SOCIOCULTURAL ASPECTS OF THE INFANT-FEEDING DECISION

By

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Several years ago, as I contemplated continuing my graduate work beyond the master's level, I talked this decision over with my daughter. After I listed the pros and cons she said to me, "Mom, a master's degree is great but a Ph.D. is AWESOME!" In that moment I knew that I had to go for awesome . . . for her. So I dedicate this dissertation to Sheila Dawn Robinson, my treasured daughter.

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exposure to other cultures and the lessons in living frugally are valuable, and we have many happy memories of those times.

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SOCIOCULTURAL ASPECTS OF THE INFANT-FEEDING DECISION

By

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This dissertation is an investigation of the factors that influence the infant-feeding decision (whether to feed by breast or bottle). Variables examined include age, race, marital status, education, knowledge and beliefs about breastfeeding, epistemological perspective, plans to return to work and social support. One hundred fifty first-time mothers were interviewed during their postpartum hospital stay. Both bivariate and multivariate analyses were used. Bivariate findings revealed that women who are older, better educated, married or living with their partner, and white were more likely to breast-feed. Exposure to breastfeeding and breastfeeding supportive beliefs and accurate knowledge of breastfeeding were shown to increase the likelihood of breastfeeding. Support of breastfeeding by the woman's mother and husband or partner were both significantly related to breastfeeding initiation. Planning to return to work did not decrease the incidence of breastfeeding. Moreover, seeing herself as the

primary wage earner in the household or an equal earner with her husband or partner increased the likelihood that a woman would breast-feed. Results of multiple logistic regression showed that all of the previously significant sociodemographic variables became insignificant with the exception of being primary of equal earner. Social support variables remained significant as did high score on breastfeeding supportive beliefs. The "permission theory of breastfeeding" is advanced to explain these findings. This theory maintains that unless a woman is strongly socialized to value breastfeeding or is financially self-sufficient, she will not breast-feed without a supportive partner because of the cultural perspective that the female breast exists primarily for the sexual pleasure of the male. Implications for the design and implementation of community breastfeeding initiatives are discussed. Recommendations include the continuation of existing programs and efforts and the addition of public service campaign to re-socialize the general public to be more supportive of breastfeeding.

CHAPTER 1
INTRODUCTION

In 1969 I gave birth to my first child. During my pregnancy, I spent a great deal of time reading and studying childcare and dreaming and planning about my coming baby. I did not think much about how I would feed my child-to-be. I already knew that I wanted to breast-feed. My first exposure to the idea of breastfeeding came from reading childcare books while babysitting in my early teens. Although a few advantages of breastfeeding were presented, the overall gist of the message was that either method of infant feeding was just fine. While none of these books came out strongly in favor of breastfeeding, it seemed clear to me that breastfeeding made much more sense. My young husband was supportive of breastfeeding as was my mother. My baby was born and I set out to breast-feed her. Despite hospital practices that hinder the establishment of breastfeeding, lack of encouragement from health care providers, and no support network of other nursing mothers, nursing my daughter went well. As I began to read about the subject, I discovered that there were a great many advantages to breastfeeding that I had not known about before. I found the bond that I formed with my baby to be very gratifying. It was a source of some dismay to me that few of my contemporaries chose breastfeeding. Most mothers took the position that it was too much trouble and not really necessary. After the birth of my second child, I began to meet other women who felt as I did. For the first

time, I was part of support system that had knowledge about the practice of breastfeeding and information on overcoming difficulties. Still, the majority of women who were having babies in the early 1970s were choosing to bottle-feed. It was, after all, the nadir of breastfeeding in this country (Ryan, Rush, Krieger & Lewandowski, 1991b). I had two more children during the 1970s and when my fifth child was born in 1982, the breastfeeding rate had rebounded to its highest level in several decades (Ryan et al., 1991b). It was extremely interesting to me to contemplate who chose breastfeeding and who chose bottlefeeding. What could account for the sharp increase over one ten-year period? And what could account for the fact that by the time I had my sixth child in 1987 the rate had begun to fall again (Ryan et al., 1991b)? Through the years of breastfeeding six children, I became increasingly convinced of the value of this method of infant feeding, but also increasingly aware that not all women shared my views. While there is a considerable body of literature that describes the sociodemographic characteristics of breastfeeders and bottlefeeders, these factors alone are not adequate to explain the decision-making process. The breastfeeding rate has fluctuated over the years while such sociodemographic variables as age, race, marital status, education, and socioeconomic status have not displayed corresponding changes. Knowledge of the benefits, which might seem to be an important factor, is not adequate either, since the breastfeeding rate declined during a time when knowledge of the benefits was high.

Increasing the number of mothers initiating and continuing breastfeeding of their infants has been established as a national goal (U.S. Department of Health and Human Services, 1990). A target level of 75% of new mothers initiating breastfeeding has been

established. Research supports that breast-fed infants suffer fewer ear and respiratory infections, gastro-intestinal illnesses and skin disorders than bottle-fed infants (Cunningham, Jelliffe & Jelliffe, 1991). Rates of breastfeeding, however, continue to be lower than established targets and have even declined in recent years (Freed, 1993). In order to increase rates of breastfeeding, it is first necessary to identify those factors that affect the infant feeding decision. This study advances knowledge in this area.

As with the milks of all mammal species, human milk contains the optimal mix of nutrients for the developing human infant. In addition to the best mix of proteins, lipids and other nutrients, mother's milk contains beneficial hormones, enzymes, "growth modulators," immunoglobulin, and anti-infective substances (Freed, 1993; Cunningham, 1981, 1979).

The health benefits of breastfeeding include lower rates of diarrheal illness, ear and respiratory infections, atopic skin disorders, and lower rates of hospital admissions than formula fed infants (Cunningham et al., 1991; Bahna, 1986). In addition to lowering morbidity, breastfeeding reduces the risk of infant mortality, through reduction of the likelihood and severity of infection, and reduction of diarrheal illness (Lithell, 1981).

In addition to the biological benefits for mother and infant, breastfeeding has economic advantages for the family and for society. Bottlefeeding involves a substantial investment of time and money for the family. Illness associated with formula feeding also results in substantial medical expenditures as well as lost time from work. Furthermore, as noted by Freed (1993), the costs to the taxpayers for formula feeding can be dramatic. The Women, Infants, and Children (WIC) program pays for infant formula

for low income mothers who do not breast-feed. In 1992, the average cost to WIC for bottle-fed infants in the state of North Carolina was $8,686 per year, compared with $4,848 for breast-fed infants.

From a low of less than 20% just following World War II, breastfeeding increased dramatically between the 1960s and the 1980s to 60% of mothers at time of hospital discharge (Ryan et al., 1991). However, this increase was followed by a substantial decline in the proportion of breastfeeding mothers between 1984 and 1989 (see Table 1.1). The rate of in-hospital breastfeeding declined from 59.7% in 1984 to 52.2% in 1989. The prevalence of breastfeeding at six months of age also declined, from 23.8% to 18.1%. These declines occurred across all sociodemographic groups, but were more pronounced among blacks, low-income, and low-education women (Freed, 1993). Rates of labor force participation by mothers of infants under one year of age increased during this time period with the 50% mark being passed in 1987 (U.S. Bureau of the Census, 1988).

This dissertation is concerned with how women make the infant-feeding decision (whether to feed by breast or bottle). First, what do women know about breastfeeding? Whom do they consider "experts" in infant care and feeding? Where do they obtain the information they have, whether accurate or not? What factors do women consider most important when they decide how they will feed their infants?

Table 1.1 RATES OF BREASTFEEDING FROM 1955-1987

Year	% Breast-fed	Year	% Breast-fed
1955-59	32.0	1978-79	44.3
1960-64	27.0	1980-81	52.5
1965-69	25.0	1981	57.9
1970	23.0	1982	59.1
1971	25.0	1983	55.3
1972	22.0	1984	54.2
1973	25.0	1985	55.6
1974	30.0	1986	53.5
1975	34.0	1987	56.3
1976-77	42.2		

(Adapted from Ryan et al., 1991a)

What influence is exerted by the woman's husband or partner, if present? Is the opinion of her mother relevant? Does she heed the advice of her prenatal care provider? Of particular interest, do African American women and white women construct their knowledge of breastfeeding in the same way? And, when women re-enter the labor force soon after birth, does this affect their choice of method of infant-feeding?

The objectives of this study are to identify and evaluate factors that influence infant feeding decision of new mothers. Factors studied include demographic variables, breastfeeding knowledge and beliefs, mother's return to the labor force, attitude of the baby's father, advice of health care providers, mother's history of having been breast-fed or not, and opinion of the woman's mother.

Subgroups of subjects that are of specific interest are as follows:

(1) African American mothers. It is known that breastfeeding rates vary by age, race, and socioeconomic status. Breastfeeding rates are lowest for minority mothers and their infants have the highest infant mortality rates (Freed, 1993). Since increasing the breastfeeding rate for African Americans might have even greater benefits than for the general population in terms of reducing infant mortality, it is especially important to understand the feeding decision for these women.

(2) Very young mothers. Another group with lower rates of breastfeeding than the general population is women who bear children in adolescence. This dissertation will investigate the breastfeeding behavior in this group.

(3) Working mothers. While the advantages of breastfeeding are sometimes assumed to accrue primarily to infants in developing countries and disadvantaged infants in developed nations, the numbers of infants of all socioeconomic levels in day care may render the reduction of infant morbidities through breastfeeding a priority in other populations as well. Maternal employment may constitute a disincentive to breastfeeding while infants of working mothers may stand to receive particular benefit when breast-fed. This study investigates this relationship.

CHAPTER 2
REVIEW OF THE LITERATURE

Much of the previous work on initiation and maintenance of breastfeeding focuses on sociocultural correlates. Such factors as age, race, ethnicity, and socioeconomic status of the mother have been considered (Starbird, 1991; Weller & Dungy, 1986; Rassin, Richardson, Baranowski, Nader, Guenther, Bee, & Brown, 1984) as well as history of having successfully breast-fed previous children and having been breast-fed herself as an infant (DaVanzo, Starbird, & Leibowitz, 1990; Entwisle, Doering, & Reilly, 1982.) Higher maternal age, white race/ethnicity and higher socioeconomic status are positively associated with initiation and maintenance of breastfeeding (Jacobson, Jacobson, & Frye, 1991; Bee, Baranowski, Rassin, Richardson, & Mikrut, 1991; Joffe & Radius, 1987; Peterson & DaVanzo, 1992).

Demographic Factors

In an exploration of adolescent girls' attitudes toward breastfeeding in the mid-1980s, Joffe and Radius (1987) found that only 17% of pregnant adolescents expressed an intention to breast-feed. This compared to a breastfeeding rate of over 50% in the general population (Ryan, Pratt, Wysong, Lewandowski, McNally, & Krieger, 1991a). Ryan et al. (1991a) found that the rate of breastfeeding increased steadily with age. Peterson and DaVanzo (1992) likewise found that younger mothers were much less likely to breast-

feed than their older counterparts, finding a rate of 30% for mothers under the age of 20 and 62% for mothers over the age of 25 years. In both of these studies, teenaged women who breast-fed tended to do so for the same reasons as older mothers. The difference was that younger mothers experienced these factors, such as perceiving benefits, having supportive environments, being married and of higher socioeconomic status. Some of the difference in breastfeeding behavior, however, was not accounted for in this way (Peterson & DaVanzo, 1992).

White race has been consistently found to increase the likelihood of breastfeeding (Rassin et al., 1984). Assessing the decline in the breastfeeding rate from 1984 to 1989, Ryan et al. (1991b) found that the rate for white mothers was 65% in 1984 and had declined to 58.5% by 1989. Non-white women were less likely to breast-feed in 1984, with black mothers initiating breastfeeding at a rate of 33.3% and Hispanic women at a rate of 53.8% in that time period. By 1989, the rates had dropped for both of these groups, as well. Rates for Hispanic women had declined from 53.8% to 48.4%. The decline for black mothers was even more pronounced, declining from 33.3% to 23% by 1989. Another study of breastfeeding and ethnicity found a similar order of likelihood of breastfeeding, with white women the most likely followed by Hispanic women, and then black women (Bee et al., 1991). These researchers concluded that women of different ethnicity chose to breast-feed based on different factors. While this information contributes to our knowledge about breastfeeding decision-making, it does not shed light on interventions that might be useful because these factors are not subject to modification.

Studies of modifiable variables frequently attend to such issues as hospital practices and postpartum education that might influence the duration of breastfeeding. These studies show that modeling of bottlefeeding by the practice of giving supplemental formula in the hospital and sending bottles of formula home may overshadow verbal support for breastfeeding given by the staff, and postpartum education of the mother (Buxton, Gielen, Faden, Brown, Paige, & Chwalow, 1991; Grossman et al. 1990; Frank, Wirtz, Sorenson, & Heeren, 1987.) These important findings suggest changes in practices that might affect the maintenance of breastfeeding beyond the early postpartum period but do not address the initial feeding decision at all.

