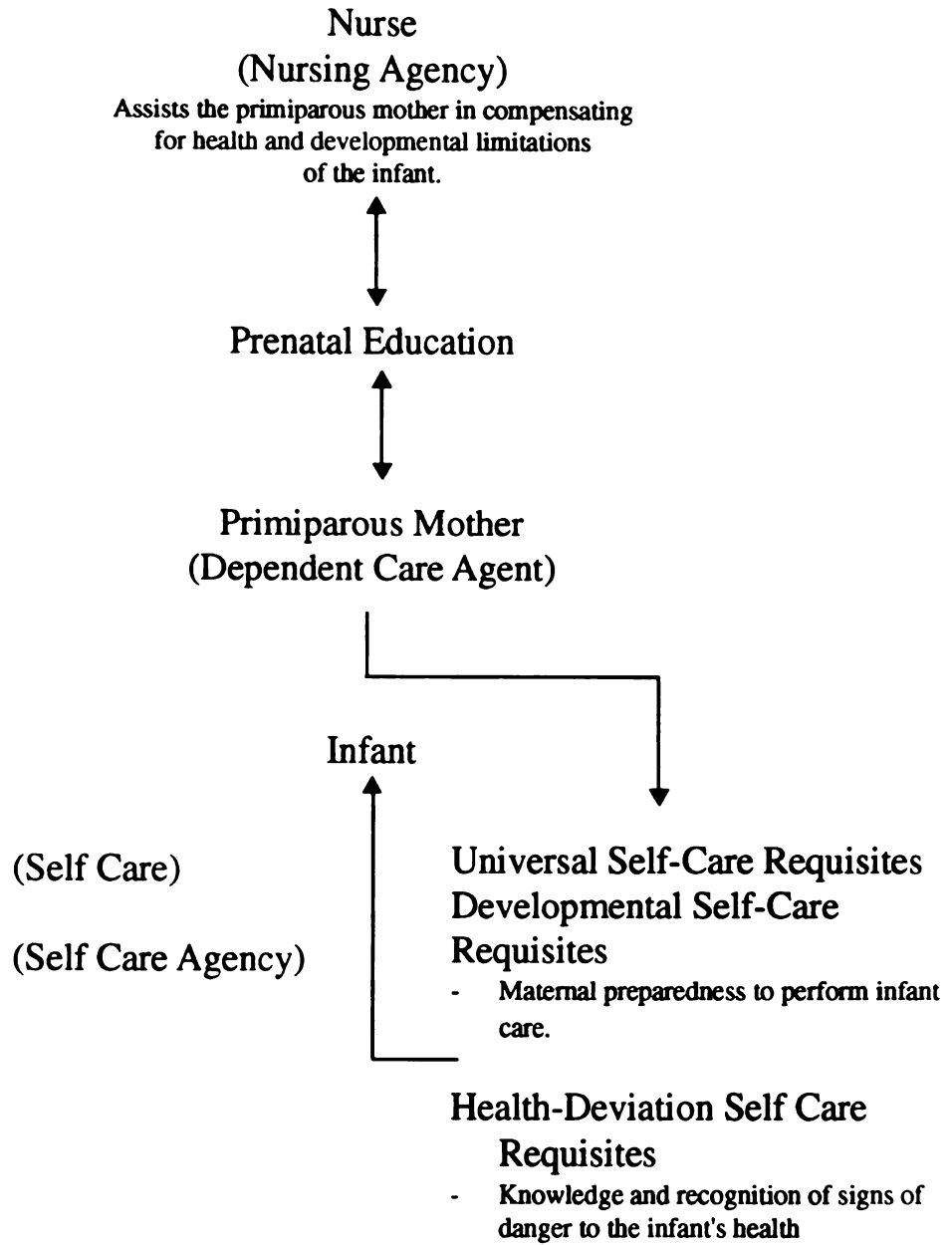


Figure 2. Conceptualization of Orem's Self-Care Deficit Nursing Theory as applied to Primiparous Mothers in meeting the Dependent Care Demands of Newborn Infants (Adapted from Orem, 1995).

becomes the mechanism by which the infant's needs are met. Self-care agency becomes an entity of the diagram unconnected to the infant in the postpartum period as the infant is not physically or cognitively mature enough to care for itself.

Methods

Description of Sample

The sample consisted of 95 self-selected women delivering their first baby and considered primiparous by their own definition. Fifty participants receiving prenatal classes were recruited from one prenatal education program in a midwestern community. A registered nurse affiliated with the study presented a five minute talk about the purpose of the research and types of information that would be solicited. By recruiting all mothers who had received prenatal classes from one program, the problem of standardized program content was addressed. Forty-five participants who had not received prenatal education were recruited by postpartum nurses after delivery at one hospital in the same community. Identical information was given to these participants by the postpartum nurses.

