THE RELATIONSHIP OF TIME OF INITIAL
BREASTFEEDING AND SETTING TO SUCCESS
IN BREASTFEEDING AMONG PRIMIPARAS

by

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STATEMENT BY THE AUTHOR

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TABLE OF CONTENTS

LIST OF TABLES ................................................................. vi
LIST OF ILLUSTRATIONS ................................................................. vii
ABSTRACT ........................................................................................................................................ viii

CHAPTER

1. INTRODUCTION. ................................................................. 1
   Statement and Significance of the Problem. .................. 3
   Conceptual Framework .............................................. 5
   Purpose of the Study .................................................... 9
   Definition of Terms ................................................... 10

2. REVIEW OF THE LITERATURE ................................................................. 11
   Home Birth Versus Hospital Birth .............................. 11
   The Lactation Process .............................................. 14
   Early Breastfeeding ................................................. 15
   Benefits of Breastfeeding ......................................... 17

3. RESEARCH METHODOLOGY ................................................................. 19
   Design of the Study ................................................... 19
   Population and Sample .............................................. 20
   Method of Data Collection ......................................... 22
   The Measurement Instruments ..................................... 23

4. PRESENTATION AND ANALYSIS OF DATA ................................................................. 26
   Description of the Sample ........................................... 26
   Findings in Relation to Components of the Success Scale ........................................................................................................... 29
   Mothers' Attitudes at the Time of Terminating Breastfeeding ................................................................. 29
   Mothers' Statements of Success ..................................... 30
   Actual Length of Breastfeeding ................................... 30
   Actual Length of Breastfeeding Compared with Estimated Length and Reasons for Terminating Breastfeeding ................................................................. 32
TABLE OF CONTENTS -- continued

Findings in Relation to the Statement of the Problem . . 33
The Independent Variable: Setting and Time of
Initiation of Breastfeeding. . . . . . . . . . . . . . . 33
The Dependent Variable: Success in Breastfeeding . . 33
Analysis of the Hypothesis. . . . . . . . . . . . . . . 34
The Covariate: Socioeconomic Status. . . . . . . . . 36
Additional Findings. . . . . . . . . . . . . . . . . . . . 40

5. SUMMARY, CONCLUSIONS, IMPLICATIONS, LIMITATIONS
AND RECOMMENDATIONS . . . . . . . . . . . . . . . 42

Summary and Conclusions. . . . . . . . . . . . . . . . 42
Implications for Nursing . . . . . . . . . . . . . . . . 45
Limitations. . . . . . . . . . . . . . . . . . . . . . . . 46
Recommendations. . . . . . . . . . . . . . . . . . . . 47

APPENDIX A: CONSENT FORM . . . . . . . . . . . . . . . . 50
APPENDIX B: INITIAL INTERVIEW. . . . . . . . . . . . . 52
APPENDIX C: SCHEDULE FOR INTERVIEW AFTER WEANING . . . 53
APPENDIX D: MOTHER'S SCORE FOR SUCCESS IN BREASTFEEDING. . 54
APPENDIX E: MOTHER'S ATTITUDE AND STATEMENT OF SUCCESS . . 55
APPENDIX F: DURATION OF BREASTFEEDING COMPARED TO
ESTIMATE . . . . . . . . . . . . . . . . . . . . . . . . . 57

REFERENCES. . . . . . . . . . . . . . . . . . . . . . . . . . 58
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Distribution of Respondents on Demographic Variables.</td>
<td>27</td>
</tr>
<tr>
<td>II.</td>
<td>Comparison of Estimated and Actual Duration of Breastfeeding by Birth Setting.</td>
<td>31</td>
</tr>
<tr>
<td>III.</td>
<td>Relationship Between Time of Initiation of Breastfeeding and Success Score</td>
<td>35</td>
</tr>
<tr>
<td>IV.</td>
<td>Relationship Between Setting and Time of Initiation of Breastfeeding and Success Score: One-Way Analysis of Variance</td>
<td>36</td>
</tr>
<tr>
<td>V.</td>
<td>Relationships Among Green's Three-Factor and Two-Factor Indices of Socioeconomic Status</td>
<td>37</td>
</tr>
<tr>
<td>VI.</td>
<td>Relationship Between Success in Breastfeeding, Setting and Time of Initiation of Breastfeeding and Socioeconomic Status (Three-Factor Index): One-Way Analysis of Covariance</td>
<td>39</td>
</tr>
</tbody>
</table>
LIST OF ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diagrammatic Representation of the Problem</td>
<td>7</td>
</tr>
</tbody>
</table>
ABSTRACT

A factor which is creating displeasure with the present hospital maternity care system is the hospital routine of separating mother and child immediately after birth. Separation is thought to be detrimental to successful breastfeeding because it prevents early breastfeeding. The physiological and possible psychological benefits of early breastfeeding are thought by many to be very important contributors to successful breastfeeding. The purpose of this study was to assess if there was a relationship between success in breastfeeding and setting and time of initiation of the first breastfeeding.

The convenience sample in this study was composed of 17 primiparas between the ages of 16 and 31 years. The group of eight hospital birth mothers initiated breastfeeding from 4 to 14 hours after birth. Nine home birth mothers initiated breastfeeding from 5 minutes to between the first and second hours after birth.

The mothers were interviewed before and two months after delivery. Measures for success in breastfeeding took into account subjective feelings of the mother, actual duration of breastfeeding versus the time estimated by the mother before starting to nurse her baby, and the mother's own statement of success or lack of success.

Statistical and substantive assessments were made of the relationships between the two groups. No significance was found. All of the mothers from both groups were successful in breastfeeding. An informal finding of the study was a strong support system for breastfeeding in operation for each of the mothers.
CHAPTER 1

INTRODUCTION

Breastfeeding is no longer a spontaneous act. At one time, all deliveries occurred in the home, and the baby was put to breast immediately after birth. Now, most deliveries occur in hospitals where many varied factors have been recognized which interfere with successful breastfeeding (Newton 1968, Countryman 1971, Knafl 1974).

In most United States hospitals there is a well-established and widely accepted practice of separating mother and child immediately after birth and in the days that follow. The mother is monitored in an adult recovery area and the infant in a transitional care nursery, where he is subject to nursery feeding schedules which vary from hospital to hospital. The routine hospital treatment usually includes a quick glance of the baby at birth, a brief contact with the infant six to eight hours later for identification and visits of 20 to 30 minutes for feeding every four hours after the first 12 to 24 hours.

There is a small but vocal movement occurring in the United States today against the hospital maternity care system. General disenchantment with available resources has led to a great deal of vociferous criticism of hospital practices and impatience with the lack of options available. The most dramatic response to this
impatience is seen in the return to home deliveries with or without professional assistance.

Lubic (1975, p. 1687) reported that at first "counter-culture" families were seeking home deliveries. It was soon discovered, however, that the majority of couples choosing home delivery were well-educated, middle-class people who had had enough of the "dehumanization" of hospital maternity care (Lubic 1975, p. 1687). This trend was verified in a study by Anderson, Bauwens and Warner (1978). This study involved 69 women who had had a home birth during 1975 in a metropolitan county in Arizona. All of these mothers were white. Fifty-six (81%) were married. The mean age for the group was 25.4 years. Fifty-eight (84%) of the mothers had at least a high school education, with 40 (59%) having some college education. Only 20 (29%) considered that cost was a factor in having a home delivery.

Factors creating displeasure with the present hospital maternity care system include hospital routines which interfere with breastfeeding; for example, immediate separation of the mother and child after birth. Separation is thought to be detrimental to successful breastfeeding because it prevents early breastfeeding. The physiological and possible psychological benefits of early breastfeeding are thought by many to be a very important contributor to successful breastfeeding (Call 1959; Newton and Newton 1962; Eppink 1968, 1969; Applebaum 1970; Winters 1973; Kennell 1974).

This study was designed to examine the relationship between setting and time of initiation of breastfeeding and successful breastfeeding among primiparas. The sample included mothers who had both
hospital and home births. Physiological and psychological concepts involved in early breastfeeding have provided a framework for this study.

**Statement and Significance of the Problem**

This study was designed to study the following question: Is there a relationship between success in breastfeeding among primiparas and 1) setting and time of initial breastfeeding and 2) socioeconomic status?

An increase in the number of home births is noted across the country by many authors (Edwards 1973; Lee and Glasser 1974; Long and Jefferis 1975; Lubic 1975; "Rise in Home Births a Fact" 1976; Anderson et al. 1978). Lubic (1975) reported that the return to home birth was most prevalent on the West Coast. Edwards (1973) confirmed this prevalence with statistics from 1971: 100 unattended home births were taking place in the San Francisco Bay Area each month. Long and Jefferis (1975) reported that the many requests to nurse-midwives of the Frontier Nursing Service for home births were from both urban and rural areas. Anderson et al. (1978) reported a rise in home births in a large metropolitan county in Arizona. The increase in home births is not looked upon favorably by medical professionals wherever the location.

