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THE EFFECT OF PRENATAL BREASTFEEDING INSTRUCTION  
ON STATE ANXIETY IN PRIMIPARAS'  
FIRST EFFORTS TO BREASTFEED

by

Diane C. Merchant

THESIS

Submitted in partial satisfaction of the requirements for the degree of

MASTER OF SCIENCE

in

NURSING

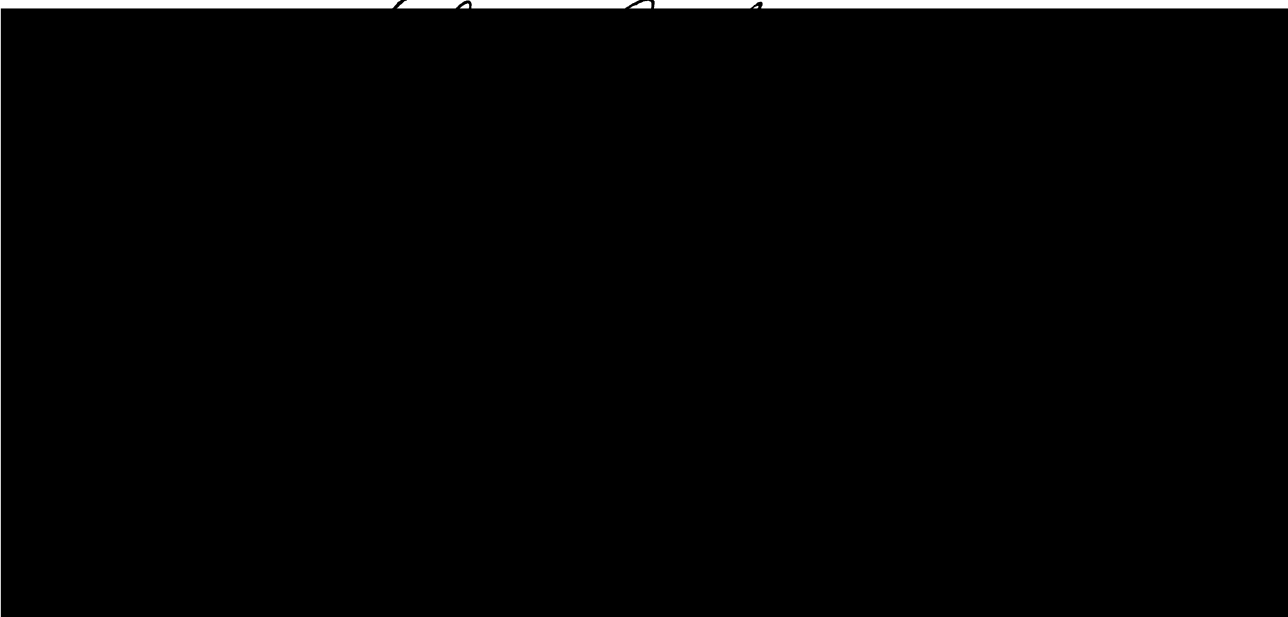
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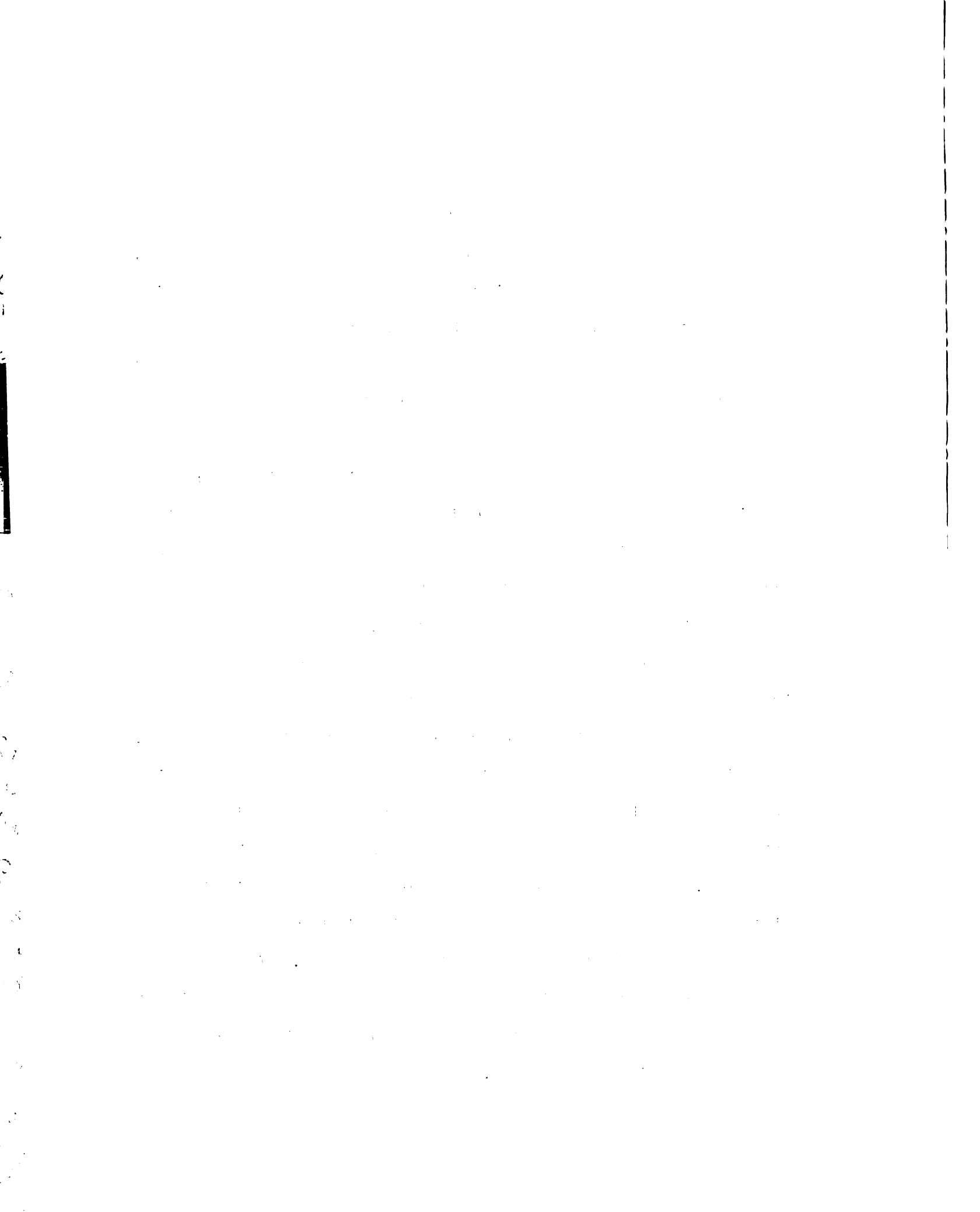
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## ABSTRACT

The purpose of this study was to evaluate the effect of prenatal instruction in breastfeeding on level of state anxiety in primiparas during initial efforts to breastfeed. Eighty-seven women completing the Lamaze childbirth series served as subjects. The experimental group consisted of 53 women who chose to receive a 2½-hour additional prenatal clinical session in breastfeeding knowledge and techniques. The control group was composed of 34 women who chose not to receive the session. Both groups completed STAI Form X-1 questionnaires as pretests during the Lamaze series and as posttests immediately after one breastfeeding experience during the postpartum hospital stay. A demographic questionnaire accompanied the posttest.

Data indicated that although both groups decreased significantly in anxiety, the control group decreased significantly more in anxiety than the experimental group. Women in the total sample placed high value on preparation for breastfeeding, and this may have been a significant factor contributing to the fact that the hypothesis was not supported. However, there was found to be a significant relationship between age and educational level and anxiety response during initial efforts to breastfeed. The prenatal breastfeeding preparation was found to be a significant factor in decreasing feelings of anxiety which surrounded the breastfeeding experience.



## DEDICATION

To my loving husband, John, my daughter, Laura,  
and my son, John, who have given me much support  
throughout the thick and thin of this thesis and  
to God who is the author and finisher of all!



## ACKNOWLEDGMENTS

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1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial matters. The text notes that without clear documentation, it becomes difficult to track expenses and revenues, which can lead to misunderstandings and disputes.

2. The second section focuses on the role of technology in modern record-keeping. It highlights how digital tools and software solutions have revolutionized the way data is stored and accessed. These technologies not only improve efficiency but also reduce the risk of human error and data loss. The document suggests that organizations should invest in reliable digital systems to ensure their records are secure and easily retrievable.

3. The third part of the document addresses the legal and regulatory requirements surrounding record-keeping. It explains that various industries and jurisdictions have specific rules regarding the retention and management of records. Compliance with these regulations is crucial to avoid legal penalties and ensure the integrity of the organization's operations. The text provides a general overview of these requirements, encouraging organizations to consult with legal counsel for more detailed guidance.

4. The final section discusses the importance of regular audits and reviews of records. It states that periodic audits help identify any discrepancies or areas where records may be incomplete or inaccurate. This process is vital for maintaining the reliability of the information used for decision-making. The document recommends that organizations establish a clear schedule for audits and assign responsibility for their execution.



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2. The second part of the document outlines the various methods used to collect and analyze data. This includes both qualitative and quantitative techniques, as well as the use of statistical tools to identify trends and patterns in the data. The document also discusses the importance of ensuring the reliability and validity of the data collected.

3. The third part of the document focuses on the analysis and interpretation of the data. This involves comparing the results of the data collection against the research objectives and hypotheses. The document discusses the various statistical tests used to evaluate the significance of the findings and the importance of considering the limitations of the study. The final part of the document provides a summary of the key findings and conclusions, along with recommendations for future research.

4. The fourth part of the document discusses the ethical considerations involved in conducting research. This includes the importance of obtaining informed consent from participants, ensuring the confidentiality of the data, and following the principles of research ethics. The document also discusses the potential for bias and the importance of being transparent about the methods used and the results of the study.

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1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. For example, a manager might notice that sales are declining or that customer satisfaction is low. Once a problem is identified, the next step is to define it more precisely. This involves determining the scope of the problem, its causes, and its effects. For instance, a manager might define a problem as "a 10% decrease in sales over the last quarter due to increased competition and changing customer preferences." This definition helps to narrow down the focus of the problem and provides a clear starting point for further investigation.

2. The second step in the process is to gather information about the problem. This involves collecting data and facts that are relevant to the problem. For example, a manager might gather data on sales trends, customer feedback, and market conditions. This information is then analyzed to identify patterns and trends that can help to explain the problem. For instance, a manager might discover that sales are declining because of a new competitor entering the market or because customers are switching to a different product. This information is then used to develop a hypothesis about the cause of the problem.

3. The third step in the process is to develop a hypothesis about the cause of the problem. A hypothesis is a statement that predicts the cause of the problem. For example, a manager might hypothesize that "the decline in sales is due to increased competition from a new company." This hypothesis is then tested by gathering more information and by conducting experiments or simulations. For instance, a manager might compare sales data from the company with sales data from the new competitor to see if there is a correlation. This process of testing a hypothesis helps to identify the most likely cause of the problem and provides a basis for developing a solution.

4. The fourth step in the process is to develop a solution to the problem. This involves identifying the actions that need to be taken to address the problem. For example, a manager might develop a solution that involves increasing marketing efforts, improving customer service, or developing new products. The solution is then implemented and its effectiveness is monitored. For instance, a manager might track sales and customer satisfaction over time to see if the solution is having the desired effect. This process of developing and implementing a solution helps to resolve the problem and improve performance.

5. The fifth and final step in the process is to evaluate the results of the solution. This involves comparing the current performance with the desired state or goal to see if the problem has been resolved. For example, a manager might compare sales and customer satisfaction data from the current period with data from the previous period to see if there has been an improvement. If the problem has not been resolved, the manager may need to re-evaluate the solution and try a different approach. This process of evaluating results helps to ensure that the solution is effective and that the problem has been resolved.

## CHAPTER I

### THE STUDY PROBLEM

#### Introduction

Current popular magazines found in newstands today contain articles which focus upon the importance of breastfeeding, the nutritional benefits to the newborn infant as well as the psychological and emotional benefits to the breastfeeding mother. Professional support of breastfeeding is also evident, as based upon scientific studies demonstrating the biochemical and immunological constituents of nutritional and health-promoting elements to be found in human breastmilk.

With increased interest in childrearing and preparation for childbirth, prospective mothers are encouraged to consider breastfeeding as an option for themselves and their newborns. Women choosing to breastfeed express specific prenatal concerns: "I want to breastfeed my baby, but I don't know if I will be able to do it . . .", "I've heard so much about how much it hurts to breastfeed, I hope I will be able to stand it, because I want my baby to have the best nutrition." These concerns may reflect lack of confidence in their ability to breastfeed as well as communicate a need





for preparation in breastfeeding. Indeed, most expressed concerns voiced by prenatal women center around their own well-being and their need for support in adapting to the role of breastfeeding (Lawrence, 1980, p. 123).

Optimal timing of preparation for breastfeeding has yet to be clearly established. However, a logical assumption might be that a woman's confidence in her capacity to breastfeed may be higher if she has had time to practice the techniques and familiarize herself with those sensations to be experienced with breastfeeding, such as nipple-pulling and stretching, rolling and squeezing, as well as the sensations which accompany the manual expression of breastmilk. A similar assumption might follow: that women breastfeeding for the first time, who have no previous familiarity with this experience when the baby is first put to breast, would have higher anxiety levels compared with those of women who have received prenatal preparation for breastfeeding. Should a new mother feel doubtful, her lack of knowledge about breastfeeding and negative feelings may lead to increased anxiety and its concomitant release of epinephrine, inhibiting the physiological letdown reflex. When the letdown reflex is inhibited, expulsion of secreted breastmilk cannot occur (McNeilly & McNeilly, 1978).