Operational Definitions

Operational terms relative to this research were defined as follows: 1) Maternal Perceptions of Preparedness to Perform Infant Care - For purposes of this study, maternal perceptions of preparedness to perform infant care were measured by the Baby Care/First Week Scale. This four

item Likert type scale was designed to measure perceptions of preparedness for infant care in the first postpartum week. Questions included how well prepared mothers felt to do baby care, soothe the infant, adjust to parenting changes and feed the infant. Responses were measured on a scale of 1 to 5 with 1 meaning not at all prepared and 5 meaning very well prepared. Responses to the "Baby Care/First Week Scale" were summed individually and for the collective scale. Mean scores were compared for mothers who participated in prenatal education and those who did not both for individual items and for the scale in its entirety. Lower scores indicated that mothers felt less prepared for infant care. Higher scores indicated that mothers felt more prepared for infant care (see Appendix A); 2) Knowledge of Danger Signs Related to the Infant's Health - For purposes of this study, knowledge of danger signs related to the infant's health were measured by two separate scenarios included under the title Able to Identify Danger Signs. Mothers were asked two questions in relation to each scenario: 1) What would you do? and 2) What do you think might be wrong? Scenarios were based on current literature summarizing signs and symptoms of jaundice (scenario 1) and dehydration (scenario 2). Mother's responses were recorded narratively by the investigators for qualitative analysis (see Appendix B for complete content).

Instrumentation

For purposes of this study four questions were asked of the mothers related to infant care during the first postpartum week. Questions on infant care were developed based on the 4 areas which the literature indicated were most important to new mothers in terms of being prepared to perform infant care. The questions were reviewed by a panel of 7 nursing experts (3 doctorally prepared, 1 masters prepared, 2 graduate students and 1 bachelors prepared childbirth educator) for content validity. The questions were scored on a 5 point Likert type scale with 1 being not prepared and 5 being very well prepared.

Since the infant care questions had not been statistically evaluated prior to this study, no information was available on the reliability or validity of the tool. Analysis of the compiled infant care questions produced a Cronbach's alpha reliability of 0.69 for this research which was considered a measure high enough to demonstrate consistency while establishing that all items on the scale were not exploring identical dimensions of maternal preparation for infant care (Marks & MacDermid, 1996).

The instrument also evaluated responses to two open ended questions for each of the two scenarios designed to elicit the mother's understanding of danger signs of impending illness in the newborn, specifically, dehydration and jaundice. These questions were asked in a contextual manner and based on a review of the literature pertaining to

infant jaundice and dehydration. Responses were recorded in a narrative manner. Scenarios involving an infant with symptoms of hyperbilirubinemia were presented in the first question and those with symptoms of dehydration were presented in the second question. Again, the scenarios were developed by the seven nursing experts described previously to substantiate content validity .

Procedures

Only primiparas whose anticipated date of delivery was from March 1, 1996 to August 1, 1996 were recruited for the study. This was done in order to ensure that mothers would be in approximately their sixth postpartum week during the data collection period of April 15, 1996 to September 15, 1996. All participants were given a written consent form outlining the content, possible risks and discomforts, ability to withdraw from the study at any time, and procedures to protect confidentiality. Participants were informed that they would be contacted within 2 weeks following their anticipated due date to confirm the success of the birth, their continued willingness to participate in the study, and to schedule an interview.

Mothers were asked to reflect back to the first week at home with their new baby to answer the infant care questions. Competence in infant care is a process which occurs over time. Research indicates that the first week at home is a time when mothers express the highest number of questions about infant care (Bull, 1981; Bull & Lawrence,

1985; Davis, Brucker & Macmullen, 1988). Therefore, the intent of these questions was to capture how prepared the new mother felt before gaining experiential knowledge in the ensuing postpartum weeks. This study asked mothers to retrospectively recall information related to their first week at home. Administration of the questionnaire at 6 weeks postpartum was considered an optimal time for evaluation as mothers are generally feeling well, have resumed their prebirth activities, and generally have taken on most responsibilities for infant care. Research has shown that mothers accurately recall birth information with little change in their responses for up to years following the birth event (Githens, Glass, Sloan & Entman, 1993; Fawcett et al., 1993) (See subject consent in Appendix C).

In order to familiarize mothers with the questions to be asked and improve the effectiveness of the interview process, participants were mailed a copy of the study questionnaire approximately one week before the scheduled interview. The scheduled date and time of the interview were placed at the top of the form as a reminder. Questions related to recognizing signs of dehydration and jaundice were not included in the mailed questionnaire in order to prevent the participants from investigating these areas simply to answer the questions.

At six weeks postpartum, telephone interviews were conducted by a group of 6 registered nurses. Each interviewer had six hours of specialized training related to

the interview process in order to ensure consistency in conducting the survey and, ultimately, the reliability of the results. Interviewers were provided with a list of resources including community agencies and health care providers to which the mother could be referred if concerns arose during the interview process related to herself, her infant, or her family.