Since efforts to increase rates of breastfeeding have been largely based on increased understanding of the health benefits of breast-fed for infants (U.S. Department of Health and Human Services, 1990), it has often been assumed that educating pregnant women regarding the benefits of breastfeeding would be the most useful strategy to increase the practice. While some studies show that educational interventions in pregnancy can, in some cases, increase breastfeeding behavior (Sciacca, Dube, Phipps, & Ratliff, 1995), other studies have other factors more influential, such as positive attitudes toward breastfeeding (Black, Blair, Jones, & DuRant, 1990) and sociodemographic variables (Bee et al., 1991) more predictive. One study found that women who breast-fed were likely to have made the decision before becoming pregnant (Ekwo, Dusdieker, & Booth, 1983). While it surely makes sense that increasing understanding of the advantages of breastfeeding would increase the likelihood of that method being chosen, clearly, it is not all that needs to be done.

Social Support

In a comparison of the social support available to women intending to breast and bottle-feed, social support was found to be an important element in encouraging breastfeeding (Matich & Sims, 1992). While some of the elements of social support investigated in this study dealt specifically with breast-feed ("teaches me how to do some things like getting prepared for breastfeeding"), many items dealt with social support in the more general sense ("would loan me small amounts of money" and "makes me feel I am cared about"). Less stress was placed on sources of approval of breastfeeding or encouragement to breast-feed than on this more general kind of social support. Another study found that friends and relatives were reported to have influenced and reinforced the woman's choice to breast-feed whether it was her first or a later baby (Ekwo et al., 1983). It seems clear that a distinction is needed between general social support and specific support for breastfeeding in the form of approval and encouragement to choose that method of infant feeding.

Studies dealing with the effects of female labor force participation on breastfeeding are surprisingly few, particularly since recent, dramatic increases in numbers of mothers of small children in the work force have coincided with a decrease in the rate of breastfeeding. Previous studies addressing working and breastfeeding deal with effects of hours worked and timing of the return to work on the duration, rather than the initiation of breastfeeding (Kurinij, Shiono, Ezrine, & Rhoads, 1989.) Another study, while concentrating primarily on duration, reported that women who were employed fulltime and those who were not breast-fed at the same rate, but the working women

breast-fed for shorter durations than the non-employed women (Ryan & Martinez, 1989). Structural barriers to breastfeeding while employed such as the lack of appropriate space for expressing milk were also considered by most studies dealing with breastfeeding and employment. These crucial issues, do not, however, shed much light on the relationship between working and the decision to breast-feed.

Cultural influences on breastfeeding attitudes have considered the lack of trust in the physiological process of breastfeeding common in a highly technological society (Millard, 1990) and a sociocultural view of the female breast as an exclusively sexual organ leading to embarrassment for breastfeeding women (Morse, 1989). The failure of employers to provide space for nursing mothers to express milk, even though this has been shown to increase the duration of breastfeeding among employed women (Katcher & Sanese, 1985), is an example of structural barriers to breastfeeding.

Since rates of breastfeeding initiation have changed substantially over time, rising since the middle of this century and recently declining, it is reasonable to conclude that factors which may be susceptible to modification are at work. Furthermore, the influence of some factors on the initiation of breastfeeding has been shown to change over time (Starbird, 1991). This study furthers the investigation of under-researched psychosocial influences on the infant feeding decision as well as providing current information on the influences of recent socioeconomic changes, such as increasing employment of mothers of young infants. While structural influences such as age, race and socioeconomic status have been examined, we do not know why these factors exert the influence that they do.

Much as the process of childbirth has been medicalized in the last century, the cultural view of infant feeding has likewise shifted from a physiological process of the female body to a matter requiring the supervision and intervention of the medical profession. This is due, at least in part, to the technological imperative that exists in our contemporary society. According to this view, science and technology are superior to nature and unaided natural processes. As physicians worked to develop a nutritious and safe substitute for mother's milk to meet the needs of those infants who could not be breast-fed by their mothers, "scientific" formula feeding ascended to a position of superiority over breastfeeding even in the absence of difficulties (Apple, 1987).

The routine use of an artificial formula to nourish human infants places the control of infant feeding in the hands of experts, such as scientists and physicians, rather than with mothers. This coincides with the medicalization of childbirth, in which the birth process, once the province of women, mothers, and midwives, was transformed into a surgical procedure requiring medical management. The movement by the (mostly male) medical establishment to take control of childbirth and breastfeeding is explained by Mary O'Brien as an attempt, on the part of men, to mediate their alienation from their biological continuity (O'Brien, 1981). Men, according to O'Brien, are alienated from biological genesis because of the temporal separation of conception and the birth of a child, and by the essential uncertainty of paternity. Women, on the other hand, are able to mediate this alienation through the physiological processes of reproduction, pregnancy, childbirth, and breastfeeding. A woman who feels and sees a child emerge from her body knows the child to be her own. Since men have no such biological mechanism for the

mediation of their separation from these processes, they have been driven to develop cultural and political mechanisms to control women, and the children they bear in order to accomplish this end. Efforts to do this have included, over time, a wide variety of practices such as insistence on virginity before marriage and fidelity after (for women), laws restricting women from participation in the political process, relegation of women to the "private sphere," and the development of religious structures that support such oppression. Extreme examples of the imposition of the male will upon women include Chinese footbinding, the European witch trials, African female genital mutilation, and the psychological deformation of middle- and upper-class American women in the severe sexual repression of the Victorian Era.

Further examples of these attempts on the part of men to establish continuity with biology is the appropriation of childbirth and breastfeeding by men.[1] Through medicalization, these inherently female processes are transformed into dangerous and unpredictable events that require management and the application of technology to render them safe. Childbirth was taken out of female control and placed under the jurisdiction of obstetrics. This has been accomplished despite the fact that none of the standard obstetrical interventions has been demonstrated to improve infant or maternal outcomes

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[1]The equation of men to the medical establishment is not negated by the fact that women are a part of this establishment in increasing numbers. At the time that this transformation was taking place, the overwhelming majority of physicians were male. Even now, when women enter the profession of medicine, they conform to the same medical paradigm as male physicians, bringing little female influence to bear in that arena.

for normal births. Robbie Davis-Floyd suggests that we examine the latent function of these interventions, rather than the manifest function (reduction of morbidity and mortality) if we wish to understand their persistence (Davis-Floyd, 1990). Davis-Floyd argues that obstetrical technologies serve to ritually transform childbirth from a process that can empower women and emphasizes their close association with the power to give life through the replication of the human species to an inherently dangerous and unpredictable process than can be rendered safe only with the technological intervention of and control by men (Davis-Floyd, 1990). In this transformation, women's bodies become unreliable "maternal environments" liable to turn hostile at any moment, and men become the experts who are able to monitor the process and intercede on behalf of the infant in the not-so-infrequent event that the interests of the mother and the infant conflict.

Similarly, in the case of infant feeding, what began as an effort to improve artificial formula for use when mother's milk was not available became another instance in which technologies designed to assist when the natural process fails become elevated to the preferred method, even when the natural process is not compromised. When infant nutrition was sufficiently well understood to enable scientists to compound an adequate substitute from modified animal milk, lactation began to be viewed as uncertain and unreliable. While cow's milk could be scientifically standardized, sterilized, neatly packaged and measured, mother's milk was viewed as variable, unsanitary, and difficult to measure. The entire process of lactation came to be viewed as unscientific, messy, unladylike, and unnecessary. Widespread acceptance of bottlefeeding led to the

relegation of the female breast to the status of primarily a sexual organ, rather than a body part with a dual role: organs of sexual pleasure for both men and women, and organs to nourish the young.

While to physicians this meant the acquisition of additional medical "territory," it meant to the manufacturers of infant formula a vast and constant market. And while, no doubt, many infants and mothers have benefitted from the development of these artificial infant foods, there is evidence that even in modern, industrialized countries, there are many advantages to breastfeeding for both mother and infant (Freed, 1993). Again, despite evidence to the contrary regarding the efficacy of medicalization, technology has replaced the natural process of the female body as the giver and sustainer of life.

While recent evidence has confirmed the superiority of breastfeeding over artificial feeding as a method of infant nutrition and medical authorities now recommend that infants be breast-fed whenever possible, the rates of initiation and maintenance of breastfeeding have remained relatively low. The process by which women decide how they will feed their babies is not well understood. It seems that having been convinced for several generations that their bodies were unreliable sources of infant nourishment, many women have lost faith in their ability to lactate and lost sight of the value in doing so. Some women, of course, do value breastfeeding and chose this method to feed their infants. While some correlations can be drawn among breastfeeding and SES, race, age, parity, and so on, there are breastfeeders and bottlefeeders in each category. How do women construct their knowledge of breastfeeding and its desirability? Whom do women view as "experts" on breastfeeding? Are the same factors at work in different groups of

women? An epistemological examination of breastfeeding knowledge may contribute to our understanding of these issues.

In their book *Women's Ways of Knowing: The Development of Self, Voice, and Mind*, Belenky, Clinchy, Goldberger, and Tarule (1986) offer five epistemological perspectives from which women view the world, draw conclusions about knowledge, and perceive truth and authority. These perspectives emerged from an extensive research project in which they interviewed 135 women about their lives, experiences and feelings. The perspectives were developed from the interviews, from what they heard the women say about their lives. The authors' interest in the issue of women and knowledge arose from their observations that women often experienced doubts about their intellectual competence that resulted in academic difficulties not usually encountered by male students. They were interested to know how women might experience learning and knowing differently from men. The work of Carol Gilligan (1982) identified ways in which women differ from men in their application of morals and ethics to issues of decision-making and choice. The work of Belenky et al. (1986) supports the view that women construct knowledge differently from men, and that their epistemological perspectives can be classified into identifiable categories.

Belenky et al. (1986) described five distinct epistemological perspectives that emerged from analyzing the 135 interviews.

1) Silence. In this position, a woman has no voice. A very small number of women fell into this category. The ones who did tended to be young and disadvantaged. "Silence," of course, does not mean that these women could not speak, but that they did

not consider that they had anything to say. In these women, representational thought was underdeveloped. They did not find meaning in words beyond the immediate and superficial, either their own, or the words of others. Silence is an extremely passive and dependent position.

2) Received knowledge. In this perspective, words have meaning, but only the words of others. Women in this category viewed themselves as knowers, but only as the holders of knowledge given to them by others. Knowing is highly valued and those who know are respected. They do not consider that they might evaluate, alter, or contribute to this knowledge.

3) Subjective knowledge. Women in this perspective have experienced a dramatic shift from silence or received knowledge to a state of trusting their own subjective feelings above all else. In this category, all outside sources of information are suspect. Truth is determined by intuition and "gut feelings." They understand truth to be multiple and do not expect others to accept their version any more than they accept another's. External authority is denied.

4) Procedural knowledge. In this category, women come to a position of reason and rational thought. The women in this perspective have accepted, sometimes reluctantly, the linear thought and rational process of the academy. These women came to realize that they could play the game that in other categories they had either observed, accepted, or dismissed. This is an objective rather than a subjective position. Women in this category gain power by identifying with sources of authority.

5) Constructed knowledge. The women in this perspective have reached a position of integrating various kinds of thought. For these women, knowing is not wholly subjective but neither is it entirely objective. Constructed knowers are conscious of their own processes of the construction of knowledge. They recognize themselves as inventors of truth.

The concept of self-efficacy has been suggested as the primary contribution that can be made by health care providers to encourage breastfeeding (Labbok, 1994). Labbok encourages health care providers to shift from intervention strategies that are more appropriate in treating illness to a role of support and counsel. The encouragement of self-efficacy is viewed as especially helpful in supporting women to breast-feed.

Self-efficacy refers to a state of feeling confident of one's ability to carry out a behavior. It does not refer to a global personality trait but rather is contextual, in that a sense of self-efficacy in one area of life does not necessarily translate into self-efficacy in other areas (Strecher, DeVellis, Becker, and Rosenstock, 1986). Self-efficacy results when an individual believes herself or himself to be capable of a particular behavior rather than from the individual's true abilities. Efficacy expectation can develop in several ways. Personal experience in which a person achieves master over a previously feared task, vicarious experience in which the person observes others and learns from that, verbal persuasion, in which others, such as health educators exhort patients to change their behavior, and finally, physiological state, for example, feeling nervous before a presentation can result in a lowered sense of self-efficacy (Stretcher et al., 1986).

This concept has been used productively in several area of health including smoking cessation, weight control, contraceptive behavior, alcohol abuse, and exercise (Stretcher et al., 1986). This concept may also prove useful in understanding the infant-feeding decision.

This dissertation will examine the factors that have been suggested as influential in the infant-feeding decision. In addition to exploring whether the previous findings are supported in this sample and at this time, one primary goal of this dissertation is to understand why demographic variables are as predictive as they are and how they are related to psychosocial variables such as attitude and social support. We lack a theory of infant-feeding decision-making. One suggested theory, the theory of behavioral intentions (Ajzen & Fishbein, 1977) asserts that behavioral intentions are the most important predictors of behavior, with other factors, such as demographic variables relegated to the status of indirect determinants. This theory has been applied successfully to infant-feeding decision-making (Manstead, Plevin & Smart, 1984). However, predicting behavior based on prenatal intentions is really of very little use unless we understand how prenatal intentions are developed. This is the primary question that this dissertation will attempt to answer: How do women decide whether to breast-feed or bottle-feed their infants, and how can their choices be explained? A primary goal of this policy-oriented dissertation is to provide information that will be useful in the design and implementation of initiatives to raise the rates of breastfeeding and bring them in line with national goals.