According to Edwards (1973), most medical practitioners reacted negatively to the rejection of the present hospital-based maternity care. They voiced a strong, almost unanimous, opposition to home births, according to the editorial "Rise in Home Births a Fact" (1976), and were concerned about the considerable publicity received by home births. Opposition stems from the fact that hospital delivery in the
United States has been an important factor contributing to the decline of maternal and infant mortality. When this century began, maternal mortality was high and infant mortality even higher (Rubin 1967). Since that time, great achievements in modern hospitalization have brought together a collection of expertise in behalf of patients.

Even with the inescapable evidence indicating the greater safety of hospital delivery, most professionals will agree that there are unmet needs in the present maternity system. Some nurses are not satisfied with the present non-humanistic maternity care but feel they are wasting energy chipping away at traditional practices. It is becoming more difficult for thoughtful consumer-oriented nurses to answer clients' expressions of dissatisfaction and still maintain their own integrity. Edwards (1973) found that nurses were often times uncomfortably positioned between other health professionals and parents -- justifying hospital practices to parents and simultaneously justifying parents' rejection of hospital practices to shocked professionals.

The rise in home births is a challenge to nursing to examine its role in the present maternity care system. The significance of home births for nursing is then easily seen. Easily seen also is the significance of the total concept of breastfeeding. Proponents of breastfeeding have long proclaimed both its physical and emotional advantages (Jelliffe 1968; Jelliffe and Letter 1973; MacKeith 1969; Davies 1969; Applebaum 1970; Duncombe 1975; Campbell 1976; Mears 1976). Yet, from the 1940's until recently, breastfeeding showed a decline. A survey by Meyer (1968) revealed that only 18% of the babies born in the hospital were being breastfed at the time of their discharge. This
percentage was down from 1956 (22%) and 1946 (28%). The percentage of women who actually succeed in breastfeeding is much smaller. Sloper, McKean and Baum (1975) reported that surveys of infant feeding practices indicated that of the infants who leave the hospital breastfeeding at least one-half are on formula by two months of age.

Currently, there is a trend toward a return to this method of feeding babies (Guthrie and Guthrie 1966; Meyer 1968; "Return to Breast Feeding?" 1970; Brown 1973; Brody 1977). Guthrie and Guthrie (1966) and Meyer (1968) felt this was a trend among the better educated, higher socioeconomic mothers. "Return to Breast Feeding?" (1970), however, reported that breastfeeding had been largely followed by women in the lower socioeconomic level among the present generation of American mothers. Salber, Stitt and Babbott (1958) explained this as a 'trickling down' process where women from the upper socioeconomic level gradually influenced women from the lower level.

**Conceptual Framework**

Some nurses complain of a difference between what they know should be and what actually exists in maternity care. They are not satisfied with the present non-humanistic environment available for maternity care (Ernst and Forde 1975). Hospitals are seemingly more concerned with technology and sterility than with the biological and emotional needs of the patients and their families (Jelliffe and Letter 1973, Carlson and Sumner 1976). The more humanistic environment of a home birth includes the benefits of parental control, a familiar serene atmosphere, strengthening of relationships among all family members,
and continuous contact between the mother and baby from the time of birth. This continuous contact allows early breastfeeding.

Opinions vary as to the best time for initiating breastfeeding. These range from birth to 24 hours after delivery. As shown in Figure 1, the hypothesis of this study is that early initiation of breastfeeding, that is, breastfeeding within a few minutes to two hours after birth, acting in combination with a humanistic (home) environment, will correlate highly with successful breastfeeding.

Physiological and psychological benefits of early breastfeeding are thought to be: stimulation of lactation, contraction of mother's uterus, less postpartum engorgement, confidence to the mother in her ability to breastfeed her baby, satisfaction to the baby, and provision of opportunities for mother-infant interaction (potential bonding) (Winters 1973).

Several studies have been done which indicate a strong correlation between early breastfeeding and success due to both the physiological and psychological functionings of breastfeeding (Call 1959, Eppink 1969, Winters 1973, Kennell 1974). The major findings of a carefully controlled study done by Winters (1973) suggested that for successful breastfeeding, mothers who choose to nurse should begin as soon as possible following delivery. In her experimental study, six mothers were given their babies to breastfeed shortly after birth in the delivery room and six mothers did not have contact with their babies until approximately 16 hours later. Winters (1973) found that shortly after birth mothers were eager to initiate feeding and the infants, alert and making sucking movements, nursed well. When
OPERATIONAL CONCEPTUAL

HUMANISTIC ENVIRONMENT

PHYSIOLOGICAL AND PSYCHOLOGICAL BENEFITS FOR BOTH MOTHER AND CHILD

SUCCESSFUL BREASTFEEDING EXPERIENCE

SUCCESS SCALE
1. POSITIVE STATEMENTS MADE BY MOTHER REGARDING BREASTFEEDING
2. TOTAL EXPERIENCE SEEN AS SUCCESSFUL BY MOTHER -- HIGH DEGREE OF SATISFACTION
3. PROLONGED BREASTFEEDING
4. BREASTFEEDING FOR ACTUAL TIME COMPARED TO PERIOD OF TIME ESTIMATED BY MOTHER

FIRST BREASTFEEDING WITHIN TWO HOURS AFTER BIRTH > FOUR HOURS AFTER BIRTH

Figure 1. Diagrammatic Representation of the Problem
followed up two months later, all six mothers who had breastfed their babies on the delivery table were still breastfeeding; whereas, only one of the others was still breastfeeding her baby.

In her study of 60 babies, Eppink (1969) found that there was an easier, more spontaneous adjustment to breastfeeding when initiation was earlier (under eight hours) than later at 24 or more hours. Eppink (1969) stated that early breastfeeding was promoted by the breast being soft and the baby with his well-developed rooting behavior being able to find and grasp the nipple easily. She felt that the baby's ready-made response of rooting, along with sucking and swallowing, were stimulated more promptly if they were not made to wait many hours. She stated that the infant's sucking was of great importance in establishing lactation.

Psychologically, Eppink (1969) found that mothers who started breastfeeding at 24 hours or more after delivery had built up more apprehension about their ability to breastfeed and were less likely to be excited and awed by this first experience. Eppink (1969) felt that the mother needed to see herself as successful in the initial encounter and was more likely to do so with an early encounter.

Call (1959), in his study of emotional factors in relation to successful breastfeeding, indicated that possibly the rigid feeding schedule of the hospital was effective in inhibiting milk ejection. He stated that as a group primiparas were more sensitive than multiparas to psychological actions that inhibit milk ejection.
Kennell (1974) stated that he had found in his studies that early-contact mothers were found to be more successful in breastfeeding. Kennell (1974) reported a study done in Brazil by Sousa (unpublished work) of 200 breastfeeding mothers who delivered normal babies in the hospital. In the study group, the newborn baby was put to breast immediately after birth. The control group had the traditional contact with their mothers — no breastfeeding until 12-14 hours after birth. A much higher success rate (early initiation 77%, late initiation 27%) was found with early initiation of breastfeeding when followed up at two months of age.

The above studies have suggested the relationship of early breastfeeding with its physiological and psychological benefits to successful breastfeeding. Socioeconomic factors such as education, occupation and income when related to breastfeeding appear controversial at present (Guthrie and Guthrie 1966; Meyer 1968; "Return to Breast Feeding?" 1970; Anderson et al. 1978).

**Purpose of the Study**

The purpose of this study was to determine if there is a relationship between success in breastfeeding among primiparas and the setting and time of initial breastfeeding after a home birth or a hospital birth. The researcher was also interested in socioeconomic status in relation to breastfeeding. In the literature, socioeconomic status was found to be of a controversial nature regarding breastfeeding. Therefore, in this study, socioeconomic status was not predicted but was considered in relation to breastfeeding.
Definition of Terms

For the purposes of this study the following terms are defined:

1. **Early breastfeeding**: breastfeeding within a few minutes to two hours after birth.

2. **Late breastfeeding**: the feeding routine allows no breastfeeding for at least four hours after birth.

3. **Home birth**: birth within a home where there is no separation of mother and child after birth.

4. **Hospital birth**: birth within the confines of a hospital which practices immediate separation of mother and child after birth routinely.

5. **Primipara**: a woman who has given birth to her first living child.

6. **Successful breastfeeding**: determined in this study by a score of ten or less on the success measure (See Appendix D).

7. **Time of initial breastfeeding**: time after delivery at which breastfeeding is initiated for the first time.
CHAPTER 2

REVIEW OF THE LITERATURE

The review of the literature contains a discussion of factors investigated previously and are found to affect successful breastfeeding. It has been divided into four categories: 1) home birth versus hospital birth; 2) the process of lactation; 3) early breastfeeding, and 4) benefits of breastfeeding.