Data Collection

Data were collected by one of six registered nurses affiliated with the study during scheduled telephone interviews at 6 weeks postpartum. Each interview took between 30 and 60 minutes.

Mothers were offered the option of receiving a second call from the interviewer if circumstances made it difficult to finish the interview at the scheduled time. This was done in an attempt to optimize comfort with the interview process and allow the mother to stop if the infant became fussy or needed attention. Mothers were given permission to not answer any question they did not feel comfortable with. Subjects' responses were recorded by each interviewer utilizing a questionnaire. Responses that required an explanation by the subject were recorded verbatim by the interviewer. At completion of the investigation, all responses were coded by a graduate assistant from Michigan State University with a background in statistics and entered into a computer data system. Responses which could not be coded were entered in narrative form for qualitative

analysis. Subjects received a \$10.00 gift certificate for their participation in the study.

Protection of Subjects

Approval for the research was obtained from the University Committee on Research Involving Human Subjects of Michigan State University, East Lansing, Michigan, and from the Institutional Research and Review Committee of Sparrow Hospital, Lansing, Michigan. Code numbers were used to ensure confidentiality of the subjects' responses; no information was retrieved by respondent name. Furthermore, all data used for this research was kept in a locked file cabinet by the investigator to ensure continued confidentiality (see Appendix D for approval forms).

Scoring/Data Summary Procedures

Likert responses to the Baby Care/First Week scale were summed for comparison between the two groups. Higher scores indicated a higher level of maternal preparedness.

Responses to the section entitled Able to Identify Danger Signs were evaluated by analyzing the narrative responses for prevailing themes. Two nursing experts separately reviewed the first 60 responses to the scenarios involving jaundice and dehydration. Each expert examined the content of the responses for themes related to maternal knowledge about the meaning of the situation and maternal knowledge about what would be the most appropriate response to the situation. After complete agreement was reached between the experts regarding content analysis of the first

60 responses, the remaining 40 were analyzed by one of the experts using the themes extracted from the first 60 responses. These themes remained consistent throughout the responses.

Research Design

This descriptive research utilized a survey format. The purpose was to ascertain whether there was a difference between primiparous mothers who had received prenatal classes with a component of infant care and those who had received no prenatal classes related to their perceptions of being prepared to perform infant care and recognize potential dangers to their newborn's health in the postpartum period. This study was based on analysis of data collected for the larger work entitled Childbirth Education: Outcomes Research (Tiedje, Omar, Schiffman, Buzzitta, Wright, Metzger & McCann, 1996).

Data Analysis

Information about the subjects' ages, education, total household income, and marital status was evaluated using t-test and Chi-Square tests for significance. Scores for the Baby Care/First Week Scale were evaluated using t-tests. This included both individual item scores and the mean score for the total scale. Responses to the dehydration and jaundice scenarios were evaluated qualitatively and summarized by themes. These responses were then recorded by number of responses in each thematic category and by percentages in each category to facilitate interpretation.

A significance level of .05 was used for all statistical tests.

Results/Findings

Demographic Characteristics

Demographic characteristics of the subjects from the study are included in Table 1. Of the total sample of 95 participants, subjects ranged in age from 15 years to 40 years. Mean age for the entire population was 25.19 years (SD 5.87). Mothers participating in prenatal education had a mean age of 26.38 years (SD 5.76) and those not participating in prenatal education had a mean age of 23.87 years (SD 5.77). Due to the fact that maternal age was not well distributed in categories, $\bar{x}^2$ analysis was not reliable. Mean ages of participants across the two groups were analyzed by t-test which revealed a significant difference with mothers from the prenatal education group being significantly older than those in the non-prenatal education group ($t(93) = 2.12, p = .036$). Subjects also differed significantly in areas of general education (X^2 9, $n=95$) = 124.68, $p=.000$), household income (X^2 7, $n=82$) = 54.39, $p=.000$), marital status (X^2 4, $n=88$) = 130.86, $p=.000$), and ethnicity (X^2 5, $n=95$) = 253.82, $p=.000$). Therefore, it can be concluded that the subjects in the two groups differed significantly on each demographic variable analyzed. Those subjects who participated in prenatal classes were older, had a higher level of formal education, had a greater household income, were more likely to be

Table 1.