CHAPTER 3
METHODS

Both quantitative and qualitative methods of data collection were employed. Data were collected from new mothers during the postpartum hospital stay. The quantitative component consists of a closed-ended questionnaire covering such topics as labor force participation, attitude of child's father, advice of health care providers, mother's history of having been breast-fed, the opinion of the woman's mother and the feeding method chosen. The questionnaire includes a brief breastfeeding knowledge "quiz" to assess the level and accuracy of knowledge of infant feeding. A short set of open-ended, structured interview questions was asked in order to be able to place the respondents into epistemological perspectives. Demographic and historical data were also collected on all participants. Because of the likelihood of a low response rate to a mail survey in this population due to the stresses of caring for a newborn infant, in-hospital administration was chosen over a mail survey. In addition, one group of women that is of particular interest in this project is African American mothers who are young and single. These women, some of whom may have low literacy skills, would be among the least likely to return a mail questionnaire. Interviewer administration was deemed the most effective means of collecting accurate and complete data from the widest range of

participants. Furthermore, administering the instrument as an interview facilitates the completion of the open-ended questions.

Participants

Participants were recruited from the postpartum floor at Forsyth Memorial Hospital, which is the birth site of essentially all infants born in Winston-Salem and surrounding Forsyth County, North Carolina. Agreement to participate served as consent. The Clinical Research Practices Committee at Bowman Gray School of Medicine waived the requirement for signed consent on the grounds that teenage mothers would require parental consent to participate. This would have reduced the number of women in this category that would participate in the study. Slightly more than 400 babies are born each month at this hospital. The sampling frame included all first-time mothers who delivered healthy, full-term infants by uncomplicated vaginal birth during the study period. Mothers of pre-term infants or those infants having a condition that might make breastfeeding difficult or impossible were not included. In such cases, the infant feeding decision would be strongly influenced by the condition of the infant, making other factors less relevant. In a few cases, infants weighing less than 5 pounds 8 ounces (2500 grams) were included. Some infants of borderline weight or whose mothers gave birth before 37 weeks gestation were retained in the data base since these infants and mothers were included by the postpartum staff in the hospital as healthy full-term mothers and infants, and there was no reason to believe that the infant-feeding decision would be affected. No infant was retained who weighed less than 5 pounds. Likewise, since cesarean section is major surgery, it is assumed that the mother's condition during the postpartum stay would

differ from that of mothers who gave birth vaginally. This difference might affect the infant-feeding decision and/or the mother's ability to be interviewed. For these reasons, mothers who gave birth by cesarean section were excluded from the study. With the expected rate of cesarean section about 25%, about 100 would be excluded on that basis. Another 10% (40 women) might be expected to give birth to pre-term or ill infants and would be excluded since having an ill infant would affect the feeding decision as well as create a stressful situation under which participation in a research project might place an undue burden on the mother. Allowing for some refusals among the remaining 260 women, we arrived at a goal of interviewing 200 participants over the course of the Spring semester, the period during which interviewers were available. Initially, it was intended that all mothers be included, regardless of parity (number of children). The decision to interview only first-time mothers, however, resulted in about 100 interviews completed by the end of the semester. By hiring one of the interviewers to continue working through the summer, another 52 interviews were done, resulting in a final number of 152. It was discovered during data entry that two mothers of pre-term infants were accidentally included in the sample. These participants were not included in the analysis.

Potential participants were approached consecutively. African Americans comprise about 25% of the population of Forsyth County. It was expected that African Americans would be represented in this study in approximately that proportion. In the event that they were not, oversampling of African American women was planned to bring the ratio to representative levels.

Procedures

When the instrument packet was finalized, a focus group was held to pretest it. This group of new mothers reviewed the questionnaires in terms of clarity, understandability, and appropriateness of language. Several changes in the wording of the instrument were made based on the focus group data. In addition, the packet was piloted using ten women on the postpartum floor. Minor adjustments, such as the inclusion of additional categories on two closed-ended questions were made as a result of the pilot test.

Upon arriving on the postpartum unit, the interviewers were given a patient census, which listed all women on the floor and supplied their room numbers. Floor nurses assisted the interviewers in determining who had given birth by cesarean, or which mothers has premature or ill infants, or were otherwise excluded. Upon locating the potential participant, the interviewer determined whether this was the woman's first baby. After obtaining agreement to be interviewed, the measures were administered at the participant's bedside. Every effort was made to complete the interview in one sitting. On some occasions, however, the arrival of visitors or the need to carry out hospital routines required that the interview be completed in two sessions. A questionnaire form was filled out by hand by the interviewer for each participant. Open-ended questions were recorded on tape. Careful notes were taken during the open-ended questions to supplement the tape recording which can sometimes be difficult to hear, and to guard against loss of data due to equipment failure.

Instruments

The instrument packet includes a Breastfeeding Questionnaire, an instrument designed for this study that measures variables such as feeding plans, breastfeeding history, opinion of spouse/partner, opinion of the woman's mother, advice of the health care provider, work plans, and so on (Appendix A). Second, a Breastfeeding Knowledge Quiz assesses the extent and accuracy of knowledge about breastfeeding and bottlefeeding, and beliefs about breast and bottlefeeding (Appendix B). A third instrument is comprised of a subset of items from the interview schedule used in the Education for Women's Development Project (Belenky et al., 1986) to place the women in epistemological categories. In addition, several other open-ended questions were added to this section including asking the woman the most important reason she chose the feeding method she did, how she felt about the changes of pregnancy, and what the word "woman" means to her. These questions were exploratory in nature (Appendix C). Finally, a set of sociodemographic questions was administered (Appendix D).

Interviewers

Interviewers were recruited from upper-division sociology majors at Wake Forest University. The Honors Coordinator and the Professor of Perspectives, the upper-division core requirement for sociology majors, gave their consent for students to participate in this project for course credit. Melanie Angiolillo and Amy Lewis were selected. These students had completed course work in research methods, including interview skills. The interviewers were given additional training in the administration of both closed- and open-ended questions. They practiced the instrument on each other and

on several other students before conducting the pilot interviews. Pilot testing was carried out using 10 women on the postpartum floor. Minor adjustments were made to the instrument based on the pilot test.

Coding and Data Entry

Closed-ended questions were entered directly into SPSS for Windows. Open-ended responses, which were collected on audio tape were transcribed and coded into categories (see Appendix E). Fifteen question sets (10%) were recoded to assess intra-coder reliability. The error rate was found to be 4.0%. Discrepancies were reconciled in order to assure the highest level of accuracy in the data base.

Analysis

Data entry and analysis were performed using SPSS for Windows. The open-ended responses were transcribed from the tapes, supplemented by hand written notes. Analysis of content was performed in order to place the responses in categories which could then be entered into the computer. Five percent of the question sets (8) were re-entered to determine data entry reliability. The error rate was found to be 0.04%.

The following hypotheses guided analysis.

H_1 White women are more likely to breast-feed than non-white women.

H_2 Older women are more likely to breast-feed than younger women.

H_3 Women who receive encouragement to breast-feed from their mothers are more likely to initiate breastfeeding than women who do not receive such encouragement.

H_4 Women who were themselves breast-fed as infants are more likely to initiate breastfeeding than women who were not breast-fed.

H_5 Women who receive encouragement to breast-feed from their husbands or partners are more likely to initiate breastfeeding than women who do not receive such encouragement.

H_6 Women who receive encouragement to breast-feed from their prenatal care providers are more likely to initiate breastfeeding than women who do not receive such encouragement.

H_7 Women with greater numbers of friends and relatives who breast-feed are more likely to initiate breastfeeding than women with few or no friends and relatives who breast-feed.

H_8 Women who plan to return to work as soon as possible after giving birth are less likely to initiate breastfeeding than those who do not return to work that soon.

H_9 Women with greater knowledge of the benefits of breastfeeding are more likely to initiate breastfeeding than women with less knowledge of the benefits of breastfeeding.

H_{10} Women who perceive that they have a source of technical advice to deal with breastfeeding problems are more likely to breast-feed than are women who do not perceive such a source.

H_{11} Women in different epistemological perspectives will differ with regard to the factors that affect the infant-feeding decision.

CHAPTER 4
RESULTS AND DISCUSSION

Description of the Sample

This sample was young, as would be expected for first-time mothers. Participants ranged in age from 14 to 40 years with the average age 23.3. Over 46% were 21 years of age or younger. Only 12.2% were over the age of 30 (see Table 4.1). Seventy percent were white, 25% African American, and 3.4% Hispanic. There was only 1 Asian respondent, and 1 American Indian. Due to the small numbers of respondents who were in categories other than African American and white, race was collapsed into "white" and "non-white" for subsequent analyses unless otherwise noted. Half of the respondents were married, with an additional 11.5% living as married. The remainder were single, either with or without an involved partner not living with them. There were no respondents reporting being divorced, separated, or widowed. In most subsequent analyses, marital status was coded in two categories "married or living as married" and "single." Over 20% had less than a high school education. However, this category included young women who were still in high school at the time of the birth. Only about 17% had completed college and just over 4% had advanced degrees (see Table 4.1). Almost 20% had household incomes of less than $20,000 annually and a little over 8% had incomes of over $75,000. Some 20% did not know what their household incomes were. Almost

Table 4.1 RESPONDENTS BY SELECTED SOCIODEMOGRAPHIC CHARACTERISTICS

Variable	Frequency	Percent
Age		
14-18 years	34	23.0
19-21	35	23.6
22-25	30	20.3
26-30	31	20.9
31-40	18	12.2
Race		
Asian or Pacific Islander	1	0.7
Hispanic	5	3.4
African-American	37	25.0
American Indian	1	0.7
White	104	70.3
Marital Status		
Married	74	50.0
Living as married	17	11.5
Involved partner	19	12.8
Single	38	25.7

Table 4.1, continued

Variable	Frequency	Percent
Education		
Grade school	1	0.7
Some high school	29	19.6
High school graduate	34	23.0
Vocational or technical school	7	4.7
Some college	28	18.9
Associate degree	12	8.1
College graduate	25	16.9
Some graduate work	6	4.1
Master's degree	5	3.4
Doctoral degree	1	0.7
Income		
Less than $10,000	14	9.5
$10,000 to 19,999	14	9.5
$20,000 to 34,999	27	18.2
$35,000 to 49,999	26	17.6
$50,000 to 74,999	25	16.9
$75,000 to 99,999	4	2.7
$100,000 or more	8	5.4
don't know	30	20.3

Table 4.1, continued

Occupation	Frequency	Percent
Professional or Technical	47	32.5
Clerical	22	15.2
Sales	25	17.2
Service	24	16.6
Skilled Crafts	3	2.1
Equipment Operator	1	0.7
Laborer	6	4.1
Homemaker	3	2.1
Other (includes students)	14	9.7

one-third of the respondents reported professional or technical occupations. This category included such jobs as teachers or professors, nurses, lawyers, physicians and engineers. A little more than 15% had clerical occupations and another 17.2% worked in sales. Service jobs were held by over 16% of the sample. Less than 7% held jobs as skilled craftspersons, equipment operators or laborers combined. Only 2.1% reported being homemakers. The "other" category included students and was reported by almost 10% of the sample.

The Feeding Decision

Categories for the item "How do you plan to feed to feed your baby?" included "bottle--formula feed entirely," "both, a combination of breastfeeding and one or more bottles of formula day," "breast with supplements--breastfeeding with regular supplements less than one bottle of formula a day," breast--formula rarely or never," "try to breast-feed," "breast-feed a little, then battlefield" (see Table 4.2). Over 43% reported that they planned to bottle-feed. A small number of women planned to use both breast and bottle, with 5.3% using one bottle a day or more, and 8% using less then one bottle a day. One third planned to breast-feed entirely, using formula rarely or never. Six and seven tenths percent would try to breast-feed and only 3.3% planned to breast-feed a little, then bottle-feed. Given the small number of cases in groups other than bottle-feed and breast-feed, categories were collapsed into bottle-feed (no breastfeeding) and breast-feed (all of the others--any breastfeeding). Using these categories, 43.3% planned to bottle-feed while 56.7% planned to breast-feed. The recoded categories will be used in all subsequent analyses unless otherwise noted. Forty percent of the respondents decided which feeding method they would use in the first 6 months of pregnancy. Over 28% decided before becoming pregnant, 20.7% in the last 3 months of pregnancy and over 10% did not decide until the time of birth. This varied by feeding decision, with those deciding which feeding method to use before becoming pregnant being much more likely to breast-feed (72.1%) and those waiting until the time of birth being much more likely to bottle-feed (68.8%) (see Table 4.3). Over one-third of breastfeeding mothers

Table 4.2 RESPONDENTS BY FEEDING DECISION

Variable	Frequency	Percent (%)
Feeding Method		
Bottle	65	43.3
Both (1 bottle or more daily)	8	5.3
Breast with supplements	12	8.0
Breast (formula rarely or never)	50	33.3
Try to breast-feed	10	6.7
Breast-feed a little, then bottle	5	3.3
Feeding Method, recoded		
Bottle (no breastfeeding)	65	43.3
Breast (any breastfeeding)	85	56.7
When Decided		
Before Pregnancy	43	28.7
In First 6 Months of Pregnancy	60	40.0
In Last 3 Months of Pregnancy	31	20.7
At Birth	16	10.7

Table 4.3 FEEDING DECISION BY WHEN DECIDED (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES. COLUMN PERCENTAGES IN BRACKETS)

When Decided	Breast-feed	Bottle-feed	X^2
Before Pregnancy (43)	72.1 [36.5](31)	27.9 [18.5] (12)	
In First 6 Months of Preg. (60)	48.3 [34.1](29)	51.7 [47.7] (31)	
In Last 3 Months of Preg. (31)	64.5 [23.5](20)	35.5 [16.9] (11)	
At Birth (16)	31.3 [5.9](5)	68.8 [16.9] (11)	10.85*

*p<.05. **p<.01. ***p<.001. ****p<.0001.

decided before pregnancy while less than one-fifth of bottlefeeding mothers did so. Almost 17% of bottlefeeding mothers did not decide until the time of birth while only 5.9% of breastfeeding women did so. These figures indicate that while breastfeeding education at the time of childbirth education should not be abandoned, effort to educate prospective parents about breastfeeding must begin well before the last few weeks of pregnancy.

