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The effect of postpartum home teaching on knowledge of infant care

Tillett, Marsha Jane, M.S.

The University of Arizona, 1992

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The Effect of Postpartum Home Teaching
on Knowledge of Infant Care

by

Marsha Jane Tillett

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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STATEMENT BY THE AUTHOR

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ABSTRACT

The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care. Twenty-one low-risk primigravidae women were randomly placed in a control or experimental group. Subjects in the experimental group viewed a videotaped program on infant care a second time, at home on the third day postpartum. Tests were administered prior to hospital discharge, on the third day postpartum, and at 28-32 days postpartum. A short interview was conducted to obtain opinions regarding videotaped educational materials.

The subjects (n=21) retained most of the information presented after the first viewing and expressed satisfaction with the educational format. The results were not statistically significant, though mean test scores increased over the three test intervals.

CHAPTER 1

INTRODUCTION

The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care. In recent years, economic forces and consumer demands have resulted in far shorter stays for all hospitalized patients. Women experiencing uncomplicated vaginal births are often hospitalized for 24 hours or less as compared to a minimum of 3 days of postpartum hospitalization as recent as 5 years ago. In the event of normal, uncomplicated vaginal deliveries, women have traditionally received some type of educational program prior to discharge. According to Rubin (1961), women are not usually ready to attend to their educative needs until well after that 24 hour period. Thus, shortened hospitalization has resulted in changes in maternal-newborn nursing practice. It has become necessary to accomplish patient teaching within the first 24 hours after birth and to implement home visits for follow-up postpartum teaching and care.

Patient teaching has long been recognized as an integral part of nursing practice (American Nurse's Association, 1973b), particularly for the maternal-newborn nurse. A significant portion of the teaching done by the maternal-newborn nurse focuses on health

promotion and maintenance for the individual and family. Included in health promotion is facilitation of maternal role development. Mercer (1985) stated, "The transition to the maternal role is a period of reorganization in a woman's life that involves the addition of the mothering role to an established set of roles." (p.198).

As a new mother achieves competency in her new role and integrates mothering behaviors into her established role set she becomes comfortable with her identity as a mother (Mercer, 1985). This is especially important among women who have not been mothers before. Some mothering behaviors are learned indirectly by women when they are children themselves, being mothered. Other maternal behaviors are acquired more directly as women seek out role models in adulthood (Rubin, 1967b).

As women attain role behaviors of mothers, they develop a sensitive awareness to their infants' needs, how their infants express those needs and develop emotional bonds to their infants (Walker, Crain & Thompson, 1986). These mothering behaviors are important for the healthy emotional development of the infant.

Mercer (1981) described maternal role attainment as a four-stage process. The anticipatory stage begins in pregnancy when women seek out maternal role models. With the birth of their infants women move into the formal stage of maternal role attainment. Their behaviors are

influenced by the directions and expectations of others. As women develop their own style of mothering, the informal stage begins. The personal stage of maternal role attainment happens as women sense congruency of self and role as others accept their performance. Maternal role develops during pregnancy and continues to evolve for up to six months following birth (Mercer, 1981).

Statement of the Problem

The ability of the new mother to move into the maternal role is influenced by such variables as commitment, competency, perceived conflict, role strain and resources (Mercer, 1981). However, a great deal of literature supports the importance of learning infant care skills to successful maternal role development (Mercer, 1977, 1981, Rutledge & Pridham, 1987, Brouse, 1988).

In recent years many different types of educational programs have been developed to help new mothers with the transition into motherhood. Some programs are held in the prenatal period. However, the focus of these classes tends to be on pregnancy, labor and the delivery process. During the postpartum stay in a hospital, physical care taking activities for both the mother and infant are taught.

In the early postpartum "get acquainted" period, new mothers study their infants and learn when and how

they like to be held, whether they like to be rocked or left quietly alone for sleep (Mercer, 1977). New mothers meet the needs of their babies more readily, as they understand the behavioral cues of newborns. This can enhance optimum growth and development of the infant and increase satisfaction with the maternal role. Brouse (1988) noted that mothers who were able to identify infant cues were less anxious and better able to accept the new role of mothering. In order to learn to identify the babies' behavioral cues, many women need to have been taught during the postpartum period. Since many new mothers are going home within 24 hours of delivery, nurses are teaching in the few hours between delivery and the moment of discharge.

Significance of the Problem

In her earliest observations, Rubin (1961) described three distinct maternal developmental phases during the puerperium. Rubin's (1967a) later investigation involving a longitudinal study of 5 primiparous women and 4 multiparous women confirmed her theory. "Taking in" was the first phase and usually lasted for two to three days. "Taking in" was a period of recovery, when newly delivered mothers required sleep, rest and food. Rubin (1961) described new mothers as unable to grasp the reality of what had happened, and needed to review their birth experiences. They displayed passive and dependent

behaviors, accepted directions and initiated very little activity (Rubin, 1961).

The second phase of the maternal development was the "Taking hold" phase. Rubin's (1961) investigation found this phase to begin sometime on the third day postpartum. During this phase, mothers became initiators and displayed a need to get organized and did not tolerate delays well. As they began to gain control of their own bodily functions they became concerned with the infant's well being. According to Rubin (1961) this phase usually lasted about two weeks after delivery.

The third and final phase of maternal development was labeled "Going home". Rubin (1961) found new mothers to be curious and very interested in taking care of their infants and themselves. She described this time as one of "maximal readiness for new learning" (Rubin, 1961 p.755).

Most recently, Ament (1990) conducted a study to determine whether or not women experience three phases of puerperium restoration as theorized by Rubin. A questionnaire was administered at 5 separate intervals to 50 postpartum women with uncomplicated vaginal deliveries. The results supported the sequence of Rubin's phases, but indicated an accelerated time frame. Where Rubin found "Taking in" to last two to three days, Ament reported transition from "Taking-in" to "Taking-

hold" sometime between bedtime on the day of delivery and waking up the next day.

Ament (1990) emphasized that women were not ready to absorb the vast amount of information taught on most postpartum units during the first 24 hours because they were still engrossed in "Taking in" and "Taking hold" for this period. She suggested that postpartum women should not be expected to learn or perform return demonstrations until at least 24 hours after delivery. The discrepancy in timing between the period of hospitalization and readiness to learn creates a dilemma for the maternal-newborn nurses who are responsible for providing the teaching prior to discharge at 24 hours.

There is a great deal of research regarding what should be taught to mothers to enhance competency and maternal role attainment in the postpartum period. Pridham, Hansen, Bradley, and Heighway (1982), reported that parents experience a much higher level of concern regarding infant illness during the neonatal period. Rutledge and Pridham (1987), reported the need for early assessment of the bottlefeeding mother's level of perceived competence regarding infant care and feeding. They reported the need for adequate rest for the breastfeeding mother to enhance her feeling of competence. Bull and Lawrence (1985), lend support to previous assumptions and research that indicated the

importance for information on maternal self care, infant care and infant behaviors for use during the first weeks at home. Sumner and Fritsch (1977), utilized a centralized telephone log to analyze frequency of calls and the sources of concern for primiparous and multiparous women. Their findings indicated that most calls were received during the first three weeks, when there is the least amount of professional support. The most frequently addressed area was breastfeeding. Hiser (1987), conducted a study with multiparous women during their second week postpartum. Her findings indicated that meeting the needs of other family members and other family items were of most concern. The new mother must learn new skills, adjust to a new infant and readjust other roles that she has established as she moves toward maternal role attainment.

Maternal role attainment, including knowledge of infant care is an important goal for primiparous women. While most women achieve the maternal role successfully, approximately one to two million experience difficulties which may lead to child neglect and abuse (Mercer, 1981). An important role of the maternal-newborn nurse is to facilitate maternal role attainment through patient teaching.

Statement of Purpose

The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care. Women with normal, uncomplicated vaginal deliveries receive educational programs during the first 24 hours after birth because they are usually discharged to home at the end of that 24 hours.

Definition of Terms

1. Videotaped maternal education: Content presented in videotaped format that provides consistent instruction on postpartum emotional adaptation, self-care, characteristics and daily care of the newborn, feeding methods, newborn health and safety, crying and sleep habits and growth and development of infants.
2. Puerperium: The postpartal period lasting from birth through six to eight weeks after birth. It is during this time that the physical changes of pregnancy are reversed and Rubin's psychological phases of taking in, taking hold and going home are mastered (Rubin, 1967a).
3. Home care follow-up: A scheduled visit to the home of the new mother to assess physical and emotional needs and to implement or continue maternal education.

4. Role: This refers to a cluster of related meanings and values that provide direction for one's behavior in a specific social setting (Riehl & Roy, 1980).
5. Role function: A subsystem of Roy's adaptation model that is seen as developing in an interactionist framework. In this study, role function includes maternal role attainment as well as the tasks of mothering as performed by the primigravida during the puerperium.
6. Mothering: The development of psychomotor tasks of child care including feeding, diapering and bathing.

Basic Assumptions

1. Most women have a desire to attain the maternal role.
2. Most primiparous women need educational support during the puerperium to attain the maternal role.
3. Most women are capable of learning the tasks of mothering.