Home Birth Versus Hospital Birth

Lubic (1975) hypothesized that counter-culture young people have boldly demonstrated that childbearing can occur successfully in most instances without professional help. Lubic (1975) believed that counter-culture couples provided an option for many other couples, who, while dissatisfied with traditional care in a health-based directed system, believed that they had no alternatives and would not themselves have initiated a move to home delivery.

Lang (1974) stated that many mothers chose home birth not especially for its own sake, but as an alternative to the hospital. She said that characteristics of the hospital appeared alien to the needs and expectations of many mothers. Hogan (1968) spoke of the lack of dignity, the absence of any real human consideration for the mother as a person -- a factor which far surpassed the medical benefits of a hospital delivery.
Wilson (1975) suggested further that the effect of the differences between home and hospital deliveries was not confined to mother and baby — the whole family was affected. Home birth advocates speak about the naturalness of the home birth, allowing interaction with other family members as well as immediate and prolonged contact with the newborn.

Webster (1975) wrote that obstetrical arrangements could aid or hinder maternal adjustment and the attachment of mother and baby. Jelliffe and Letter (1973) found hospitals far more concerned with technology and sterility than with the biological and emotional needs of mother and infant. Carlson and Sumner (1976) believed that the conventional hospital delivery gave excessive attention to the medical aspects of childbirth, ignoring the implications of the emotional aspects.

Hilliard (1968) bemoaned the fact that most hospital routines did not promote mother-child togetherness. She felt that the mother and infant needed each other and not always at times when the routines say they could have each other. She saw some nurses as being dissatisfied with the maternity care system because of the separation.

Raphael (1973) stated that nurses have a responsibility to support mothers after they have made a choice to breastfeed. However, many reports have been made about the lack of support from the hospital staff regarding breastfeeding. Crow (1971), in relating her personal experience with breastfeeding, reported that neither hospital staff nor physician were very encouraging to her. In a study of infant feeding practices done by Barnes and Barnes (1976), a sizeable
number of mothers related a description of inadequate help from the
total staff. Some mothers even claimed that their breastfeeding
problems were of the hospital's making.

The scheduled breastfeeding at four-hour intervals in most
hospitals has no known valid rationale for the nursing mother. Such a
schedule delayed the onset of lactation, according to Countryman (1971),
causing problems for both mother and baby. Countryman (1971) stated
that supplemental feedings to infants, rubber nipples, rigid feeding
schedules, and omission of night feedings in many hospitals all
adversely affected the establishment of lactation and sucking.
Newton (1968) indicated that barriers began in the delivery room and
that perhaps it was surprising that the breastfeeding rate does not
decline faster. In a study done by Knafl (1974), it was found that
the hospital nurses believed that supplemental feedings should be
given in the nursery rather than take the infant to the mother on a
demand-feeding schedule. They believed demand feeding to be
disruptive of hospital routines.

Meyer (1976) related her personal satisfaction with breast-
feeding in the home delivery situation. She found no prodding
necessary to awaken the infant, no half-hearted nuzzling and sucking,
repeated falling asleep, followed by a bottle feeding in the nursery
later upon awakening. Being allowed to eat and sleep according to
the baby's needs, Meyer said, contributed toward a very much improved
beginning for breastfeeding and it continued in the same satisfactory
manner. All of the satisfaction was made possible by her selection of
a home birth, she felt.
The Lactation Process

A very important factor favoring the establishment of lactation is stimulation by sucking (Newton and Newton 1962, Millar 1969, Applebaum 1970). Even a woman who has not delivered a child can be stimulated to lactation by sucking (Newton and Newton 1962, Millar 1969).

Proprioceptors in the nipple and areolar margin are stimulated with sucking so that nervous impulses are transmitted to the hypothalmic area. The hypothalmus in turn stimulates the anterior pituitary gland which secretes prolactin. Prolactin induces the alveoli to secrete milk (Applebaum 1970).

Approximately two or three minutes after the prolactin causes the alveoli to secrete milk, this same stimulation causes the posterior pituitary gland to secrete oxytocin. Oxytocin then causes smooth muscle tissue to contract. The mother will feel the contraction of the uterus as well as the myoepithelial cells which produce a sudden rise in pressure within the breasts. Milk is then forced into the larger ducts and the collecting sinuses behind the nipple (Applebaum 1970).

As the infant sucks, milk is removed and a strong milk "let-down" is created. With a more efficient "let-down", milk residual and tension are further decreased. Milk "let-down" becomes increasingly efficient with more milk expulsion and more decompression. Early, effective sucking leads to greater milk expulsion, thus creating an increased volume capacity of the internal duct system (Applebaum 1970). Drainage, however, not milk production, is important in successful breastfeeding (Applebaum 1970).
When the breast is not completely emptied, milk residual accumulates in the duct systems. This condition is described as breast engorgement. The success of lactation may lie in the delicate balance of milk drainage (Applebaum 1970). Severe engorgement can be prevented (Newton and Newton 1962, Millar 1969). It seems that the best way to remove milk is by the infant's sucking which causes the let-down reflex to occur.

The let-down reflex is easily conditioned and inhibited. Inhibition may be caused by fear, emotional upset, anger, interruptions, pain and embarrassment (Pryor 1963, Gunther 1970).

Among social factors claimed to affect lactation is the level of education of the breastfeeding mother. In the 1950's and 1960's, many authors (Salber et al. 1958; Yankaur et al. 1958; Robertson 1961, Guthrie and Guthrie 1966; Salber and Feinlich 1966; Meyer 1968) found that better educated, higher economic mothers tended to breastfeed more often than mothers among poverty and with less education. According to the article "Return to Breast Feeding?" (1970), however, breastfeeding among the present generation of American mothers has been largely followed by women in the lower socioeconomic level.

Early Breastfeeding

In her hospital survey report, Eppink (1968) stated that current knowledge regarding the physiological effect of sucking on lactation suggested that the milk supply would be established more quickly and more adequately with early initiation of sucking. Newton and Newton (1967) suggested that the sooner sucking was initiated
the more quickly and more adequately the milk supply would be established. A non-narcotized infant will start sucking within 20 seconds following birth (Newton and Newton 1962). When the baby is put to breast and begins sucking, this causes oxytocin to be released, and initiates the let-down reflex, then milk secretion follows. Early and effective sucking leads to a stronger milk let-down and more efficient milk expulsion (Applebaum 1970).

Countryman (1971) reported that a baby's sucking reflex was strong immediately after birth so he should be put to breast at that time. She also promoted the fact that colostrum was rich in vitamins A and E, high in protein, contained immune factors, and was logically the first feeding for the infant -- not glucose and water as was so often given the first feeding. She said that laxative effects of colostrum were also beneficial. Colostrum aids in the passage of meconium soon after birth and tends to decrease the absorption of bilirubin from the cast-off red cells present therein. Also, the antibody content of colostrum is at its maximum during the 12 postpartum hours, according to Countryman (1971). She advocated that the first feeding take place within an hour after delivery.

Eppink (1968, p. 117) found that "self-confidence and willingness to breastfeed apparently suffer, in some instances, with the passage of time." Further, according to Rubin (1967), if the mother sees herself as unsuccessful in this first encounter, she may have increased anxiety about her ability to function in a maternal role and then have difficulty in her next attempt. This sense of security and confidence is promoted when the mother-child relationship is
established earlier by early breastfeeding, according to proponents of early breastfeeding (Pryor 1963; Kron, Stein and Goddard 1966). Also, the tactile stimulation of the breast and the closeness of touch provide benefits for the child (Montagu 1955).

A study done by Leonard, Rhymes and Solnit (1966) indicated that mother-infant interactions affected and are affected by nutritional factors. The studies by Thoman, Turner, Leiderman and Barnett (1970) and Thoman, Barnett and Leiderman (1971) suggested that characteristics of the very early interaction may have implications for both feeding and other forms of interaction as the infant grows older. They claimed that feeding interaction was significant for the mother-infant relationship and this significance began with the birth of the baby.

According to "Nursing Mothers' Association of Australia" (1976), a big factor in failure of breastfeeding was inadequate mother-infant interaction in the first hours and days after birth. Another article, "New Techniques of Breast Feeding" (1975), indicated that breastfeeding should begin immediately upon delivery of the infant and that separation of mother and infant in the first hours after birth constitutes maternal deprivation.

Benefits of Breastfeeding

Duncombe (1975, p. 762) stated that "breastfeeding is a natural, biological activity and provides a means of communications between a mother and her newborn child. It creates an emotional relationship which lays down the pattern for love, warmth, and security in later life." Spock (1968) stated that breastfeeding aided the mother
emotionally as she felt she was providing something to her child that no one else could provide.

To members of La Leche League, breastfeeding is an integral, highly important part of the total mothering process. They felt it important because it contributed positively to the relationship between the mother and child (Carson 1963).