The rate of breastfeeding increased with age (see Table 4.4). At ages 14-18 only 32.4% planned to breast-feed while women in their late twenties and thirties breast-fed at rates of over 77%. These findings support Hypothesis 2. White women are far more likely to breast-feed than are non-white women. (see Table 4.4).

Table 4.4 FEEDING DECISION BY SELECTED SOCIODEMOGRAPHIC CHARACTERISTICS (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Variable	Breast-feed	Bottle-feed	X^2
Age			
14-18 (34)	32.4 (11)	67.6 (23)	
19-21 (35)	45.7 (16)	54.3 (19)	
22-25 (30)	63.3 (19)	36.7 (11)	
26-30 (31)	77.4 (24)	22.6 (7)	
31-40 (18)	77.8 (14)	22.2 (4)	19.15***
Race			
White (104)	63.5 (66)	36.5 (38)	
Non-white (44)	40.9 (18)	59.1 (26)	6.4*
Marital Status			
Married or living as married (91)	68.1 (62)	31.9 (29)	
Single (57)	38.6 (22)	61.4 (35)	12.46***

Table 4.4, continued

Education	Breast-feed	Bottle-feed	
Less than high school (30)	26.7 (8)	73.3 (22)	
High School Graduate (34)	41.2 (14)	58.8 (20)	
Some college, voc. or tech. (47)	57.4 (27)	42.6 (20)	
Bachelor's degree or higher (37)	94.6 (35)	5.2 (2)	36.02****
Income			
Up to $19,999 (28)	57.1 (16)	42.9 (12)	
$20,000 to 49,999 (53)	69.8 (37)	30.2 (16)	
$50,000 or greater (37)	67.6 (25)	32.4 (12)	
Do not know (30)	20.0 (6)	80.0 (24)	21.95****

*p<.05. **p<.01. ***p<.001. ****p<.0001.

Sixty-three and a half percent of white women planned to breast-feed while 59.1% of non-white women planned to bottle-feed. These findings support Hypothesis 1. Women who were married or living as married were more likely to breast-feed than women who were single, even if they reported having an involved partner. It seems that living with a partner whether married or not makes a difference in the likelihood of breastfeeding. Women who were living with a partner were more than twice as likely to breast-feed as

bottle-feed. Those not living with a partner were much more likely to bottle-feed than breast-feed (see Table 4.4).

As with age, education increases the likelihood of breastfeeding. Slightly more than one fourth of women with less than a high school education chose breastfeeding but over 94% of women with a college degree or higher did. Women with household incomes of less than $20,000 annually were less likely to breast-feed than women with higher incomes. Women who reported that they did not know their annual household income were much more likely to bottle-feed than breast-feed (see Table 4.4).

Social Support

Social support is shown to be a very important factor in the infant feeding decision. Respondents were asked whether they had discussed how to feed the baby with various individuals included their mothers, their partners if applicable, their health care providers, etc., and whether these individuals supported breastfeeding, bottlefeeding, or neither method over the other. For women whose mothers supported breastfeeding, over 97% breast-fed their babies. Women whose mothers supported bottlefeeding breast-fed only 25.8% of the time. While we cannot assume that the mother's support caused the woman to breast-feed--it may be that the woman had already decided to breast-feed and then enlisted her mother's support--it is reasonable to assume that the support of the mother is important. Very few women who had the support of their mothers to breast-feed chose to bottle-feed (see Table 4.5). Those whose mothers supported neither method over the other were more likely to bottle-feed, 56.1 of the time, and women who did not discuss infant feeding with their mothers breast-fed in about the same proportion as the

Table 4.5 FEEDING DECISION BY SUPPORT OF SELECTED OTHERS (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Other	Breast-feed	Bottle-feed	X^2
Mother			
Supported Breastfeeding (34)	97.1 (33)	2.9 (1)	
Supported Bottlefeeding (31)	25.8 (8)	74.2 (23)	
Supported Neither or Both (41)	43.9 (18)	56.1 (23)	
Did Not Discuss (43)	58.1 (25)	41.9 (18)	37.30****
Husband or Partner			
Supported Breastfeeding (56)	83.9 (47)	16.1 (9)	
Supported Bottlefeeding (19)	15.8 (3)	84.2 (16)	
Supported Neither or Both (43)	48.8 (21)	51.2 (22)	
Did Not Discuss (30)	43.3 (13)	56.7 (17)	33.13****
Prenatal Health Care Provider			
Supported Breastfeeding (73)	65.8 (48)	34.2 (25)	
Supported Bottlefeeding (1)	0.0 (0)	100.0 (1)	
Supported Neither or Both (26)	34.6 (9)	65.4 (17)	
Did Not Discuss (48)	56.3 (27)	43.8 (21)	8.91*

*p<.05. **p<.01. ***p<.001. ****p<.0001.

Table 4.6 FEEDING DECISION BY HOW FED AS AN INFANT (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

How Fed	Breast-feed	Bottle-feed	X^2
Breast-fed (17)	94.1 (16)	5.9 (1)	
Bottle-fed (110)	50.0 (55)	50.0 (55)	
Both Breast and Bottle (12)	75.0 (9)	25.0 (3)	
Do Not Know (10)	40.0 (4)	60.0 (6)	14.44**

*p<.05. **p<.01. ***p<.001. ****p<.0001.

sample as a whole, 58.1%. These findings support Hypothesis 3 that women whose mothers encourage breastfeeding are more likely to breast-feed than women whose mothers do not support that method. Looking at the feeding decision of the woman's mothers we see a similar trend. Women who were themselves breast-feed as infants breast-fed their own infants over 94% of the time (see Table 4.6). Women who were bottle-fed as infants breast-fed 50% of the time. Women whose mothers used both breast and bottle breast-fed 75% of the time. These results support Hypothesis 4 that women who were themselves breast-fed as infants were more likely to breast-feed than women who were not breast-fed.

The support of the husband or partner is likewise shown to be important. Women whose husband or partner supported breastfeeding breast-fed almost 84% of the time. For women whose husbands supported bottlefeeding, the rate of breastfeeding was an extremely low 15.8%. It may be that while mother's support for breastfeeding is more important in encouraging breastfeeding, husband support for bottlefeeding is more influential in discouraging breastfeeding (see Table 4.5). Both women whose husbands or partners supported neither method over the other and women who did not discuss infant feeding with their husband or partner were somewhat more likely to bottle-feed. These findings support Hypothesis 5 that women who receive encouragement from their husband or partner are more likely to breast-feed than women who do not receive such encouragement.

Almost one-third of the respondents did not discuss infant feeding with their prenatal health care provider. In only one case did a respondent report that her prenatal health care provider supported bottlefeeding. When the prenatal health care provider supported neither method over the other, 65.4% bottle-fed. When this person supported breastfeeding, 65.8% breast-fed. This supports Hypothesis 6 that women who receive encouragement from their prenatal health care providers are more likely to breast-feed than women with this support. Women reported discussing infant feeding with a variety of others such as sisters, grandmothers, friends, pediatricians, etc. Since the number responding in each of these additional categories was small, an additional variable was constructed to count the total number of people each woman reported as supporting breastfeeding. This variable was coded as "high--2 or more people supporting

Table 4.7 FEEDING DECISION BY NUMBER SUPPORTING BREASTFEEDING: HIGH, LOW (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Amount of Support	Breast-feed	Bottle-feed	X^2
High--2 or more supporting (86)	76.7 (66)	23.3 (20)	
Low--1 or no one supporting (64)	29.7 (19)	70.3 (45)	33.08****

*p<.05. **p<.01. ***p<.001. ****p<.0001.

Table 4.8 FEEDING DECISION BY EXPOSURE TO FEEDING METHOD (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Exposure	Breast-feed	Bottle-feed	X^2
Low Brst/Low Botl (52)	53.8 (28)	46.2 (24)	
High Brst/Low Botl (27)	88.9 (24)	11.1 (3)	9.70**
Low Brst/High Botl (34)	29.4 (10)	70.6 (24)	
High Brst/High Botl (36)	61.1 (22)	38.9 (14)	7.08**

*p<.05. **p<.01. ***p<.001. ****p<.0001.

breastfeeding" and "low--1 person or no one supporting breastfeeding" (see Table 4.7). Having high support for breastfeeding results in a breastfeeding rate of 76.7% while having low support results in a rate of 29.7%.

An additional aspect of social support was investigated by looking at how many women whom the respondent knew well and who had had babies in the last two years breast-fed their babies versus those who bottle-fed their babies. Exposure to feeding method was coded in four categories: low breastfeeding exposure/low bottlefeeding exposure, high breastfeeding exposure/low bottlefeeding, low breastfeeding exposure/high bottlefeeding exposure, and high breastfeeding exposure/high bottlefeeding exposure. Low exposure refers to knowing only one or no women using that method, high exposure refers to knowing two or more women using that method. Results of this analysis conform to previously discussed findings that social support increases the likelihood that a women will breast-feed (see Table 4.8). These findings support Hypothesis 7 that women with greater numbers of friends and relative who breast-feed are more likely to breast-feed than women with smaller numbers of friends and relatives who breast-feed.

Employment Issues

The majority of women in the sample were employed fulltime both before and during this pregnancy, 68% and 65.1% respectively (see Table 4.9). Over 60% continued to work either full or parttime until the last month of pregnancy (see Table 4.10). Over 75% planned to return to work either full or parttime within a few months of birth (see Table 4.11). While it was hypothesized that women who planned to return to

Table 4.9 RESPONDENTS BY EMPLOYMENT HISTORY (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Employment Status	Before Pregnancy	During Pregnancy
Fulltime	68.0 (102)	65.1 (97)
Parttime	16.7 (25)	18.1 (27)
Not employed	15.3 (23)	16.8 (25)

Table 4.10 RESPONDENTS BY POINT IN PREGNANCY STOPPED WORKING

When Stopped Working	Frequency	Percent
3 Months or Less	4	2.7
More than 3 but Less than 6	11	7.5
6 or 7 Months	17	11.6
8 Months or More	91	61.9
Not Employed During Pregnancy	24	16.3

work soon after birth would be less likely to breast-feed than women who did not plan to return as soon, no significant relationship was found for these variables. In fact, the trend was in the opposite direction with more women who planned to return to work fulltime in the next few months breastfeeding than women who were planning to

Table 4.11 RESPONDENTS BY PLANS TO RETURN TO OR SEEK EMPLOYMENT AFTER BIRTH

Employment Plans	Frequency	Percent
No Immediate Plans	35	23.5
In a Few Months, Parttime	34	22.8
In a Few Months, Fulltime	80	53.7

Table 4.12 FEEDING DECISION BY WORK PLANS (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Work Plans	Breast-feed	Bottle-feed	X^2
No Immediate Plans (35)	54.3 (19)	45.7 (16)	
In a Few Months Parttime (34)	50.0 (17)	50.0 (17)	
In a Few Months Fulltime (80)	61.3 (49)	38.8 (31)	1.37

work only parttime or who had no immediate plans to return to work (see Table 4.12). Hypothesis 8 was therefore not supported. When looking at feeding decision by primary wage earner in the household, even more surprising findings emerge. The husband or partner was the most common primary wage earner, with over 45% of women reporting

Table 4.13 RESPONDENTS BY PRIMARY WAGE EARNER OF HOUSEHOLD

Primary Earner	Frequency	Percent
Respondent	24	16.2
Husband or Partner	67	45.3
Father	16	10.8
Mother	15	10.1
Other Family Member	6	4.1
Respondent and Partner Equal	17	11.3

Table 4.14 FEEDING METHOD BY PRIMARY WAGE EARNER (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Primary Wage Earner	Breast-feed	Bottle-feed	X^2
Respondent/Equal Partners (41)	78.0 (32)	22.0 (9)	
Other (109)	48.6 (53)	51.4 (56)	10.5^{**}

$^{*}p<.05$. $^{**}p<.01$. $^{***}p<.001$. $^{****}p<.0001$.

this. In about another 25% of cases, the primary wage earner was one of the woman's parents or another family member. In about an additional 25% of cases, the woman herself was the primary wage earner or shared this role equally with her husband or partner (see Table 4.13). When the woman was either the primary wage earner, or shared this role with her husband or partner, she was much more likely to breast-feed than women who were not in a primary earning role, with primary earner or equal partner women breastfeeding 78% of the time as compared to women not in a primary or equal earning role breastfeeding 48.6% of the time (see Table 4.14). Considering that women with higher educational attainment, who are more likely to breast-feed, might also be more likely to incur higher opportunity costs in not prioritizing their careers, this relationship was examined controlling for education. While results of this analysis were not significant, the trend was reversed for women with high school diploma or less, with primary or equal earners breastfeeding 33.3% of the time as compared to women not in that role who breast-fed 41.9% of the time. For women with some college, primary or equal earners breast-fed 71.4% of the time compared to others who breast-fed 51.5% of the time. Women who had a four year college degree or more and were primary or equal earners breast-fed 100% of the time and women in that educational category who were not primary or equal earners breast-fed 88.2% of the time. Women with high levels of education are likely to breast-feed regardless of their earning role. Even though these findings were not statistically significant, they lend some support to the idea that educational attainment may help explain the finding that primary and equal earner women

are more likely to breast-feed than are women not in that role. A similar study with a large sample would permit this relationship to be investigated more thoroughly.