Thus far, the relationship between prenatal preparation for breastfeeding and how anxious women feel when attempting to breastfeed during the early postpartum period has not been tested. Therefore, the purpose of this study is to



examine the effect of prenatal knowledge and instruction in breastfeeding upon the degree of state or situational anxiety experienced by first-time mothers during their initial efforts to breastfeed.

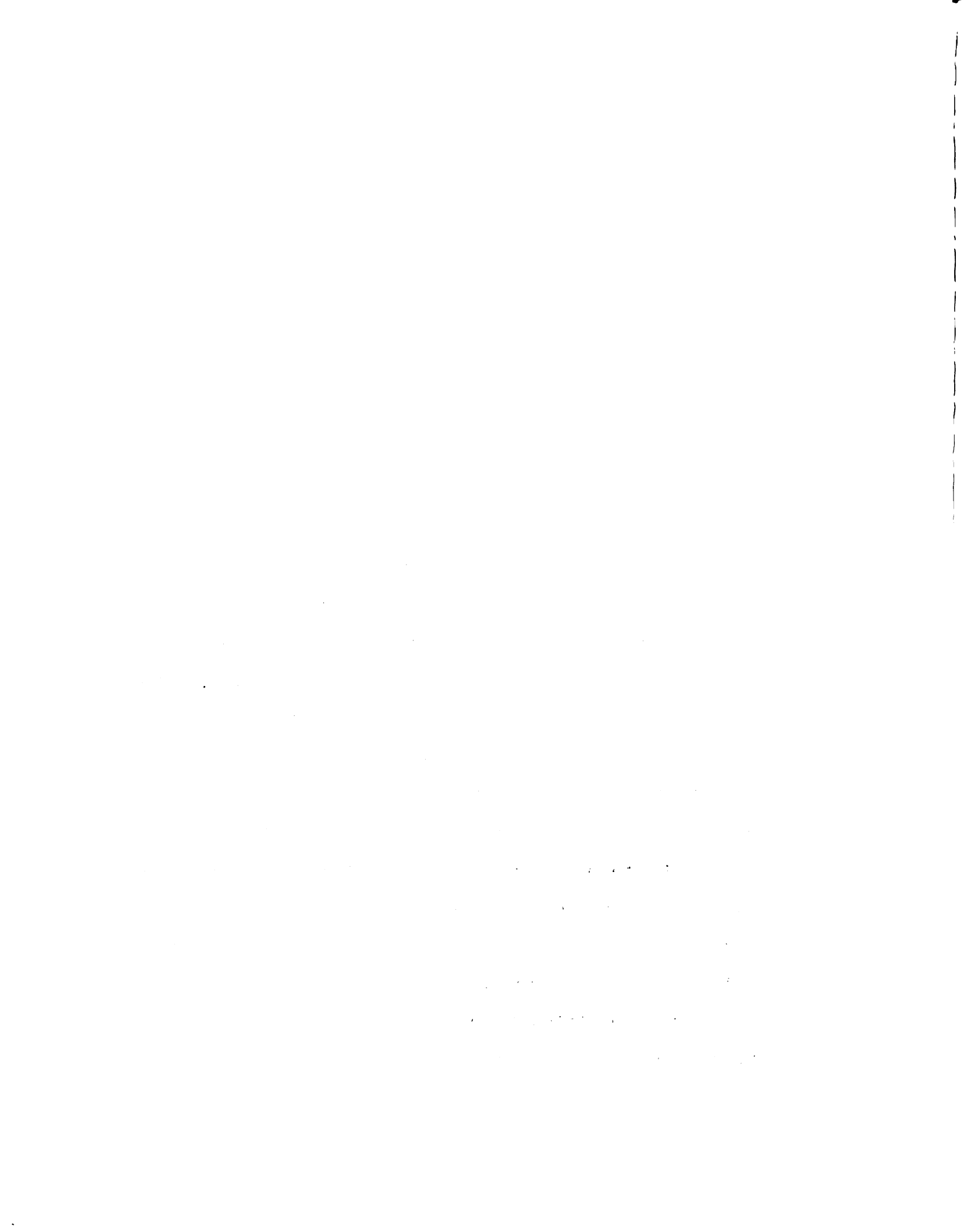
#### Statement of the Problem

Do primiparas who receive prenatal preparation for breastfeeding experience less anxiety during initial efforts to breastfeed than primiparas who do not receive prenatal preparation for breastfeeding?

#### Significance of the Study

This question examines commonplace assumptions related to the effectiveness of breastfeeding preparation methodology and the effect of timing of presentation upon degree of anxiety experienced during breastfeeding. For example: Do women who learn to prepare their breasts for breastfeeding before delivery experience less anxiety during breastfeeding? How does instruction in breastfeeding received during the postpartum period compare with prenatal preparation in terms of promoting feelings of anxiety in women who are motivated to breastfeed?

Given that there appears to be an increasing number of women electing to breastfeed, possibly because of increased evidence of the nutritional advantages of breastmilk for the infant, this study may be especially relevant today. Many expectant mothers, particularly those facing anxieties and



Indecisions with regard to making the choice to breastfeed, need timely and expert support. Knowledge gained from this study may provide information on which changes in the timing of breastfeeding instruction for women can be based. Following the success of prenatal childbirth education classes offered to alleviate anxiety and promote positive experiences in labor and delivery, prenatal education in breastfeeding may ultimately achieve similar goals.

This study will provide valuable information to nursery nurses, maternity nurses, and childbirth educators as they seek to provide more support and assistance to women who wish to breastfeed.

### Assumptions

In this study, the following assumptions may be made:

1. That acquisition of knowledge at one point in time affects emotional state at another point in time. Studies cited in the literature review focus upon utilization of the STAI (State Anxiety Scale Inventory) to determine state anxiety levels in randomly assigned prepared and unprepared groups. These studies were designed to test hypotheses regarding anxiety reduction following a training intervention.
2. That the specific content of the teaching intervention makes a difference in how women respond emotionally to initial efforts to breastfeed, i.e. how women receiving



the prenatal preparation cope with early breastfeeding experiences.

3. That the STAI posttest questionnaire taps anxiety levels associated with the breastfeeding experience/event and not other events in the immediate past or future.
4. That there are no major physiological differences among women's abilities to breastfeed that might explain differences in anxiety levels (i.e. some women are "naturally" better breastfeeders, have more milk sooner, have more graspable nipples, etc.).
5. That there are no major differences in newborn/infant's behaviors which might affect the mother's anxiety level during breast-feeding times. Although such factors would be difficult to control within the scope of this study, the Mother/Infant Criteria Checklist designed to screen mother/infant subjects for completion of the study supplies supporting evidence that there would be no major differences.

### Hypothesis

The following hypothesis will be tested:

First-time mothers receiving prenatal instruction in breastfeeding will be less anxious during initial efforts to breastfeed than first-time mothers who do not receive prenatal instruction in breastfeeding.





Definition of Terms

First-time Mothers: Women who are primiparas, between the ages of 20-40 years, who intend to breastfeed and who have taken Lamaze preparation for childbirth classes.

Prenatal Instruction in Breastfeeding: A single class/clinical session lasting 2½ hours, conducted by the investigator, which will include: a) review of anatomy and physiology of breastfeeding in general terms, b) instruction in four basic techniques of breast preparation for breastfeeding: breast massage, nipple-pulling, nipple-rolling, and the manual expression technique, and c) discussion and further explanation of information in handouts distributed on breastfeeding.

State Anxiety: A transitory emotional state or condition of the human organism that is characterized by subjective, consciously perceived feelings of tension, apprehension, and heightened autonomic nervous system activity. State anxiety (A-State) varies in intensity and fluctuates over time (STAI Manual, p. 3). State anxiety is often called "situational" anxiety, a construct which is measurable and a process in which the intensity of an emotional reaction to a stressful situation is disproportionately greater than the magnitude of the objective danger (Spielberger, 1972, p. 485). The STAI Form X-1, a 20-statement questionnaire from the State-Trait Anxiety Inventory,



will be administered in this study. The degree or level of anxiety demonstrated by each subject will be determined by a score as calculated according to directions in the STAI Manual (p. 19).

Less Anxious: Defined as a measurement of the above description of state anxiety.

## CHAPTER II

### REVIEW OF RELEVANT LITERATURE

In general, review of relevant literature on breastfeeding was limited to those studies focusing upon the problem of breastfeeding preparation and studies which utilized the measurement tool selected for this study.

#### The Problem of Breastfeeding Preparation

Studies which describe the breastfeeding experience and its relationship to preparation for breastfeeding were found to be divided into two categories: 1) those studies which attributed the success or failure of preparatory breastfeeding techniques, interventions, and methods to specific physiological, physical, and emotional complications experienced by the breastfeeding mother and 2) those studies which attributed the psychological status of the breastfeeding mother and management of mother/infant contact during the postpartum period to success or failure in breastfeeding.

The effectiveness of three commonly suggested methods of preparing the breasts for breastfeeding (nipple-rolling, application of cream, and expression of colostrum) was



examined by Brown and Hurlock (1975). Findings from this study indicated there was no relationship between the three methods of preparation and decrease in nipple sensitivity. Sarto (1963), while studying preparation, practice, and professional help in breastfeeding, concluded that mothers who had prenatal and postpartum instruction and assistance experienced little if any engorgement and were significantly more successful with breastfeeding. Both Brown and Hurlock (1975) and Sarto (1963) seemed to stress the importance of prenatal education and familiarization with breastfeeding. However, neither study tested the importance of prenatal education in breastfeeding techniques and exercises. L'Esperance (1980) studied 102 women in the first 96 hours postpartum in an attempt to identify factors which might have an association with nipple discomfort during breastfeeding. Whether or not breastfeeding in the early days postpartum is a painful rather than pleasurable experience is not relevant information to this study. However, it was found that breast preparation in the prenatal period was one factor which was not related to nipple soreness in the early nursing period (p. 2). Evans, Thigpen, and Hamrick (1969) observed 52 hospitalized mothers in order to study discomforts related to lack of success in breastfeeding. They found that cracked nipples, infected breasts, hemorrhoids, and retention catheters were associated with lack of success in breastfeeding. The authors of this study did not mention whether or not these



women had been prenatally prepared for breastfeeding. Hall (1979), in Identifying factors influencing breastfeeding success, randomly assigned 49 first-time breastfeeders into three groups. Group I received routine hospital care. Group II received routine care plus a slide-tape presentation on breastfeeding. Group III received the slide-tape presentation plus additional nursing support. Support was defined as providing relief from mental anguish, making the patient less fearful, relating an attitude of understanding and reassurance, as well as offering praise and encouragement. As a result, Group III experienced 80 percent success in breastfeeding; success was determined by whether or not the mother was still breastfeeding at the six-week interview. It was interesting to note that although all of the women experienced sore nipples, "nipple cracks and engorgement were not viewed as problems" (p. 32). Hall's study lends support to the impact of professional teaching and guidance upon subjects' perceptions of discomfort associated with breastfeeding. Lawson (1976) interviewed 160 primiparas to determine how much help and support (defined as praise, encouragement, suggestions, or information) they received in their efforts to breastfeed. Eighty-five percent of this subject population was determined by the researcher to have breastfed successfully. Success was defined as having breastfed for one or more months. Those randomly-selected, white, middle-class women interviewed recognized the need for support and sought out





Individuals supportive to their efforts. Those people mentioned as providing support were professionals as well as family and friends. For most of these women, the initial one-to-two weeks postpartum was most frustrating because of the newness and insecurity surrounding how to go about it and the lack of knowledgeable people to help.

The following studies emphasized that 1) maternal stress during lactation, 2) the amount of contact between mother and infant, and 3) positive maternal attitude toward breastfeeding determine success in breastfeeding. McNeilly and McNeilly (1978) suggested that success of breastfeeding in the early postpartum period is due to the suckling responses of babies stimulated by spontaneous milk ejection during lactation; such ejection is controlled by physical and psychological stress during early lactation. These authors concluded that 1) an inadequate suckling stimulus (measured by decreased frequency in spontaneous milk ejection) will ultimately result in a reduced secretion of milk, 2) the mother's anxiety, often created by fear of being unable to lactate, will itself inhibit milk ejection via the nervous system, and 3) mothers should have more psychological support. This study seems to suggest the importance of prenatal familiarity with breastfeeding and ability to breastfeed. Newton and Newton (1949), studying the relationship of the ability to breastfeed and maternal attitudes toward breastfeeding, interviewed 91 patients to ascertain their attitudes toward breastfeeding. The



researchers found that mothers with positive attitudes toward breastfeeding gave a larger than average amount of milk on the fourth day postpartum (50 g per feeding compared with 35 g per feeding by mothers with negative attitudes), reported more signs of letdown, and used nipple shields less frequently than mothers with negative attitudes. Of the 12 primiparas with positive attitudes, 67 percent were determined to be successful breastfeeders (p. 872). Of the 15 primiparas with negative or doubtful attitudes, only 45 percent were successful breastfeeders. Successful breastfeeders were those who had enough milk so that supplementary formulas were not necessary after the fourth hospital day. Unsuccessful breastfeeders were those who continued to feed by breast but who had to continue to give a supplementary formula after the fourth day. Carlsson and colleagues (1978), testing the effect of amount of contact between mother and child on the mother's nursing behavior, found that contact between mother and child for a period of time not exceeding two hours immediately after birth had a positive effect upon nursing behavior during the first four days postpartum. This study seems to support the findings of McNeilly and McNeilly (1978) that events taking place immediately after birth influence subsequent maternal behavior. The importance of such an affective component in mother/child interaction becoming part of prenatal education in breastfeeding cannot be ignored.