Meara (1976) saw the breastfeeding decline as being associated with serious health problems in both nutritionally poor and rich environments. In the poor environments, protein-calorie malnutrition (PCM) was widespread; and, in the more affluent westernized populations, infantile obesity was becoming a problem with bottle-fed infants.
CHAPTER 3

RESEARCH METHODOLOGY

The design of the study, the sample, the measurement instruments, and the method of data collection will be described in the following paragraphs.

Design of the Study

This correlational descriptive study was designed to address the question: What is the relationship between success in breastfeeding in a group of primiparas and 1) the setting and time of breastfeeding initiation and 2) socioeconomic status? The prediction of the socioeconomic status is contradictory in the literature but was of interest. It is not in the model seen in Figure 1. The study involved the operational level as seen in the model with socioeconomic status as a covariate.

The sample was drawn from home birth mothers as well as hospital birth mothers. However, only the home birth mothers who initiated breastfeeding within two hours after birth and the hospital birth mothers who initiated breastfeeding after four hours after birth were included. Consideration was not given to the total humanistic, non-humanistic aspects of setting -- home birth mothers who initiate breastfeeding after two hours after birth or hospital birth mothers who initiate breastfeeding before four hours after birth were not included in the sample.
The investigator obtained the sample of primiparas from a lay midwifery organization and local physicians. The study was explained to each participant prior to the baby's birth, including the purposes of the research, what was expected of her, and the use of the findings. If she was willing to participate in the study, written consent was obtained (Appendix A). Each mother was given a copy of the consent form in an attempt to further explain the study and to provide protection of her rights.

The covariate, socioeconomic status, was measured by an initial interview with each participant prior to delivery (Appendix B). The independent variable, setting and time of initiation of breastfeeding, was measured by the initial interview as well as a second interview (Appendix C) with each participant two months after delivery. The dependent variable, success in breastfeeding, was also measured by both interviews. Predesigned questionnaires were used in the interviews to determine the effects of the individual variables.

Population and Sample

The stated hypothesis required the comparison of two groups of mothers with the setting and time of initial breastfeeding being the combined independent variable. The dependent variable was the measurement of success in breastfeeding. The single covariate was the socioeconomic status.

The convenience sample of home birth mothers for the study was the first eight Anglo women who were expected to deliver at home under the direction of the local lay midwifery organization. The convenience
sample of hospital birth mothers was the first eight Anglo women who were expected to deliver at the local hospital who had prenatal care through the local physicians involved in the study.

Additional criteria for selection of all mothers included:

**Prenatal criteria:**

1. They were primiparas.

2. They planned to be full-time mothers for at least two months after delivery and did not plan to return to work within that time.

3. They had already made the decision to breastfeed and could give an estimated duration of breastfeeding.

**Postnatal criteria:**

1. They were in good health with a normal delivery.

2. Their babies were in good health and weighed over five pounds.

3. Their babies had no difficulty initiating and maintaining respirations.

4. Their babies had no defects or illnesses which interfered with feeding.

5. Home birth mothers initiated breastfeeding within the first two hours after birth; hospital birth mothers initiated breastfeeding in accordance with hospital routine and not within the first four hours after birth.
Method of Data Collection

The researcher contacted the local lay midwifery organization and local physicians and explained the study. Permission was obtained from both to elicit permission from their clients to participate in the study.

Participants were initially contacted by the investigator through a personal visit or by a telephone call or mail. All individuals who met the prenatal criteria as judged by the investigator were included. The researcher then contacted each mother after the birth of the baby to determine if the postnatal criteria had been met. If so, the second interview was scheduled for two months after birth.

If the postnatal criteria had not been met, the participant was excluded from the study. Five of the initial home birth participants were excluded for the following reasons: 1) hospital births due to labor and delivery complications in four cases, and 2) one case of a participant moving and not contacting the investigator regarding a new address. Six of the initial hospital birth participants were excluded for the following reasons: 1) in two cases, there were complications in the delivery and Caesarean sections were performed, 2) one participant moved without contacting the investigator, and 3) three of the mothers reported breastfeeding within the first four hours after birth.

The second interview was a personal interview with the exception of one home birth participant who moved out of town but maintained correspondence with the investigator. The personal
interview gave the investigator an opportunity to determine affect of
the mother as she related her breastfeeding experiences. Participants
were quoted directly on the questionnaire used in the second
interview (Appendix C). Time of initiation of breastfeeding was
defined in this interview by the question, At what hour after birth did
you initiate breastfeeding? Minutes?

The Measurement Instruments

The initial interview questionnaire was developed by the
investigator to gather background information. A complete schedule
of this interview appears in Appendix B. Of major importance in this
interview was the question on plans for length of breastfeeding
because part of the mother's score on success was determined by
whether she actually did breastfeed the planned length of time. This
interview also defined the setting by asking the question, Where will
your child be born?

Socioeconomic information was obtained in this initial
interview to determine the socioeconomic status according to Green's
indices (both two- and three-factor) (1970). These indices are intended
to optimize the prediction of family health actions from socioeconomic
information. Information obtained included: education of mother,
occupation of main wage earner, and gross family income. These data
were needed to utilize the "three-factor" index in which all three
status attributes are scored and given weights to form the
socioeconomic index (Green 1970). It has been reported by Guthrie
and Guthrie (1966), Meyer (1968) and Anderson et al. (1978) that
breastfeeding occurred in the better education, higher socioeconomic mothers. In contrast, Salber et al. (1958) reported that breastfeeding occurred largely in mothers in the lower socioeconomic level. Due to this controversy, no prediction could be made regarding socioeconomic status and breastfeeding in this study.

The second interview involved the use of an instrument designed and used by Disbrow (1963) and later used by Scoggin (1971) and Winters (1973). This interview schedule appears in Appendix C.

Calculation of the success score involved the use of another instrument designed and used by Disbrow (1963) and also used later by Scoggin (1971) and Winters (1973) to measure success in breastfeeding among primiparas. Using this instrument, the mother's success score was measured by:

1. Her attitude about breastfeeding at the time she stopped.
2. Her statement of success.
3. Her actual length of breastfeeding.
4. The length of breastfeeding compared with estimated length and reasons for stopping.

Each of these areas was scored using a scale of one (the highest score) to four (the lowest score). Total calculated scores ranging from 4 to 10 indicated successful breastfeeding; scores ranging from 11 to 16 were considered less than successful. Information from both interviews was involved in the use of this instrument.

The mothers' attitudes at the time of terminating breastfeeding were determined by combining scores of the four items found in Appendix E and determining degree of satisfaction by the scale
provided at the end of the items. The mothers' statements regarding success were taken directly from the schedule for the second interview on the last question and measured according to Appendix E(E). Actual durations of breastfeeding were calculated from the second interview schedule also. Actual durations of breastfeeding compared with the mothers' original estimates of how long they would breastfeed were calculated from both the initial and second interviews. Reasons given for terminating breastfeeding were given in the second interview. The scores for actual duration compared with estimated duration and reasons for terminating breastfeeding were calculated using Appendix F. The scores for all the items on Appendix D were then added and a final success score was calculated using the scale provided under "Success Score" at the end of Appendix D.

The final scores were calculated by the investigator and a registered nurse with experience in maternity nursing. Inter-rater reliability on scoring of all the data was 100%. Respondent reliability was obtained for the information in the first interview by data obtained from both the home birth organization and physicians. Content validity for the questionnaire used in the second interview has been established by its use in three previous studies reported in the literature. Concurrent validity was assessed informally as discussed following presentation of the data.
CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

This chapter includes a description of the sample, findings in relation to components of the success scale, findings in relation to the statement of the problem, and additional findings.

Description of the Sample

As shown in Table I, the total sample of 17 primiparous mothers ranged in age from 16 to 31 years. The mean age of the nine home birth participants was 26.8 years, with a range of from 23 to 31 years. In the hospital birth group of eight participants, the average age was lower -- 20.5 years, with a range of from 16 to 27 years.

Average years of education in the home birth group was higher than the hospital birth group, i.e., 15.8 and 12.2 years respectively. All of the home birth mothers had at least some college education; seven were college graduates with two having more than four years of college. None of the hospital birth mothers were college graduates and only three had had any college education. Two of this group had less than a high school education.