Breastfeeding Knowledge and Belief

In developing a scoring scheme for the Breastfeeding Knowledge Quiz, it became obvious that not all of the items had objective right or wrong answers. While some items clearly called for factual knowledge, others must be more accurately classified as attitudes or beliefs. Therefore, the Quiz was separated into two domains, resulting in two scores, one for knowledge of breastfeeding, the other for beliefs supportive of breastfeeding. For all breastfeeding knowledge items, those answering correctly breast-fed more often than they bottle-fed. For six of the ten items, results were significant (see Table 4.15). For the breastfeeding belief items answering "correctly," refers to answers that indicate beliefs supportive of breastfeeding. As in the case of the knowledge items, for of the items, those answering correctly breast-fed more often then they bottle-fed, and for six of the ten items the relationship was significant (see Table 4.16). A score was calculated for each of the two domains of the quiz, a knowledge score and a belief score. The sample in general did poorly on the knowledge quiz with only 46.7% making a passing grade of 7 or more items correct out of 10 (see Table 4.15). Additionally, only 49.3% of the sample obtained scores of 7 or more on the belief quiz. This information underscores a lack of knowledge about breastfeeding among women who are having their first baby, at least within this sample. It also illustrates the high degree of beliefs that are not conducive to breastfeeding. Looking at the scores by feeding decision, we see that

Table 4.15 FEEDING METHOD BY BREASTFEEDING KNOWLEDGE ITEMS (PERCENT ANSWERING CORRECTLY WITH FREQUENCIES IN PARENTHESES)

Item	Breast-feed	Bottle-feed	X^2
Most women in the US today bottle-feed their newborn babies. (F)	65.4 (34)	34.6 (18)	2.46
Bottle-fed babies are just as healthy as breast-fed babies. (F)	69.5 (57)	30.5 (25)	12.15***
Breastmilk contains elements not found in formula. (T)	59.4 (85)	40.6 (58)	9.60**
Almost all women are able to produce enough milk to breast-feed successfully. (T)	65.0 (67)	35.0 (36)	9.40**
You must eat a lot of food to produce good breastmilk. (F)	58.7 (44)	41.3. (31)	0.24
Most breastfeeding mothers can eat their usual diet. (T)	57.4 (54)	42.6 (40)	0.06

Table 4.15, continued

Item	Breast-feed	Bottle-feed	X^2
A woman's sexual partner should not touch her breasts if she is breastfeeding. (F)	65.1 (69)	43.9 (37)	12.32***
Strong emotions affect the quality of breastmilk that a woman produces. (F)	63.9 (39)	36.1 (22)	2.33
Bottlefeeding is safer than breastfeeding because you can always tell if the baby is getting enough. (F)	62.8 (76)	37.2 (45)	12.19***
There are many reasons why a woman cannot breast-feed (cesarean, twins, preemie, etc) (F)	63.5 (73)	36.5 (42)	8.50**

*p<.05. **p<.01. ***p<.001. ****p<.0001.

Table 4.16 FEEDING METHOD BY BREASTFEEDING BELIEFS ITEMS (PERCENT ANSWERING EACH ITEM CORRECTLY WITH FREQUENCIES IN PARENTHESES)

Item	Breast-feed	Bottle-feed	X^2
It takes a lot of knowledge to breast-feed correctly. (F)	66.1 (37)	33.9 (19)	3.21
Breastfeeding is more convenient than bottlefeeding. (F)	75.0 (63)	25.0 (21)	25.32****
Weaning from the bottle is difficult. (T)	58.1 (43)	41.9 (31)	0.32
Weaning from the breast is difficult. (F)	75.0 (45)	25.0 (15)	13.68***
Breastfeeding will ruin a woman's figure. (F)	57.1 (84)	42.9 (63)	0.67
Bottle-fed babies sleep better than breast-fed babies. (F)	59.7 (74)	40.3 (50)	2.65

Table 4.16, continued

Item	Breast-feed	Bottle-feed	X^2
It is harder to lose weight while breastfeeding than while bottlefeeding. (F)	61.5 (80)	38.5 (50)	9.42**
Breast-fed babies should always be fed in private. (F)	63.9 (69)	36.1 (39)	8.19**
It is too hard to breast-feed if you have to go back to work. (F)	65.6 (63)	34.4 (33)	8.71**
A woman cannot use many forms of contraception if she is breastfeeding. (F)	72.6 (61)	27.4 (23)	20.05****

*p<.05. **p<.01. ***p<.001. ****p<.0001.

Note: Answering "correctly" indicates a belief that is supportive of breastfeeding.

Table 4.17 RESPONDENTS BY SCORES ON BREASTFEEDING KNOWLEDGE AND BREASTFEEDING SUPPORTIVE BELIEFS (PASS=7 OR MORE CORRECT OUT OF 10, FAIL=6 OR FEWER CORRECT)

Score	Frequency	Percent
Knowledge Score		
Pass	70	46.7
Fail	80	53.3
Belief Score		
Pass	74	49.3
Fail	76	50.7

Note: For the Belief Score, "correct" refers to breastfeeding supportive beliefs.

Table 4.18 FEEDING METHOD BY BREASTFEEDING KNOWLEDGE SCORE AND BREASTFEEDING SUPPORTIVE BELIEF SCORE (PASS=7 OR MORE CORRECT OUT OF 10, FAIL=6 OR FEWER CORRECT) (BY PERCENT WITH FREQUENCIES IN PARENTHESES)

Score	Breast-feed	Bottle-feed	X^2
Knowledge Score			
Pass	71.4 (50)	28.6 (20)	
Fail	43.8 (35)	56.3 (45)	11.64***
Belief Score			
Pass	82.4 (61)	17.6 (13)	
Fail	31.6 (24)	68.4 (52)	39.48****

*p<.05. **p<.01. ***p<.001. ****p<.0001.

Note: Answering "correctly" indicates a belief that is supportive of breastfeeding.

both scores are significantly related to the feeding decision. Over 70% of those passing the knowledge quiz breast-fed while only 43.8% of those who failed the quiz did so. More than 82% of those receiving grades of 7 or greater on the belief quiz breast-fed while just 31.6% of those receiving scores of 6 or lower did so. These findings support

Hypothesis 9 that women with greater knowledge of the benefits of breastfeeding are more likely to breast-feed than women with less knowledge of the benefits of breastfeeding. Additionally, these findings illustrate that increasing general knowledge of the benefits of breastfeeding should be one part any community level breastfeeding initiative. Looking at the quiz item by item helps to identify the items most likely to be associated with choosing to breast-feed, for example that breast-fed babies are healthier than bottle-fed babies, that most women are able to produce an adequate milk supply and breastfeeding can be done even with some special circumstances such as cesarean section, twins, and premature babies. Examining items on the belief quiz likewise can help focus public education efforts. Emphasizing the ease of breastfeeding and weaning from the breast, and the compatibility of breastfeeding with a variety of contraceptive methods appear to be important elements to include as well.

Breastfeeding and Bottlefeeding Problems

When asked whom they would ask or what they would do for breastfeeding problems and bottlefeeding problems, there were significant differences only for breastfeeding problems (see Table 4.19). Both breastfeeders and bottlefeeders were asked about both feeding methods. There were no significant differences between breastfeeders and bottlefeeders regarding the first response to whom they would ask or what they would do for bottlefeeding problems. Both groups were much more likely to say they would ask their doctor for help than any other person. While a few more

Table 4.19 WHOM RESPONDENT WOULD ASK FOR ADVICE FOR PROBLEMS WITH BREASTFEEDING AND BOTTLEFEEDING BY FEEDING METHOD (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Breastfeeders Would Ask	For Breast-feeding Problems	For Bottle-feeding Problems
Doctor	32.0 (27)	65.0 (55)
Other Expert	50.0 (42)	13.1 (11)
Own Mother	8.3 (7)	11.9 (10)
Others with Exp.	9.5 (8)	9.5 (8)

Bottlefeeders Would Ask	For Breast-feeding Problems	For Bottle-feeding Problems
Doctor	69.8 (44)	71.4 (45)
Other Expert	14.3 (9)	7.9 (5)
Own Mother	7.9 (5)	14.3 (9)
Others with Exp.	4.8 (3)	6.3 (4)
Stop Breastfeeding	3.2 (2)	NA
X^2	28.95^{****}	1.67

$^{*}p<.05$. $^{**}p<.01$. $^{***}p<.001$. $^{****}p<.0001$.

breastfeeders then bottlefeeders would ask some other expert such as a nurse or lactation consultant for help with bottlefeeding and a few more bottlefeeders than breastfeeders would ask their own mothers, differences were small. Significant differences arise when asked about breastfeeding, however. While bottlefeeders report a distribution of whom they would ask for help breastfeeding problems that looks very similar to what they would do for bottlefeeding problems, and what breastfeeders say they would do for bottlefeeding problems, breastfeeders responses for what they would do for breastfeeding problems is quite different, and highly significant. Only 32% of breastfeeders would go first to their doctor for help with breastfeeding problems. Exactly 50% would ask another expert such as a lactation consultant or nurse. Of the 51 women who would ask another expert for help with breastfeeding problems, 82.4% breast-fed. Lactation consultants, women who are personally experienced with breastfeeding and who have additional training in that area, are employed by hospitals for the purpose of providing technical support to breastfeeding women. These findings support Hypothesis 10 that women who perceive that they have a source of technical advice to deal with breastfeeding problems are more likely to breast-feed than are women who do not perceive such a source.

Epistemological Questions

Attempts at analysis of the epistemological questions soon revealed that the framework advanced by Belenky et al. (1986), was not applicable to this sample. Responses to the questions did not fall into the coding categories used so productively by Belenky and her associates. Four alternative orientations or approaches to experts and authority were developed which are similar to the epistemological perspectives of the

earlier research. The first category is called "expert orientation." In this orientation, women have great faith in experts, rely on them for advice, and believe in the objective truth of information garnered from medical experts. This category corresponds loosely to the "received knowledge" perspective of Belenky et al. The second position is called "traditional orientation." This category, which is not represented at all in the work of Belenky et al. (1986), includes reliance on mothers, friends, family members, and others with experience, including lactation consultants, but not physicians, for advice in the care and feeding of infants. A third category, called "self orientation," corresponds to Belenky's subjective orientation in which gut feelings and intuition are valued more than advice and opinions of others. A fourth category is called "unknowable orientation" since this represents the view that no one is really an expert and one cannot know what is right or true--that there is no objective truth. Response categories of all five epistemological questions were recoded according to these categories and scores were calculated for each category. There was a much greater range of score for the expert category that for the others, with scores ranging from 0 to 5. For this category, scores were dichotomized high--3, 4 or 5 and low--0, 1, or 2. The other categories scores ranged from 0 to 2 so those scores were dichotomized some--1 or 2 and none--0. Looking at feeding method by orientation scores we see that breastfeeding women are more likely to be low on expert orientation and bottlefeeding women are more likely to be high on expert orientation (see Table 4.20). Additionally, breastfeeding women are more likely to have some traditional orientation while bottlefeeding women are more likely to have no traditional orientation. This mirrors the finding reported previously that bottlefeeding women tend to

Table 4.20 FEEDING METHOD BY ORIENTATION SCORES (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Orientation	Breast-feed	Bottle-feed	X^2
Expert Orientation			
High (3, 4, or 5) (54)	44.4 (24)	55.6 (30)	
Low (0, 1, or 2) (96)	63.5 (61)	36.5 (35)	5.13*
Traditional Orientation			
Some (1 or 2)	(110)	62.7 (69)	37.3 (41)
None (0)	(40)	40.0 (16)	60 0 (24) 6.17*
Self Orientation			
Some (1 or 2)	(96)	58.3 (56)	41.7 (40)
None (0)	(54)	53.7 (29)	46.3 (25) 0.30
Unknowable Orientation			
Some (1 or 2)	(31)	41.9 (13)	58.1 (18)
None (0)	(119)	60.5 (72)	39.5 (47) 3.45

*p<.05. **p<.01. ***p<.001. ****p<.0001.

rely on physicians for advice while breastfeeding women would look to others with experience. Self orientation was not significantly related to feeding method. And while scores on the unknowable orientation were not significant, some tendency for bottlefeeding women to score in this orientation can be seen. While Hypothesis 11, that women of different epistemological perspectives would differ with regard to the factors that affect the infant feeding decision could not be tested, and therefore could not be supported as it was originally advanced, these findings do lend support to the importance of such factors in the infant feeding decision.