Summary

Role attainment is influenced by a number of variables, including maternal level of commitment, competency with infant care, perceived conflict between

roles, role strain and resources (Mercer, 1981). As the length of hospitalization is reduced for primiparous women with normal vaginal deliveries, dilemmas arise for the maternal newborn nurse who is responsible for teaching the various aspects of infant development and care.

Most maternal-newborn nurses have been educated to include Rubin's psychological phases into the plan of care for primiparous women. However, there is an absence of research to guide nurses in the timing of teaching infant care skills to women in the postpartum period. The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care.

CHAPTER 2

CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE

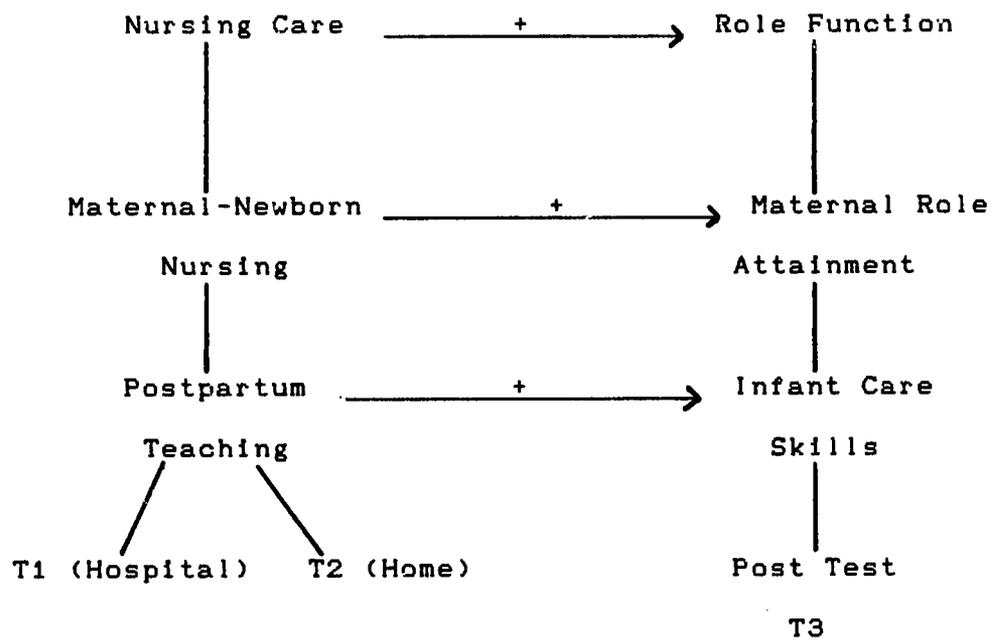
The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care. Roy's Adaptation Model of Nursing Care provided the conceptual orientation for this study (Figure 1).

The Roy Adaptation Model

The Roy Adaptation Model (Riehl & Roy, 1980) is a systems model that contains levels of interaction analysis. The individual is viewed as an open adaptive system constantly interacting with the environment. Stress or tension comes from within the system or from the environment that impinges upon it. In the model, Roy (Riehl & Roy, 1980) explained how an individual interacts with and adapts to the environment. Human beings are viewed as biopsychosocial individuals who use adaptive mechanisms to conserve energy and maintain equilibrium. Nursing assessment is based on the individual as a system and how that system interacts and adapts to the environment.

Adaptation is the process of responding to and satisfactorily coping with changes in the environment (Griffith & Christensen, 1982). In Roy's model, nurses

Figure 1. Conceptual Framework for the Effect of Postpartum Home Teaching in Relation to Knowledge of Infant Care Skills.



assess and assist the individual's adaptation in four subsystems. The individual's four subsystems are physiologic needs, self-concept, role function and interdependence. Roy uses the term coping mechanisms to describe the control processes of the individual. These mechanisms are identified as regulator and cognator and are considered subsystems of the human system (George, 1988).

The regulator subsystem contains physiologic pathways such as neural, endocrine and perception-psychomotor. The cognator subsystem involves psychosocial pathways and the apparatus for information processing, learning, judgment, and emotion (Fawcett, 1987). One way in which women adapt to the maternal role is through the processes of learning and experience.

The concepts of role function subsystem and cognator mechanism for adaptation were the focus for this study. Role function is defined as "the performance of duties based on given positions within society. The way one performs these duties is constantly responsive to outside stimulation." (Riehl & Roy, p.182). Adaptation to any role requires the use of cognator mechanisms, particularly in terms of learning. If the individual has enough resource information in the cognator mechanism, he will adapt to the new role staying within an adaptation zone.

Adaptation depends on the individual's adaptation level and the stimuli affecting that individual. An individual's adaptation zone indicates a level at which any stimulus presented to the individual is dealt with by a positive response. If stimuli are beyond the adaptation zone the individual cannot make positive responses (Riehl & Roy, 1980). The individual's adaptation level is determined by the combined effect of focal, contextual and residual stimuli.

The focal stimulus is the potentially stressful situation immediately confronting the individual. For the primiparous woman who has just given birth, performing the tasks of infant care, such as feeding, bathing, comforting and determining illness of the newborn, becomes the focal stimuli. Contextual stimuli are all others, within or outside the individual, affecting the situation. Contextual stimuli include age of the mother, educational level, marital status, gestational age and health of the infant after birth and maternal complications such as normal vaginal delivery versus cesarean section. Residual stimuli are beliefs, attitudes, traits, cultural values and other factors from past experience which are relevant to the present situation (Riehl & Roy, 1980).

An individual's response to a situation depends on whether or not stimuli fall within the person's adaptation zone. If stimuli fall within this zone, the individual

will adapt effectively. This effective response leads to growth and, in the case of the role function mode, role mastery. Ineffective adaptation can lead to negative, energy consuming behaviors (Riehl & Roy, 1980). The role of the nurse is to manipulate elements of the human system or the environment so that the stimuli confronted fall within the individual's adaptation zone.

Role Function and Maternal Role

Having a baby is a significant life event that affects both the new mother's and the family's development. The maternal role is learned through complex social and cognitive processes (Rubin, 1967a). The maternal role is divided into two components; maternicity represents the emotional aspect, while mothering involves the physical caretaking skills (Auvenshine & Enriquez, 1985). Maternal role attainment is the process by which a mother achieves competence in the role and integrates mothering behaviors into her other already established roles (Mercer, 1985).

Rubin (1967a) studied the process of maternal role attainment. In a field study, Rubin observed both the verbal and nonverbal behaviors of women, in settings culturally and subjectively appropriate for women becoming mothers. Two groups of subjects were involved. There were five primiparous women in the first group and four multiparous women in the second group. Unstructured

interviews were conducted with the women twelve times throughout their pregnancies and into the first month postpartally. Rubin identified five phases of maternal role attainment: Mimicry, role play, fantasy, introjection-projection-rejection and grief work.

All subjects used their own mothers as models during each phase of maternal role taking (Rubin, 1967a). However, these role models were soon replaced by peers, judged by the subjects to be more advanced in their role attainment. Primiparous women chose peers outside of the family, while multiparous women chose from the extended family. Through the use of role models and the phases of maternal role attainment, the individuals acquired input stimuli to be used as cognator mechanisms in the adaptation of the new role.

The ease of transition to a role depends on many variables. Mercer (1981) cited level of commitment, competency, strain, conflict, length of time in the role, value of the role and anticipatory socialization as some of the variables. The acquisition of the maternal role is affected by maternal age, perception of the birth experience, maternal-infant separation, social stress, support systems, self-concept, maternal illness, child-rearing attitudes, infant temperament and infant illness (Mercer, 1981).

In a study of maternal role attainment over the first year, Mercer (1985) recruited 294 participants. All were primiparous women who delivered a live-born infant of 37 or more weeks gestation. The sample was divided into three age groups. The teenage group included 66 women aged 15 to 19 years. There were 138 women in the group aged 20 to 29 years and 90 in the group aged 30 to 39 years. After the initial interview in the hospital, women were interviewed in a setting of their choice at 1, 4, 8, and 12 months following their birth process. A questionnaire was mailed to the home two weeks prior to an interview appointment. When the questionnaire was retrieved, an interview of open ended questions was held.

Mercer (1985) found that although women in the three age groups functioned at different levels of proficiency, their patterns of behaviors were similar. "The process of maternal role attainment in which the mother achieves competence in the role and integrates the mothering behaviors into her role set so that she is comfortable with her identity as a mother did not differ by age group." (p.202). Therefore, this investigation supported previous literature on competency in role behaviors increasing as maternal age increased. Also, the demands of the maternal role that were identified by the sample offered explanations for observed changes in

maternal role behavior. An inverse relationship was found between sleep deprivation and women's feelings about their infants, role gratification and maternal behaviors (Mercer, 1985).

Approximately 20% of the mothers stated that the easiest things about motherhood were cuddling, loving, rocking, and nurturing the baby. Another 40% felt that the functional tasks of changing, feeding, and caring for their infants were the easiest tasks. This sample also reported that the most difficult thing about the mothering role was time deprivation and the pressures that resulted from it (Mercer, 1985).

In a grounded theory study by Winslow (1987), primiparous women over the age of 35 were interviewed and their behaviors regarding maternal role attainment documented. The study explored the experiences of 12 primiparous women between the ages of 35 and 44. The women were well educated and 10 worked outside the home. In-depth interviews were tape recorded then analyzed for common conceptual categories. All subjects expected the pregnancy to have far reaching implications. These women felt that they had the advantage of maturity and psychological readiness for dealing with the maternal role. The women were concerned about how the role of mother would fit into their already established working or professional roles. Winslow's study results

demonstrated that not only are there physiological but also psychosocial differences among women who choose to defer the maternal role until after age 35.