There is a variability in the gross family incomes and in the occupations of the main wage earners for the two groups as seen in Table I. Gross family incomes ranged from $1,500-$3,900 to over $12,000 in the hospital group with a mean of $6,612.50 and a standard
<table>
<thead>
<tr>
<th>Setting and Time</th>
<th>Mother's Age in Years</th>
<th>Mother's Education</th>
<th>Family Income</th>
<th>Main Wage Earner's Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital/Late Feeding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>21</td>
<td>12 Years</td>
<td>Over $12,000</td>
<td>Carpenter</td>
</tr>
<tr>
<td>2</td>
<td>21</td>
<td>12 Years</td>
<td>$1500 - $3900</td>
<td>School/Self Employed</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>15 Years</td>
<td>$4000 - $8999</td>
<td>Forest Service</td>
</tr>
<tr>
<td>4</td>
<td>19</td>
<td>12 Years</td>
<td>$1500 - $3900</td>
<td>Dishwasher</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>11 Years</td>
<td>Over $12,000</td>
<td>Engineer</td>
</tr>
<tr>
<td>6</td>
<td>17</td>
<td>9 Years</td>
<td>$9000 - $11,999</td>
<td>Janitor</td>
</tr>
<tr>
<td>7</td>
<td>22</td>
<td>14 Years</td>
<td>$4000 - $8999</td>
<td>Army-Enlisted Man</td>
</tr>
<tr>
<td>8</td>
<td>27</td>
<td>12.5 Years</td>
<td>Over $12,000</td>
<td>Army-Officer</td>
</tr>
<tr>
<td>Mean: 20.5 Years</td>
<td>Mean: 12.2 Years</td>
<td>Mean: $6,612.50</td>
<td>Sd: 1.81 Years</td>
<td></td>
</tr>
<tr>
<td>Sd: 1.81 Years</td>
<td>Sd: 1.81 Years</td>
<td>Sd: $4,515.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| Home/Early Feeding      |                       |                    |                     |                             |
| 1                       | 27                    | 16.5 Years         | $4000 - $8999       | Teacher-Math               |
| 2                       | 23                    | 16 Years           | $1500 - $3900       | Musician                   |
| 3                       | 30                    | 16 Years           | $1500 - $3900       | Cabinetmaker               |</p>
<table>
<thead>
<tr>
<th>Setting and Time</th>
<th>Mother's Age in Years</th>
<th>Mother's Education</th>
<th>Family Income</th>
<th>Main Wage Earner's Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home/Early Feeding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>28</td>
<td>16 Years</td>
<td>$4000 - $8999</td>
<td>Caretaker-Ranch</td>
</tr>
<tr>
<td>5</td>
<td>31</td>
<td>14 Years</td>
<td>Under $1500</td>
<td>Carpenter-Woodworking</td>
</tr>
<tr>
<td>6</td>
<td>25</td>
<td>16 Years</td>
<td>$4000 - $8999</td>
<td>Car Detailer</td>
</tr>
<tr>
<td>7</td>
<td>26</td>
<td>17 Years</td>
<td>$4000 - $8999</td>
<td>Carpenter</td>
</tr>
<tr>
<td>8</td>
<td>27</td>
<td>16 Years</td>
<td>$4000 - $8999</td>
<td>Sign Shop Owner</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
<td>15 Years</td>
<td>Under $1500</td>
<td>Teacher-Preschool</td>
</tr>
<tr>
<td>Mean: 26.8 Years</td>
<td>Mean: 15.95 Years</td>
<td>Mean: $4,322.22</td>
<td>Mean: $3,583.49</td>
<td></td>
</tr>
<tr>
<td>Sd: 2.63 Years</td>
<td>Sd: 0.41 Years</td>
<td>Sd: $3,583.49</td>
<td>Sd: $3,583.49</td>
<td></td>
</tr>
</tbody>
</table>
deviation of $4,515.50. The range of the home birth group's gross family income was under $1,500 to $4,000-$8,999 with a lower mean ($4,322.22) and standard deviation ($2,583.49) than the hospital group.

Findings in Relation to Components of the Success Scale

Mothers' Attitudes at the Time of Terminating Breastfeeding

The mothers in both groups who were still breastfeeding at the conclusion of the study were asked to describe their nursing experience. These women used the following terms: great, fantastic, good, satisfying, rewarding, wonderful, easy, portable, natural, comfortable, logical, pleasurable, fulfilling, "transcends descriptions in words." Nine of the 17 women mentioned that they felt closer to their babies by nursing.

In the initial interview, the mothers were asked to call the investigator when they decided to stop breastfeeding. Although one of the mothers in the hospital birth group stopped at two and one-half weeks after the baby's birth, the investigator did not learn of it until a telephone call was made to arrange for the second interview. The mother said she had forgotten she was supposed to call. Her comments regarding her breastfeeding experience were very positive during the second interview, however.
Mothers' Statements of Success

All of the 17 mothers stated that they had been successful. There were no negative statements made about breastfeeding. All of the mothers indicated that they would nurse their next babies and recommend breastfeeding to their friends. If they were to start over again, all mothers said they would repeat their nursing experience.

Actual Length of Breastfeeding

In the initial interview, the mothers were asked to estimate the length of time they planned to nurse their babies. Table II shows the estimated lengths of time. Note that the estimates were made conservatively by interpreting responses of "undecided" and "indeterminate" as two months. The groups did not differ to an important degree in estimated times (hospital: range = 2-12 months, mean = 5; home: range = 2.12 months, mean = 4.8 months).

Some of the mothers indicated that they could not say for sure how long they would breastfeed their babies, but that it would be at least several months. In all cases (five mothers), the home birth mothers could not indicate exact times because their breastfeeding time would be based on the child's desires to breastfeed. Those home birth mothers who could decide on a time usually would state "at least," such as, "at least six months," indicating that they would breastfeed longer if the child had a desire to do so by such statements as "if the baby wants to."

With the hospital birth group, those who could not give an estimated time appeared to be undecided regarding their own desires --
### Table II. Comparison of Estimated and Actual Duration of Breastfeeding by Birth Setting

<table>
<thead>
<tr>
<th>Setting and Time</th>
<th>Duration of Breastfeeding Actual</th>
<th>Duration of Breastfeeding Estimated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital/Late Feeding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2 months*</td>
<td>At least 6 months</td>
</tr>
<tr>
<td>2</td>
<td>2 months*</td>
<td>Undecided; minimum of 2 months</td>
</tr>
<tr>
<td>3</td>
<td>2 months*</td>
<td>4 months</td>
</tr>
<tr>
<td>4</td>
<td>2.5 weeks</td>
<td>Undecided; minimum of 2 months</td>
</tr>
<tr>
<td>5</td>
<td>2 months*</td>
<td>6 months</td>
</tr>
<tr>
<td>6</td>
<td>2 months*</td>
<td>6 months</td>
</tr>
<tr>
<td>7</td>
<td>2 months*</td>
<td>1 year</td>
</tr>
<tr>
<td>8</td>
<td>2 months*</td>
<td>Undecided; minimum of 2 months</td>
</tr>
<tr>
<td></td>
<td>$x = 1.8$ months</td>
<td>$x = 5$ months</td>
</tr>
</tbody>
</table>

| **Home/Early Feeding** |                                  |                                     |
| 1                      | 2 months*                        | 9-12 months                         |
| 2                      | 2 months*                        | 6-9 months                          |
| 3                      | 2 months*                        | Indeterminate; minimum of 2 months  |
| 4                      | 2 months*                        | Indeterminate; minimum of 2 months  |
| 5                      | 2 months*                        | 6-12 months                         |
| 6                      | 2 months*                        | Indeterminate; minimum of 2 months  |
| 7                      | 2 months*                        | Indeterminate; minimum of 2 months  |
| 8                      | 2 months*                        | Indeterminate; minimum of 2 months  |
| 9                      | 2 months*                        | Indeterminate; minimum of 2 months  |
|                        | $x = 2$ months                   | $x = 4.8$ months                    |

*Still breastfeeding at end of two months.*
if they found breastfeeding convenient, if "it worked out," if they were comfortable with it, they would continue to breastfeed. Reasons given for feeding duration differed markedly by setting. Hospital birth mothers who could decide on a time appeared to base the time on their own desires rather than the baby's and also on others' opinions, including their mothers, friends, doctor, nurses. They did not appear to be as firm in their own opinions regarding breastfeeding as did the home birth mothers.

The marked difference in the mothers' basis for setting feeding duration is reflected in Table II. For the hospital birth group, the words "Undecided; minimum of 2 months" were used to indicate the mother would breastfeed at least two months. For the home birth mothers, the words "Indeterminate; minimum of 2 months" were used.

Actual Length of Breastfeeding Compared with Estimated Length and Reasons for Terminating Breastfeeding

During the second interview, the actual length of time of breastfeeding was determined (Table II). The entire sample of mothers (17) was breastfeeding at the end of two months with the exception of one hospital birth mother who breastfed only two and one-half weeks. The reason given for terminating breastfeeding by the one hospital birth mother was that she decided to return to school. She stated that after the baby's birth she realized that she would need a good education to support her baby. She expressed disappointment that she could not continue breastfeeding but felt that, for both her and the baby, the greatest immediate need was to finish her junior and senior years in high school.
Findings in Relation to the Statement of the Problem

The Independent Variable: Setting and Time of Initiation of Breastfeeding

The independent variable included a combination of both setting and time of initiation of breastfeeding. Settings included in the study were home and hospital. The study was structured so that the hospital birth group would be the late initiator of breastfeeding -- at least four hours after birth. The actual range was from 4 hours to 14 hours. The home birth group was expected to be the early initiator of breastfeeding -- within two hours after birth. The actual range was from 5 minutes to 2 hours.