Demographic Characteristics of Primiparous Mothers who
Participated in Prenatal Classes and Those Who Did Not

Characteristic	Prenatal Education (n=50)		No Prenatal Education (n=45)	
	No.	%	No.	%
Age				
15-19 yrs.	7	14	10	22
20-24 yrs.	14	28	20	44
25-29 yrs.	14	28	8	18
≥ 30 yrs.	15	30	7	16
Education				
= or < H.S.	16	32	24	53
College ≤assoc.	10	20	11	24
Bachelors	18	36	9	20
Masters	4	8	1	2
Ph.D.	2	4	0	0
Total Household Income				
< 5,000	1	2	3	7
5,000-9,999	0	0	5	11
10,000 - 14,999	4	8	3	7
15,000 - 19,999	3	6	1	2
20,000 - 29,999	5	10	8	18
30,000 - 39,999	6	12	3	7
40,000 - 49,999	4	8	5	11
≥ 50,000	21	42	10	22
AFDC	2	4	0	0
Don't Know	2	4	3	6
Income not reported	2	4	4	9
Marital Status				
Now Married	36	72	21	47
Never Married	7	14	17	38
Engaged	1	2	0	0
Cohabiting	2	4	3	7
Separated	1	2	0	0
Ethnicity				
European American	39	78	34	76
African American	6	12	7	16
Native American	1	2	1	2
Asian	1	2	1	2
Latino	2	4	2	4
Bi/Multi-racial	1	2	0	0

married, and differed in ethnic background from their counterparts.

Infant Care

Items on the Infant Care Scale are summarized in Table 2. For the research question "Are there differences in perceptions of preparedness to perform infant care in women who receive prenatal classes and those who do not?" the following findings resulted. There were no significant differences between the responses of mothers taking prenatal classes and those not taking prenatal classes on any of the infant care items when analyzed by t-test. Neither were there significant differences on the summed scores of the responses for either group when evaluating the entire scale using the t-test. From these results mothers in both groups indicated a similar level of preparedness for infant care in the first week. It is interesting to note that scores showed a pattern of consistency from question to question both within groups and between groups. Mothers who participated in prenatal classes had highest scores for feeling prepared to do daily infant care, indicating that they felt fairly well prepared for this task. These same mothers felt least prepared for understanding changes of being a new parent, evaluating their level of preparedness in this area at above somewhat prepared but below fairly well prepared. Mothers who did not participate in prenatal education classes also felt most prepared to do daily infant care indicating they were slightly more than fairly well

Table 2.

Comparison of Responses to the Baby Care/First Week Scale by Primiparous Mothers who Attended Prenatal Classes and Those Who Did Not

Item	Had Classes		Did Not Have Classes	
	M	SD	M	SD
1. Daily Care	4.06	.74	4.31	.92
	(t(93) = - 1.45, p = .151)			
2. Soothe Baby	3.72	1.01	4.02	.99
	(t(93) = -1.47, p = .144)			
3. Understand changes of being a new parent	3.40	.99	3.58	1.27
	(t(93) = -.76, p = .446)			
4. Infant feeding	3.84	.96	3.91	1.04
	(t(92) = -.36, p = .720)			
Total Scale mean	3.76	.275	3.95	.302
	(t(6) = -.98, p = .365)			

prepared but less than very well prepared. These mothers, too, felt least prepared for understanding changes of being a new parent, indicating a level of preparedness about half way between somewhat prepared and fairly well prepared. T-test results for perceptions of preparedness to both soothe the baby and feed the baby were slightly higher for mothers who did not participate in prenatal education than for those

who did. Although the standard deviations of the responses indicated slightly more variation in the responses of the non-prenatal education group, scores, overall, were slightly higher in this group for each question and for the total scale mean. Again, no significant difference was found for any individual question or for the total scale when evaluated by t-test. Interestingly, neither group as a whole scored in the very well prepared category for any of the four items on the Baby Care/First Week Scale.

Danger Signs

Responses to the Danger Signs scenarios are summarized in Table 3. In evaluating maternal responses to the question "Are there differences in knowledge related to infant jaundice between women who receive prenatal classes and those who do not?" three themes emerged when mothers were asked the question: "What would you do?" following a description of a jaundiced infant. First, some mothers responded with a sense of urgency as if the situation required immediate emergency care. A second group of mothers responded in a way that indicated the situation was serious or important; requiring advice or direction from a healthcare provider, hospital, clinic or other source. Finally, a third group of mothers had responses indicating that the situation would require either emergency assistance or advice but these mothers felt that either response was appropriate. It should be noted that the scenarios were

Table 3.

Responses of Primiparous Mothers who took Prenatal Classes and those who did not Related to Jaundice and Dehydration Scenarios

	Had Classes N = 50				Did Not Have Classes N = 45			
	Jaundice		Dehydration		Jaundice		Dehydration	
	n	%	n	%	n	%	n	%
Responses to scenarios.								
(1) What would you do?								
Seek emergency care	11	22	20	40	16	36	25	56
Contact health-care provider	32	64	22	44	26	58	16	36
Either seek emergency care/ contact health-care provider	7	14	8	16	3	7	4	9
Response to scenarios.								
Correctly identified jaundice/ dehydration.								
(2) What do you think might be wrong?	43	86	20	40	34	76	16	36

framed by the panel of experts so that the ideal response would have been to seek assistance and evaluation from a healthcare provider. More mothers who did not participate

in prenatal education indicated that they would seek emergency care for the infant in this situation.