These studies provide a wealth of knowledge with regard to the kinds of experience women encounter during the postpartum breastfeeding period. Observations made by the researchers concerning women's responses and behaviors during this period of adjustment and performance reveal the need for psychological, emotional, and physical support provided by nursing professionals in the form of prenatal education and familiarity with the techniques of breastfeeding.

It may be observed that although these studies have described the impact of timing of various interventions and methodologies upon maternal response and behavior during breastfeeding, none have considered such interventions as having any impact upon anxiety response within the breastfeeding experience.

#### State Anxiety: A Measure of the Effect of Preparation

Since this study focuses upon measurement of the impact of prenatal breastfeeding preparation upon feelings of anxiety, review of literature dealing with a similar focus is relevant. Although the following studies selected for review are in no way related to breastfeeding, they provide evidence that state anxiety (i.e. anxiety experienced in a specific situation or particular moment in time) may be a valid and reliable measure of the effect of preparation for a life event such as breastfeeding.



Christopherson and Pfeiffer (1980) explored the relationship between timing of information, level of knowledge, self-reported anxiety, and certain recovery variables associated with cardiac surgery. Forty-one subjects ranging from 34 to 71 years were randomly assigned to three groups. Group I was given an educational booklet to read 1-2 days preoperatively for coronary artery bypass grafting (CABG). Group II was given the same material to read 3-35 days prior to the CABG. Group III did not receive the educational booklet. The researchers hypothesized those subjects receiving preoperative information would report less anxiety preoperatively, recall more information, and experience a faster recovery than subjects receiving the same information immediately preoperatively or those who did not read the booklet. Those subjects who read the information preoperatively had significantly increased learning and significantly decreased A-state anxiety scores. The difference between Groups I and II was not significant. As there seemed to be no significant difference between the three groups on the questionnaires (STAI and Knowledge), the researchers concluded that the interaction between knowledge and anxiety remained ill-defined. They suggested that further research on the emotional reactions to surgery also should investigate changes in situational anxiety in relation to the timing and specific type of information.

Standley, Soule, and Copans (1979) examined various dimensions of emotional state, including anxiety, during





pregnancy. Information obtained from 73 pregnant women provided a description of pregnant women's concerns during pregnancy. In this descriptive study, three dimensions of prenatal anxiety derived from interviews (pregnancy and childbirth, parenting, and psychiatric symptoms) were examined in relation to background variables of maternal age, education, and preparation for childbirth. Findings suggested that younger, less-educated, and unprepared women are more likely to be anxious, particularly about pregnancy and childbirth. The anxiety measures utilized in this study were not clearly identified as valid and reliable instruments of measurement. However, the researchers claimed that the anxiety measures of this study assessed concerns which are related to state anxiety. Findings from the study indicated that anxiety during pregnancy is reduced when pregnant women participate in formal prenatal education programs.

Doerr and Jones (1979) hypothesized that "the dreaded uncertainty about what to expect heightens anxiety in the person visiting the CCU patient for the first time". To test this hypothesis, families of CCU patients (n = 12) were randomly assigned to experimental and control groups. The experimental group was given a booklet of information about the CCU and encouraged to talk to and ask questions of a registered nurse working in the unit. The control group was denied both sources of information. The State Anxiety Scale from the STAI was used to measure state anxiety levels of



patients randomly assigned to the prepared and unprepared families. As predicted, patients whose family members were prepared for the visitation showed a mean decrease on the State Anxiety Scale as compared with a mean increase in state anxiety for the unprepared family members.

Stoudenmire (1972) recruited 36 anxious (measured by Train Anxiety Inventory, STAI) female undergraduate students as subjects in an experiment designed to test hypotheses regarding anxiety reduction following muscle relaxation training. Eighteen introverted and 18 extraverted subjects (identified by the Eysenck Personality Inventory, 1968) were matched on pretreatment scores, two state anxiety measures, and three trait anxiety measures. Following three sessions in muscle relaxation training, the anxiety measures were readministered. There were significant decreases in both the anxiety state measures for introverts but not for extraverts. There were no significant decreases in either group on anxiety trait measures. The results supported Spielberger's theory which postulates a reduction in anxiety state (A-state anxiety) following relaxation training. In a similar vein, Lamb and Strand (1980) studied the effect of a brief relaxation treatment for dental anxiety on measures of state and trait anxiety. A brief deep muscle relaxation procedure to reduce patient anxiety during a dental appointment was given to an experimental group of 20 subjects. The experimental group was exposed to four periods during the dental visit: 1) waiting room to wait,



2) a 14-minute relaxation procedure, 3) dental treatment, and 4) immediately after treatment period. The control group of 19 subjects was exposed to the same experimental periods with the exception of period 2. Measures were obtained during each of the periods, using the A-State STAI. The results indicated that the relaxed group demonstrated a significant decrease in state anxiety which was sustained through the four periods. The nonrelaxed group demonstrated decrease in state anxiety for a shorter period of time from periods 3 to 4. The findings suggest that a brief relaxation procedure can reduce temporary state anxiety but has no effect on reducing more general anxiety levels.

Studies reviewed on timing of preparation and anxiety demonstrated that 1) appropriate timing of stress-relevant information should be considered as an important variable, 2) that there is a significant association between state anxiety and preparation, 3) that uncertainty with regard to what to expect heightens anxiety in persons attempting to cope with a specific stress-related situation, and 4) that situations involving the possibility of failure or loss of self-esteem create a higher response in state anxiety for those individuals who demonstrate high trait anxiety.

## CHAPTER III

### METHODOLOGY

#### Research Design

This study utilized a quasi-experimental design as the investigator was unable to control scheduling of experimental stimuli and randomization, both of which make a true experiment possible (Campbell & Stanley, 1963, p. 34). This study followed the two-group pre/posttest design utilizing control group and experimental groups which do not have preexperimental sampling equivalence.

#### Description of Research Setting

All subjects recruited into the study attended Lamaze childbirth preparation classes offered by the Kaiser Permanente Medical Center, Oakland, California. All pre- and posttests as well as the prenatal breastfeeding instruction clinic session were conducted in two classrooms, one conference room, the maternal/infant recovery room, and postpartum "rooming-in" floor of that hospital.





### Sample

The population of interest for this study was defined as all first-time mothers in the United States between the ages of 19 and 40 years who chose to breastfeed their infants and who attended Lamaze childbirth classes. For the sake of convenience as well as accessibility to a large number of subjects willing to participate in this study, Lamaze classes were selected as a source for subjects (see Appendix A-1 - Statement of Access). None of the Lamaze class sessions offered in the Kaiser Medical Center provided information and instruction in preparation for breastfeeding other than a brief discussion of the pros and cons of breastfeeding and a suggested list of books and paperbacks on the subject.

The accessible population consisted of a total of 136 subjects; however, of that number 88 subjects completed the study, meeting the following study criteria: mother's age between 20 and 40 years, a first delivery (primipara), mother intending to breastfeed, mother having taken the Lamaze childbirth series, a single birth, a vaginal delivery, newborn baby having an Apgar of 9 within the first hour postpartum, and newborn having a birthweight of 5 pounds or more.

Fifty-four women who elected to receive and receiving prenatal instruction in breastfeeding were compared with



thirty-four women who elected to but did not receive prenatal instruction in breastfeeding.

A simple random sample was an impossibility since there existed no complete listing of all first-time Lamaze-prepared women intending to breastfeed first-born infants. Thus the investigator's limited time and resources dictated utilization of naturally assembled groups. As both the experimental and control groups were made up of Lamaze-trained women, homogeneity between groups was increased, maximizing the experimental variance in the study.

The effect of the intervention procedure (i.e. prenatal information and instruction in breastfeeding) was the primary focus of significance of this study. Consequently, the generalizability of the results to a greater population was considered less important. However, with replication of this study by other investigators in different locations, findings regarding the effect of the experimental intervention may be generalized to other populations.

#### Risks to Subjects

This study was reviewed and approved by the University of California, San Francisco Committee on Human Research. There was no physical risk to subjects participating in the study; however, consideration was given to the possibility of psychological risk. Because the investigator provided



the intervention experience, some subjects might have felt obligated to participate in the study. Those subjects volunteering to participate in the study who were eventually eliminated from the study because of failure to meet criteria for completion of the study (see Appendix D - Mother/Infant Checklist Criteria) may have perceived the elimination experience as a failure to meet personal expectations of performance as breastfeeding mothers. Subjects may also have suffered perceived loss of self-esteem from peers, professionals working in the hospital, the Lamaze instructors, as well as the investigator of this study when circumstances (particularly the mother-infant criteria checklist) required that they be removed from the study. Consequently, in agreement with the Lamaze instructors and hospital clinical supervisor and staff, the investigator informed all women attending the Lamaze classes on the evening of recruitment that, regardless of participation in the study or ability to complete the study, the investigator would be available as a resource person for breastfeeding problems, via the telephone, once women were home from the hospital. Time and convenience to all subjects participating in the study was taken into consideration as well. Information received from all subjects (i.e. the tests and questionnaire) was held in strict confidence by the investigator.



## Techniques for Data Collection

### Procedures

Recruitment of subjects. With approval of the proposed study confirmed by professional staff administrators and clinicians of Kaiser Permanente Medical Center, Oakland, California, the investigator gained access to Lamaze instructors employed by the hospital. The investigator informed each instructor of the need for subjects for the study. Five instructors provided class schedules, indicating times and dates when it would be convenient for the investigator to attend a selected session of each evening class series to recruit subjects. For the sake of consistency, class visitations were scheduled between the hours of 8 and 9 pm, during class break time. The investigator was introduced by the class instructor. The investigator followed with a brief explanation of the study, stating criteria for participation as well as time involvement for prospective subjects. For those women meeting the necessary criteria who wished to participate, consent forms were passed out, read, signed, and returned to the investigator.

The pretest. Directions for self-administration of the pretest (Appendix B-1 - STAI Form X-1) were then administered by the investigator. Subjects were requested to mark the answer which seemed to describe present feelings





best, responding to each statement by rating themselves on a 4-point scale. The four categories for the Form X-1 were: 1) Not at all, 2) Somewhat, 3) Moderately so, and 4) Very much so. All women completed the test within an 8-10 minute period. After questionnaires were collected, subjects were instructed regarding self-administration of the posttest and demographic questionnaire (Appendices B-1 and B-2 - STAI Form X-1 and Demographic Questionnaire), to take place during the postpartum period in the hospital.

The posttest and demographic questionnaire. The posttests and demographic questionnaires were placed in folders and kept in a large file box at the labor and delivery station of the hospital. Taped to the front of each folder was a Mother/Infant Criteria Checklist (Appendix D) to be completed by a staff nurse on duty after each subject's delivery. Subjects meeting all listed criteria on the checklist were eligible to complete the study and were given the posttest and demographic questionnaire. Subjects completing the study were directed to complete the posttest and demographic questionnaire immediately after breast-feeding the baby. Again, answers on the posttest STAI Form X-1 were to be marked according to present feelings. Completed folders were then returned to the file box and collected by the investigator. Those subjects not meeting all listed criteria on the checklist were disqualified from the study and did not receive the posttest materials.



The intervention. Information regarding the prenatal breastfeeding clinic session was provided by the investigator to each Lamaze class. Notices stating content, time, and place were also posted in the prenatal clinic of the hospital. Women planning to breastfeed their infants, regardless of parity or Lamaze preparation, or whether or not they participated in the study, were invited to attend this clinic session. The one-time breastfeeding clinic session was scheduled for Saturday mornings and taught by the investigator. Participants attended on a "drop-in" basis. These classes were scheduled on an on-going basis to meet the need for subjects in the experimental group of the study. Women who agreed to participate in the study and did not attend the breastfeeding clinic session were placed in the control group of the study.

The breastfeeding clinic session format was as follows:

- A. Group Introductions: This involved a sharing of individual attitudes, experience, and family history of breastfeeding and general expectations of what kinds of information would be helpful for each participant.
- B. Presentation of Slide Series on Breastfeeding: A 20-minute slide series was presented, followed by a question and answer period.
- C. Instructor Explanation, Review, and Group Discussion of Handouts: This period of time varied, depending upon individual interest with



regard to the material presented in the handout material and points made by the instructor.

- D. Instructor Demonstration of Breastfeeding Preparation Techniques: This segment involved instructor demonstration of the breastfeeding preparation techniques, with class participation and return demonstration to the instructor.

#### The Instrument

Utilization of the STAI Form X-1 (Appendix B-1), developed by Spielberger, Gorsuch, and Lushene (1970), permits measurement of the anxiety persons feel at a particular point in time. The STAI Form X-1 consists of 20 statements which people have used to describe themselves. Each score represents the anxiety level associated with a limited time span, situation, or event experienced by the person taking the test. This type of anxiety, that is state anxiety, is in direct contrast with a person's trait anxiety, or the person's generalized conception of themselves as an anxious person (Gorsuch & Key, 1974, p. 312).

Following calculations for scoring indicated in the STAI Manual (pp. 4-5), data from the test questionnaires were calculated, coded, and used to test the significance of differences, if any, between the experimental and control groups, using t-tests. In order to adjust for initial differences between groups on pretest criteria that arose



either by chance or systematic differences, the analysis of covariance was used.

Data obtained from the demographic questionnaires were tabulated so as to show relationships between extraneous variables.

For the purpose of testing the hypothesis of this study, state anxiety scores obtained from the experimental group were compared with the state anxiety scores obtained from the control group in an effort to determine the effect of prenatal preparation in breastfeeding on anxiety level of primiparas during initial efforts to breastfeed.