The Dependent Variable: Success in Breastfeeding

Success in breastfeeding was measured by data collected in the two interviews. The data were scored and a success score calculated by using Appendix D. If the calculated score totaled 4-10, breastfeeding was considered successful. Within this range, a score of 4-6 was considered a high degree of success, and a score of 7-10, a moderate degree of success. If the calculated score totaled 11-16, breastfeeding was considered less than successful. Within this range, a score of 11-13 was considered a low degree of success, and a score of 14-16, very low degree of success.

It was predicted that the success score would be higher in the home birth group with early initiation of breastfeeding than in the hospital birth group with late initiation of breastfeeding. Both
groups were successful in breastfeeding, however, with the hospital
group having seven "High Degree" scores and one "Moderate Degree"
score and the home group having all "High Degree" scores. The
success scores in the hospital birth group ranged from 4 to 9, with a
mean of 5.6. In the home birth group, the success scores ranged from
5 to 6, with a mean of 5.1.

Analysis of the Hypothesis

The purpose of this study was to determine if there is a
relationship between 1) setting and time of initiation of breastfeeding
and 2) the covariate socioeconomic status and successful breastfeeding
among primiparas. To analyze the data pertinent to this purpose, it
was necessary to determine the relationship between 1) time of
initiation of breastfeeding and success in breastfeeding; 2) setting
and time of initiation of breastfeeding and success; and, 3) socio-
economic status, setting and time of initiation of breastfeeding and
success in breastfeeding. Methods of analysis used to address these
relationships included the student's t-test, analysis of variance,
analysis of covariance, Pearson product-moment coefficient (Dinham 1976,
Myers 1972), and Green's indices for socioeconomic status.

Time and Success. Two methods were used to assess the
relationship between the time of initiation of breastfeeding and the
success score. The t-test revealed no significant difference in
success score between the early and late feeding groups (Table III)
(0.17 significance level). Time of initiation was expressed in
TABLE III: Relationship Between Time of Initiation of Breastfeeding and Success Score

<table>
<thead>
<tr>
<th>Setting/Time</th>
<th>Time (Minutes)</th>
<th>Success Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital/Late Feeding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>720</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>720</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>840</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>720</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>840</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>240</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>450</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>600</td>
<td>5</td>
</tr>
<tr>
<td><strong>Home/Early Feeding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>120</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>67</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>45</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>45</td>
<td>5</td>
</tr>
</tbody>
</table>

Pearson $r = 0.37$

$t = 1.00; d.f. = 15, significance level = 0.17$

ANOVA
minutes and the results of this analysis revealed no important
relationship between the groups, \( r = 0.37 \) (Table III).

Setting, Time and Success. Analysis of variance was used as a
test of association between setting and time of initiation of breast-
feeding and the success score (Table IV). The resultant \( F \) was tested
for significance to see if subtle, substantially interesting differences
could be detected. There was no significant relationship.

Table IV. Relationship Between Setting and Time of Initiation of
Breastfeeding and Success Score: One-Way Analysis
of Variance

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>( F )</th>
<th>Significance of ( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting/Time</td>
<td>1.12</td>
<td>1</td>
<td>1.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual (Error)</td>
<td>16.76</td>
<td>15</td>
<td>1.12</td>
<td>1.00</td>
<td>0.33</td>
</tr>
<tr>
<td>Total</td>
<td>17.88</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Covariate: Socioeconomic Status

Green's Indices. The direct relationship between time and
setting and success was thought to be influenced by socioeconomic
status. The socioeconomic status for each mother was computed using
both the two- and the three-factor forms of Green's (1970) indices
(Table V). The three-factor index of socioeconomic status involved the
use of all three status attributes: occupation, education and income.
The following weights were given each: occupation: 0.3 times the
occupational score; education: 0.5 times the education score; and,
### Table V. Relationships Among Green's Three-Factor and Two-Factor Indices of Socioeconomic Status*

<table>
<thead>
<tr>
<th>Setting/Time</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Three-Factor Index (Education, Income, Occupation)</td>
<td>Two-Factor Index (Education, Occupation)</td>
<td>Two-Factor Index (Education, Income)</td>
</tr>
</tbody>
</table>
| Hospital/Late Feeding | Mean: 56.7  
Sd: 5.74 | Mean: 58.31  
Sd: 6.57 | Mean: 56.7  
Sd: 4.95 |
| 1             | 57.4              | 55.5               | 59.9               |
| 2             | 52.6              | 57.9               | 50.9               |
| 3             | 61.2              | 66.1               | 61.7               |
| 4             | 48.6              | 52.7               | 50.9               |
| 5             | 61.8              | 61.2               | 56.4               |
| 6             | 49.2              | 46.4               | 51.4               |
| 7             | 59.6              | 63.9               | 60.3               |
| 8             | 62.8              | 62.8               | 62.0               |
| Mean: 59.89   | Mean: 66.74       | Mean: 61.7         |
| Sd: 3.91      | Sd: 3.71          | Sd: 4.99           |
| Home/Early Feeding |                   |                    |                    |
| 1             | 66.2              | 73.0               | 66.6               |
| 2             | 60.2              | 68.6               | 60.0               |
| 3             | 58.1              | 65.8               | 60.0               |
| 4             | 57.9              | 61.8               | 63.8               |
| 5             | 52.6              | 61.1               | 53.7               |
| 6             | 60.9              | 65.8               | 63.8               |
| 7             | 63.5              | 69.5               | 68.7               |
| 8             | 61.8              | 67.0               | 63.8               |
| 9             | 57.8              | 68.1               | 55.1               |

*r AB = 0.83  
r AC = 0.86  
r BC = 0.72
income: 0.3 times the income score. Scores for coding education, occupation and income were given by Green in his article and proved to be comprehensive.

The two-factor indices involved the use of the status attribute of education with either that of occupation or income. Because the properties of the indices have not been fully assessed, comparisons among the indices were made before the influence of the covariate was assessed. No directional prediction could be made regarding socioeconomic status and breastfeeding. However, Green states that socioeconomic scores computed by all three methods would be roughly comparable.

The three-factor index revealed a range of socioeconomic status scores in the hospital birth group of from 48.6 to 62.8, with a mean of 56.7 and standard deviation of 5.74. The scores from the home birth group using this index ranged from 57.8 to 63.5, with a mean of 59.89 and standard deviation of 3.91.

Using the two-factor index with income, the hospital group scores ranged from 50.9 to 62.0, with a mean of 56.7 and standard deviation of 4.95. The home birth group ranged in socioeconomic status scores from 53.7 to 68.7, with a mean of 61.7 and standard deviation of 4.99 using this index.

The two-factor index with occupation generally indicated a higher socioeconomic status score for both groups than either of the other indices. The range of the scores for the hospital birth group was 52.7 to 66.1, with a mean of 58.31 and standard deviation of 6.57.
The home group scores ranged from 61.1 to 73.0, with a mean of 66.7 and standard deviation of 3.71.

Pearson product-moment coefficient was used to determine the relationship between the three indices of socioeconomic status. As predicted by Green (1970), there were no significant differences in the three indices (Table V).

Influence of the Covariate. One-way analysis of covariance was used to assess the relationship between socioeconomic status, setting and time of initiation of breastfeeding and success score, using all three of the indices. This test was used to compare the simultaneous but separate effects of the variables with the covariate, socioeconomic status.

Table IV shows analysis of variance results without the covariate. When the covariate (socioeconomic status) was added, no significant relationships were found. The results in Table VI using

Table VI. Relationship Between Success in Breastfeeding, Setting and Time of Initiation of Breastfeeding and Socioeconomic Status (Three-Factor Index): One-Way Analysis of Covariance

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting/Time,</td>
<td>1.30</td>
<td>1</td>
<td>1.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td></td>
<td></td>
<td></td>
<td>1.10</td>
<td>0.31</td>
</tr>
<tr>
<td>Residual (Error)</td>
<td>16.48</td>
<td>14</td>
<td>1.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17.88</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
the three-factor index are representative of non-significant results with all indices. Analysis produced an F ratio of 1.10 and a significance level of 0.31.

Analysis of the relationship between socioeconomic status using the two-factor index of occupation, setting and time of initiation of breastfeeding and success score revealed an F ratio of 1.08. The significance level of this relationship was 0.32. When the relationship using the two-factor index of income was analyzed, an F ratio of 0.22 with a significance level of 0.65 was revealed.