When asked "What do you think might be wrong?" mothers in both groups correctly identified infant jaundice the majority of the time, however, mothers who participated in prenatal education were able to identify jaundice more often than those who did not participate in prenatal education.

In evaluating maternal responses to the question "Are there differences in knowledge related to infant dehydration between women who receive prenatal classes and those who do not?" a similar pattern of responses occurred. Mothers again responded in a manner which indicated that the situation was urgent and they would seek emergency care, that the situation was serious or important, requiring advice from a healthcare provider, or that the situation could be either urgent or serious and that either emergency assistance or advice from a healthcare provider would be an acceptable course of action. Again, a higher number of mothers who did not participate in prenatal education said that they would seek emergency care, even more so for this scenario involving dehydration than the one involving jaundice. Again, more mothers who had been involved in prenatal education verbalized that the first course of action would be to seek advice from a healthcare provider. Unlike jaundice, only a minority of the participants in both groups were able to correctly identify dehydration. In fact, for both groups of participants, the most prevalent

response for this scenario was "Don't know". Sixty percent of the mothers participating in prenatal classes and 64% of the mothers not participating in prenatal classes could not label the danger as dehydration for the newborn as presented in this scenario.

Additional Data Analysis

A closer examination of the narrative responses revealed other, more subtle, differences between the two groups of participants. Mothers who took prenatal classes projected more confidence in their answers whereas mothers who did not take prenatal classes seemed to be less confident in their decisions overall. For example, a typical response from a mother who took prenatal classes was "I would call the doctor's office, explain symptoms, and do what they suggest. I'd also check my medical child care book. In fact, I would check the book first and the doctor's notes on when to call." Mothers in the group not participating in classes specifically used words and phrases like "panic", "rush to the emergency room" and "I'd be calling EMS (Emergency Medical Services), I would be in no shape to drive." In response to the jaundice scenario, two mothers who did not take prenatal classes mentioned starting CPR for the infant. These responses contrast with one mother who attended classes and responded she would "make sure he was breathing O.K. before I called (the pediatrician)." This shows a subtle difference between the mother who attended prenatal classes when compared with the

mothers who did not. The mother who attended prenatal classes would not begin CPR immediately but would assess her infant before proceeding to call a healthcare provider. Engaging in this type of systematic process indicates a degree of knowledge and competence not seen in the mothers who did not participate in prenatal education classes.

Another difference between mothers who participated in prenatal classes and those who did not was apparent in responses to the question: "What do you think might be wrong?" A minority of subjects in both groups incorrectly identified an illness other than dehydration or jaundice from the scenarios. Mothers in both groups associated such problems as fever, difficulties with digestion/formula, and flu with the signs and symptoms presented for dehydration. One mother who had participated in prenatal education classes labeled the jaundice scenario as "some type of anemia". However, only mothers who did not participate in prenatal classes identified such problems as "a tumor in her head", "someone put fingers in it" (related to the description of a sunken anterior fontanelle), "cerebral or circulatory problem", or "failure of her organs" with the cues intended to describe dehydration. A similar pattern was noted for responses to the jaundice scenario. Mothers who did not participate in prenatal education associated such things as "convulsing", "crib death", "temperature" and "passed out" with the cues representing jaundice. From these responses it appears that there were discrete

differences in knowledge of danger for the infant related to jaundice and dehydration between the mothers in this sample who participated in prenatal education and those who did not. These differences indicated that the mothers who participated in prenatal education reacted to situations involving perceived threat to the infants' health in ways that revealed a higher level of composure, an improved ability to assess situations indicating possible danger to the infant's health, and a more appropriate understanding of the signs and symptoms of illness as presented in the scenarios.

Discussion

The two most important results of this research were:

1. Prenatal education as measured by the Baby Care/First Week Scale did not appear to improve the primiparous mother's perceptions of preparedness for infant care.
2. Prenatal education did appear to prepare the primiparous mother in ways which empowered her to rely on healthcare providers as a primary source for guidance when she perceived there was a danger to her infant's health rather than relying on emergency services.

The lack of difference in preparedness for infant care corroborated some of the current literature on prenatal education and infant care preparation (Hamilton-Dodd, Kawamoto, Clark, Burke & Fanchiang, 1989; Nichols, 1995; Salam, 1995). However, qualitative analysis of the scenario

involving the infant jaundice indicated that there were differences involving tendency to use emergency services in the two groups. Mothers who did not participate in prenatal education were less likely to be able to identify infant jaundice and were more likely to seek emergency care for signs and symptoms of jaundice in the newborn.