Maternal role attainment is also influenced by cultural norms. Culture is important during the childbearing period because it influences how individuals adapt to the event and how families respond to mothers and their infants (Auvenshine & Enriquez, 1985). Some cultures value and accept early motherhood, while others believe early motherhood encroaches upon the young woman's development of other roles. Mercer (1986) stated that cultural beliefs affect how a mother responds to her newborn and cited an example of the mother of a skinny newborn being disappointed because her cultural values led to a preference for plump babies. Also cited was a study by Brown, Baeman, Snyder, Fredrickson, Morgan and Hepler (1975) who reported black women stimulating and vocalizing more to large male infants than female or smaller infants, indicating a preference for large male infants.

Maternal role is but one of many roles that women may possibly encounter during life. Based on Roy's Adaptation Model, maternal role attainment will be influenced by the cognator subsystem. Learning the tasks of the maternal role is correlated to the processes of

imitation, reinforcement and insight, which are a portion of the cognator subsystem.

Many things will contribute to the successful adaptation to the role. As women reach the childbearing period of their lives, some of the preparation for motherhood will have been accomplished already. Other challenges will be met and mastered based on background, knowledge, experience and confidence.

Maternal Role and Infant Care Skills

As stated previously, there are two aspects to the maternal role. Maternity involves the emotional factors while mothering focuses on the physical care taking (Auvenshine & Enriquez, 1985). In order for a new mother to acquire a satisfying relationship with her infant, she must have some knowledge of care, behavior, and growth and development of the infant. For the relationship to be positive, she must have the knowledge and the confidence to undertake the new role. Klaus, Jerauld, Kreger, McApline, Steffa, and Kennell (1972) stated that the way the mother's relationship with the infant develops during the first few weeks contributes significantly to the infant's later development.

Much research can be found on the concerns of new parents during their first few weeks postpartum. Sumner and Fritsch (1977) were concerned with the gap in health services from the time of delivery until the six week

postpartum checkup. In this descriptive study, telephone calls received by the area medical centers, nursery, and consultive nurses' station during a one month period were recorded. A total of 270 calls were received. Calls came from both primiparous women (62%) and multiparous women (38%). Topics of the calls were coded and summarized under six major categories; feeding, gastrointestinal, skin, postpartum, sleep/cry, and other.

Sumner and Fritsch (1977) found that the concerns of the parents changed significantly with the infants age. The frequency of questions was found to be greatest during the first two weeks, with the exception of sleep/cry questions at the end of the fourth week (Sumner & Fritsch, 1977). Nursing implications from the study included a recommendation for examining the method, content and timing of teaching, the potential value of having a nurse offer group sessions during the postpartum period, and changing the time interval of the first postnatal visit to two weeks instead of the customary six week visit.

In a follow up to the work of Sumner and Fritsch, Pridham, Hansen, Bradley, and Heighway (1982), had 62 mothers keep logs about their newborns for the first three months. The mothers were asked to identify stressors and supports. The investigators found that issues of concern changed over time but included development, baby care, parenting, stressors, and illness.

They found mothers to be worried about the infant's vulnerability to illness during the neonatal period. "The findings indicate that on the whole, the mothers of new babies perceived themselves as being capable of managing issues, at least in an interim period, until help seeking was likely to be convenient for the helper." (p.1085).

Bull and Lawrence (1985) explored the perceived usefulness of information provided during postpartal hospitalization. The shortened hospital stay has led to inundating new mothers with information on infant physical care, feeding, and behaviors throughout the short postpartum stay. Bull and Lawrence administered a self-report questionnaire to determine what information regarding self-care and infant care was most useful to mothers during the first weeks home. Initial contact was made in the late afternoon of the day before hospital discharge. The sample was limited to mothers who had a full-term uncomplicated pregnancy, a normal uncomplicated vaginal delivery, were discharged home with their infants and could read and comprehend English and included 49 multiparous women and 29 primiparous women with a median educational level of 13.5 years. The subjects' ages ranged from 17 to 41 years with a mean of 27 years and a median of 28 years.

Nearly all of the mothers (94%) found the information regarding physical care of the infant to be

useful while 66% found information on infant behavior useful and 70% of the mothers found self care information to be useful. The investigators stated that information on infant behavior must be received before it can be used, suggesting that the information may not have been processed by the new mother. It was noted that the most frequent request for more information was regarding infant behavior.

A descriptive study was conducted by Rutledge and Pridham (1987) to examine the relationship between mothers' early postpartum experiences and their perceptions of competence for infant care and feeding during the first week postpartum. The study sample consisted of 140 primiparous (65%) and multiparous (35%) mothers, with a mean age of 28.3 years (SD = 4.62). Ninety-three percent were married and 94% were caucasian. The mothers who had vaginal deliveries comprised 71% of the sample while 29% had cesarean sections.

Questionnaires were given to the mothers during postpartum hospitalization. They were instructed to complete the questionnaire, place it in an envelope provided and deposit it in a box at the nurses' station. Prehospital and in-hospital preparation scores based on attendance at infant care classes, previous experience, and rooming-in participation were obtained for each mother based on information provided in the

questionnaire. Total perceived competence scores for infant feeding and care were calculated for each mother. Results indicated that mothers' perceptions of competence for infant care were correlated with the amount of in hospital preparation for bottlefeeding mothers ($p < .020$) and the amount of perceived rest in the hospital for breastfeeding mothers ($p < .005$).

The studies cited have given an indication as to what mothers perceive as relevant infant care skills and knowledge of infant behaviors. According to Sumner and Fritsch (1977), there is a need for new mothers to have validation that they are doing the right thing for their infants. Learning the skills needed to provide mothering is important for adaptation to the maternal role. The literature suggests that the more knowledgeable new mothers are about the care of their newborns, the higher their feelings of maternal competence. The greater their level of competence, the wider the adaptation zone resulting in greater assistance in positive adaptation to the new role. As new mothers acquire the necessary infant care skills and use them, they receive positive feedback from their infants, peers, significant others as well as members of the health care profession. This leads to effective maternal role attainment thereby contributing to the mothers' own development as a competent caregiver. Concurrently, this contributes to the health and well-

being of the infants since mothers will be able to direct their energy in a positive manner of caring for their infants.

Factors Affecting Teaching

According to Roy (Riehl & Roy, 1980), the role of the nurse is to promote adaptive responses in the person's four adaptive modes. Nurses may accomplish their goal by manipulating the focal, contextual or residual stimuli impinging on the individual or act to expand the individual's adaptation zone, so that the individual can effectively adapt to a wider range of stimuli. Roy conceptualizes health as effective adaptation.

One focus of maternal-child nursing is promotion and maintenance of optimal health of the childbearing woman and her family. Accomplished through the objectives of the teaching-learning process, the maternal-newborn nurse can influence the adaptation to the mothering role and adaptation of family (Auvenshine & Enriquez, 1990).

Mercer (1977) stated that the nurse is in a position to promote and facilitate early parent-infant interactions, to enhance bonding, and to assist parents to get acquainted with the infant. As the nurse supports the parents with their first efforts at child care, she offers guidance and reassurance about behavioral and developmental patterns, health care services, potential problems and resources where problems can be communicated.

These early positive interactions lead to attachment which sets a pattern for lifetime behaviors (Mercer, 1977).

Typically, maternal-newborn texts provide lists of topics that should be taught during the postpartum stay. For example, Auvenshine and Enriquez (1990), suggest that a postpartal curriculum encompass all the experiences that postpartal mothers and families are likely to encounter for the purpose of broad health promotion. They suggest the inclusion of the following topics in the postpartum education curriculum: the physiologic adjustment during puerperium, psychosocial adjustment, danger signs for self and infant, infant physical care, infant behavior and development, and measures that comfort the crying infant. The list continues with inclusion of an understanding of the hospital environment, aseptic perineal and breast care, general hygiene, diet, contraceptive needs, self breast examination procedure, postpartum exercises used for physical recovery, method of choice for feeding the infant, safety, self-health care and community resources (Auvenshine & Enriquez, 1990).

Many studies have been conducted to determine the efficacy of teaching infant care to new mothers. Brouse (1988), conducted a study to determine whether or not teaching primiparous women about their infants' behaviors and abilities would ease their transition to the maternal role. The sample consisted of 16 control

mothers and 15 experimental mothers. Subjects for Brouse's study were primiparous women who experienced a vaginal delivery, were eligible for discharge on the fourth postpartum day, lived with the infant's father and could read and speak English. The infants had to be between 37 and 42 weeks gestation, with a five minute Apgar of at least seven and no obvious congenital abnormalities.

Data were first collected from the control group of 16 mothers who did not receive the teaching intervention. The State Trait Anxiety Inventory (STAI) was administered on the third day postpartum prior to discharge. Arrangements were made to visit the mothers in their homes at 3 weeks postpartum and maternal concerns about infant care and maternal life style adjustment were measured using a 25-item Postnatal Research Inventory (PRI) developed by Schaefer and Manheimer (1960). Maternal anxiety was measured using the State Trait Anxiety Inventory (STAI) which consisted of two 20-item self-report scales designed to measure two separate anxiety concepts. Each mother participated in an informal interview focusing on the mother's concerns regarding infant care, her physical and physiological well-being as well as that of the father. Upon completion of this portion of the study, the 15 mothers in the experimental group were recruited.