#### Validity/Reliability/Utility

With regard to the validity and reliability of the research instrument, Katkin (1978) stated:

The validity of the A-State scale has been demonstrated in a wide variety of studies and represents a relatively efficient, reliable, and valid way to assess individual differences in both anxiety-proneness and phenomenological experience of anxiety in normal as well as in patient populations . . . There is voluminous research literature attesting to its reliability and validity in a variety of contexts, and the test is grounded well in psychological theory (p. 1095).

The fixed alternative questions used in this instrument may be trusted to measure true differences in the characteristics being measured, with control given to differences in interpretation of the questions (Brink & Wood, 1978).

It is important that attention be paid to the potential threats which may have endangered the internal validity of





the quasi-experimental design. Effects of history and maturation are difficult to control. As a period of approximately 2-4 weeks lapsed between the pre- and posttests, many primiparas probably experienced similar events while awaiting the onset of labor (i.e. making last minute preparations for the delivery and restricting physical activities). Most of the subjects were at home, following through on weekly clinical prenatal checkups. Subjects who refused, for one reason or another, to complete tests or sign consent forms were replaced by new subjects to maintain the desired number. However, none of the subjects choosing to participate in the study refused to complete the tests or sign consent forms.

As to the effect of testing, the pretest may have sensitized the subjects, resulting in learning and increased awareness of feelings of anxiety. As the A-State questionnaire is not a novel or controversial type test, sensitization problems are probably not significant.



## CHAPTER IV

### RESULTS

The findings of this quasi-experimental study focusing upon the effect of prenatal breastfeeding instruction on state anxiety in primiparas' initial efforts to breastfeed are presented in sections pertaining to the structure and characteristics of the sample, statistical analyses, and findings.

#### Structure of the Sample

From a total of 136 first-time mothers who agreed to participate and were inducted into the study, only 87 completed the study. Attrition of subjects was attributed to two factors: 1) failure of mother and infant to meet all criteria listed on the Mother-Infant Criteria Checklist (see Appendix D) and 2) failure of subjects to receive the posttest and demographic questionnaire during the postpartum hospital stay. Fifty-four women who elected to and received prenatal instruction in breastfeeding were identified as experimental subjects. Thirty-four women completing the study who chose not to receive prenatal instruction in breastfeeding were identified as control subjects. All



subjects were recruited between the months of November 1981 to June 1982 from Lamaze childbirth classes conducted at Kaiser Permanente Medical Center, Oakland, California. Data collection began in November 1981 and terminated in October 1982.

### Characteristics of the Sample

Data were collected from women participating in and completing the study on specific demographic variables, namely age, race, educational level, marital status, and yearly income. Table 1 presents relevant numbers and percentages discussed in the following paragraphs.

The ages of the subjects in the study ranged from 19 to 40 years. The mean age of the sample was 28.4 years. Nearly 50 percent of the 87 primiparas were between the ages of 26 and 30 years, with 27 percent of the subjects over the age of 30 years and 25 percent falling under the age of 25 years.

Of the various racial groups represented in the study, over half (55.2%) of the women were Caucasian. Black women represented the second highest group with 24.1 percent participating. Asian and Hispanic women together comprised nearly 20 percent of the sample, leaving only 1.1 percent represented by other categories.

In terms of educational level, over half (52.8%) of the women in the study indicated they had graduated from college and had attended graduate school. Thirty-three percent of



TABLE 1  
 Characteristics of the Sample

Demographic Variable	n	%
<b>Race (n = 87)</b>		
Black	21	24.1
Hispanic	6	6.9
Asian	11	12.6
Caucasian	48	55.2
Other	1	1.1
<b>Income (n = 83)</b>		
Less than \$5,000	5	6.0
\$5,000-10,000	2	2.4
\$10,000-15,000	11	13.3
\$15,000-20,000	14	16.9
\$20,000-25,000	16	19.3
\$25,000 and over	35	42.2
<b>Marital Status (n = 86)</b>		
Married	71	82.6
Separated	1	1.2
Single	3	3.5
Living with partner	11	12.8
<b>Educational Level (n = 87)</b>		
High school	12	13.8
Some college	29	33.8
College graduates	21	24.1
Graduate school	25	28.7
<b>Age in Years (n = 87)</b>		
19 to 25	22	25.1
26 to 30	41	47.0
31 to 40	24	27.4
<b>X = 28.36 years</b>		





the respondents indicated receiving some college experience. High school graduates represented the smallest percentage of the sample (13.8%).

The majority of women in the study were married (82.6%). A small number of women indicated living with a partner (12.6%). Only three women (3.5%) indicated single parent status, and one woman (1.2%) was separated from her husband.

On the 83 subjects indicating yearly income, 61.5 percent indicated incomes within the \$20,000 to more than \$25,000 range. The second highest group of women indicated incomes falling within the \$10,000 to \$20,000 range (30.2%). Of the seven subjects falling below the \$10,000 range, five indicated yearly incomes of less than \$5,000 yearly.

Thus, the majority of first-time mothers who participated in and completed this study were in their late twenties to early thirties, Caucasian, recipients of college and graduate-level education, married, and living on incomes of more than \$20,000 per year.

### Statistical Analyses and Findings

The reliability of the test instrument utilized in the study (STAI Form X-1 questionnaire) was assessed by computing the alpha internal consistency reliability coefficient. The instrument was found to be highly reliable, with  $r = .89$  for STAI pretest scores and  $r = .82$

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for STAI posttest scores. These findings validate previous work which indicated the set of 20 questionnaire items measured a given construct assumed to be "anxiety".

In testing the research hypothesis and examining the data in this study, three types of statistical tests were conducted: 1) t-tests which analyzed differences between means for independent samples, testing the treatment effect of the study, 2) Pearson product-moment correlations as well as analysis of variance (ANOVA), which tested the relationship between certain selected demographic variables, and 3) t-tests which analyzed mean differences on anxiety difference scores (posttest minus pretest) between groups, examining relationships with other demographic variables. Descriptive and inferential statistical analyses were conducted to determine if there were pretest differences between respondents in the experimental and control groups on pretest anxiety and demographic variables.

No significant differences were found in pretest scores and posttest scores between groups as indicated by means, standard deviations, and t-ratios.

#### Changes In Anxiety

A difference score in anxiety was computed by subtracting the total pretest anxiety score from the total posttest anxiety score. A positive difference score would mean an increase in anxiety while a negative difference score would mean a decrease in anxiety. A t-test for



differences between means for independent samples was computed on these difference scores for the two treatment groups (see Table 2).<sup>\*</sup> The mean difference scores for both groups, however, indicated that subjects in both groups decreased in anxiety, with subjects in the control group decreasing significantly more in anxiety than subjects in the experimental group. Table 3 presents data from a t-test for related samples, indicating that all respondents, regardless of treatment group, significantly decreased in anxiety; the total pre-anxiety score was 36.10 compared with a total post-anxiety score of 31.26.

Perhaps the most relevant indices of change in anxiety between groups are to be found in Tables 4 and 5. The percentage of anxiety change (Table 5), derived from the t-test for differences between means on post-anxiety indices by experimental and control groups, indicated that the experimental group decrease was -5.46 or nearly 5.5 percent against the control group decrease of -15.20 or 15 percent. As indicated in Table 4, the chi-square test for type of anxiety change between groups summarizes the percentage of respondents in the experimental and control groups who increased, decreased, and remained the same in anxiety level. Findings, as shown, reveal that 73.5 percent of the control group compared to 60.4 percent of the experimental

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<sup>\*</sup> This analyses was justified rather than an analysis of covariance because a t minus t comparison between pretest means was not significant at the .05 level.



TABLE 2

Means, Standard Deviations, t-Ratios  
for Pretest, Posttest, and Difference Scores  
on the STAI (State Anxiety Scale) Form X-1

Pretest

Treatment Group	n	$\bar{X}$	sd	t
Experimental	53	34.84	8.45	-1.54
Control	34	38.06	10.97	ns

Posttest

Treatment Group	n	$\bar{X}$	sd	t
Experimental	53	31.85	6.87	1.01
Control	34	30.35	6.58	ns

Anxiety Difference Score  
(Post minus Pre Anxiety)

Treatment Group	n	$\bar{X}$	sd	t
Experimental	53	-3.00	8.22	2.30
Control	34	-7.71	10.84	ns

TABLE 3

t-Tests for Related Samples  
Total Pre and Post Anxiety Scores

Total Scores	n	$\bar{X}$	sd	t	p
Pre Anxiety	87	36.1034	9.582	4.72	.001*
Post Anxiety		31.2644	6.759		

\* p less than .05 is significant

TABLE 4

Chi-square Test for Type of Anxiety Change  
Between Control and Experimental Groups

Group	No Change In Anxiety		Less Anxiety		More Anxiety		Total
	n	%	n	%	n	%	n
Experimental	1	1.9	32	60.4	20	37.7	53
Control	2	5.9	25	73.5	7	20.6	34
Total	3		57		27		87

TABLE 5

Percentage of Anxiety Change  
(Post minus Pre Anxiety)

Group	n	$\bar{X}$	sd	t	% change
Experimental	53	-5.46	22.23	1.90	5
Control	34	-15.20	24.86		15



group decreased in anxiety, 20.6 percent of the control group compared to 37.7 percent of the experimental group increased in anxiety, and 5.9 percent of the control group compared to 1.9 percent of the experimental group showed no change in anxiety.

As these findings cannot support the hypothesis of the study it must then be restated: First-time mothers receiving prenatal instruction in breastfeeding were found not to be less anxious during initial efforts to breastfeed than first-time mothers who did not receive prenatal instruction in breastfeeding.

#### Relationship of Selected Demographic Factors to Changes in Anxiety

Several analyses were conducted to test the relationship of selected demographic variables to changes in anxiety. These demographic variables were: age, how soon the mother planned to return to work, race, how long the mother planned to breastfeed, marital status, yearly income, and educational level of the mother.

Pearson product-moment correlations were computed for two variables: 1) age and anxiety difference score and 2) how soon the mother planned to return to work and anxiety difference score. The age and anxiety difference score correlation was found to be highly significant ( $r = .18$ ,  $p < .04$ ). Thus, those women in the older age categories were less anxious during initial efforts to breastfeed.



Scores for the second variable were not found to be significant ( $r = .05$ ,  $p = .36$ ).

Analysis of variance between mean anxiety difference scores were computed for the following demographic variables: race, age, how soon the mother planned to return to work, how long the mother planned to breastfeed, marital status, yearly income, and educational level (see Tables 6 through 12). The only relationship found to be significant was that between educational level and difference in anxiety

TABLE 6

Analysis of Variance for Anxiety Difference Scores  
by Age

Group	n	$\bar{X}$	sd
19 to 26 years	29	-6.90	10.07
27 to 30 years	34	-3.26	7.88
31 years and over	24	-4.58	10.93

ANOVA Table

	Sum of Squares	df	F	p
Between Groups	208.61	2	1.15	.3226
Within Groups	7641.14	84		
Total	7849.75	86		

p less than .05 is significant

TABLE 7

Analysis of Variance for Anxiety Difference Scores  
by Return to Work

Group	n	$\bar{X}$	sd
1-2 months	20	-8.60	10.74
3-5 months	21	-2.05	6.54
6 or more months	19	-4.53	8.77

ANOVA Table

	Sum of Squares	df	F	p
Between Groups	446.49	2	2.87	.0648
Within Groups	4430.49	57		
Total	4876.98	59		

p less than .05 is significant

TABLE 8  
Analysis of Variance for Anxiety Difference Scores  
by Race

Group	n	$\bar{x}$	sd
Black	21	-9.43	10.40
Hispanic	6	-2.83	11.55
Asian	11	-5.00	8.72
Caucasian	48	-3.00	8.78
Other	1	-7.00	0

ANOVA Table

	Sum of Squares	df	F	p
Between Groups	633.77	4	1.80	.1366
Within Groups	7215.98	82		
Total	7849.75	86		

p less than .05 is significant

TABLE 9  
 Analysis of Variance for Anxiety Difference Scores  
 by How Long Planning to Breastfeed

Group	n	$\bar{X}$	sd
Less than 6 weeks	3	-6.33	13.32
6 weeks	1	-5.00	0
6-8 weeks	6	-11.83	14.27
3-6 months	39	-3.64	8.76
7-10 months	18	-4.72	7.07
11 or more months	7	3.14	5.30
Undecided	13	-9.31	11.09

ANOVA Table

	Sum of Squares	df	F	p
Between Groups	1062.04	6	2.09	.0639
Within Groups	6787.71	80		
Total	7849.75	86		

p less than .05 is significant

TABLE 10  
Analysis of Variance for Anxiety Difference Scores  
by Marital Status

Group	n	$\bar{X}$	sd
Married	71	-4.80	8.93
Separated	1	3.00	0
Single	3	-9.00	7.94
Living with Partner	11	-5.00	14.17

ANOVA Table

	Sum of Squares	df	F	p
Between Groups	113.60	3	.40	.7518
Within Groups	7721.24	82		
Total	7834.83	85		

p less than .05 is significant

TABLE 11  
 Analysis of Variance for Anxiety Difference Scores  
 by Income

Group	n	$\bar{X}$	sd
Less than \$5,000	5	-11.60	8.91
\$5,000-10,000	2	1.00	7.07
\$10,000-15,000	11	-8.91	6.49
\$15,000-20,000	14	-2.64	7.35
\$20,000-25,000	16	-3.19	10.62
\$25,000 or more	35	-3.45	8.76

ANOVA Table

	Sum of Squares	df	F	p
Between Groups	638.98	5	1.70	.1451
Within Groups	5794.45	77		
Total	6433.43	82		

p less than .05 is significant



TABLE 12

Analysis of Variance for Anxiety Difference Scores  
by Educational Level

Group	n	$\bar{X}$	sd
High School	12	-11.00	12.79
Some College	29	-6.00	11.12
College	21	-3.43	7.65
Graduate School	25	-1.72	5.15

ANOVA Table

	Sum of Squares	df	F	p
Between Groups	779.56	3	3.05	.0331*
Within Groups	7070.18	83		
Total	7849.74	86		

\* p less than .05 is significant

scores ( $F = 3.05$ ,  $p = .03$ ). As indicated in Table 12, women who terminated formal education with graduation from high school decreased the most in anxiety, followed by those who had some college education and those graduating from college, with women receiving graduate school education decreasing the least in anxiety. Racial background, income level, marital status, and time planned to breastfeed were not significantly related to decreases in anxiety or differences in anxiety change among groups.