Additional Findings

All of the mothers indicated a genuine interest in the health of their babies and a knowledge of how important breastfeeding is in relation to good health. Perhaps this interest and knowledge is due to the current trend toward a return to breastfeeding ("Return to Breast Feeding?" 1970, Brown 1973, Brody 1977).

Home birth mothers related more personal knowledge regarding breastfeeding, making statements such as "it gives the baby a natural immunity" and "healthiest food for the baby." The hospital birth mothers related more hearsay knowledge; for example, "they say it's better for the baby." Home birth mothers could also more easily relate elaborate descriptions of their breastfeeding experiences and their descriptions were more expressive; for instance, "something I'm really glad to be experiencing," "It's as great as I hoped it would be," "It's the closest I've felt to my son since he was in the womb. Each time he nurses, I feel our connection is recentered and re-established. It's
such a beautiful part of our relationship," "It's a time where I can sit down with him and just relax with him. I feel a lot of love for him." One mother answered the question, "If you were to start over, would you still have nursed?" with "Yes! Yes! Yes!"

In studies regarding breastfeeding by Scoggin (1971) and Winters (1973), mothers related problems encountered in breastfeeding. Problems such as cracked nipples, engorgement, leaking, fatigue, phone calls and visits from friends while feeding, and problems with baby such as colic, schedule and difficulty in taking the nipple were all mentioned frequently by the breastfeeding mothers. None of the mothers in this study related problems concerning breastfeeding or baby care in general during the second interview. They had questions regarding the best time to start feeding their baby cereals, having received conflicting information regarding additional feedings while breastfeeding. This lack of discussion of problems in the second interview is perhaps explained by the strong support systems which seemed to be evident to encourage the mothers, including husbands, cohabitators, mothers, mothers-in-law and friends. Because of the current trend toward breastfeeding, it is the "in" thing to do. There is increasing support from the public also; for instance, from doctors, nurses, and magazine ads. All of the mothers were aware of La Leche League and the help that was available to them from this group and others in the community.
CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS,
RECOMMENDATIONS AND LIMITATIONS

The summary and conclusions, the implications for nursing, the limitations of the study, and the recommendations will be discussed in this chapter.

Summary and Conclusions

In most United States' hospitals there is a well-established practice of separating mother and child immediately after birth. This separation is thought to be detrimental to successful breastfeeding because it prevents early breastfeeding. Sloper et al. (1975) reported that surveys of infant feeding practices indicated that of the infants who leave the hospital breastfeeding at least one-half are on formula by two months of age. Some authorities have felt that mothers who start breastfeeding right after delivery when the baby is awake and ready to suck and the mother is eager to hold her baby will be more successful than will those who wait until later when they may have a sleepy baby, painful sutures and hospital routines with which to contend. These factors are often cited among reasons for the return to home deliveries seen in the United States today.

A recent survey by a formula manufacturer indicated that nearly two out of five American mothers were now breastfeeding their babies (Brody 1977). Reasons cited for this increase in breastfeeding
included the belief that breast milk is healthier for the baby. Brody reported that recent studies have shown that breastfed babies tended to have considerably fewer serious illnesses than comparable bottle-fed infants and that mother's milk may benefit the baby's developing brain, help to prevent obesity and even protect against heart disease later in life.

The purpose of this study was to assess if there was a relationship between success in breastfeeding and setting and time of initiation of the first breastfeeding. Socioeconomic status was a covariate which was not predicted since the literature review revealed a controversy regarding socioeconomic status and its relationship to breastfeeding.

A search of the literature indicated that this is the first study comparing home and hospital birth groups regarding breastfeeding success. The convenience sample in this study was composed of 17 primiparous between the ages of 16 and 31 years. One group was composed of 8 hospital birth mothers who initiated breastfeeding 4 hours or more after birth. The actual times of initiation ranged from 4 hours to 14 hours. The other group was composed of 9 home birth mothers who initiated breastfeeding within 2 hours after birth. Actual times of initiation ranged from 5 minutes to between 1 and 2 hours. The mean for the educational level of the hospital group was 12.2 years and the income mean was $6,612.50. The mean for the educational level of the home group was 16 years and the income mean was $4,322.22.
The mothers were interviewed before delivery and then at two months after delivery. The measures for success in breastfeeding took into account subjective feelings of the mother, actual duration of breastfeeding versus the time estimated by the mother before starting to nurse her baby, and the mother's own statement of success or lack of success.

All of the mothers from both groups were successful in breastfeeding. All were highly successful, except one hospital birth mother who was only moderately successful. They all made only positive statements about this type of feeding, planned to nurse their next babies and to recommend breastfeeding to their friends. All but one of the 17 mothers were still breastfeeding at the end of the two-month period of the study. One hospital mother terminated breastfeeding after two and one-half weeks to continue her high school education.

Statistical and substantive assessments were made of the relationships between the two groups. No significance was found. The distribution and central tendency for age, education and income were obtained for each group to determine the socioeconomic status. Relationships between 1) time of initiation of breastfeeding and success score, 2) setting and time of initiation of breastfeeding and success score, and 3) socioeconomic status, setting and time of initiation of breastfeeding and success score were tested for association using correlational coefficients and the t-test. Testing was also performed for Green's indices of socioeconomic status to determine relationships between socioeconomic status and the groups of
breastfeeding mothers. ANOVA and ANACOVA were used in this testing. Correlational statistics were used to assess the degree of association between Green's two- and three-factor indices. Results showed no difference in assessment of the relationships.

Implications for Nursing

It would appear from the findings of this study that it is not necessarily important for mothers who intend to breastfeed to begin nursing immediately after delivery to assure success in breastfeeding. Informal findings indicate, however, that a strong support system is in operation for the successful breastfeeding mother. Support systems include husbands or cohabiters, mothers, mothers-in-law, other immediate family, friends, and -- very importantly -- physicians and nurses. These systems also involve general public acceptance of breastfeeding as the "in" style, with concentration by the advertising media and public education on breastfeeding. Nurses, however, should be a very important part of this support system -- community health nurses on a prenatal and postnatal basis and hospital nurses on an intrapartal basis.

It is important that nurses not be afraid to enter into the successful accomplishment of breastfeeding as they are in the best possible position to help mothers due to their availability and knowledge. Scoggin (1971) determined in her study of 20 breastfeeding primiparas that learning did contribute to breastfeeding success. Nurses have an excellent opportunity to add to the support system of the breastfeeding mother by teaching her regarding breastfeeding
and bodily changes that occur in connection with breastfeeding. Nurses must realize that the new mother may not know the proper questions to ask to get necessary information regarding breastfeeding. They must anticipate the needs of the breastfeeding mother and supply information as necessary. This information, plus a lot of help and support from nurses, will help the breastfeeding mother greatly in implementing her decision to breastfeed and in being successful in doing so once the decision is made. This type of support should also be instrumental in changing the trend toward non-medical maternity care.

In a 1970 study, Grobstein (1974) found the need for an approach by medical practitioners which assigned high priority to the psychological and social needs of parents and infants. Otherwise, she warned, the trend toward non-institutional care will progress, as evidenced by the increase in home births and other natural practices which negate the application of modern obstetrics and pediatrics. Nurses need to examine all of the present patterns of maternity care and ask whether or not there are ways this care may be reshaped to meet present day childbearing needs more effectively.

Limitations

This was a clinical field study and many variables were involved. The major variables were controlled but some which may have influenced the mothers were not controlled. The fact that the small sample was not randomly selected from the larger population limited generalizability.
The fact that all the mothers were contacted at least twice by the researcher might have constituted another limitation. They could have been biased by producing what Roethlisberger and Dickson (1939) called the "Hawthorne effect." In other words, the very fact that the researcher was interested enough to contact the mothers might have reinforced their breastfeeding behavior.

Some of the mothers indicated they did not know exactly how long they would breastfeed. All of these mothers stated that it would be at least two months, but indicated that it would most likely be longer. Due to the focus on a two-month range of study, the investigator chose to designate two months for the estimated duration of breastfeeding. The true range was not available and an exact picture was not presented of how success scores might have been affected.

**Recommendations**

Sharp (1975, p. 216) believed that nurses had a potential in facilitating the use of new knowledge and technology in maternity care, "by virtue of their awareness of patients' feelings, desires and capability, nurses will also be valuable advocates for consumers in identifying acceptable components of the health care system..."

In accordance with this belief and with the findings in this study, the following recommendations are made:

1. Further research be done on factors influencing success in breastfeeding. If nurses can identify the factors which lead to successful breastfeeding, they can work toward change in the maternity
care system with resulting preventive and intervening processes introduced. Preventive management would then alleviate the necessity for attempts to patch up deficits in later stages. Guidelines for changes can only be written as research is carried out yielding information pertinent to the situation. Along with the always present financial constraints, only the hard, cold facts of precisely controlled, scientific studies will influence the policymakers of American hospitals.