Using the Brazelton Neonatal Behavioral Assessment Scale, the 15 experimental mothers were provided information on infant states, behavioral abilities, defensive abilities, and reflex abilities. The information was presented in the privacy of the patient's room, with her infant present. The session lasted approximately 30-45 minutes and included both visual demonstration and discussion.

At three weeks postpartum maternal concerns about infant care and maternal life style adjustment were measured using the same PRI and STAI. Each experimental mother also participated in an informal interview focusing on the mother's concerns regarding infant care, her physical and physiological well-being as well as that of the father. Even though the outcome measurements revealed no statistically significant difference between groups ($p=ns$) the conclusions were consistent with the underlying conceptual framework. Brouse (1988) suggested the need for investigating a predictive framework that would help nurses identify mothers who may have difficulty with the transition to the maternal role.

Brooten, Kumar, Brown, Butts, Finkler, Bakewell-Sachs, Gibbons and Delivora-Papadopoulos (1986) investigated the safety, efficacy and cost savings of early hospital discharge of very-low-birth-weight infants. Infants in the control group ($n=40$) were

discharged according to the routine nursery criteria, including a weight of about 2200 g. Infants in the early discharge group (n=39) were discharged before reaching that weight. For the early discharge group, instructions, counseling, home visits and daily on-call availability of a hospital-based nurse specialist for 18 months were provided.

The study did show that early discharge of very-low-birth-weight infants, with follow-up care in the home by a nurse specialist was safe and cost-effective. An interesting finding of this study was the number and timing of telephone calls initiated by parents once they were home, despite the fact that the nurse specialist maintained frequent telephone contact with the parents according to the study protocol. Over 300 parent initiated telephone calls were received during the follow-up period.

Brooten et al. (1986) noted that 74% of the calls initiated by parents were made within the first six months after discharge. These concerns were classified and ranked according to frequency. Newborn health problems including apnea monitoring, respiratory infections, gastrointestinal problems, fevers, hernias, medicine, rashes, injuries, and nonspecific symptoms involved 30% of the calls. Another 25% of the calls were related to questions about routine care of the newborn.

This included concerns about feeding, elimination, hearing, sleep, hygiene, immunizations and development. Another 10% of the calls received were maternal concerns including when sexual activity could be resumed, frustrations about living conditions, when to schedule clinic appointments and problems with monitor companies.

The remaining 35% of the calls involved parents wanting to provide the nurse with information such as telephone number changes, rescheduling appointments and infant condition updates or to obtain information such as questions about tests, referrals, telephone numbers for physicians and or support groups. With 65% of these parent initiated telephone calls centering on newborn health problems, normal newborn care and maternal concerns it becomes evident that gestational age/birth weight are also factors that can affect teaching.

Two of the studies already cited, Sumner and Fritsch (1977) and Bull and Lawrence (1985), investigated many of the concerns of new mothers. Sumner and Fritsch (1977) monitored phone calls and found that most questions related to feeding the newborn. The groups that called most frequently were first-time and breastfeeding mothers with male newborns. Bull and Lawrence (1985) found that most mothers felt the information provided on self and infant care during the postpartum stay was useful. However the subjects felt that more information

would have been helpful regarding the topics of infant behavior, variations in cord healing, and psychosocial adjustment.

Methods of Maternal-Newborn Teaching

The method of presentation is another area of maternal newborn teaching that has been explored. The present trend towards a shortened hospitalization and home births, places severe limitations on the amount of time available for instructions by the maternal-newborn nurse. The use of one-on-one teaching, group classes and videotape programs are the major methods of postpartum instruction. Cost and efficiency of these various methods are also considered by the hospitals as they try to improve nursing effectiveness.

Leff (1988) compared the effectiveness of videotape versus live group infant care classes. She thought that the use of videotaped presentations offered an appealing alternative method of imparting information, demonstrating skills and influencing attitudinal changes. The study included 221 participants; 74.3% had vaginal deliveries and 25.7% were delivered by cesarean section. The majority of the participants were multiparous women (56.1%), and 67.9% had at least one year of education post high school.

Subjects were randomly assigned to the live class group (n=115) or to the videotape group (n=106). The live

class lasted between 20 and 50 minutes, and was taught daily by a registered or licensed practical nurse. The nurses were given guidelines regarding information to be included in their class presentation. Each patient room was equipped with closed circuit television for viewing the color videotape of the infant care class. The videotape was shown once or twice a day.

The subjects were given information about how and when to either see the videotape or attend the class. Each participant received a sealed envelope containing a content quiz and an attitude questionnaire that assessed class interest, convenience, ease of understanding, and how relaxed the class made the subject feel about infant care. Another question from the attitude portion asked whether the subject felt that live or videotaped classes would be a better method of teaching. The content quiz was developed by the investigator based on information presented in the videotaped class. A pilot study of the content quiz was conducted to establish validity and reliability.

Subjects were asked not to open the envelope until after viewing the videotape or attending the class. Immediately following the session subjects were to complete the quiz and questionnaire. The results indicated that there were no significant differences in learning for the two groups. The multiparous women

scored significantly higher on both the live class and the videotaped session than did primiparous women.

On the attitude questionnaire, there was a strong preference was for live class as a teaching method (96% of the live class group and 72% of the videotape group). Those participants who preferred videotaped sessions cited convenience, relaxed atmosphere, comfort, held attention, better view and the opportunity to view again as reasons for their choice (Leff, 1988).

Williams and Manske (1987) studied the efficacy of audiovisual tape versus verbal instructions and found audiovisual instructional tapes provided an effective means of patient teaching. The study included a nonrandom, unmatched sample of 55 patients, at least 14 years of age, aurally and visually competent, first time crutch users who were able to use three unaffected extremities, alert, not under the influence of ingested medications or alcohol, able to use crutches in a non-weight-bearing mode and measured for proper crutch fit.

After receiving crutch walking instructions, either verbal or by the audiovisual tape, the participants were given a written and performance test. The results indicated a statistically significant difference ($p=0.001$) when the total scores from the control group (77.53) were compared with the scores from the experimental group (90.44). Williams and Manske (1987) also found an

overwhelmingly positive response regarding the concept and content of the audiovisual teaching tape.

Support for the use of audiovisual taped educational programs has been investigated. Research has proven that the use of this form of education is not only effective but also appealing and cost-effective.

Timing of Maternal-Newborn Teaching

One of the most crucial needs felt by new parents is based on their sense of insufficient knowledge regarding infant care. Infant care information is provided to new parents both prenatally and during the postpartum hospitalization. There are two factors that make prenatal and immediate postpartum teaching times less effective. First, the prenatal session is taught before the infant arrives and it is difficult for the parents to remember the information because they cannot relate to it until they have an infant to see and hold. Teaching done during hospitalization is done during the taking in phase, when the new mother is feeling dependent, and not ready to care for an infant.

As the new mother progresses in maternal role development, she moves from dependency to self-direction. She sees herself as being capable of making decisions, taking responsibility and managing her own life as well as the life of her infant. The adult

learners readiness to learn is oriented to developmental tasks and social roles. Adult learners are motivated to learn when they recognize a gap between what they know and what they want to know (Rankin & Duffy, 1983).

Consideration must also be given to the individuals level of discomfort and dependency. Preoccupation with pain and self needs will contribute to ineffective learning.

Ament (1990) expressed concern regarding the timing of patient education. Based on the results of her study, Ament suggested that women are not ready to receive or absorb the vast amount of information presented to them during their first 24 hours postpartum. Because women were found to be in the taking in phase, she proposed that postpartum women should not be expected to learn or give return demonstrations until at least 24 hours after delivery. Ament also suggested that maternal-newborn home visits would be useful because they would correspond to the taking hold phase, and the teaching would be more effective in increasing maternal adaptation to the new role. Since this is a time of more autonomous behavior, Ament believed new mothers would be more relaxed and more receptive to the information provided.

Conclusions

There is a sound research basis for determining the content of postpartum educational programs. Maternal-

newborn nursing research suggests similar postpartum curriculum for patient teaching. Many of the studies of postpartum teaching presented also provided suggestions for topics that new mothers would like to have more information about. Methods of teaching have also been researched, with little to no difference seen between the more cost effective videotaped programs and the more costly live class presentations. However, there is a deficit of research information evaluating the relationship between the timing of postpartum education and it's effectiveness. The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care.

Research Questions

1. Will primiparous mothers who view an educational videotaped program about infant care and infant development both in the hospital and on their third day postpartum, at home, recall more infant care and infant development information at one month postpartum than primiparous women who view the same videotaped educational program only during the first 24 to 36 hours postpartum?
2. Will primiparous mothers who view the videotaped program at home express greater satisfaction with

this type program than mothers who view the videotaped program only during the 24 to 36 hours postpartum, during hospitalization?

Summary

This chapter presented the conceptual framework and a review of literature. Roy's Adaptation Model provided the conceptual framework for this study. The relationships between the concepts of maternal role as a role function, infant care skills as a portion of maternal role and the need for positive adaptation to the maternal role for health promotion were explained in depth. A review of literature was presented as it related to the concepts of maternal role function, attainment of infant care skills, and factors that affect teaching, including methods and timing.