TABLE 13

t-Tests for Mean Differences Between Anxiety Scores  
by Selected Demographic Variables

Satisfaction with Present Knowledge of Breastfeeding

Respondents	n	$\bar{X}$	sd	t	p
Yes	73	-4.26	9.62	1.24	.217
No	13	-7.85	9.29		

Receipt of Any Type of Instruction as Preparation  
for Breastfeeding Before Delivery

Respondents	n	$\bar{X}$	sd	t	p
Yes	76	-3.88	9.45	2.82	.006*
No	9	-13.11	7.64		

Received Nutritional Counseling  
for Breastfeeding Prenatally

Respondents	n	$\bar{X}$	sd	t	p
Yes	48	-4.25	9.31	.66	.512
No	37	-5.65	10.17		

Plans to Have Help at Home  
During the First Week(s) Postpartum

Respondents	n	$\bar{X}$	sd	t	p
Yes	73	-4.62	9.04	.57	.512
No	12	6.33	13.21		



TABLE 13 (continued)

Support Persons Available to Call for Advice  
on Breastfeeding Problems

Respondents	n	$\bar{X}$	sd	t	p
Yes	69	-3.75	8.84	2.81	.006*
No	14	-11.43	11.47		

Plan to Return to Work

Respondents	n	$\bar{X}$	sd	t	p
Yes	66	-5.56	9.47	-1.15	.255
No	18	-2.61	10.45		

Labor and Delivery Progress Met  
Prenatal Expectations

Respondents	n	$\bar{X}$	sd	t	p
Yes	25	-7.60	10.07	-1.78	.079
No	59	-3.54	9.32		

\* p less than .05 is significant

T-tests for difference between groups on mean anxiety difference scores were computed on other selected demographic variables: receipt of some type of prenatal instruction in breastfeeding, nutritional counseling for breastfeeding, plans to have help at home during the first week(s) postpartum, support persons available to call for advice on breastfeeding problems, plans to return to work, and labor and delivery progress meeting prenatal expectations. Of all findings indicated (Table 13), those relating receipt of some type of prenatal instruction in breastfeeding to decrease in anxiety were found to be significant. As nine out of 85 subjects indicated they had not received some type of prenatal instruction in breastfeeding, this group decreased most in anxiety.

Examination of differences between groups of subjects answering Yes and No to certain demographic questions yielded interesting results. As indicated in Figure 1, many more subjects answered Yes to questions 4, 5, 7, and 8 on the demographic questionnaire than were in the experimental group. This indicates that the majority of the sample, regardless of whether or not they received the experimental treatment of breastfeeding instruction, regarded their preparation for breastfeeding as adequate.

In summary, the hypothesis of the study was not supported as there was no statistically significant decrease in anxiety demonstrated by the experimental group. All respondents, regardless of treatment group, significantly



Question	Answer	
	Yes	No
4. Would you say your present knowledge of breastfeeding is satisfactory?	73	13
5. Did you receive any type of instruction for breastfeeding before you delivered?	63	24
7. Do you plan to have help at home during the first week(s)?	73	12
8. Do you have a support person you can call for advice on breastfeeding?	69	14

FIGURE 1

decreased in anxiety, with the control group decreasing more in anxiety than the experimental group. Relationships between age and educational level and difference in anxiety scores were found to be significant. The correlation between age and decrease in anxiety indicated that women in this study who were 27 years and older demonstrated significantly less state anxiety during initial efforts to breastfeed than women who were younger. Secondly, women who received graduate education had highest anxiety levels during initial efforts to breastfeed, with women with college education having less anxiety and high school graduates having the least anxiety during initial efforts to breastfeed their infants. Although a very small number of subjects indicated they had not received any type of





Instruction as preparation for breastfeeding, these women demonstrated significantly less anxiety in the initial postpartum period than the remaining majority.

Finally, data indicate that many women in the study, whether or not they received breastfeeding instruction (the experimental treatment) not only considered themselves prenatally prepared for breastfeeding and were satisfied with their present knowledge of breastfeeding but also had planned ahead for help and support in breastfeeding matters during the postpartum period.

## Chapter V

### DISCUSSION AND IMPLICATIONS

Data as presented in Chapter IV failed to support the study hypothesis that first-time mothers receiving prenatal instruction in breastfeeding would be less anxious during initial efforts to breastfeed than first-time mothers who did not receive prenatal instruction in breastfeeding. Findings in the opposite direction, that is women who did not receive the prenatal instruction in breastfeeding were far less anxious during initial efforts to breastfeed than the prenataally instructed group, are surprising. However, such findings may be explained in part by two areas often problematic in quasi-experimental research, i.e., maintaining adequate experimental control in the field setting and limiting extraneous variance, and internal validity of the research instrument.

#### The Problem of Experimental Control and Extraneous Variance

As indicated previously in the study, women recruited as subjects in this study were drawn from an already select pool, that is Lamaze method childbirth classes provided by a



major health maintenance organization in Northern California. Certain advantages and disadvantages became evident in this recruitment method. This yielded a convenience sample made up of a self-selected group of women who voluntarily attended prenatal classes. This method was selected so that the investigator could make scheduled visits to recruit subjects from this ongoing resource. Regardless of whether or not the participants in the study found themselves to be in the experimental group (those who attended the breastfeeding class) or the control group (those who did not attend the breastfeeding class), all could be characterized as placing a high value on preparation and thus were a rather select group. The investigator's hope was that this would serve to enhance pretest similarities within the sample and would highlight the experimental effect. However, it is possible that this similarity might obscure the effect of the treatment itself, since women not attending the breastfeeding clinic had opportunities and could be assumed to have the motivation to acquire knowledge and skills in preparation for breastfeeding from other sources.

Although the investigator made every attempt to approach Lamaze class participants and recruit potential subjects for the study during the same time frame within each series, this was not entirely within her control since recruitment was done at the convenience of the Lamaze instructors. Also, there was variability in terms of how



close these women were to full-term pregnancy and onset of labor, although all participants in the study completed the pretest while attending the prenatal Lamaze class series. As a result, many women took the pretest and attended the prenatal breastfeeding clinic session with weeks to go before delivery. Others barely managed to complete the Lamaze series, take the pretest and the clinic session before delivery. Thus it is possible that timing of the pretest may have influenced eventual post- minus pretest outcomes. Also, as the clinic session (experimental treatment) was presented as an option available to these women, with attendance and scheduling determined by subject convenience, wide variability existed in the time available for assimilation of information and mastery of the breastfeeding preparation techniques; this may also have affected the findings in relation to anxiety levels post-birth.

Further limitation of the study stems from difficulties in administration of the test instrument, specifically in the timing of administration of the posttest. In spite of consistent effort of the investigator to insure that subjects received the posttest and demographic questionnaire immediately after one of the initial efforts to breastfeed, the investigator needed to rely heavily upon staff compliance and initiative on the part of subjects in the study in order to accomplish this task. There was some variability in the timing of the posttest. Some subjects





completed the posttest immediately after the first breastfeeding experience in the maternal- infant recovery room. Others completed the test after feedings on the first, second, and third day postpartum. Nineteen subjects failed to complete the study because of lack of consistent staff support. Consequently, this could have prevented subjects in both groups from contributing to the test effect of the study.

Another important factor which may have contributed to unexpected findings in this study was the fact that, in exchange for access to subjects at this particular site, the investigator had agreed to make the clinical breastfeeding session available to women outside of the study and to serve as a free resource person available by telephone to women seeking help with breastfeeding problems regardless of attendance at the breastfeeding session. Thus, all potential subjects were informed of these services. Perhaps women's feelings of confidence in their ability to breastfeed may have been generated by the availability of support, thus minimizing the effect of the treatment and strengthening feelings of preparedness.

Further, there was evidence that most subjects in both control and experimental groups were satisfied with their knowledge of breastfeeding. Answers to specific demographic question indicate that many women acquired prenatal knowledge and preparation for breastfeeding from outside sources (books, the media, other groups such as La Leche



League). Because it was impossible to control acquisition of outside information and preparation for breastfeeding by both groups, one might logically conclude that there should have been no difference between groups in terms of the treatment effect, i.e., both groups received sufficient prenatal preparation and knowledge in breastfeeding so that the effect of the experimental treatment was minimal. In other words, the prenatal clinic session did not fill any gap in preparation that the women in the study could not have otherwise provided for themselves. Thus, while the test instrument measured decreases in anxiety, it is possible this anxiety was not necessarily related to the adequacy of preparation for breastfeeding.

Relationship of Measured Anxiety to  
Preparation for Breastfeeding

The reliability of the STAI (Spielberger State Anxiety Questionnaire) in measuring state anxiety has been well-established on this and other study populations. However, in view of several sources of extraneous variance mentioned earlier, it is difficult to determine the exact nature of the relationship between the treatment effect and anxiety as measured by the STAI. It is possible that sources of anxiety, such as elements of anxiety surrounding the birth of the baby (i.e., safety of delivery, ability to cope with labor, health of the newborn, initial responses to motherhood, etc.) contributed to the findings of this study.



One cannot conclude that the Spielberger test Instrument measured only anxiety related to breastfeeding.

#### Implications for Nursing Practice

Certain findings of this study provided much information about first-time mothers who intend to breastfeed their infants. Age and educational level were found to be significantly related to a post-birth decrease in anxiety level. Findings in the study indicated that women over the age of 27 years demonstrated less state anxiety during the postpartum period than those women who were under the age of 27 years. This may suggest that nurse professionals should target educational programs to meet needs of the younger age group.

In general, the sample of primiparas studied were well-educated, older women who were strongly motivated to breastfeed their infants. These women were also oriented toward preparation through formal classes. As the great majority of women indicated they had utilized a wide variety of educational resources to prepare themselves for childbirth and breastfeeding, including the prenatal clinic session, it is evident that these women perceived prenatal education as preparation for the tasks of breastfeeding and motherhood to be valuable and that prenatal support for breastfeeding was important to their feelings of breastfeeding competency.



It should also be noted that most women had initiated mechanisms in the prenatal period which were to support them in their breastfeeding after birth. Well over half of the sample were women who planned to return to work outside the home after delivery. Nearly all women indicated in the prenatal period they had already selected friends, relatives, and professionals as support persons to help at home and provide needed advice on breastfeeding during the post-delivery weeks and months. This is positive evidence of women's need to relieve anxieties surrounding competency in childbirth and breastfeeding during the prenatal period and to secure adequate support for themselves. Although the prenatal breastfeeding clinic session could not be linked with evidence of decrease in anxiety, it is clear that factors were operating in the prenatal period to change anxiety response during the postpartum period. For those seeking to help women acquire competence and confidence in breastfeeding, programs offered women during the prenatal period may well strengthen the possibility of success.

#### Implications for Future Research

Despite the inconclusive findings and methodological difficulties encountered in this study, some discussion of the direction of future research is still appropriate.

The fact that the total sample in the study was a self-selected sample, in that they were highly oriented toward self-initiated preparation, may have diminished the effect





of the experimental treatment. As this sample was so highly educated and preparation-oriented, it was difficult to control for other sources of breastfeeding information which might have caused a decrease in anxiety in either the experimental or control group. It would be interesting to replicate this study with a population less oriented toward preparation and with greater ethnic and socioeconomic diversity.

The inconsistent timing of self-administration of the posttest may have contributed to the unexpected findings. Close supervision is necessary to assure consistent timing of performance which would, in turn, assure that state anxiety being measured is in fact associated with efforts to breastfeed.

It would be of value to replicate this study in research situations where sources of extraneous variance could be better controlled and with a more diversified sample, since the hypothesis cannot be said to have been adequately tested here. Additional research would contribute to the still inadequate knowledge of factors which contribute to breastfeeding success. Further knowledge is needed to provide a basis for effective educational programs to assist women to breastfeed their infants with insured capability and feelings of confidence.



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APPENDIX A

CONSENT FORMS

A-1

Statement of Access

A-2

Statement of Instructor Giving Consent to Access

A-3

Subject's Consent to Participate In a Research Study

STATEMENT OF ACCESS

It is the intent of this researcher to contact Lamaze instructors, teaching in the same hospital where the subjects plan to deliver, and to request their verbal consent to allow access to their clients as prospective "experimental group" subjects in this study. The study will be explained in detail to each instructor. Provided each instructor is willing to allow the researcher to speak to her clients about the study, the researcher will then plan to meet with the class. All instructors will have informed their classes about the study and about the researcher's forthcoming visit.



STATEMENT OF INSTRUCTOR GIVING CONSENT TO ACCESS

I, \_\_\_\_\_, a certified Lamaze Instructor, teaching at \_\_\_\_\_ Hospital, have been informed of the study on breastfeeding to be conducted by Diane Merchant, a nurse-researcher at the University of California School of Nursing. Diane Merchant has my consent to gain access to clients enrolled in my class who may qualify as subjects in her study and who have volunteered to participate by means of informed consent, having voluntarily signed the consent form provided by the researcher.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



UNIVERSITY OF CALIFORNIA, SAN FRANCISCO  
CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Diane Merchant, a graduate student nurse-researcher at the UCSF School of Nursing, is doing a study to learn about the effect of prenatal instruction in breastfeeding among first-time mothers during the prenatal and immediate postpartum periods.