2. This study be replicated with a larger sample. A small, non-random sample limits the generalizability of the study and the influence of the information obtained.

3. A study be done on success in breastfeeding which includes the variable of support systems of breastfeeding mothers. This study has indicated that a strong support system is important for successful breastfeeding. To what degree are nurses revealed as a support to the breastfeeding mother? Support systems should be identified and current trends assessed as to their contributions to the system.

4. This study be replicated for a longer period of time, for example, six months to a year. Breastfeeding success may not be determined by a continuation of breastfeeding for only two months. Time factors should be explored further.

5. Range of variations in time of initiation of breastfeeding be explored further. Proponents of early breastfeeding blame hospital routines which prevent early initiation of breastfeeding for many failures in breastfeeding. Nurses need to explore further the basis on which the time to initiate breastfeeding is decided.
6. A study be done regarding where the power lies in regard to making breastfeeding decisions. In this study, there appeared to be obvious differences in the two groups as to who controlled these decisions. The hospital birth mothers appeared to make these decisions based on their personal desires while home birth mothers based these decisions seemingly on the desires of their babies. Members of the families, friends and health care providers were also involved in the decision-making.
University of Arizona,  
College of Nursing  

Project Title: A study of the relationship of time of initial breastfeeding to success in breastfeeding among primiparas

I am conducting a study to learn more about the experiences of mothers who choose to breastfeed. Knowledge acquired from this study should make it possible for nurses to give assistance to breastfeeding mothers.

In order to obtain the information I need for this study, there will be two interviews, one before the baby is delivered and another after you have stopped breastfeeding or two months after birth, whichever occurs first. I will contact you after two months unless you have contacted me to inform me that you have stopped breastfeeding before that time. I will give you my address and phone number.

Your participation in this study is voluntary. You are free not to participate, or to leave any question during the interview unanswered. You may withdraw from the study at any time. Your care will not be affected whether or not you participate in this study. If you choose to participate, I will be available to answer any questions you may have about the study.

Anything you discuss with me will be kept confidential. Your name will not appear in any information or report from this study. The information will be used only for research or educational purposes, but may be published in a professional book or journal.

There is no cost to you for participation, nor is there any monetary payment. One of the anticipated benefits of this study will be to further knowledge for the promotion of successful breastfeeding. There are no known risks.

If you understand what is involved and you consent to participate in this study, please sign your name below.
I have read the above, understand it and consent to participate. I understand that I will receive a copy of this consent form.

--------------------------------------  --------------------------------------
Person Giving Consent  Date

Would you like a copy of the abstract for the study?  ____Yes  ____No
APPENDIX B

INITIAL INTERVIEW

Date

Name of Mother ______________________________ Date of Birth______________

Address________________________________________ Telephone______________

Usual Occupation of Mother______________________________________________

Years of Schooling of Mother_______

Usual Occupation of Head of Household____________________________________

Have there been any difficulties with this pregnancy?

Is a normal delivery expected?

Where will your child be born?

Are your breast normal?

Do you feel you are prepared to breastfeed your baby?

How long do you plan to breastfeed your baby?

How soon after birth will you initiate breastfeeding?

Gross Family Income: Under $1500 ________ $1500 - $3900 ________

$4000 - $8999 ________ $9000 - $11,999 ________

Over $12,000 ________
APPENDIX C

SCHEDULE FOR INTERVIEW AFTER WEANING*

Date___________________

At what hour after birth did you initiate breastfeeding? Minutes?

At what age did you stop nursing?

Why did you choose to stop nursing at this time?

If you were to start over, would you still have nursed?

Do you plan to nurse your next baby?

Would you recommend that your friends nurse?

How would you describe this nursing experience?

Please choose one of the following words or descriptive phrases:

Successful_________ Adequate_________

Less than adequate_________ Unsuccessful_________

*Adapted from Disbrow (1963).
APPENDIX D

MOTHER'S SCORE FOR SUCCESS IN BREASTFEEDING*

Score obtained by summing the scores for the items listed below:

1. Mother's attitude at time of the terminating breastfeeding:
   Degree of Satisfaction \((E(A-D))\) Score
   - High 1
   - Moderate 2
   - Low 3
   - Very Low 4

2. Mother's statement of success:
   Statement \((E(E))\) Score
   - Successful 1
   - Adequate 2
   - Less than Adequate 3
   - Unsuccessful 4

3. Actual duration of breastfeeding:
   Duration Score
   - More than 2 months 1
   - More than 1 through 2 months 2
   - More than 2 weeks through 1 month 3
   - Two weeks or less 4

4. Actual duration of breastfeeding compared with the mother's original estimate of how long she would breastfeed and reasons for terminating:
   Description \((F)\) Score
   - Longer than estimated 1
   - Same or less - major reason 2
   - Less - minor reason 3
   - Less dissatisfaction 4

<table>
<thead>
<tr>
<th>Success Score</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High degree</td>
<td>4-6 Success</td>
<td>4-10</td>
</tr>
<tr>
<td>Moderate degree</td>
<td>7-10 Lack</td>
<td>11-16</td>
</tr>
<tr>
<td>Low degree</td>
<td>11-13</td>
<td></td>
</tr>
<tr>
<td>Very low</td>
<td>14-16</td>
<td></td>
</tr>
</tbody>
</table>

*Adapted from Distrow (1963).
**APPENDIX E**

**MOTHER'S ATTITUDE AND STATEMENT OF SUCCESS**

Mother's Attitude About Breastfeeding  
At Time of Termination

Score obtained by summing scores of items listed below:

<table>
<thead>
<tr>
<th>A. Reasons for terminating breastfeeding:</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement</td>
<td></td>
</tr>
<tr>
<td>No negative statements about breastfeeding</td>
<td>1</td>
</tr>
<tr>
<td>Some negative statements but more positive ones</td>
<td>2</td>
</tr>
<tr>
<td>Some positive statements but more negative ones</td>
<td>3</td>
</tr>
<tr>
<td>No positive statements about breastfeeding</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Mother's statement about whether or not she would have attempted breastfeeding if she had known at the beginning what she knew when she stopped:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement</td>
</tr>
<tr>
<td>Definite yes</td>
</tr>
<tr>
<td>Plain or qualified yes</td>
</tr>
<tr>
<td>Plain or qualified no</td>
</tr>
<tr>
<td>Definite no</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Mother's statement about whether or not she would breastfeed future babies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement</td>
</tr>
<tr>
<td>Definite yes</td>
</tr>
<tr>
<td>Plain or qualified yes</td>
</tr>
<tr>
<td>Plain or qualified no</td>
</tr>
<tr>
<td>Definite no</td>
</tr>
</tbody>
</table>
D. Mother's statement about whether or not she would recommend breastfeeding to others:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definite yes</td>
<td>1</td>
</tr>
<tr>
<td>Plain or qualified yes</td>
<td>2</td>
</tr>
<tr>
<td>Plain or qualified no</td>
<td>3</td>
</tr>
<tr>
<td>Definite no</td>
<td>4</td>
</tr>
</tbody>
</table>

The score for the degree of satisfaction: add scores from 1-4

<table>
<thead>
<tr>
<th>Degree</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>High degree</td>
<td>4-6</td>
</tr>
<tr>
<td>Low degree</td>
<td>11-13</td>
</tr>
<tr>
<td>Moderate degree</td>
<td>7-10</td>
</tr>
<tr>
<td>Very low degree</td>
<td>14-16</td>
</tr>
</tbody>
</table>

E. Mother's statement of success

<table>
<thead>
<tr>
<th>Statement</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>1</td>
</tr>
<tr>
<td>Adequate</td>
<td>2</td>
</tr>
<tr>
<td>Less than adequate</td>
<td>3</td>
</tr>
<tr>
<td>Unsuccessful</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX F

DURATION OF BREASTFEEDING COMPARED TO ESTIMATE

Actual length of breastfeeding compared with mother's original estimate of how long she planned to breastfeed and reasons for termination:

<table>
<thead>
<tr>
<th>Duration and Reason</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Longer than estimated</td>
<td>1</td>
</tr>
<tr>
<td>B. Same as estimated or less because of major illness, surgery, mother had to return to work, or baby stopped and mother satisfied (if more than two months).</td>
<td>2</td>
</tr>
<tr>
<td>C. Less than estimated because of minor illness, vacation, or baby stopped and mother satisfied (if less than two months).</td>
<td>3</td>
</tr>
<tr>
<td>D. Less than estimated because of problems with or dissatisfaction with breastfeeding.</td>
<td>4</td>
</tr>
</tbody>
</table>
REFERENCES


Campbell, R. "Characteristics and Attitudes of Mothers Who Choose to Breast Feed Their Babies." Midwives Chronicle and Nursing Notes, 189:82-84, April 1976.


Wilson, R. "Safely Delivered." Nursing Mirror, 63-64, August 21, 1975.