Many studies have been reviewed on the content and method of presentation of postpartum education. Very little literature was found to address the timing of postpartum education. For the maternal-newborn nurse to promote health through positive adaptation of maternal role attainment, the timing of education endeavors is essential.

CHAPTER 3

DESIGN AND METHODOLOGY

Design

This experimental study utilized a post-test only two group design. The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care.

Description of the Setting

The setting for this study was a 240 bed community hospital in southwestern United States and the subjects homes. Subjects for this study were recruited during their hospital stay in a postpartum unit. Data collection was completed in the subjects home between 28 to 32 days postpartum.

Human Subjects

Approval to conduct this study was obtained through the Ethical Review Committee of the University of Arizona, College of Nursing (Appendix A) prior to data collection. Permission was obtained to access the facility where the research took place (Appendix B). A written disclaimer that explained the study and the subjects ability to withdraw at any time was given to each subject when she was recruited (Appendix C). Protection of the rights of the subjects was insured throughout the study.

Sample

A convenience sample of 21 subjects was recruited from the facility where the study was conducted. The criteria for inclusion in this study were:

- 1) Primiparous delivery status.
- 2) Maternal age between 20-34 years.
- 3) Living with the father of the baby (married or unmarried).
- 4) English speaking, non-hispanic Euroamerican.
- 5) A minimum of a high school education.
- 6) Birth by a normal vaginal delivery with a gestation of 38-41 weeks and discharge from the hospital between 24 and 36 hours after delivery.
- 7) The infant born to the subject had Apgars greater than or equal to 7 at one and five minutes and was diagnosed by the pediatrician as a normal healthy newborn.

Rationale for Criteria

The criteria for inclusion were chosen for the purpose of obtaining homogeneity within and across the study groups. This also "limits the effect of extraneous variables on the interaction between the dependent and independent variables" (Burns & Grove, 1987, p.436). Recruitment of primiparous women was necessary to eliminate contamination of the results through previous experience with infant care. Women between the ages of

20-34 years were chosen because women younger than 20 years and older than 35 years tend to have greater physical and emotional risks than women in their 20's and early 30's (Auvenshine & Enriquez, 1985).

The criteria for living with the father of the baby was important because having a single parent lifestyle has been noted to negatively affect the health and emotional stability of the family (Auvenshine & Enriquez, 1985). Only English speaking non-hispanic Euroamericans with a high school education were included to minimize communication problems, lessen the cultural influences on childbearing and childrearing, and strengthen the homogeneity of the group. By selecting women who experienced a normal vaginal delivery and a resultant normal healthy infant, distractions related to a preterm, ill newborn or increased maternal physical compromise were eliminated.

Procedure

This section describes the recruitment process, the control group activities and the experimental group activities.

Recruitment of Subjects

Chart reviews were done to identify subjects who met the study criteria. The investigator visited each potential subject who had met the study criteria, explained the study briefly and invited her to

participate. Subjects were identified by number in succession as they were recruited, thus the first subject was assigned number one, the second subject was assigned number two and so on. To assure randomization, the numbers 1 through 40 were written on small cards, one number per card, and the cards placed in a container. The first 20 numbers withdrawn from the container by the investigator were designated as the experimental group (Appendix D). The remaining 20 were the control group. Once a subject agreed to participate, she was included in either the experimental group or the control group, based on her number assignment. The investigator had planned that if any subject decided to withdraw from the study, a new subject would be recruited in her place, once the original 40 had been obtained. Since none of the subjects dropped from the study, the original placement remained intact.

All subjects were given a copy of the disclaimer that explained the purpose of the study and the subjects option to withdraw from the study at any time. The disclaimer explained that the investigator would visit the subject's home at mutually agreed upon times that fell within the guidelines for testing.

After a subject had read the disclaimer and agreed to participate, she was asked to complete a demographics form that included her name, address, and telephone

number and alternate telephone number so that the investigator could make arrangements for home visits (Appendix E).

Control Group

In the facility where data were collected, all new mothers are routinely asked to review a two-hour videotaped presentation of basic baby care. The film is separated into segments on: a) the newborn at birth, b) caring for oneself postpartum, c) first days at home, d) daily care, e) feeding, f) health and safety, g) crying and sleeping, h) growth and development. The film is shown continuously from 7 o'clock in the morning until 11 o'clock in the evening. Each new mother has the opportunity to view all or any segment of the film at six different times during the day.

As mothers view the video they are asked to complete a checklist to verify review of the various segments of the film. Follow-up is done by the nurse preparing the new mother and infant for discharge from the hospital. There are open visiting hours on the maternity unit with no special time for quiet or rest in which the new mother might view the film with less distractions.

New mothers are also given the telephone number of the newborn nursery upon discharge. They are encouraged to telephone at any time day or night with their concerns or

questions. This arrangement provided the investigator with a naturally occurring control group.

The new mothers in the control group were instructed in the usual hospital manner regarding review of the videotaped postpartum instructions. The investigator visited the new mother prior to discharge (T1), administered the first content quiz and gave the new mother a sealed envelope containing a second content quiz. Instructions were written on the envelope as to the date and time (third day postpartum, T2) the new mother was to open the envelope and complete the second content quiz. The investigator called to obtain the answers on the third day postpartum. During this telephone conversation, content quizzes, T1 and T2, were corrected and any wrong answers reviewed with the new mother. Arrangements were made for the investigator's final visit (between 28 and 32 days, T3) to the new mother's home for administration of the content quiz and a short interview.

Experimental Group

During hospitalization new mothers have multiple opportunities to view the various segments of the videotape. For the treatment in this study the investigator would have needed to ask the subjects to sit and review the film for the entire two hours. This was of concern due to the new mothers inability to sit for the designated length of time. Due to distractions from the

newborn, discomfort from an episiotomy, fatigue, and possible discomfort from sore breasts new mothers might have been unable to concentrate on the educational material presented. Based on knowledge of the principles of adult learning, these discomforts and distractions could have affected her retention and altered the results of the study.

For the purpose of this study subjects were asked to review the last three segments of the film which covered the topics of health and safety, crying and sleeping, and growth and development. These three segments were selected based on the literature review indicating that these areas involve the most common postpartum concerns. The topics were also selected because they were least likely to be utilized with any frequency during the first 30 days thus providing a more accurate assessment of information retention. The length of the three segments combined totaled 43 minutes.

Mothers placed in the experimental group reviewed the film as shown during their hospital stay. The investigator visited these new mothers prior to discharge (T1), administered the first content quiz and made arrangements for review of the videotaped segments in the subjects home on the third day postpartum. The treatment for this study was the repetition of specific videotaped postpartum educational material pertaining to infant

health and safety, crying and sleeping, and growth and development on the primiparous woman's third day postpartum, in the quiet and privacy of her home. Following the viewing of the taped segment a second content quiz (T2) was administered. After the subject completed the second content quiz, it was corrected and any wrong answers were reviewed with the new mother, along with the results of her first quiz (T1). Arrangements were made for the return visit in 28-32 days (T3) for the final quiz and a short interview.

Data Collection Tools

This section describes the various tools used for data collection.

Demographics Questionnaire

The demographics questionnaire was developed by the investigator. The purpose of obtaining the demographic information was to describe the sample on key demographic variables and to examine the relationships between the demographic variables and retention of the videotaped educational material presented during the postpartum period.

The investigator also needed addresses and telephone numbers for planning home visits. Each subject was asked whether or not she owned a videotape player so that arrangements could be made for the investigator to bring one on the first home visit, if necessary. The

questions that pertained to date and time of delivery and discharge were necessary for calculating the appropriate time for follow-up visits.

Content quiz

The content quiz was developed by the investigator based on information in the videotape. Much of the videotaped information, as it was presented in the hospital pertained to topics that new mothers have had ample time to practice in the 30 days prior to the final quiz administration. The fifteen multiple choice, yes/no and true false content questions were based on the information found in the videotape segments addressing health and safety, crying and sleeping, and growth and development. The interview questions were developed by the investigator in relation to assisting with answering the research question regarding the subjects satisfaction with videotaped educational material.

Reliability and Validity

Burns and Grove (1987) describe reliability as how consistently the instrument measures the concept of interest. Validity is a determination as to whether the instrument measures the concept of interest.

Since the content quiz was developed by the investigator, reliability and validity needed to be assessed. The investigator conducted a pilot test and administered the quiz to 10 primiparous women who had not

yet viewed the videotaped postpartum educational material and to 10 postpartum women during hospitalization, who had viewed the videotaped material. The results of their scores were reviewed to determine whether or not questions were appropriate. The scores of the group supported content validity that the tool actually measured the expected content. The content quiz and interview questions were also reviewed for content validity by a panel of three professors with expertise in the field of maternal newborn nursing. Following evaluation of the pilot group scores and review by the panel it was decided that the content quiz would not be revised for the actual study. The reliability of the content portion of the quiz was established using the test results of the study sample and not the pilot group.

Data Analysis

The first research question was analyzed using two-tailed T-test. Analysis was performed on the total scores and item analysis of topics of 1) health and safety, 2) crying and sleep, and 3) growth and development. Total scores were used in the analysis of variance.