---

Participation in this study involves filling out two separate questionnaires about yourself and breastfeeding your baby. The first questionnaire will be given on two separate occasions: 1) as a pretest before delivery and 2) as a posttest after the first scheduled breastfeeding in the hospital. Completion of this questionnaire will take less than 10 minutes. The second questionnaire will accompany the posttest. Completion of this questionnaire will take approximately 5 minutes. I do not have to put my name on the questionnaires, and there will be no way to connect my answers with me or my baby after I have returned each questionnaire.

Some of the questions on the questionnaires may be puzzling or disturbing to me. I understand that I do not have to finish the questionnaires if I decide I don't want to. There will be no direct benefit to me from filling out the questionnaires



This study may provide health professionals with more information about how prenatal instruction in breastfeeding affects the responses of first-time mothers during initial efforts to breastfeed.

The nurse-researcher has spoken to me about this study, has given me a copy of this form to keep, and has answered my questions. If I have other questions, I may contact Diane Merchant at 849-2669. In addition, I may contact the Committee on Human Research which is concerned with the protection of research subjects by calling (415) 666-1814 during work hours or by writing them at the University of California, San Francisco, CA 94143.

Participation in research is voluntary. I understand I can refuse to fill out the questionnaires, or can withdraw from participation at any time, without jeopardy to me or to the treatment my baby will receive.

---

Signature

---

Date





APPENDIX B

INSTRUMENTS

B-1

STAI Form X-1 Pretest and Posttest

B-2

Demographic Questionnaire

SELF-EVALUATION QUESTIONNAIRE

(Pretest and Posttest)

Developed by C.D. Spielberger, R.L. Gorsuch, and R. Lushene

STAI Form X-1

NAME \_\_\_\_\_

Date \_\_\_\_\_

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best. 1 = Not at all; 2 = Somewhat; 3 = Moderately so; 4 = Very much so

- |  |   |   |   |   |
|--|---|---|---|---|
| 1. I feel calm                                       | 1 | 2 | 3 | 4 |
| 2. I feel secure                                     | 1 | 2 | 3 | 4 |
| 3. I am tense  | 1 | 2 | 3 | 4 |
| 4. I am regretful                                    | 1 | 2 | 3 | 4 |
| 5. I feel at ease                                    | 1 | 2 | 3 | 4 |
| 6. I feel upset                                      | 1 | 2 | 3 | 4 |
| 7. I am presently worrying over possible misfortunes | 1 | 2 | 3 | 4 |
| 8. I feel rested                                     | 1 | 2 | 3 | 4 |
| 9. I feel anxious                                    | 1 | 2 | 3 | 4 |
| 10. I feel comfortable                               | 1 | 2 | 3 | 4 |
| 11. I feel self-confident                            | 1 | 2 | 3 | 4 |
| 12. I feel nervous                                   | 1 | 2 | 3 | 4 |
| 13. I am jittery                                     | 1 | 2 | 3 | 4 |



14.	I feel "high strung"	1	2	3	4
15.	I am relaxed	1	2	3	4
16.	I feel content	1	2	3	4
17.	I am worried	1	2	3	4
18.	I feel over-excited and "rattled"	1	2	3	4
19.	I feel joyful	1	2	3	4
20.	I feel pleasant	1	2	3	4

DEMOGRAPHIC QUESTIONNAIRE

Name \_\_\_\_\_

Date of delivery \_\_\_\_\_

Date today \_\_\_\_\_

1. Age \_\_\_\_\_

Please circle the best answer and/or fill in the blanks

2. Race:      Black      Hispanic      Asian      Caucasian      Other

3. Sex of baby:              Male      Female

4. Would you say your present knowledge of breastfeeding  
is satisfactory?

Yes      No

5. Did you receive any type of instruction as preparation  
for breastfeeding before you delivered?

Yes      No

If so, from whom?

Nurse      Breastfeeding Clinic Session      Mother      Sister  
Friend      Childbirth Instructor      Other \_\_\_\_\_

6. Have you had nutrition counseling for breastfeeding?

Yes      No

If so, from whom? \_\_\_\_\_

7. Do you plan to have help at home during the first week(s)?

Yes      No

If so, who will be helping you? \_\_\_\_\_



8. Do you have a support person you can call for advice on breastfeeding?

Yes No

If so, who will that person be? \_\_\_\_\_

9. Do you plan to return to work?

Yes No

If so, how soon? \_\_\_\_\_

10. I plan to breastfeed:                    less than 6 weeks  
    6 weeks  
    6-8 weeks  
    3-6 months  
    7-10 months  
    11 months or longer  
    Undecided

11. Did your labor and delivery progress as you thought it would?

Yes No

If not, please explain \_\_\_\_\_

\_\_\_\_\_

12. married    separated    single    divorced    unmarried and living with partner

13. Annual income:            less than \$5,000  
    \$5,000 to 10,000  
    \$10,000 to 15,000  
    \$15,000 to 20,000  
    \$20,000 to 25,000  
    more than 25,000

14. Circle last grade completed

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Grammar School

High School

College

Graduate School





APPENDIX C

TEACHING AIDS

C-1

Possible Problems/Complications Associated  
with Breastfeeding: Steps for Management

C-2

Nutritional Guide and Recipes

C-3

Answers to Commonly Asked Questions  
on Breastfeeding Your Baby

C-4

Protocol for Breastfeeding Preparation Techniques

C-5

Handout on Lloyd-B-Pump

C-6

Teaching Aids: Summary of Content and References

POSSIBLE PROBLEMS/COMPLICATIONS ASSOCIATED  
WITH BREASTFEEDING: STEPS FOR MANAGEMENT

1. Engorgement: Overfull breasts when milk comes in. Involves congestion and increased vascularity of breasts. Primiparas usually experience some discomfort.

Management:

- a. gentle manual expression by mother to produce a small amount of flow and soften the areola
- b. when putting baby to breast, compress the areola between two fingers to make it easier for the baby to grasp the nipple
- c. during second 24-hour period following delivery, wear a well-fitting adjustable bra (no plastic lining or too thin straps). Wear all the time.
- d. warm shower/bath or hot towel compresses will help to ease discomfort and facilitate let-down reflex
- e. hand express enough breast-milk to ease discomfort only

2. Cracked nipples: (also sore, painful nipples)

Management:

- a. examine the breast, nipple, nursing scene
- b. A and D ointment or hydrous lanolin are all right to put on cracked areas (also Massé cream)
- c. manual expression of milk to maintain stimulation
- d. breastfeed on unaffected breast first with affected side exposed to the air
- e. apply dry heat 20 minutes, four times per day, with a 60-Watt bulb, 18 inches away from nipple
- f. if needed, aspirin is all right after breastfeeding baby



- g. nipple shield is all right if necessary
- h. be sure to position baby carefully on breast

3. Mastitis: an infectious process in the breast. Produces local tenderness, redness, heat, fever, sometimes nausea and vomiting. Rarely occurs in the hospital. Usually comes 2-3 weeks post-delivery.

Management: a. bed rest

b. antibiotics

c. continue to nurse on both breasts, unaffected side first while affected side "lets-down"

d. ice packs or warm packs to the breast for comfort

e. aspirin is all right

f. wear a support bra that does not cause painful pressure

4. Leaking breasts: may occur between feedings and at night. Usually due to the let-down reflex.

Management: a. breast pads placed inside bra will absorb excess leakage. Replace often.

5. Large nipples: occasionally a problem with a small infant or an infant with an indecisive suck.

Management: a. best to use manual expression which will soften nipple prior to putting the infant to breast

b. work patiently with infant

6. Small or flat nipples

Management: a. flatten the breast and areola between two fingers to provide as much nipple as possible when assisting infant to take hold

b. use a nipple shield only to draw nipple out; then remove for the rest of the feeding



7. Inability to relax

Management: a. privacy vs public breastfeeding

b. adequate rest during day - sleep when the baby is sleeping

c. beer, wine before feeding time - moderate amount

d. relaxed position for feeding - pillows, support to back and feet

e. sipping nonalcoholic beverage while feeding baby

8. Breast-milk Jaundice (In the Infant)

This is not common - only 1 in 2000 infants get this.

Management: a. doctor diagnosis/management

b. discontinue breastfeeding until bilirubin level drops

Ideopathic Jaundice (In the Infant): peaks on the 3rd day after delivery and then drops. If level of bilirubin does not drop, phototherapy is usually given during infant's hospital stay.

Management: a. doctor management

b. you may or may not be required to discontinue breastfeeding for period of time

c. phototherapy for infant





NUTRITIONAL GUIDE AND RECIPES

Recipes and food guides utilized in this study  
were prepared by:

Barbara Abrams, RD, MPH  
UCSF Obstetric Clinic, 1979

Adapted from California State Food Guide for Pregnancy  
California Department of Health, 1975



NUTRITION SERVICES  
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO  
DEPARTMENT OF OBSTETRICS

Eating an optimal diet during your pregnancy will give your baby the very best nutrition and help you to feel really healthy. A well-nourished woman also looks her best. Since it is difficult to change food habits, we offer classes and counseling to assist you in learning how to choose and prepare food that is both nutritious and enjoyable.

Nutrition information is available as part of each CLINIC ORIENTATION class.

The PRENATAL NUTRITION CLASS provides an explanation of the suggested prenatal diet, ways to integrate the food guide into your lifestyle, recipes and literature to take home. There is time for discussion and questions.

For those with special problems or individual concerns, INDIVIDUAL COUNSELING is also available on a limited basis.

The INFANT NUTRITION CLASS offers practical approaches to feeding infants and young children.

To take advantage of any of these services, make an appointment in the reception area.

If there is any one time in life when your diet makes a difference, this is it! We hope our Nutrition Program will help to make your pregnancy a healthy and enjoyable experience.

SUGGESTED READING:  
BOOKS ON GOOD NUTRITION AND HEALTHY COOKING

Many books are available which provide information on how to plan and cook good food. We will provide you with a detailed diet guide as part of your participation in our Nutrition Program. The following books provide easy to understand and useful information on healthful eating and cooking.

Brewer, G. WHAT EVERY PREGNANT WOMAN SHOULD KNOW.

Castle, C. THE ART OF COOKING FOR TWO

Dinaburg, K. NUTRITION SURVIVAL KIT

Goldbeck, N. SUPERMARKET HANDBOOK  
DIETERS COMPANION

Hewitt, J. THE NEW YORK TIMES NATURAL FOODS COOKBOOK

Lappe, F. DIET FOR A SMALL PLANET

Robertson, L. LAUREL'S KITCHEN

Williams, P. NOURISHING YOUR UNBORN CHILD

# WAYS TO USE MILK

## Yogurt Shake

In a blender combine:

- 1C plain yogurt
- 1C orange juice
- 1/4C wheat germ
- 1C strawberries
- 1T honey (to taste)

*Contains:* 470 calories  
24 g protein  
620 mg calcium

*Provides:* 1 serving milk  
2 servings Vit C  
2 servings whole grains

## Banana Almond Smoothie

In a blender combine:

- 1/3C nonfat milk powder
- 1C fluid milk
- 1 banana
- 1/4C almonds (20 or so)
- almond extract to taste
- ice cubes

*Contains:* 370 calories  
25 g protein  
630 mg calcium

*Provides:* 2 servings milk  
1/2 serving protein  
1 serving other fruit

## Carob Cooler

In a blender combine:

- 1-1/2t blackstrap molasses
- 5 almonds (1T chpd)
- 1T carob flour
- 1/3C nonfat milk powder
- 1/8t cinnamon
- pinch allspice or clove
- vanilla to taste
- 1/4C water
- 4-5 ice cubes, broken

*Contains:* 160 calories  
10 g protein  
410 mg calcium

*Provides:* 1 serving milk  
high in iron!



Cut up raw vegetables like carrots, celery, cucumber, radish and turnip, or even better, use vitamin-rich broccoli and cauliflower to dip in these yogurt dips.

## Tuna Yogurt Dip

Mix together:

- 1 can tuna drained (7oz)
- 1T horseradish
- 1-1/2t onion salt
- 1t Worcestershire
- 1C plain yogurt
- 1/4C chopped parsley

*Yield:* 1-1/2C = 425 cal.  
(1T = 18 calories;  
2.5 g protein)

## Onion Yogurt Dip

Mix together:

- 1 pint plain yogurt
- 1 pkg. onion soup mix
- 2T drained pickle relish
- 1T lemon juice

*Yield:* 2C = 420 cal.  
(1T = 12 cal.;  
.8 g prot.)

## Spinach Lime Dip

Mix together in blender:

- 1 bunch fresh spinach  
cleaned & chopped
- or
- 1 10oz pkg frozen chopped  
spinach
- 1 lime, juice & pulp
- salt to taste
- pepper to taste
- 1 pint plain yogurt

*Yield:* 3-1/2C = 350 cal.  
(1T = 7 calories;  
.5 g protein)

(continued on other side)

TORIILLAS ★ LEAFY GREEN VEGETABLES: ASPARAGUS, BOK CHOY, BROCCOLI, CABBAGE, DARK GREEN LETTUCE ★ VIT C RICH: ORANGE & TOMATO JUICE, GRAPEFRUIT, CANTALOUPE, BOK CHOY, CABBAGE, GREENS PEPPERS ★ PROTEIN: MEATS, EGGS, FISH, TOFU, NUTS, CHEESE, POULTRY, DRIED BEANS ★ MILK ★ WHOLE GRAIN BREADS, CEREALS, RICE, PASTA

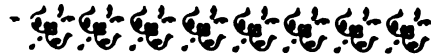
## Strawberry Yogurt

1 C fresh strawberries or  
1 pkg frozen strawberries without sugar  
1/2C apple juice  
1/2C raisins  
2C plain yogurt

### Other fruit mixtures:

apples, cinnamon, raisins  
bananas and vanilla  
canned peaches in juice  
...etc.