Additional Open-ended Items

Additional open-ended items not dictated by the hypotheses were also included in the instrument packet. Analysis has revealed some interesting findings from these items. The next item gets at the crux of the feeding decision. Women were asked what was the number one reason that they chose the feeding method they did. As with all of the open-ended questions, the drawbacks of beside interviews are clear. In-hospital administration was chosen over mail survey or telephone surveys in the weeks following birth in an effort to achieve the highest possible return rate and avoid bias. Acknowledging that new mothers would be unlikely to complete mail survey questionnaires or be available for a telephone interview, in-hospital administration seemed preferable. The trade-off has proven to be the effects of being immediately post-partum and the intrusiveness of the hospital routines limited the depth of the responses to the open-ended questions. While I still feel that this method of data collection has its advantages, in a later study, I would reduce the number of the open-ended questions and emphasize to the interviewers the

Table 4.21 MOST IMPORTANT REASON FOR CHOICE OF FEEDING METHOD BY FEEDING METHOD (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Reason	Breast-feed	Bottle-feed	X^2
Baby's Health (64)	75.3 (64)	0.0 (0)	
Mother's Health (2)	2.4 (2)	0.0 (0)	
Bonding (6)	7.1 (6)	0.0 (0)	
Physical or mental			
Discomfort of Breastfeeding (9)	0.0 (0)	14.3 (9)	
Convenience (48)	8.2 (7)	65.1 (41)	
Less Expensive (2)	2.4 (2)	0.0 (0)	
No Reason (7)	0.0 (0)	11.1 (7)	
Other (10)	4.7 (4)	9.5 (6)	113.72^{****}

$^{*}p<.05$. $^{**}p<.01$. $^{***}p<.001$. $^{****}p<.0001$.

need to be persistent in obtaining more complete responses. While somewhat brief, the responses to this item were, nevertheless, informative. There was very little overlap in the reasons given for the feeding method chosen (see Table 4.21). The large majority of breastfeeding women (75.3%) gave the baby's health as the primary reason for choosing to breast-feed. A much smaller proportion of women gave each of the following reasons:

mother's health, bonding, convenience, less expensive, and "other." For breastfeeding women this included such responses as "I always wanted to," and "Its what God made." The number one reason given by bottlefeeding women for their choice was convenience (65.1%). An additional 14.3% reported mental or physical discomfort with breastfeeding as their reason for choosing to bottle-feed. Mental discomfort includes such responses as "it just wasn't me," "it would be embarrassing in public," and "I just couldn't see myself doing that." Slightly over 11% said they had no reason for their choice, and 9.5% gave a reason coded in the "other" category. For bottlefeeding women this included such responses as "I smoke and thought it would be bad for the baby," "baby will sleep better," and "my husband didn't want me to." These findings reiterate the need for education stressing the ease as well as the benefits of breastfeeding. Some of these women said that they were returning to work or school and it would be easier to bottle-feed for that reason. While returning to work was not found to be a significant deterrent to breastfeeding, the fact that it was mentioned by the women indicates the desirability of including information on breastfeeding while working in any educational program.

When asked what advice they would give to another woman about infant feeding, 52% of the sample said they would give no advice. Of breastfeeders, 69.9% would advise another woman to breast-feed, 1.9% (one woman) would advise someone else to bottle-feed, and 28.9% would give no advice. Of bottlefeeders, 8.1% would advise breastfeeding, 9.7% would recommend bottlefeeding and an overwhelming majority, 82.3% would offer no advice (see Table 4.22). Those offering no advice gave responses like "its up to her," "no one can tell someone else what to do," and so forth. Those

Table 4.22 ADVICE TO OTHERS BY FEEDING METHOD (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Advice	Breast-feed	Bottle-feed	X^2
Breast-feed (63)	69.9 (58)	8.1 (5)	
Bottle-feed (7)	1.2 (1)	9.7 (6)	
No Advice (75)	28.9 (24)	82.3 (51)	56.01^{****}

$^{*}p<.05$. $^{**}p<.01$. $^{***}p<.001$. $^{****}p<.0001$.

Those recommending breastfeeding gave reasons similar to the reasons giving by breastfeeding women for their own choice. "She should at least try breastfeeding for the health of the baby" is a typical response. Likewise, advise to bottle-feed was explained by such statements as "its so much easier, especially if you work." Apparently, bottlefeeding women are less likely to feel that one feeding method is objectively better than another.

Responses to the question "What does the word 'woman' mean to you?" have proven to be most interesting (see Table 4.23). Although there was a tendency for

Table 4.23 MEANING OF "WOMAN" BY FEEDING METHOD (BY PERCENTAGE WITH FREQUENCIES IN PARENTHESES)

Meaning of "Woman"	Breast-feed	Bottle-feed	X^2
Definitional (41)	34.4 (29)	18.5 (12)	
"Feminine" Traits (16)	10.6 (9)	10.8 (7)	
"Masculine" Traits (67)	40.0 (34)	50.8 (33)	
Other (26)	15.3 (13)	20.0 (13)	4.73

*p<.05. **p<.01. ***p<.001. ****p<.0001.

breastfeeders to define "woman" definitionally more frequently than bottlefeeders--for example, as an adult female over a certain age, or someone who has had a child--differences were not significant. Over 34% of breastfeeders defined "woman" this way while only 18.5% of bottlefeeders did so. Proportions defining "woman" in stereotypically feminine terms--nurturing, caregiving, maternal--and those defining "woman" in stereotypically masculine terms--strong, independent, able to work and raise a family--were similar, as were proportions falling into the "other" category. What is surprising is the proportion in the sample overall defining "woman" in stereotypically masculine terms, almost 45% of all participants. Only 10.7% of the sample defined "woman" in stereotypically feminine terms.

Logistic Regression Analyses of Selected Variables

Unadjusted odds ratios of selected variables (see Table 4.24) reflect the results of the Chi-Square analyses reported above. Including variables for theoretical reasons, we can see how the odds of breastfeeding are effected by various levels of the these independent variables. Passing the knowledge quiz increased the odds of breastfeeding by 3.21 over failing the knowledge quiz and passing the belief quiz, as compared to failing the belief quiz increased those odds by 10.17. Women who planned to return to work soon after the birth were not significantly more likely to breast-feed than those who did not plan to return to work but women who viewed themselves as the primary earners in the household or as equal earners with their husbands or partners were 3.76 times more likely to breast-feed than those who did not view themselves this way. Women with high exposure to bottlefeeding (knowing two or more women well who had bottle-fed their babies in the past two years) were about half as likely (odds decreased by .44) to breast-feed as women who did not have high exposure to bottlefeeding. Women with high exposure to breastfeeding (knowing two or more women well who had breast-fed their babies in the past two years) were almost 3 and 1/2 times as likely to breast-feed as women without high exposure to breastfeeding. Having high support for breastfeeding (having two or more individuals supporting breastfeeding) increased the odds of breastfeeding by 7.81 as compared to women who did not have high support for breastfeeding. Being an adult (over 21 years of age) as compared to being an adolescent (less than 21 years of age) increased the odds of breastfeeding by 4.03 and having more than a high school education increased those odds by 5.38 as compared to women a high

Table 4.24 UNADJUSTED ODDS RATIOS OF BREASTFEEDING FOR SELECTED INDEPENDENT VARIABLES

Variables	Unadjusted Odds Ratio
Knowledge Score (pass)	3.21***
Belief Score (pass)	10.17****
Primary or Equal Earner	3.76**
Exposure to Bottlefeeding (high)	0.44*
Exposure to Breastfeeding (high)	3.42***
Support for Breastfeeding (high)	7.81****
Return to work fulltime	1.45
Age (adult--over 21)	4.03***
Education (more than high school)	5.38****
Marital Status (living with husband or partner)	3.40***
Race (white)	2.60**

*p<.05. **p<.01. ***p<.001. ****p<.0001.

TABLE 4.25 ADJUSTED ODDS RATIOS OF BREASTFEEDING--FORWARD STEPWISE CONDITIONAL LOGISTIC REGRESSION

Variable	Model 1 AOR	Model 2 AOR	Model 3 AOR	Model 4 AOR	Model 5 AOR
Belief score	10.24	7.93	8.75	7.85	6.78
Support for breastfeeding		6.11	5.4	6.52	6.11
Primary or equal earner			3.74	3.78	3.42
Exposure to bottlefeeding				0.34	0.25
Exposure to breastfeeding					2.68
Model X^2	40.19	59.48	66.74	72.47	76.35
Improvement	40.19****	19.28****	7.26**	5.73*	3.88*

*p<.05. **p<.01. ***p<.001. ****p<.0001.
145 cases

school education or less. Being married or living with partner increased the odds of breastfeeding by 3.4 over not living with a partner, and being white, as opposed to non-white increased the odds of breastfeeding by 2.6.

Given the policy orientation of this research I am required to let relationships among the variables take precedence over my initial assumptions and theoretical considerations. I selected forward conditional logistic regression for the purpose of

identifying the most effective variables in predicting infant-feeding decision-making. However, I chose the variables to be entered guided by theoretical notions and the results that were reported earlier. Since there was evidence of high levels of multicolinearity among the sociodemographic variables, marital status and education were dropped from the analysis (See Table 4.25). These variables were highly correlated with age which was included. Interestingly, the remaining sociodemographic variables, race and age were not included in the final model. Knowledge about breastfeeding became non-significant as well.

Plans to return to work soon after birth was entered into this model for theoretical reasons but did not gain significance. Breastfeeding supportive beliefs and having high support for breastfeeding exerted the strongest effects on the odds of breastfeeding, with each one increasing the odds of breastfeeding more than six times. Exposure to breastfeeding increased the odds of breastfeeding by more than two, and high exposure to bottlefeeding decreased the odds of breastfeeding by 25%. The only sociodemographic variable that remained in the model was being primary or equal earner in the household. This increased the odds of breastfeeding 3.42 times.

These findings underscore the ideological nature of the infant-feeding decision. The fact that both race and age dropped out of the model indicates that differences in these groups that are significant in the unadjusted odds ratios (see Table 4.24) are driven primarily by ideological differences. These findings are encouraging from a policy perspective because these ideological differences, by definition, are modifiable through education.

CHAPTER 5
SUMMARY AND CONCLUSIONS

My findings regarding the relationship of demographic characteristics and breastfeeding supported the findings of most previous research when examining bivariate relationships of these variables. There is a clear trend for breastfeeding rates to be higher among white women who are married or living with a partner, who are older, and who have more education. There is also a relationship between number of others supporting the decision to breast-feed and between both knowledge about breastfeeding and breastfeeding supportive beliefs. Returning to the work force soon after birth was not found to decrease the likelihood of breastfeeding, although that reason was stated by some of the women as why breastfeeding would be too inconvenient. One unexpected finding was that women who consider themselves to be the primary wage earner in the family or an equal earner with their husband or partner were more likely to breast-feed than women who did not see themselves that way.

Multivariate analysis was used to further investigate relationships among the variables. Some variables that were previously significant became non-significant in a logistic regression model (see Table 4.24). Only belief score, primary or equal earner status, exposure to bottlefeeding, exposure to breastfeeding, and number supporting

breastfeeding retained significance. This implies that differences among those in various sociodemographic categories can be explained by the fact that the significant correlates of breastfeeding occur differentially in those various groups. Loss of significance in multivariate analysis does not invalidate earlier bivariate findings. It is still true that younger women are less likely to breast-feed and women with more education are more likely to choose this method of infant feeding. Multivariate analysis provides insight into why that relationship exists. For the purposes of developing breastfeeding initiatives, it does not mean that we should ignore demographic differences in target populations. Initiatives should still be tailored to various ages, classes and races because different strategies might be appropriate to address this issue among different groups.

Race was not significant when controlling for other variables in the model. This suggests that the same factors that affect the breastfeeding decision for white women are at work with non-white women, such as lower education or lack of support of mother or partner. Further research is needed to more fully understand how African American and other minority women decide on how to feed their infants.

Likewise, age became non-significant when controlling for other variables. As in the case of non-white women, young women are apparently affected by the same factors as other mothers.

Planning to return to work soon after birth did not significantly affect a women's choice to breast or bottlefeed in either the bivariate or mulitvariate analyses. The impact of returning to work on breastfeeding is more likely to be on duration,

rather than initation of breastfeeding. While not addressed in this study of breastfeeding intentions, this issue is likely to be a productive area of research in the future. The one way in which employ affects breastfeeding rates in this sample is the finding that women who are primary earners in their households or equal earners with their husbands or partners are more likely to breast-feed than women who are not in these roles.