Little difference existed between the groups related to knowledge of infant dehydration when responses were evaluated qualitatively. Neither mothers who participated in prenatal classes or those who did not were able to identify infant dehydration a majority of the time. The ability to identify jaundice more readily may relate to: 1) having more information available on infant jaundice; 2) it may be visually easier to detect jaundice than dehydration; and 3) jaundice has been a component of infant care education for a number of years.

In this time of constantly changing technology and advances in medical science it is important to ensure that new mothers have the information and skills they need to be optimal dependent-care agents for their newborn infants. This is especially critical for primiparous mothers who do not have the benefit of experience with babies. It is especially important to ensure that new mothers are prepared to provide infant care and recognize signs of danger to the infant's health in light of the many changes which have contributed to decreasing lengths of postpartum hospitalization for both mothers and infants and reduced the

opportunities for education and preparation for the critical maternal role as dependent-care agent.

Assumptions/Limitations

Several possibilities exist that may have influenced the findings. The investigator assumed that mothers had similar life experiences to prepare them for infant care. Mothers were assumed to have had limited experience with newborns and were considered primiparous by their own definition. Experience with newborns is a factor believed to influence the perceptions of new mothers (Freda et al., 1993; Gruis, 1977). It was assumed that self-reported data was accurate and that the primiparous mothers in both groups had limited prior experience with newborns.

The researcher assumed that mothers would be able to accurately recall and assess their feelings of preparation for infant care in the first week at six weeks postpartum. Any experiential knowledge gained between the first postpartum week and the time that the questionnaire was administered at six weeks postpartum could have influenced the study findings.

Other methods to measure maternal knowledge of infant care may have been more sensitive than the survey method. For example, use of videotaped mother/infant interactions may have yielded a much richer variety of information which could have altered the study findings. Although the mothers participating in prenatal classes were all recruited from one prenatal education program, classes were presented in

two different formats. Thirty-seven participants had the traditional format of prenatal classes which consisted of eight classes two hours in length. Thirteen participants had Saturday classes sponsored by the same organization but meeting for three and one-half hours on four separate Saturdays. It can be noted that the total length of time in class was different for these two groups and that the format may well have been modified by the different time constraints.

No controls were attempted for extraneous sources of prenatal education materials. In today's society, media, books, magazines, and a variety of other materials are easily available. It is impossible to know whether exposure to forms of information about infant care or danger signs other than those in prenatal classes may have influenced the study findings.

Subjects included in the research were from a convenience sample. It is impossible to estimate the potential for bias in such a sample (Brink & Wood, 1994). Random sampling would have lent credibility to the results. A few mothers agreed to participate but could not be contacted by phone. It is also impossible to know what influence the responses of this group would have been on the study findings.

The two groups of mothers were different based on the demographic variables of age, education, income, marital status, and ethnicity. This may be an important limitation

of the study as younger, single mothers, with less education, and less total household income were more represented in the group of primiparas who did not take prenatal education. These mothers may not fully understand what preparation is needed for infant care. These mothers may have a different perception of what it means to be prepared than older, more educated mothers. Mothers in the sample also ranged in age from 15-40 years. Again, due to variations in cognitive and psychosocial development, further analysis of differences in the groups should statistically control for these demographic differences.

Implications for Existing Science

This research examined the effects of prenatal education on primiparous mothers' perceptions of preparedness for infant care and knowledge of danger signs related to infants' health. One of the strengths of this study is that the prenatal classes were provided by one group with one core curriculum. Further study needs to examine the outcomes of knowledge and preparedness for infant care in light of what program variables are most effective with parents. Particular program variables such as teaching methods, environment, and ways in which newly learned behaviors and skills are practiced and applied needs to be examined.

Research needs to be expanded to examine maternal groups in light of specific demographic variables such as parity, age, education, income, social networks and cultural

influences. This could help to refine understanding of what differences exist in preparedness between various groups. These same factors could be examined in relationship to maternal knowledge in order to optimize the effects of educational programs designed to serve specific group needs. In particular, research related to the ways in which younger primiparous mothers learn how to care for infants and recognize danger signs could be addressed. One way to do this would be to compare primiparous mothers less than 20 years old who had no previous experience with infants less than three months of age with primiparous mothers less than 20 years old who came from large families or extended families where they had extensive exposure to infant care practices. Another way to evaluate differences in infant care and knowledge in groups of primiparous mothers less than 20 years old would be to videotape interactions between the mothers and their infants and compare the qualities of these interactions for a group who had prenatal education and one who did not.

In light of this study's findings related to a potential for increased utilization of emergency services among primiparous women who did not attend prenatal classes, further research is warranted examining the variables of prenatal education programs that may be responsible for empowering new mothers to confidently use healthcare providers as primary resources and to examine the potential cost savings which may result. One way to do this would be

to audit emergency room records in order to establish how often mothers seek care in the emergency room which may be better handled in a primary care office or clinic.