Cook the raisins in the apple juice about 5 minutes. Add the juice, raisins and strawberries to 1 cup of the yogurt. Puree in a blender or mixer. Add this mixture to the other cup of yogurt and blend together.



## ADDING NONFAT DRY MILK TO OTHER FOODS

Yogurt: When you make yogurt at home, you can use 1-1/2 times the amount of dry milk called for in the recipe. The yogurt may not be as firm as that made with regular fluid milk.

Meat Loaf: Add 1/2 to 3/4 cups nonfat dry milk per pound of meat in your favorite recipe. It may be combined with the meat, liquid or crumbs.

Mashed potatoes: Sprinkle 1/3 cup nonfat dry milk over 2 cups of mashed potatoes. Blend well using cooking water to give right consistency. Then season with salt, pepper and add butter or margarine. *Note: You can also use the nonfat milk substitution with other mashed vegetables such as carrots, squash, rutabagas, turnips, etc.*

Sauces, gravies, soups: Stir 1/4 cup nonfat dry milk into 1 cup of cool fluid or other liquid in recipe.

Hot cereal: Mix together equal measures of nonfat dry milk and cereal before cooking, then cook as directed on the package. For an extra touch try adding raisins, sliced almonds, brown sugar or honey, wheat germ, sunflower seeds or any fruit that appeals to your taste and budget.

## ANSWERS TO COMMONLY ASKED QUESTIONS ON BREASTFEEDING YOUR BABY

Your breast milk is the perfect food for your baby. It will help protect your baby against disease, infection, allergies, and tooth decay.

Most women enjoy breastfeeding and have plenty of milk for their babies if they follow the suggestions in this handout. Breastfeeding will not make you lose your figure. However, you will be much more comfortable if you wear a good supporting nursing bra.

Your new baby may not be very hungry in the first few days and may sleep most of the time. During this time, the yellow oily fluid in your breasts called colostrum may satisfy his hunger. Colostrum is important to your baby's health. However, some mothers will have to supplement the baby's diet with water or formula until their milk comes in. When your milk comes in your breasts may feel tender and full. As you continue to nurse, this feeling will usually disappear by itself.

Babies often lose weight in the beginning. The doctors or nurses will tell you if your baby has lost an excessive amount of weight. Babies usually gain back this weight within two weeks after your milk comes in. If you have any questions which are not answered in this handout, ask your doctor or the nursery nurses.

### NURSING IN THE HOSPITAL

Wash your hands before you breastfeed baby. This helps to protect your baby from infection. Before you feed, make yourself comfortable so you will be relaxed. Hold your baby so his head is a little higher than his tummy. You may prefer to nurse lying down. If you sit up to nurse, it helps to put a pillow on your lap under your baby.

Help your baby to start nursing. Gently squeeze the darker area around the nipple. This helps your baby get most of the area around the nipple into his mouth. The baby should not have just the nipple in his mouth. Once he starts sucking, let go so the milk can flow freely.

If your breast is full and firm, use one finger to press your breast away from your baby's nose so he can breathe.

Try to use both breasts at feeding time. However, don't worry if your baby won't take the second breast. Nurse 2 to 3 minutes (total time - 5-6 minutes for the first day or 24 hours of breast feeding) on each side. The second day,



Increase to 4-5 minutes to each side or 10 minutes total time for each feeding. The third day, increase to 15 minutes total time (7-8 minutes on each side). Fourth day - 20 minutes, fifth day - 25 minutes, sixth day - 30 minutes. If you experience some soreness of your nipples, do not feed as long on each side, or alternate feedings from your breasts with bottle-feeding.

Alternate the breast you start feeding with at each feeding. You can use a safety pin in your bra straps to remind you which breast to start on the next time you feed.

Never pull your nipple from your baby's mouth. This will cause your nipple to get sore. You can break his suction if you lift the corner of his mouth or put your clean finger into the corner of his mouth.

You should try and nurse your baby at each feeding. Night feedings help to bring your milk in quicker. The sooner you nurse, the less swelling you may have.

Breast milk looks thin and watery (like skim milk) after it comes in. It is still the best food for your baby.

When your breasts get softer and more normal in size, this does not mean that you have lost your milk. It means that the swelling has gone down.

After your breastfeeding is going well, you can give your baby a bottle once in a while if you are away. But remember, you will want to nurse as soon as you get home to relieve the fullness of your breasts. Leave just enough breast milk or formula to satisfy your baby until you get home. If you will be gone 6-8 hours, express your milk by hand or use a breast pump while you are away to prevent your breasts from filling and caking. If you plan to work and still want to nurse, see paragraph on "Working Mother".

Very loose stools are normal for a breastfeeding baby. Some babies dirty a diaper at each feeding. Other babies might go 5 days or more without dirtying a diaper - both are normal. Breastfeeding babies usually do not get constipated if they are not getting solid food.

Drink water or fluids for two. Make a habit of drinking a glass of water (8 oz.), juice, or milk before or while you breastfeed your baby. Don't overdo on "no-calorie" drinks, coke, or coffee. There is no particular drink (or food) that will help you make more milk - in other words, it is not necessary for you to drink milk to make milk.

Six or more wet diapers a day of pale urine will show you that your baby is getting enough milk. (This isn't a good way to judge if you give lots of water.)





Sleepy baby. Sometimes a baby seems happy to nurse only every 4-5 hours but doesn't gain weight. This baby should be encouraged to nurse more often. This is especially true in the first few weeks at home.

Company and excitement sometimes hold back the flow of breast milk. To get back to normal, nurse a little more often for the next few feedings.

Rest as much as you can for the first few weeks. You will get off to a better start at breastfeeding. If you have help, let that person take care of the house while you take care of your baby. Take a nap when the baby is sleeping and whenever you can, especially in the first few weeks.

You can nurse without being noticed if you wear a blouse or sweater that buttons down the front or that you can lift from the waist while you nurse. Light blankets that give ventilation so that the baby gets some air conceal nicely too.

To stop leaking, push the heel of your hand against your nipple until the tingling feeling stops. Leaking is usually only temporary.

Stop the feeding if your baby clamps down on your nipple with his gums, even though this usually doesn't hurt. This will train him not to bite when he does get teeth.

Check with your baby's doctor or clinic before taking any medicine or drugs as long as you are breastfeeding. Taking medication is not a reason to stop breastfeeding. Some laxatives and other medicines for the mother might upset her breastfeeding baby. Cold or allergy pills could make you lose your milk.

During the first few weeks after your milk comes in, the baby may not feed enough to empty your breasts completely. If you are still uncomfortable after completing a feeding, it may help to remove some of the milk from your breasts by hand expression or with a breast pump and discard it. Do this only if you feel uncomfortable, for even when the baby nurses completely you may always express some milk from your breasts. This does not mean the baby is not getting enough to eat. The secret to successful breastfeeding is to keep the milk flowing. Do not allow the milk to stagnate in the breast; removal of the milk stimulates more milk production.

Burp your baby after breastfeeding. Pat him gently on the back. Some babies need to be burped during a feeding. Others don't need to be burped at all.



Leave the flaps of your nursing bra down for awhile after you have nursed. Air helps to heal nipples. Take out any plastic lining from your bra so your nipples will get more air. Any tenderness will soon go away by itself.

Don't be worried if you feel cramps during early breast-feeding. This is the way nature gets your uterus back into its normal size.

Don't be discouraged from nursing your baby. Be patient - people sometimes try to talk you out of doing something they couldn't or wouldn't do. If they did not do well at breast-feeding, it does not mean you cannot do it. The vast majority of women who really want to can successfully breastfeed. To successfully breastfeed you must be comfortable and enjoy the experience and gain confidence. The size of the breast does not dictate the amount of milk it is able to produce. The infant must likewise enjoy the experience and gain weight well.

Wash your hands before each nursing. You do not need to use soap, alcohol, or tincture of benzoin on your nipples at home.

Use both breasts at each feeding to be sure your baby gets enough milk. A breast is never really "empty", but most of the milk is gone after 10-15 minutes total time of nursing. Changing the side you start with at each feeding will keep both breasts producing the same amount of milk.

New babies sometimes fall asleep after nursing from the first breast. Change his diaper to wake him up a little - then he will usually nurse himself to sleep on the second breast.

Remember, over 90% of the milk taken during a feeding is taken within the first 5-30 minutes of breastfeeding. A busy mother with a house to run can stop after 30 minutes even if the infant seems to want to continue.

Birth control. After 4-6 weeks you can be started on birth control pills without any decrease in your breast milk supply. If sexual intercourse is begun before that time, you must remember to use other means of birth control if you wish to space your children. Contrary to folklore, breast-feeding does not protect you against pregnancy.

There is usually no reason to give up any wholesome food while you are breastfeeding. Babies are not allergic to or bothered by breast-milk itself. Once in a while a baby may be bothered by something you eat. Do not give up any food unless it regularly bothers your baby. Eating those foods you like in moderation is a good rule to go by.



A healthy diet is important to breastfeeding. A poor diet will make you feel tired. Vegetables, fruits, eggs, milk, meat, and fish are good for you especially while you are breastfeeding. Breastfeeding will not make you put on weight - but cake, candy, and soft drinks will.

Babies often have hunger stages in the early months. This often happens when the baby is around 5-6 weeks old and again at around 3 months old. If your baby begins to act fussy or hungry and chews his fist, it doesn't mean that you have lost your milk. Nurse more often for a few days - as often as every 3 hours during the day. Your baby's extra sucking will build up your milk supply to the amount your baby needs. Then he will go longer between feedings. If you give a regular bottle at this time, it may begin to cut down on your milk supply.

Don't rush solid foods. Most babies have some fussy times during the day or evening that are not necessarily due to hunger. If you give solid foods too early it will make your baby less eager to suck strongly. Strong sucking is important. It will keep up your milk supply. When you do give solids, go slowly and always breastfeed first to keep up your milk supply.

Even in the later months, you can build up your milk supply if you nurse more often for a few days. If you give your baby less solid food for a few days, he will want to nurse more often.

A rash of little pimples on your baby's face or body may be caused by poorly rinsed laundry - especially if you have hard water. Try using a mild detergent. Measure the amount and rinse well. This will prevent soap film from building up on the baby's clothes and sheets. Blocked pores on the face and forehead are aggravated by the application of any oil or oil-based ointment to the head, hair, or face. This can be further aggravated by getting food on the face and by sweating from being overly dressed. If this rash occurs, then wash the face with baby soap and water several times daily and rinse off the soap well.

Continue to breastfeed if you have your period. Your baby may act fussy for the first day or two if you have a period. Your period will not change the quality of your breast milk.

A working mother can breastfeed. Your baby needs your warmth and affection especially in the early months. If you go back to work, you can still nurse your baby during the hours you are home. Your clinic nurse can teach you how to pump your breasts until your breasts have adjusted to your new schedule. This will also help you to keep your milk supply up.



Weaning can be comfortable if you wean gradually. When you and your baby decide it is time to wean, offer your baby milk in a bottle or cup in place of the breast feeding in which your baby seems to be losing interest (the time period). About every 7 days offer another bottle or cup feeding for another breast feeding until your milk has gone. Go slower at this if you or your baby are uncomfortable. Your doctor or clinic will tell you if you should offer bottle or cup feedings. This will depend on the age of the baby.

If you should stop breastfeeding before age 5-6 months, you should put your baby on a prepared formula. If you stop after that time, you may go directly to homogenized milk.

Special note: Getting started at breastfeeding is often more comfortable if a simple nipple exercise is started about 2 months before the baby is due.

EXERCISE: Twice daily, hold each nipple at its base and pull gently but firmly forward. Then turn the nipple until you feel the pull (don't hurt yourself).





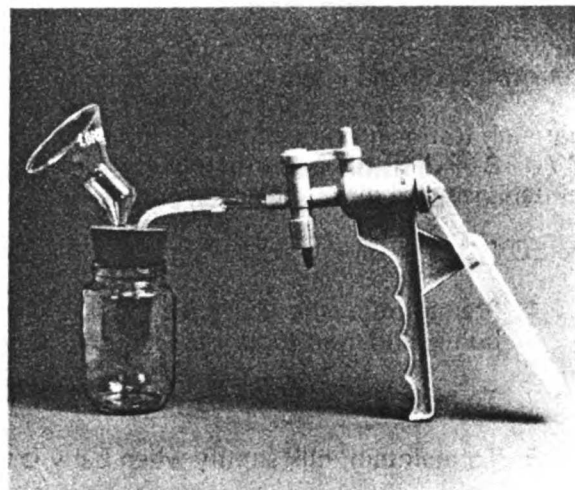
## PROTOCOL FOR BREASTFEEDING PREPARATION TECHNIQUES

1. Wash hands
2. A and D Ointment or hydrolized lanolin worked into the hands, then gently applied to the breasts
3. Breast massage technique
4. Nipple stretching/pulling
5. Nipple rolling
6. Expression of colostrum technique (same as manual expression of breast-milk)

It is best to do the above procedures at least once daily and not more than twice daily during the last two weeks before delivery date. Exposure of the breasts and nipples to air (and sunshine) will also help to toughen nipples for breastfeeding. Bathing should be as usual, with minimal or no soap directly to the nipple and thorough rinsing. It is all right to buff the nipples with a soft towel when drying off the breasts. Do not put any drying agents on the nipples (alcohol, etc.) as they may cause the nipples to become cracked during breastfeeding.