The Permission Theory of Breastfeeding

Knowledge of the benefits of breastfeeding is a more influential determinate of infant feeding choice for some women than others. The benefits of breastfeeding are known, even among many of those who choose bottlefeeding. Why, then, would anyone choose a method of infant feeding that is "second best?" In this study, most women who chose breastfeeding cited the baby's health as the primary reason for their choice while most bottlefeeding mothers were most likely to say that it was for convenience (see Table 4.21). Losch, Dungy, Russell, and Dusdieker (1995) suggest that this represents a dichotomy between "mother-centered" and "infant-centered" views. There is another possibility. In this still-patriarchal society, male approval is a sought-after goal for a great many women. Cultural views of the breast as primarily a sexual organ are pervasive (Morse, 1989; Small, 1994). Indeed, a woman's sexual attractiveness may be viewed as her most valuable commodity. The female breast is of primary importance in American culture in this regard. Breasts tend to be regarded as existing to give sexual pleasure to a male partner, almost to "belong" to him (Morse, 1989). Evidence of the importance placed on meeting the cultural standard for female

beauty is ubiquitous. Recent controversy surrounding silicone breast implants has revealed that breast augmentation surgery is quite common. The prevalence of anorexia nervosa and bulimia further testify to the lengths to which women will go, often at the expense of their health, in their attempts to achieve an illusive ideal of attractiveness. To a lesser extent than major surgery or eating disorders, a large proportion of American women are preoccupied with the pursuit of the cultural ideal that is currently associated with female attractiveness to men. Ironically, studies show that women underestimate the body size that most men find attractive (Rozin & Fallon, (1988). Likewise, women tend to overestimate the degree of their husbands disapproval for breastfeeding (Freed, Jones, and Schamler, 1992). While preference for a slim female body and resistance to breastfeeding among men no doubt exist, women tend to perceive greater levels of each than actually exist. This may be especially true for younger women who have not yet established a long-term relationship with a man, those single at any age, and those who are less well educated and are therefore more dependent on male support in a pragmatic way. If a woman perceives that she would risk the loss of male approval and/or male support by breastfeeding, it could be, for her, an *adaptive decision* to bottle-feed. In this country, bottlefeeding an infant does not result in severe health problems in most cases, and the advantages, while well known, tend to be soft-pedalled in an effort to avoid generating guilt for women who do not breast-feed. The decision then, for these women, is between a feeding method that is perhaps not quite as good, but still acceptable, and one that is perceived as having a negative effect on her ability to establish a relationship with a man, or to

maintain one if she has a partner. With the persistent cultural valuation of the intact family, establishing a permanent and long term relationship with a man would tend to be perceived as important for the woman herself as well as for her child. This explanation also accounts for the importance of the approval of the male partner, if she has one, on her feeding decision. Under patriarchy, she needs the "permission" of her partner to infringe on his territory--her breasts--by using them to nourish a child. Women who are better educated may be less affected by such considerations. These women may not only place a higher value on health benefits to the child, having been socialized to utilize scientific findings in decision-making in general, but they may also be less dependent on male approval. If they are professionals, they have access to economic resources directly and might be less likely to feel dependent on their sexual attractiveness as a means to achieve financial security for themselves and their children. Furthermore, men with higher levels of education as well as more knowledge of the benefits of breastfeeding are more likely to approve of breastfeeding (Littman, Medendorp & Goldfarb, 1994), so not only are these women less likely to feel dependent on male approval, they are more likely to have "permission" to breast-feed.

Women without a long-term partner would tend to perceive the "generalized male other" as disapproving of breastfeeding--and to some extent she may be correct. Freed et al. (1993) found that men commonly held misconceptions about breastfeeding that included the belief that breastfeeding was bad for breasts and that it would interfere in sexual relations after birth. In one qualitative study of that asked people from all walks of life what they thought about breastfeeding, one man revealed open hostility to

the idea with his response, "breastfeeding? I'd cut my wife's tits off if she ever tried it!" (Raphael, 1976). Such extreme attitudes, while rare, color the cultural view of breastfeeding.

Women with a male partner would have an opportunity to ask him about his views regarding breastfeeding and base the decision on information more grounded in the reality of her specific situation. In some cases this will, of course, be that her partner disapproves. In these cases, only the most independent woman, in terms of both emotional dependence on the relationship and financial dependence on the man would be very likely to breast-feed over the objections of this significant other. In other words, the lack of a supportive male partner--whether this is because she is single or because she is married to a man who disapproves of breastfeeding--is a primary deterrent to breastfeeding. The view of a particular man is not deterministic in all cases, however. Some women might be so strongly affected by cultural influences that they would not wish to breast-feed even if their partner did not object. Lack of knowledge of breastfeeding and exposure to mostly bottlefeeding among women in the peer group would also exert an influence. And some women, with a non-supportive spouse, or without a partner, do choose to breast-feed. Women who have been strongly socialized to value breastfeeding, particularly if they were breast-fed themselves, would be less likely to see the breast as exclusively male territory and be less likely feel the need for "permission" to breast-feed.

The concept of self-efficacy may be related to the permission theory of breastfeeding in that women with high self-efficacy may be less likely to need male

permission to make the decision to breast-feed.. Utilizing a self-efficacy scale in a future study of infant-feeding could investigate this relationship.

To better understand the origin of the appropriation of the female breast as an organ for male pleasure we can look again to the work of Mary O'Brien (1981) and Robbie Davis-Floyd (1990). O'Brien attributes the development of patriarchy to the male need to mediate their sense of alienation from their biological paternity. Lacking the physical mechanisms of pregnancy and childbirth that mediate the temporal gap between conception and childbirth for women, and grappling with the essential uncertainty of paternity that does not exist for women, men have sought to control women and the children the bear in a variety of ways in various cultures throughout recorded history. This has included the motivation to appropriate those mediating mechanisms. Davis-Floyd argues that one of the elements that must be removed from childbirth, if it is to support the technological paradigm rather than serve as a potential route to empowerment for women, is its sexual associations. In childbirth this is accomplished by shaving of the pubic hair and draping the area and by obliterating all sensation through the use of anesthesia. Breastfeeding is, for many women, a sensual, if not explicitly sexual experience. Bottlefeeding eliminates the possibility that the breast will serve as a source of sensual pleasure for the women in the absence of her male partner. Acknowledgment of breastfeeding as potentially sensual would require the acceptance of the breast as a source of female pleasure whether as a result of the sensually pleasing sensation of breastfeeding or as part sexual activity with her male partner. Widespread bottlefeeding permits the female breast to become an object of

male pleasure, denying its potential as a source of sensual and sexual pleasure for women. If, as according to O'Brien, the physiological processes associated with childbearing give women a kind of advantage over men, cultural abandonment of breastfeeding and the transformation of childbirth into a technological accomplishment would eliminate that advantage for women. While few men or women would be likely to articulate this explanation on an individual level, it is still a useful model of how this culture view evolved.

Socialization for Breastfeeding

Two of the significant variables in the model fall into a category that might be called "social support," with high exposure to bottlefeeding reducing breastfeeding behavior and high numbers supporting breastfeeding increasing that behavior. These variables might be more accurately classified as approval rather than social support, however. The traditional general definition of social support address issues such as having one or more individuals available to provide practical help, emotional support, and technical information. Neither exposure to feeding method nor numbers supporting feeding method are central concepts in social support. When further considering that breastfeeding beliefs remained significant, while breastfeeding knowledge did not, a picture emerges that suggests that socialization, rather social support may be a more useful concept. Socialization, the lifelong social experience by which individuals develop human potential and learn the patterns of their culture (Macionis, 1995), includes the transmission of beliefs, behavior, attitudes and values. It also includes the idea that socialization varies by class and that the process continues throughout the life

course. Numerous agents of socialization are acknowledged as contributing to the socialization of any individual including parents, teachers, peers, and the media. Using this framework, we can see that difference in attitudes toward breastfeeding in both women and men, can be seen as resulting from differential socialization. Clearly, knowledge of the health benefits of breastfeeding is more influential for some women that for others, since the relationship between knowledge and breastfeeding disappeared when controlling for other variables. Valuation of information regarding such health benefits has been shown to vary demographically. For example, well educated professionals are more likely to heed advice to exercise and eat low fat diets than are members of lower socioeconomic status (Calnan & Rutter, 1986).

Development of Breastfeeding Initiatives

In addition to simply advancing knowledge about the decision to breast-feed from an academic perspective, it is a goal of this study to provide information that can be used to design community initiatives to increase the rate of breastfeeding.

In considering the best way to focus initiatives to increase breastfeeding rates, if becomes clear that much more is needed than simply attempting to educate pregnant women about the advantages of breastfeeding. This study supported previous findings that the majority of women who breast-feed make that decision well before the last few months of pregnancy when most prenatal education takes place. Most of the women in this sample decided before the last trimester, with 40% deciding in the first 6 months of pregnancy and over 28% deciding before pregnancy. Women who waited until birth to decide were the most likely to choose bottlefeeding with almost 69% of women

waiting that long choosing bottlefeeding (see Table 4.3). This underscores the fact that while prenatal education can have a positive effect, interventions should occur before this point.

How then, should we proceed to develop effective initiatives? Since approval of others for breastfeeding is so important, not only pregnant women, but society as a whole must be re-socialized to support breastfeeding. While specific strategies to accomplish this may vary in different age, socioeconomic and race/ethnic groups, the idea remains the same. The pregnant woman is strongly influenced by those around her, including her own mother, her husband or partner, her other relatives and friends, and her health care provider. Efforts to increase rates of breastfeeding must therefor include the general public. Much in the way that the use of child safety seats in automobiles and the desirability of childhood immunizations have been promoted and accepted by most Americans, breastfeeding must be promoted. Such promotion should continue to include education of the benefits of breastfeeding--even though this variable lost significance when other variables were controlled, it was the most common reason cited for the choice to breast-feed. For some groups, such information is extremely important in their decision-making process. Indeed, in education regarding the benefits of breastfeeding, the advantages are often played down, apparently in an attempt to avoid causing guilt for mothers who do not breast-feed. While it should not be the goal of any promotional efforts to generate guilt, the full extent of the benefits of breastfeeding should be made known. A public service campaign to raise breastfeeding rates should also address "myths" about breastfeeding that were shown to be associated

with the decision to bottle-feed, such as the belief that weaning from the breast is more difficult than weaning from the bottle, that bottlefeeding is more convenient than breastfeeding, and concerns that contraceptive choices are limited by breastfeeding. Beliefs that breastfeeding negatively affects the appearance of the breasts and that one's sexual partner should avoid touching the breasts of a woman who is breastfeeding are additional examples of myths that need to be corrected. A view of the breastfeeding woman as asexual also needs to be altered. The opinion that breastfeeding should always take place in privacy lend further support to the idea that breastfeeding, since it involves the breasts, which are viewed as primarily a sexual organs, is itself classified as a sexual act. Breastfeeding would therefore constitute a practice that falls somewhere between infidelity and incest.

The finding that high exposure to bottlefeeding increased the likelihood of bottlefeeding speaks to the critical need for appropriate interventions in groups with the highest levels of bottlefeeding, such as young, minority women. Peer socialization may be especially important in this group, so beginning to decrease bottlefeeding is a particular challenge. Providing models of breastfeeding behavior is one promising approach. The statement of one mother in this study, when responding to the question, "why did you choose to [breast-feed or bottle-feed] your baby?" answered, "it just wasn't me," and another, "I just couldn't see myself doing that." The challenge in this group is, then, to find a strategy to overcome the powerful effects of peer socialization, which would tend to reinforce the view that breastfeeding is incompatible with the sexual attractiveness of women, until breastfeeding becomes more common. Providing

models of breastfeeding behavior, including peer counselors as well as celebrity spokespersons for breastfeeding to whom these young women can relate seems a likely avenue to pursue.

It is particularly important to develop an effective intervention for mothers of the youngest ages. The proportion of teenage childbearing is high and these women breast-feed at the lowest rates--in this study, almost one fourth (23%) were between the ages of 14 and 18 years and over two thirds of them bottle-fed their infants. Furthermore, the feeding decision for later children has been shown to be associated with the feeding method chosen for previous children (DaVanzo et al. 1985). So even if the circumstances that inclined a woman to choose bottlefeeding with her first child, she would be less likely to breast-feed later born children.

Models of breastfeeding are lacking in our culture today. While it is somewhat more common to see mothers nursing infants in such public places than it was 20 years ago, it is still not the norm. And reports are still occasionally heard of women who are arrested for breastfeeding or are asked to leave public places on the grounds that breastfeeding constituted offensive behavior. Marchand and Morrow (1994) found that the unacceptability of public breastfeeding was a key theme that emerged in a qualitative study of minority women. Infants are seldom shown nursing in the media. Neither television programming nor commercial messages frequently show babies being breast-fed. Movies, likewise, seldom portray this activity. Incidental photographs of infants in magazines generally portray them nursing from a bottle if they are shown feeding at all. Children's books, with the exception of those intended to prepare young

children for the birth of sibling, likewise show mostly bottlefeeding. Indeed, even college level texts conform to this pattern. One leading college sociology text uses a close-up photograph of a newborn drinking from a bottle to illustrate the sucking reflex (Macionis, 1995).