The second research question was answered using frequency data that was collected using the interview questionnaire. Comments were grouped into categories and tallied.

Summary

The design and methodology were described in this chapter. The investigator chose an experimental, post-test only, two-group design. The setting, human subjects approval, sample criteria, random assignment to groups, and data collection procedure were explained. The data collection tools that were developed by the investigator were described. Reliability and validity were addressed. Data analysis methods were also presented.

CHAPTER 4

RESEARCH FINDINGS

This chapter presents the demographic characteristics of the sample, and the findings from data analysis.

Characteristics of the Sample

The sample was composed of 21 primiparous women living in Tucson, Arizona. Criteria for inclusion were:

- 1) Primiparous delivery status.
- 2) Maternal age between 20-34 years.
- 3) Living with the father of the baby (married or unmarried).
- 4) English speaking, non-hispanic Euroamerican.
- 5) A minimum of a high school education.
- 6) Birth by a normal vaginal delivery with a gestation of 38-41 weeks and discharge from the hospital between 24 and 36 hours after delivery.
- 7) The infant born to the subject had Apgars greater than or equal to 7 at one and five minutes and was diagnosed by the pediatrician as a normal healthy newborn.

The ages of the women ranged from 21 years to 34 years, with a mean of 26.81. The women had a range of 12 to 20 years of education with a mean of 14.3 (Table 1). Prenatal childbirth classes were attended by 18 or 85.7 %

Table 1. Sample by Level of Education. (n=21)

Years of Education	Experimental Group (n=10)	Control Group (n=11)	Total Group (n=21)	
	Frequency	Frequency	Frequency	(%)
12	2	5	7	33.3
13	1	1	2	9.5
14	1	2	3	14.3
15	1	0	1	4.8
16	4	1	5	23.8
17-20	1	2	3	14.3

\bar{x} = 14.3, range = 12-20 years.

of the women. The 3 women who did not attend prenatal classes were randomly placed in the control group.

All women recruited had experienced a normal vaginal delivery with a gestation of 38-41 weeks. Infants born to these women had Apgar scores greater than or equal to 7 at one and five minutes of age and were diagnosed as normal healthy newborns. All participants were discharged from the hospital between 24 and 36 hours following birth.

Evaluation of Tools

The content quiz used for this study was a new tool developed by the investigator and based on the content of the video tape presented. A pilot testing of the content quiz was done with two groups. In the first group, all 10 women were attending prenatal education classes, in their eighth month of their first pregnancy. The average score was 81% or 12.1 questions correct. The lowest score was 10 correct (3 subjects) and the highest score was 15 correct (1 subject).

A second group of 9 primiparous women who had delivered in the hospital environment were also recruited to pilot the content quiz. The average score for this group was 92% or 13.77 questions correct. The lowest score in this group was 8 correct (1 subject) and the highest score was 15 correct (5 subjects).

The results of their scores were reviewed to determine whether or not questions were appropriate. In

the pilot test of new mothers who did view the film, the investigator evaluated for content validity. The content quiz and interview questions were also reviewed for content validity by a panel of three professors with expertise in the field of maternal newborn nursing. Following evaluation of the group scores and review by the panel it was determined that content validity had been established.

Reliability statistics were done on the scores of the sample population. Four of the 15 questions were answered correctly 100% of the time. The overall alpha coefficient was 0.64, based on the eleven remaining questions.

Analysis of Data

Research Question 1

The first research question was:

Will primiparous mothers who view an educational video taped program about infant care and infant development on their third day postpartum, at home, recall more infant care and infant development information at one month postpartum than primiparous women who view the same video taped educational program only during the first 24 hours postpartum?

Analysis of variance calculations were used to determine the difference between the two groups (Table 2). Testing completed at 28-32 days postpartum, T3, revealed no statistically significant difference in scores on the content quiz in the experimental group versus the control group ($df=1$, $p= .238$). The experimental groups mean score was 13.80 while the control groups' mean score was 14.36.

Additional Findings: Knowledge of Infant Care

Since there was no significant difference in the knowledge of infant care between the two groups at one month postpartum, additional analysis was conducted to assess possible differences between groups at T1 (in hospital) and at T2 (3 days postpartum).

At T1, testing prior to discharge from the hospital, no statistically significant difference ($df=1$, $p= .296$) could be found in the baseline knowledge of the two groups after viewing the video tape in the hospital. The experimental groups mean score was 12.50 while the control groups' mean score was 13.36.

At T3, testing on the third day postpartum, again there was no statistically significant difference ($df=1$, $p= .671$) for the group that viewed the video tape at home versus the group that saw the video only during hospitalization. The experimental groups mean score was 13.50 while the control groups mean score was 13.73.

Table 2. Mean Test Scores of Subjects at Timed Intervals Based on Repeat of Videotaped Educational Material. (n=21)

Interval	Viewed film only in hospital (n=11)	Repeated viewing of film on Third Day (n=10)	Total Group (n=21)
T1	13.36	12.50	12.95 (SD - 1.80)
T2	13.73	13.50	13.62 (SD - 1.16)
T3	14.36	13.80	14.10 (SD - 1.04)

Mean test scores for the total sample did increase over the three testing times. Mean score for the total sample at T1 was 12.95. Mean score for the total sample at T2 was 13.62. Mean score for the total sample at T3 was 14.10 (Figure 2).

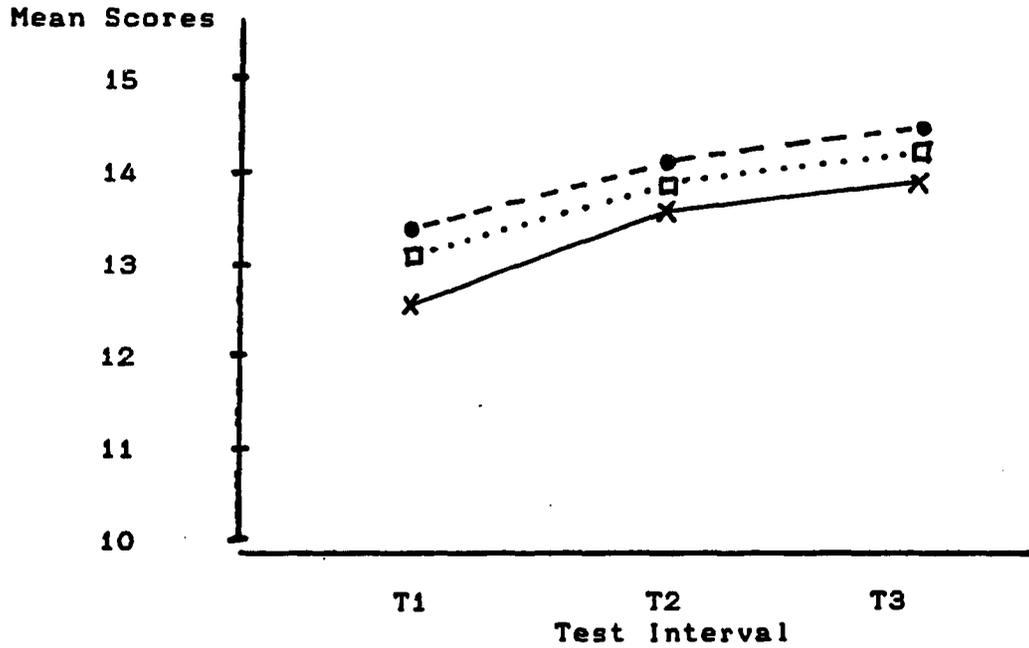
Item analysis was conducted to determine which questions were missed most frequently. After viewing the video tape the first time, two-thirds of the sample were able to answer the majority of the questions on the first testing.

Since there was no significant difference in knowledge of infant care between the two groups at T1, T2, or T3, the scores of the total sample were combined and inspected for areas of deficits in knowledge of infant care in three areas: Health and Safety, Crying and Sleeping, and Growth and Development.

Health and Safety

There were seven questions developed to assess knowledge of Health and Safety: Questions 1, 2, 3, 4, 5, 6, and 8. Nine subjects, 4 from the experimental group and 5 from the control group, missed question 1, at the T1 interval. This question was a multiple choice regarding the length of time a thermometer should be held in place for an axillary temperature. Four subjects, all from the control group, missed question 1 at the T2 interval. Only 1 subject, from the experimental group, missed this

Figure 2. Mean Scores of Experimental Group, Control Group and Total Group at Test Intervals: T1=In Hospital, T2=Third Day Postpartum and T2=28-32 Days Postpartum. (n=21)



X = Experimental Group (n=10)

● = Control Group (n=11)

□ = Total Group (n=21)

question at the T3 interval. Very few subjects missed the other questions on Health and Safety.

Crying and Sleeping

There were five questions developed to assess knowledge of Crying and Sleeping: Questions 9, 11, 12, 13, and 15. Seven subjects, 4 from the experimental group and 3 from the control group, missed question 9 at the T1 interval. This question was a True or False statement. The statement read: When the baby has days and nights reversed, you can establish a night routine by keeping the baby up all day. Three subjects, 1 from the experimental group and 2 from the control group, missed this question at the T2 interval. Six subjects, 5 from the experimental group and 1 from the control group missed this question at the T3 interval.