8-6



**THE LOYD-B-PUMP**  
by  
**LOPUCO, LTD.**  
Patented 1974

The first low cost, efficient non-electric breast pump.

The first practical, large volume hand operated breast pump.

The LOYD-B-PUMP, manufactured by:

LOPUCO, Ltd.  
1615 Old Annapolis Road  
Woodbine, Maryland 21797

Available from:

*Jean E. Zelazo*  
*(415) 934-1773*

The LOYD-B-PUMP is the result of 8 years of breast pump development, testing and manufacture of electric and hand operated breast pumps.

Thorough testing in co-operation with the Blue Ridge-Potomac area La Leche League has shown the LOYD-B-PUMP to be as efficient as electric pumps. Efficiency without the cost, size, noise, and maintenance problems of electric pumps.

The LOYD-B-PUMP was developed to be a low cost aid in the following situations:

1. Premature births where the mother wishes to have an established milk supply when baby comes home, and even supply breast milk to baby while it is in the hospital.
2. To maintain milk supply when baby must be away from mother due to illness in either one.
3. To maintain milk supply when baby is taken off the breast for any reason.
4. To encourage and establish lactation or relactation in both natural and adopting mothers.
5. To enable working mothers to pump their breasts while at work and continue a nursing relationship with baby at home.

The LOYD-B-PUMP should not be confused with bulb, water vacuum, mouth vacuum, or syringe types of breast pumps. You will find the LOYD-B-PUMP works and can be used anywhere, anytime. It is easily carried in a purse.

The LOYD-B-PUMP is quickly cleaned and sterilized. All parts in contact with milk are surgical quality materials and easily sterilized by boiling or autoclaving.

\*\*\*\*\*

Hospitals purchase LOYD-B-PUMPS for use by their patients.

Doctors purchase LOYD-B-PUMPS for office use and prescribe it for their patients use at home. When prescribed, most medical plans pay for the entire cost of the pump.

\*\*\*\*\*

Quaranty: 90 days; repair or replace for defect, no charge.

The LOYD-B-PUMP is manufactured and distributed ONLY by LOPUCO, LTD.

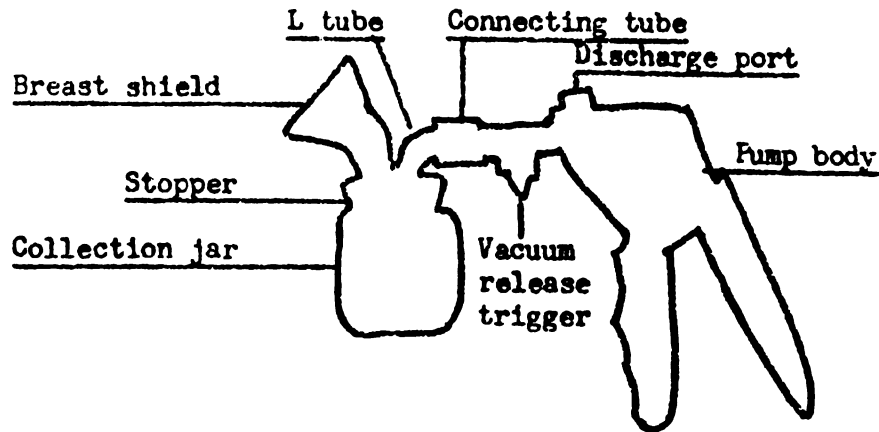
For information or counselling concerning the use of the LOYD-B-PUMP call:

Patrick or Peggy Loyd  
Phone AC 301-489-4949

THE LOYD-B-PUMP  
Patented 1974

By LOPUCO, LTD.

Read instructions carefully  
to insure proper operation  
and service life.



To operate pump:

1. Make sure all connections are tight, including stopper lid on collection jar. The vacuum release trigger should be in the center position.
2. Place breast shield over nipple area of breast so there is complete contact around rim of breast shield. Nipple should be centered in shield.
3. Squeeze pump 3 - 4 times to initiate vacuum. (If no vacuum at this time, make sure breast is sealed to breast shield, all connections tight, and vacuum release trigger is centered.)
4. The amount of vacuum needed is variable. Further pumping will increase the amount of vacuum and flow of milk. Too much vacuum may cause discomfort. If so, GENTLY pull vacuum release trigger and pump again until comfortable vacuum level is reached.
5. To prevent milk from being pulled into pump, keep collection jar level and **DO NOT OVERFILL.**
6. To withdraw shield from breast, GENTLY pull vacuum release trigger.

**NOTICE: LOPUCO LTD. cannot be responsible for abuse or misuse of the LOYD-B-PUMP.  
Please read the following carefully to prevent malfunction and/or breakage.**

Milk pulled into the pump body, if not flushed out, can cause malfunction and eventually damage to the pump body. Should milk be pulled into pump body, disconnect collection unit. Place nozzle into container of cold water and pump, pulling water through the pump and out discharge port. Continue pumping until discharged water is clear. Remove pump nozzle from water and continue pumping until water is discharged from pump.

To sterilize collection unit, disconnect the unit from pump at connector tube. Place collection jar and stopper with breast shield and L tube in boiling water for 15 minutes. There is no need to remove shield from stopper. **DO NOT BOIL PUMP BODY.**

The collection jar is a vegetable baby food size available anywhere.

The breast shield is handblown, annealed Pyrex glass. If shield should be removed from stopper, cover shield with heavy cloth to prevent injury to hand. Replacement shields are available from LOPUCO, LTD. Cost: \$11.00, shipping and handling included.

Counselling and LOYD-B-PUMPS available from:

LOYD-B-PUMP  
Breast Pump Sales & Information  
Jean F. Zelazo, R. N.  
Walnut Creek  
(415) 934-1773

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TEACHING AIDS

Summary of Content and References

1. Nutritional Guide and Recipes for Breastfeeding

Pregnancy Guide

Ways to Use Milk

Recipes for Adding Nonfat Dry Milk to Other Foods

The above items provide information for adequate nutrition during pregnancy, as recommended by the State of California/California Department of Health, 1975

2. Possible Problems/Complications Associated with Breast-feeding: Steps for Management

This handout describes, in brief, common discomforts, problems/complications experienced by women who breastfeed. Engorgement, cracked/painful nipples, mastitis, leaking breasts, problematic nipples, tension, breast-milk jaundice, and idiopathic jaundice are defined. Suggested steps for identification and management are listed. The information is taken from: Lawrence, Ruth A. Breastfeeding: A guide for the medical profession. St. Louis: C.V. Mosby Company, 1980, pp. 109-134.

3. Protocol for Breastfeeding Preparation Techniques

The steps listed on this handout present the proper order in which breastfeeding preparation techniques





are to be practiced. This information is to be used as a reference for techniques demonstrated in the clinic session. The information describing proper techniques of breast preparation - nipple preparation, nipple conditioning, breast massage, and hand expression - is taken from:

Ewy, Donna and Roger. Preparation for breast feeding. Garden City, NY: Dolphin Books, 1975, pp. 41-43.

4. Handout on the Lloyd-B-Pump, by LOPUCO, Ltd., patented 1974.

A copy of the flyer distributed to salespersons distributing this highly recommended pump provides a picture of the pump and diagram and instructions for use. The design of this pump was compared with other hand-pump designs currently available to consumers. These flyers, plus further information or counseling concerning the use of the Lloyd-B-Pump, may be received by calling: Patrick or Peggy Lloyd

(301) 489-4949

The Lloyd-B-Pump is manufactured by:

LOPUCO, Ltd.

1615 Old Annapolis Road

Woodbine, MD 21797



5. Copy of article, "Yes, you can keep on nursing your child after you go back to work", Glamour Magazine, November 1980.

This article, written by Susan Katz, gives anecdotal accounts of women's experiences with nursing their children and working, as well as providing information on how to express milk, when to express milk, where to do it, cooling and storing milk, and making it easy! Advice related in the article includes quotes from several physicians as well.

6. Answers to Commonly Asked Questions on Breastfeeding Your Baby

This six-page handout is a compilation of selected pieces of information taken from physicians' (pediatricians) lectures to women attending prenatal clinic sessions, Naval Regional Medical Center, Oakland, CA, 1974.

All of this information is available upon request from:

Diane C. Merchant  
18 Alvarado Road  
Berkeley, CA 94705



APPENDIX D

MOTHER AND INFANT CHECKLIST CRITERIA

MOTHER AND INFANT CHECKLIST CRITERIA

1.	Primipara	Yes	No
2.	Mother between age of 20-40 years	Yes	No
3.	Mother intends to breastfeed	Yes	No
4.	Mother has taken Lamaze Childbirth Series	Yes	No
5.	A single birth	Yes	No
6.	Mother had a vaginal delivery	Yes	No
7.	Newborn has Apgar of 9 within first hour postpartum	Yes	No
8.	Newborn has birthweight of 5 lbs or more	Yes	No

APPENDIX E

SAMPLE OF FLYER POSTED ON  
BREASTFEEDING CLINIC



BREASTFEEDING CLINIC

Kaiser-Oakland

Saturdays, 10-12 noon  
The Gold Room

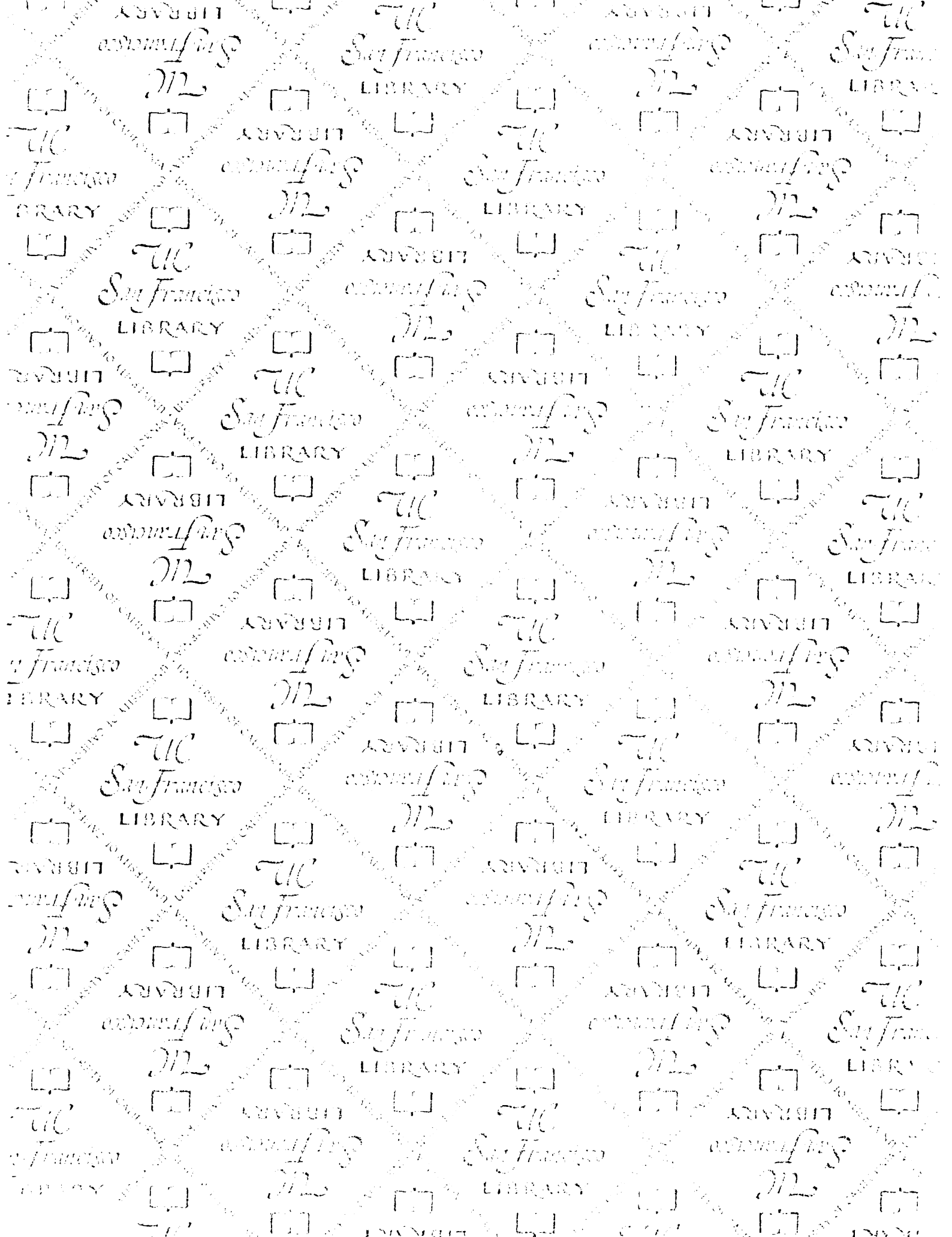
Instructor: Diane Merchant, R.N., B.S.N.  
Graduate Student  
School of Nursing  
University of California, S.F.  
ASPO-certified Lamaze Instructor

A two-hour breastfeeding clinic will include:

1. Discussion (questions/answers) centered around presentation of a slide series:  
"Breastfeeding, A Family Event" (Sollid/Nakahata)
2. Instruction in four preparatory techniques/skills for breastfeeding  
Return demonstration of techniques will insure correct performance
3. Discussion centered around participants' personal concerns regarding breastfeeding as well as possible problems associated with breastfeeding - and steps for management.

This clinic session is free of charge. No signups necessary. Attend on a "drop-in" basis. Sessions will continue on an "ongoing" basis until further notification.

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