Timing of the infant care component of prenatal classes warrants critical evaluation. Some of the current literature indicates that prenatal delivery of information specifically related to the infant may not be as effective as delivering that information in the postnatal period (Hall, 1983; Maloney, 1985). In light of this study's finding that neither mothers who participated in prenatal education or mothers who did not felt optimally prepared for infant care, programs which involve postpartum follow-up with new mothers and infants in home environments bear further examination. Current methods of lecture and demonstration used in prenatal classes also bear examination in light of information which supports effective behavior change when role-modeled behavior is taught and practiced (Delgado & Lutzker, 1988; Owens, 1996).

Implications for Advanced Practice Nursing

Advanced Practice Nurses have a crucial role, not only in facilitating maternal-newborn interactions, but also in assessing educational programs which impact the mother's ability to be an effective dependent-care agent and supplementing the information provided by these programs. Ensuring and providing effective health related education is an appropriate function of nursing agency (Orem, 1995).

More and more, APNs are seeing mothers and infants in a variety of arenas; clinics, office based practices, agencies, and client homes. APNs caring for infants and families need to ensure that the primary caretakers of these newborns have adequate and accurate information presented in a way that promotes understanding and ensures a safe transition to extrauterine life for the infant. Currently, information related to pregnancy, childbirth and infant care is available from a variety of sources. APNs need to assess new mothers' level of knowledge related to jaundice and dehydration as well as infant care in order to ensure that the information each mother has is not only appropriate but clearly understood. By making thorough assessments of maternal knowledge and presenting clear information, the APN can minimize the mothers' fears about the safety and care of her infant, strengthen her affiliation with the healthcare system, and decrease isolation.

Through assessment and referral the APN can refine practice to meet specific needs of various client groups. For example, mothers whose demographic profile indicates that they are young, with limited social support, education, or finances, may benefit from weekly follow-up phone conversations with the APN in the first postpartum weeks to discuss infant care and health related issues. By either contacting the new mother or having a scheduled time when the mother can call the APN, the APN can assist the mother in strengthening her caregiving and assessment skills and

provide a valuable link to community resources this mother may not otherwise have. The APN can also refer the new mother to social agencies she may not be aware of, thereby facilitating a connection to a wider system of social support to benefit both mother and baby.

The APN can engage in research to further examine where maternal strengths and weaknesses may lie in providing infant care. For example, randomized studies of mothers receiving prenatal education and those not receiving prenatal education could further refine understanding of the impact prenatal education programs have on maternal knowledge and preparedness. Randomized studies comparing mothers who receive prenatal infant care education and those who receive postnatal infant care education in the home environment could assist us in understanding whether differences in the timing or environment in which infant care is taught makes a difference in terms of maternal knowledge and perceptions of preparedness to perform infant care.

Recommendations for Further Research

Evidence from this study supports the conclusions that primiparous mothers who participated in prenatal classes were able to demonstrate a higher level of recognition for danger signs which may indicate a potential threat of jaundice in the newborn. Primiparous mothers who attended prenatal classes were less likely to utilize emergency services in response to these potential threats and more

likely to contact a healthcare provider. These mothers also indicated a more competent demeanor and less panic in their responses to situations which might indicate danger to the infant's health. Further study is warranted in view of the potential cost savings which may be realized with decreased utilization of emergency services. This may be done by retrospective chart audits to see if emergency rooms are being inappropriately over utilized by non-CBE primiparous mothers, and if so, whether there are specific demographic characteristics which would allow the APN to provide focused educational support or referral to other programs.

Primiparous mothers in this study did not show a significantly higher level of preparedness for infant care related to whether or not they had CBE. They also did not show different levels of knowledge related to infant dehydration based on whether or not they had classes. Further research is necessary to clarify the concept of preparedness and clarify the optimal timing and delivery methods for infant care education. Clarity of the concept of preparedness for infant care may be better examined by the use of videotaping actual episodes of care. Based on the study findings this author found Orem's Self- Care Deficit Nursing Theory an appropriate framework for the investigation. This theory provided clarity to the concepts of maternal preparedness and knowledge while allowing for integration of the role of nursing agency in the form of the

nurse/prenatal educator and the impact of that role on the primiparous mother as a dependent-care agent for the infant.

Findings of this study corroborated some of the current literature on prenatal education in concluding that while concerns related to infant care are high among primiparas, prenatal classes do not necessarily produce significantly greater perceptions of levels of maternal preparedness for infant care (Hamilton-Dodd, Kawamoto, Clark, Burke & Fanchiang, 1989; Nichols, 1995; Salam, 1995). The study found a higher level of maternal knowledge related to infant jaundice, and a decreased tendency for inappropriate utilization of emergency services among primiparous mothers who attended prenatal education classes. The study also found evidence to support the conclusions that primiparous mothers who participate in prenatal classes demonstrate an higher level of composure and improved ability to assess potential dangers concerning the health of infants. Further investigation is warranted in light of these findings.