Thirteen subjects, 7 from the experimental group and 6 from the control group missed question 15 at the T1 interval. This was also a True or False statement. The statement read: The best thing to do for colicky baby is to keep him/her stimulated so that he/she is distracted from his/her discomfort. Eleven subjects, 6 from the experimental group and 5 from the control group missed this question at the T2 interval. This question was missed by 6 subjects, 4 from the experimental group and 2 from the control group, at the T3 interval. Other

questions related to these topics were not missed by a significant number of the sample.

Growth and Development

Three questions were developed to assess knowledge of Growth and Development: Questions 7, 10, and 14. These three questions were missed by an insignificant number of the subjects.

Correlations were done on the three categories at the various intervals of quiz administration for the total sample. High correlations between subtests and total scores support a positive relationship between subtests and the concepts of infant care (Table 3).

Research Question 2

The second research question was:

Will primiparous mothers who repeat viewing the video taped program at home express greater satisfaction with this type of program than the mother who views the video tape program only during the first 24 hours of hospitalization?

Frequency data from the interview conducted at the 28-32 day postpartum visit was used to answer this question. The subjects were asked "What are your feelings about video taped education?" Ninety percent of the women made positive statements about the videotaped

Table 3. Correlation Coefficients of Test Question Groups at Various Testing Intervals. (2-tailed significance $n=21$).

	Health/ Safety	Sleep/ Crying	Growth/ Development
Total T1	.8398**	.8603**	.4776*
Total T2	.7726**	.6827**	.5834**
Total T3	.6670**	.9425**	.3487

*Significant at $p \leq .05$
 **Significant at $p \leq .01$

instructions. For example, most of the subjects said it was "very good", "good", "liked" or "helpful". (Table 4).

Additional Interview Findings:

In addition to the interview question regarding satisfaction with videotaped educational material, subjects were asked which topics needed more coverage, when did they need the information and from whom did they obtain the needed information. Four women (36%) of the control group stated that the video tape should be sent home with the patient. Four women, three from the control group (27%) and one (10%) from the experimental group stated that there was too much information to absorb during the first 24 hours. Two women (18%) of the control group felt that there were too many interruptions during the viewing while hospitalized.

Coverage of Topics

The women were asked: "What topics needed more answers?". Nearly half of the subjects (48%) thought all topics were covered adequately in the videotape. Topics that needed further discussion varied based on individual experiences, but 7 women felt they needed more information on breast feeding. Three of these women were in the experimental group and 4 of them were in the control group.

Table 4. Verbal Satisfaction with Videotaped Education Materials. (n=21)

	Very Good	Good	Helpful	Liked
Experimental Group (n=10)	4	3	1	2
Control Group (n=11)	3	5	2	0

* One subject did not voice satisfaction nor dissatisfaction.

Timing of Additional Information

During the interview session, the women were asked "When did you find that you needed these answers? (To specific problem areas)". Only 4 women reported that they did not need to seek out answers to their questions. Three women in the experimental group indicated that they needed to obtain answers as the incidents occurred (Table 5).

Interestingly, 8 women felt they needed questions answered sometime during the first week. Of these 8 women, only 1 was assigned to the experimental group.

Sources of Information

The final interview question was "How and from whom did you obtain these answers?". Ten subjects, five from each group, stated that they called the hospital between 1 and 3 times. Seven (70%) of the experimental group called or visited their pediatricians while only 3 (27%) of the control group sought information from their pediatricians. Resource books or pamphlets were used by 3 women from the experimental group and 3 women from the control group. Family and friends were used as resources by 5 women in the experimental group and 2 women in the control group. La Leche League was used as a resource by 2 women in the experimental group and 1 woman in the

Table 5. Times at which subjects felt the need to obtain additional answers.

	Not at all	As incidents occurred	During 1st Week	During 2nd Week	During 3rd Week	At One Month
Experimental Group (n=10)	1	3	1	2	1	2
Control Group *(n=11)	3	0	7	2	0	0

* One subject needed to obtain additional information at both 1 and 2 weeks postpartum.

control group. There were 4 women who felt that they had not needed to contact anyone as a resource.

Summary

This chapter presented the research findings of the study. Included were the characteristics of the sample, the results of data analysis and correlations generated to answer the research questions.

CHAPTER 5

Discussion of Results and Summary

In this final chapter, a discussion of the results of data analysis are presented. Limitations of the study and implications for nursing practice and recommendations for further research are also presented.

Discussion of Findings

This study originated from a change in nursing practice in a community hospital. Due to the shortened length of hospitalization following a normal vaginal delivery, methods of patient education changed from live, classroom presentations to videotaped presentations. The purpose of this study was to investigate the effect of postpartum home teaching on primiparous women's knowledge of infant care and their satisfaction with the videotaped educational program.

Discussion of Findings: Knowledge of Infant Care

The study results revealed no statistically significant differences in subjects test scores across groups. This finding could be a result of adequate assimilation of information from viewing the videotape the first time, making a second viewing unnecessary. Results suggest that most of the information needed for answering the questions was assimilated during the first

twenty four hours postpartum. The results support Ament's (1990) work, which indicated a shortened "Taking in" phase of 24 hours, not 72 hours.

In Rubin's work (1967a), the "Taking in" in phase of maternal development lasted between two and three days. The second phase "Taking hold" began sometime on the third day. This phase lasted about two weeks. The final phase of maternal development "Going home" began then and was a time of maximal readiness for learning. At the time of Rubin's work it was customary for women to have lengthy hospitalizations and recovery from the birth process.

Ament (1990) stated that Rubin's work was correct for the time period in which she first began investigating the phases of maternal development. Ament's work supported the phases of maternal development but on an accelerated time frame.

Ament (1990) found a transition from "Taking in" to "Taking hold" sometime between bedtime on the day of delivery and waking up the next morning. Ament (1990) stressed that women are not ready to assimilate the vast amount of information taught on most postpartum units until after the first 24 hours. The present study supports the work of Ament. Test scores indicated that women did assimilate an adequate amount of information when viewing the videotape during that first 24-36 hours after birth. However, alternate explanations such as

selection-maturation interaction, instrumentation, and other sources of information must be considered.

Selection-Maturation Interaction Factors

Most of the women recruited for this study attended childbirth education classes, and completed a minimum of twelve years of formal education. Their baseline knowledge of infant care may have been higher than anticipated and thus reflected in higher scores.

Maturation in the maternal role also contributed to the results. Simply by virtue of caring for a baby for a month, the mothers increased their level of knowledge. Therefore, maturation in the maternal role may be another explanation for the findings.

Instrumentation Factors

Instrumentation must also be considered as an alternate explanation for the findings. The content quiz may have been too easy, and may not have discriminate actual differences in knowledge between groups.

The results of the pilot study revealed an average score of 12.2 (81%) correct for a group of 10 primiparous women who had not viewed their video taped educational program of the study. The average score of a group of 9 primiparous women who had delivered in the hospital environment and viewed the video taped educational offering was 13.77 (92%) correct, a difference of only 1.57 correct.

In the study, four questions, numbers 4,6,11 and 13 were answered correctly 100% of the time. An alpha coefficient of 0.64 was determined, based on the eleven remaining questions. Two-thirds of the sample population were able to answer 13 of the 15 questions correctly on the first test. The 15 questions were also analyzed by content. There were three identified subject areas, Health and Safety, Crying and Sleeping and Growth and Development. Strong correlations were determined between the questions on Health and Safety and Crying and Sleeping ($p \leq .01$) at the various testing intervals. The questions on Growth and Development did not display as consistent correlations with the various testing intervals.

There were, however, two questions that were missed consistently by a significant number of the subjects at all three test intervals. One question focused on the colicky baby and how to distract him/her from the discomfort. The other question focused on the baby who reversed his/her days and nights and how to correct the problem.

Other Sources of Information

The investigator was unable to restrict the sources of information available to the subjects during the time period of the study. Only four of the twenty-one subjects stated that they did not seek information from other

sources. Even these four subjects may not have been aware that they were obtaining information from other sources. The inability to control this factor interfered with the investigator's ability to detect the influence of the videotape.

Discussion of Findings: Videotaped Instruction

The second research question investigated women's satisfaction with the video taped educational program. It was anticipated that women who had the opportunity to review the video taped educational program at home would express greater satisfaction with the program than did women who only viewed the film during hospitalization. After interviews were conducted with each subject the results were compiled and it was found that 90% of the subject population expressed satisfaction with this type of educational offering. Each subject stated this form of education was either very good, good, liked, or helpful. Four women of the control group stated that the video tape should be sent home with the new mother as a reference. This concern was not expressed by members of the experimental group, however, they did have access to the video tape a second time.

Other concerns expressed by subjects regarding the videotape included concern for the amount of information to be assimilated, the lack of time for viewing the

videotape and the number of interruptions that were encountered during the viewing in the hospital.

These findings are consistent with the study done by Leff (1988) regarding videotaped versus live class presentation. She found that women who viewed the videotaped educational material and those who attended the live class preferred the live class because they could ask questions. She encountered problems in her study due to scheduling of the video tape and the occurrence of interruptions such as physician rounds, housekeeping activities, poor picture or sound reception and failure of the program to appear as scheduled. Similar concerns were noted with the present study. However some of the interruption and scheduling problems were minimized when video cassette recorders were placed in patient rooms late in the study.