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Appendix A
Baby Care/First Week Scale

Appendix A
Baby Care/First Week Scale

Caring for your baby and yourself after delivery is something new that you needed to learn. Please indicate how prepared you felt in caring for your baby within the first week home. Think back to your first week at home, how well prepared did you feel to:

	Very Well prepared	Fairly Well prepared	Somewhat prepared	Not very well prepared	Not at all prepared
1. Do Daily care: Bathing, Cord care, Circumcision care, etc.	5	4	3	2	1
2. Soothe your crying baby	5	4	3	2	1
3. Understand the changes you are going through as a new parent	5	4	3	2	1
4. Feed your baby	5	4	3	2	1

Appendix B
Danger Signs Scenarios

**Appendix B
Danger Signs Scenarios**

I will read you two situations about life at home with babies. I will then ask you what you would do in these situations. You do not have a copy of these situations, so just listen as I read them.

1. You and baby have been home from the hospital for 24 hours. You notice your baby's skin or whites of their eyes is the color of a banana. Although she/he is awake, her/his body feels limp when you pick her/him up.

What would you do?

What do you think might be wrong?

2. Your baby has had 8 liquid green stools in the last day. Although fussy yesterday, today she/he seems very sleepy. You have not been able to keep her/him awake long enough to feed her/him in the last eight hours. Her/his soft spot is sunken in. Her/his temperature is 102.

What would you do?

What do you think might be wrong?

Appendix C
Subject Consent Form

Respondent number:

Informed Consent Form

I understand I am being asked to participate in a telephone interview at six weeks following the delivery of my first child. This interview will be conducted by Dr. Linda Beth Tiedje, RN, PhD, Associate Professor in the College of Nursing at Michigan State University or a nurse from her research staff. If I agree to participate, I will be called on the telephone and asked questions about my birth, my feelings of the help I received from people who were with me during labor, the pain I experienced, outcomes for my baby, resources I have used since delivery, and (if I had childbirth classes) any thoughts I have about what I heard in my classes before the baby was born. The telephone interview will take about 30 minutes. After the interview I will be mailed a \$10 gift certificate.

No risks or discomforts are expected to result from this study, although it is possible that some of the questions may make me uncomfortable. If this happens I can let the telephone interviewer know, and since she is a nurse she will talk with me and refer me for needed help if necessary.

I understand that participation in this study is voluntary and refusing to participate will not affect my future health care. I also understand that I can stop participating at any time during the telephone interviews; all I have to say is "I want to stop". I also understand I am free to only answer the questions I want to. I know I may benefit by discussing my labor and delivery with a nurse. In addition, I know this study may help nurses to better plan childbirth education for other mothers like me.

All information I give will be identified by a code number only. After all the information has been collected for this study, any information identifying names with code numbers will be destroyed. The telephone interviews will be kept in a locked file cabinet with the signed consent forms. My responses will be anonymous in any report of these research findings.

If I should have any questions concerning this study, or wish to withdraw my consent to participate, I may contact Linda Beth Tiedje, RN at 353-8685.

Signing this consent indicates that I understand and am willing to participate in the study.

Study participant _____ Date _____

Phone number where you can be reached _____

cc: Participant

Appendix D

**UCRIHS Approval Form and
Approval from Sparrow Hospital**

**MICHIGAN STATE
UNIVERSITY**

March 20, 1996

TO: Linda Beth Tiedje
A-230 Life Sciences Building

RE: IRB#: 96-183
TITLE: CHILDBIRTH EDUCATION: OUTCOMES RESEARCH
REVISION REQUESTED: N/A
CATEGORY: 1-C
APPROVAL DATE: 03/19/96

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.



**PROBLEMS/
CHANGES:**

Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

**OFFICE OF
RESEARCH
AND
GRADUATE
STUDIES**

University Committee on
Research Involving
Human Subjects
(UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX 517/432-1171

Sincerely,

David E. Wright
David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

*The Michigan State University
IDEA is Institutional Diversity
Excellence in Action*

*MSU is an affirmative action
equal opportunity institution*



April 15, 1996

Linda Beth Tiedje
Michigan State University
A-230 Life Sciences Building
College of Nursing
East Lansing, MI 48824

RE: Childbirth Education: Outcomes Research

Dear MS. Tiedje:

I am in receipt of your research application requesting review and approval for the above mentioned protocol by the Sparrow Hospital Institutional Research & Review Committee.

This letter is to inform you that the protocol has been approved under the Sparrow Hospital Institutional Research & Review Committee Policy on Expedited Status Protocol.

Sincerely,

A handwritten signature in black ink, appearing to read "George S. Abela", written over a horizontal line.

George S. Abela, MD, Chairperson
Institutional Research & Review Committee

MICHIGAN STATE UNIV. LIBRARIES



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