Limitations of the Study

Some limitations were noted within this study and should be considered when reviewing the results. The sample size for this study (n=21) was small and demographically homogeneous limiting generalizability of the findings to a larger population.

The content quiz used for testing was developed by the investigator and did not have established psychometric properties. An alpha coefficient of 0.64 did not meet the

.70 alpha coefficient for an immature instrument (Nunnally, 1978). Failure to demonstrate statistically significant findings may have been due to deficient measurement of the study variables.

Since the tests were administered at three intervals and there was no way to limit other learning experiences and or the use of other forms of education, the test results could have been contaminated. The investigator was also obligated to correct any missed questions and explain the correct answer. Even though this procedure was done after obtaining the second test results, it could have potentially influenced the results of the third test.

And finally, the Hawthorne effect may have influenced the results of the study. Since all subjects were asked to participate, they may have paid closer attention to the videotaped presentation, regardless of the random assignment.

Implications for Nursing Practice

Patient teaching has long been recognized as an integral part of nursing practice (American Nurse's Association, 1973b), particularly for the maternal newborn nurse. A significant portion of the teaching done by the maternal-newborn nurse is focused on health promotion and health maintenance for the individual and family. For all women who have uncomplicated vaginal

births, a hospitalization of 24 hours or less, the need for creative postpartum patient education has intensified.

As nurses use newer methods of patient education in a shorter span of hospitalization, they become concerned as to whether the information relayed was retained for future use. This study demonstrated that with a specific group of subjects, retention of the information provided prior to hospital discharge was sufficient. It also suggests that follow-up home visits for patient teaching may not be necessary among this particular population.

Based on Roy's Model, new mothers are supported in their adaptation to the maternal role using the educational information provided by the Maternal-Newborn nurse. The new mothers of this study utilized information processing and learning, cognator mechanisms, in their adaptation to the maternal role. These women were very aware of their limited hospitalization. Their test scores demonstrated adequate assimilation of the educational information provided. For the Maternal-Newborn nurse, perhaps we do not need to concern ourselves with the time lines for the phases of maternal adaptation. New mothers may be adapting to these phases based on the "hospital policies or insurance demands" that dictate their length of stay.

Perhaps we should concern ourselves more with reviewing topics that the film does not cover adequately or topics that the new mother does not readily identify as important. In this study, two questions on the topics of Crying and Sleeping were missed consistently by a significant number of the subjects at each test interval. Most new mothers, during hospitalization, do not experience a colicky baby or one that stays awake at night. It may be difficult for them, while they are viewing the film, to identify this information as important for their role adaptation. The Maternal-Newborn nurse may want to restructure her teaching to emphasize these topics that the new mother cannot identify with as easily, thereby increasing the new mothers adaptation zone and enhancing acquisition of the maternal role.

Based on the comments received from the subjects of this study and the previous work of Leff (1988). The maternal newborn nurse and the hospital environment should provide support in every way possible to enhance the viewing of the videotaped education offerings. The use of individual video cassette recorders with individual copies at the bedside is one way this process can be supported.

The maternal newborn nurse can also assess optimal viewing times based on patient assessment, knowledge of the physicians rounds and unit activity. This could

optimize the ability of the new mother to provide undivided attention and enhance her ability to concentrate on and assimilate the information provided.

Recommendations for Further Research

The following recommendations are made based on the findings of this study:

1. Further development and improvement of the content quiz is needed for more accurate testing of knowledge.
2. More definitive research is needed to investigate the retention of videotaped educational material by a more diverse sample, such as other groups of childbearing women with less baseline knowledge or different demographic characteristics.

Summary

This chapter presented a summary of the study, discussion of the findings, limitations, nursing implications and recommendations for further study.

The results of the study, Effect of Postpartum Home Teaching on Primiparous Women's Knowledge of Infant Care suggest that some women retain an adequate amount of information on infant care from videotaped presentations during hospitalization. The women of this study expressed

satisfaction with this type of educational offering and know the various resources available when concerns arise.

Nursing implications included continued utilization of videotaped education materials, based on research that support the belief that women obtain sufficient information after viewing the videotaped educational material during the 24 hours prior to hospital discharge. Suggestions for maximizing the patient's retention were presented.

The findings of this study cannot be generalized to all postpartum women. However, they do answer some questions for the maternal newborn nurse and open the door for further investigation of maternal retention of infant care information.

APPENDIX A

Human Subjects Committee Approval

College of Nursing

Tucson, Arizona 85721
(602) 626-6154**MEMORANDUM**

TO: Marsha J. Tillet
9435 E. Third Street
Tucson, Arizona 85710

FROM: Leanna Crosby, D.N.Sc., R.N. *LC*

DATE: January 28, 1991

SUBJECT: Human Subjects Review:

**"The Effect of Postpartum Home
Teaching on knowledge of Infant
Care"**

Your project has been reviewed and approved as exempt from University review. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research if you need access to it.

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

LC:dbr
cc: Elaine Jones

Appendix B
Letter of Approval From The
Nursing Research Committee
Carondelet St. Joseph Hospital

 Carondelet St. Joseph's

February 14, 1992

Marsha Tillett, R.N.
9435 E. Third Street
Tucson, AZ 85710

Dear Marsha:

Your research proposal entitled "The Effect of Post Partum Home Teaching on Knowledge of Infant Care" has been approved by St. Joseph's Hospital Research Committee for data collection. Your primary contact will be Polly Phillips, Director.

Good luck with your project, and please let me know if we can be of any further assistance. We look forward to hearing about your results.

Sincerely,



Peggy MacMacken, RN, MS
Administrative Director
Patient Care Services

PM:sm

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Sponsored by the Sisters of St. Joseph of Carondelet

Appendix C
Subject Disclaimer

SUBJECT DISCLAIMER

Title of Thesis: The Effect of Postpartum Home Teaching on Knowledge of Infant Care

The purpose of this study is to determine the effect of repeating infant care information on your ability to remember that information at a later time.

If you verbally consent to participate in this study you will be assigned to one of two groups, and asked to complete a questionnaire on background information. You will also be asked to view a videotape on infant care during your hospital stay.

If you are assigned to Group I, the researcher will arrange to visit you at home on your third day after delivery to show you a selected portion of the same videotape about infant care which will take approximately 45 minutes. The nurse will make arrangements to visit you again between 28-33 day after delivery to administer a series of questions that will take approximately 20-30 minutes to complete.

If you are assigned to Group II the researcher will visit you at home once, 28-33 days after delivery to administer a series of questions that will take approximately 20-30 minutes to complete.

There are no known risks or discomforts associated with your participation in this study. You can ask questions at any time you want, and I will answer them for you. If, at any time you wish to withdraw from the study, you may do so without harm or risk to your care.

All information obtained is confidential and will be presented as group numbers. Your name will not appear in the report or any publications. Only the researcher and her thesis committee will have access to the data.

Marsha J. Tillett, BSN, RNC
Graduate Student
University of Arizona
College of Nursing
Phone: 721-3896/Work 722-1840/Home
Clinical Coordinator
Labor and Delivery
Carondelet St. Joseph's Hospital

Appendix D
Table of Random Assignment

Table of Random Assignment

Experimental Group	Control Group
2	1
3	5
4	6
8	7
10	9
11	12
15	13
16	14
20	17
23	18
24	19
25	21
26	22
30	27
33	28
34	29
35	31
36	32
37	38
39	40

Appendix E
Demographic Questionnaire

Appendix F
Content Quiz

Content Quiz

One month ago you were instructed and viewed a film on basic care of the newborn. PLEASE ANSWER THE FOLLOWING QUESTIONS BASED ON THE INFORMATION YOU WERE GIVEN IN THAT FILM. Please circle your answers.

1. When checking baby's temperature axillary (under the arm) you should leave the thermometer in place:
 - a. 3 minutes
 - b. 1 minute
 - c. 5 minutes

2. If your baby developed a fever you were instructed to do all the following except:
 - a. Remove excess clothes.
 - b. Sponge bath when the temperature is very high.
 - c. Give baby aspirin.
 - d. Call the Doctor.

In the following cases, indicate whether you should or should not call the doctor. Circle yes or no:

3. Your baby was immunized yesterday, he/she is fussy and has a low grade fever today.

Y N

4. Your baby has just spit up after eating.

Y N

5. Your baby is wheezing and has an axillary (underarm) temperature of 102 .

Y N

6. Your baby has a temperature of 103 rectal and has vomited twice.

Y N

Based on information provided in the film please answer the following True or False statements.

7. At 3 months of age, most babies can hold things in their hands and put them to their mouths.

T F

8. You can leave a pet (cat or dog) in the room where your baby is sleeping after you have introduced your pet to the new baby.
T F
9. When the baby has days and nights reversed, you can establish a night routine by keeping the baby up all day.
T F
10. Hand and finger play is important for your baby because it helps him/her become more aware of himself/herself as an individual.
T F
11. Holding the baby close to you can be helpful when baby is colicky.
T F
12. When a baby experiences colic, feeding always helps.
T F
13. After you feed your baby and he/she drifts off to sleep, you may put the baby to bed resting on his/her back.
T F
14. The best time to play physically tiring or more stimulating activities with your baby is when he/she is tired. That way he/she will sleep better.
T F
15. The best thing to do for colicky baby is to keep him/her stimulated so that he/she is distracted from his/her discomfort.
T F

Appendix G
Interview Questionnaire

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