Just as the media have been enlisted in efforts to present the public with more egalitarian roles for women and men and less stereotypical roles for minorities, the cooperation of the media would constitute an extremely useful component in an national breastfeeding initiative. The intentional portrayal of nursing babies could be a major factor in changing socialization in the direction of favoring breastfeeding. Breastfeeding could be portrayed as a casual, matter-of-fact occurrence in the lives of characters as well as, in some cases, being spotlighted in the story lines of some programs. Public service messages could be televised conveying information about advantages and providing appropriate models of breastfeeding behavior. This would include the use of spokespersons most appropriate for target groups. Such a campaign should utilize what we know from the advertising world. For example, to reach young, single, black mothers, an attractive young black woman, a bit older and a bit more affluent that the average woman in the target group, would be shown breastfeeding her baby and talking about breastfeeding as a desirable choice. Women of various races and ages should be used to correspond to various target groups. In addition, men from various groups should be depicted in some of these spots, reacting positively to the woman who is nursing and speaking to prospective fathers regarding their favorable view of breastfeeding. Subtle messages that the nursing mother is an attractive woman could be

an effective tool to dispel the idea of the incompatibility of these roles. These women and couples could be portrayed in various settings, at home, in social situations where they receive approval of others, at the pediatrician's office discussing benefits with him or her, attending religious services, traveling, etc. The goal of these messages would be to portray breastfeeding as something that a wide variety of women practice, that breastfeeding can take place anywhere if done discreetly, and that others, especially male partners, approve of the behavior.

Education about the benefits should take place in a variety of settings from medical school to elementary school. The training of physicians should continue to include the full range of benefits of breastfeeding as well as socialize medical students to encourage women to breast-feed. Even though the feeding decision often takes place before the woman discusses the matter with a health care provider, the input of this professional is still an important factor, reinforcing the decision if it is already made.

Health classes from elementary school onward should include units on breastfeeding appropriate to the age of the students. Family living classes in high school and college courses in family, health and human sexuality should address the issue ass well.

The advertising of infant formula manufacturers should be re-examined to assure that the images and sub-text as well as the actual text do not convey the message that their product is just as good as mother's milk. Distribution of formula to all new mothers in the hospital should be curtailed. Although the infant-feeding decision is likely to have been made long before the baby is born, the institutional approval of

these products that is conveyed when they given out by the hospital is counterproductive.

Efforts such as breastfeeding support groups and the provision of lactation consultants should continue. Support groups such as La Leche League and others like it should have the full support of health care providers and hospital personnel. Peer counseling and other educational programs have been shown to have a positive effect on breastfeeding behavior (Hartley & O'Connor, 1996). These efforts, in addition to fulfilling their intended purpose of increasing breastfeeding rates in target populations would contribute to a cultural image of breastfeeding as worthwhile.

While this study has contributed to knowledge of breastfeeding in a number of ways, some shortcomings must be addressed. First, small sample size prevented some kinds of analyses, especially the investigation of interactions among variables. Second, interview conditions on the postpartum floor resulted in less depth of the open-ended responses. The design of a later study should not only include larger numbers but should make a special effort to facilitate fuller responses to the open-ended questions.

Implications for Future Research

The data presented in this dissertation offered evidence that suggested and supported the development of the permission theory of breastfeeding, but this study does not test the theory directly. A follow-up study should directly investigate the attitudes which form the basis of this theory. Men and women of various ages as well as children should be included. Questions would need to be carefully worded to access ideas that may not be clearly articulated in the minds of those who hold them. Focus

groups would be a most useful method of data collection for such a study. The question regarding why the woman chose the feeding method she did needs to be more fully investigated. Particularly the response of bottlefeeding mothers that they chose to bottle-feed because it was convenient needs further exploration. The concept of convenience can include several issues, including, but not limited to, the time required by breastfeeding itself. The time and energy required to pump and store breastmilk and issues concerning the cooperation she has from her partner or other support person should also be examined. The finding that women who are primary or equal earners should be more fully explored in order to shed light on exactly why this should be the case. Issues of balance of power as well as such factors as having a job that has enough flexibility to permit breastfeeding while employed such be examined. Focus groups could be used to investigate these issues.

One factor that could not be adequately explored in this study was socioeconomic status. About 20% of the women did not know what their household income was. (See Table 4.1). This indicates that others may have been unsure as well, which renders these results unreliable. Evaluating this variable in a project that utilized interviews would permit a trained interviewer to assess socioeconomic status observationally and would help to confirm self-reported data.

A longitudinal study would allow the investigation of the influences of various factors on the duration of breastfeeding. Do women vary in how likely they are to be able to carry out their plans to breast-feed? The issue of returning to work needs

further investigation. Such a study would help to identify structural barriers to breastfeeding and work.

A demonstration project should implement newly-developed initiatives so that effectiveness can be evaluated. Such a project should target groups most at risk both in terms of infant mortality and morbidity as well as low rates of breastfeeding.

It is my hope that this dissertation may prove useful increasing understanding of the infant-feeding decision and in the development of initiatives that will increase the rate of breastfeeding.

APPENDIX A

BREASTFEEDING QUESTIONNAIRE

Rev. 1-25-96

Patient's Name _____

ID# _____

Date ____/____/_____

Interviewer _____

My name is _____. I am working on this project with doctors and researchers to better understand how mothers make decisions about their babies and how health care providers can assist mothers in making these choices.

In this questionnaire, we will ask you questions about your baby, your decisions about how to feed your baby, and your attitudes and beliefs.

Your participation in this project is voluntary. You may refuse to be interviewed, or you may stop the interview at any time. The obstetricians at Forsyth Memorial Hospital have reviewed this project and given their approval for their patients to participate.

All of your answers will be kept confidential. No one but the research staff will know whether or not you participated. If results of the study are published, no patients names will ever be used. Do you have any questions? May we begin?

SECTION I. First we will ask a few questions about your baby.

1. What is your baby's date of birth? ____/____/____
   mm dd yy

2. What is your baby's sex? _____ male _____ female

3. What was your baby's birth weight? _____

4. How long was your pregnancy? _____ weeks

5. Where did you receive your prenatal care? Please circle the letter of your answer.

   1) Reynolds Health Center
   2) County Health Department
   3) Wake Forest University Physicians
   4) Private obstetrician's office
   5) Carolina Birth Center
   6) no prenatal care
   7) other (please specify)_____

6. How do you plan to feed your baby? (Read the question, allow respondent to answer. If she says "formula feed," repeat back to her "will formula feed entirely." If she says "breastfeed," say "with any supplements?" then read the explanations that are in parentheses for answers 2, 3, & 4 to place in the best category. Use 5 or 6 only if she says those things.)

   1) will formula-feed (entirely)
   2) will both breast-feed and formula-feed (one bottle of formula a day or more)
   3) will breast-feed with some regular supplements (less than one bottle of formula a day but at least one per week.)
   4) will breast-feed (formula given rarely or never)
   5) will "try to breast-feed"
   6) will breast-feed a little, then bottle-feed.
   7) still not sure

7. When did you decide whether to breast-feed or bottle-feed this baby? (Circle one)

1) before this pregnancy
2) in the first 6 months of pregnancy
3) in the last 3 months of pregnancy
4) at the time of birth

8. How were you fed when you were an infant? (Circle one)

1) breast-fed
2) bottle-fed
3) both breast and bottle-fed
4) don't know

SECTION II. Next we will ask you about others who may have influenced your choice to breast-feed or bottle-feed your baby. **Circle the one best answer**.

1. Did you discuss infant feeding methods with any of the following people? (mark N/A, no, or yes.)

2. What was their response? (Ask for each person marked "yes" in Q1, and mark in supported breastfeeding, supported bottlefeeding or supported neither over the other.)

	N\A	no	yes	sup. BstF	sup. BotF	sup. neither
1. Mother	____	____	____	____	____	____
2. Sister	____	____	____	____	____	____
3. Gma	____	____	____	____	____	____
4. friend	____	____	____	____	____	____
5. hsb/prt	____	____	____	____	____	____
6. prnt.hcp	____	____	____	____	____	____
7. pedtrcn	____	____	____	____	____	____

8. others (specify) can be other sister(s), other friend(s), other grandmother, etc.

3. How many women that you know fairly well and spend time with, including sisters, neighbors, friends, and so forth, have had babies in the last two years?

_____ women who have had babies

4. Of these women, how many bottle-fed their babies and how many breast-fed them?

_____ bottle-fed _____ breast-fed

5. Did you attend childbirth classes during your pregnancy?

1) no
2) yes If yes, please tell us which classes you took and who sponsored them.

Class:_____

Sponsored by:

_____

6. Did you attend La Leche League meetings or any other class or meeting specifically designed to provide information on breastfeeding?

1) no
2) yes If yes, please tell us the name of the organization that sponsored the class or meetings that you attended.

1) La Leche League
2) Barbara Carter's breastfeeding classes
3) other (please specify)

_____

7. Have you read anything that particularly influenced your feeding decision? What?

8. Has anyone been opposed to your feeding choice? Who was it, and what did they say?

SECTION III. Now we will ask you about your employment history and plans.

1. Were you employed before this pregnancy? ____yes, FT ____yes, PT ___no

2. Were you employed during this pregnancy? ____yes, FT ____yes, PT ___no

3. How far along were you in this pregnancy when you stopped working?

   1. 3 months or less
   2. more than 3 but less than 6 months
   3. 6 or 7 months
   4. 8 months or more

4. Which category best describes your present occupation? (If you are not currently employed, which ONE best describes your LAST job?)

   ☐[1] Professional, technical, and related occupations (like teachers/professors, nurses, lawyers, physicians, and engineers)

   ☐[2] Clerical and related occupations (like secretaries, clerks or mail carriers)

   ☐[3] Sales occupations (like sales persons, demonstrators, and agents)

   ☐[4] Service occupations (like police, cooks, or hairdressers)

   ☐[5] Skilled crafts, repairers, and related jobs (like carpenters, or phone line workers)

   ☐[6] Equipment or vehicle operators and related occupations (like drivers, railroad brakemen or garment workers)

   ☐[7] Laborers (like helpers, longshoremen, or warehouse workers)

   ☐[8] Farmers (owners, managers, operators, or tenants)

   ☐[9] Homemaker or housewife

   ☐[10] Other (please specify)_____

5. Do you have plans to return to or seek employment?

1) No, I have no employment plans at this time.
2) Yes, but not for several years. _____FT _____PT
3) Yes, within the next year or so. _____FT _____PT
4) Yes, in a few more months. _____FT _____PT
5) Yes, as soon as possible. _____FT _____PT

A. If yes, where will your baby stay while you are at work?

1) in a day care center
2) in a day care home (someone who cares for a few children in her home)
3) in own home with father
4) in own home with other family member
5) in own home with nanny or babysitter
6) in the home of a friend or neighbor
7) in the home of another family member
8) in home with mother (working at home)
9) baby will go to work with mother
10) Other (please specify)_____
11) Don't know

6. How many people contribute to the your household income? _____ Who are they?

7. Of those, who is the primary wage earner? (who brings in the most money?)

APPENDIX B

BREASTFEEDING KNOWLEDGE QUIZ

BREASTFEEDING KNOWLEDGE QUIZ

These questions are about beliefs and attitudes toward infant feeding. Please circle "T" for TRUE or "F" for FALSE.

T F 1. Most women in the US today bottle-feed their newborn babies.

T F 2. It takes a lot of knowledge to breast-feed correctly.

T F 3. Bottle-fed babies are just as healthy as breast-fed babies.

T F 4. Breast milk contains elements not found in formula.

T F 5. Breastfeeding is more convenient than bottlefeeding.

T F 6. Almost all women are able to produce enough milk to breast-feed.

T F 7. You must eat a lot of food to produce good breastmilk.

T F 8. Weaning from the bottle is difficult.

T F 9. Weaning from the breast is difficult.

T F 10. Breastfeeding will ruin a woman's figure.

T F 11. Bottle-fed babies sleep better than breast-fed babies.

T F 12. Most breastfeeding mothers can eat their usual diet.

T F 13. It is harder to lose weight while breastfeeding than while bottlefeeding.

T F 14. Breast-fed babies should always be fed in private.

T F 15. A woman's sexual partner should not touch her breasts if she is breastfeeding.

T F 16. Strong emotions affect the quality of breastmilk that a woman produces.

T F 17. It is too hard to breast-feed if you have to go back to work.

T F 18. A woman cannot use many forms of contraception if she is breastfeeding.

T F 19. Bottlefeeding is safer than breastfeeding because you can always tell if the baby is getting enough.

T F 20. There are many reasons why a woman cannot breast-feed (for example, cesarean birth, twins, premature baby, etc.)

APPENDIX C

EPISTEMOLOGICAL QUESTIONS

EPISTEMOLOGICAL PERSPECTIVE QUESTIONS

BE SURE TO START THE TAPE RECORDER AND ENTER THE ID #
(speak it into the tape recorder)

1. When learning about taking care of babies, including the best way to feed a baby, do you rely on experts?

2. If not, who or what do you rely on?

3. How do you know someone is an expert?

4. If experts disagree on something today, do you think that someday they will be able to come to some agreement?

5. How do you know what is right, or true?

6. If you were breastfeeding your baby and you ran into problems, what would you do? Where would you go or whom would you ask for help or advice?

7. If you were bottlefeeding your baby and you ran into problems, what would you do? Where would you go or whom would you ask for help or advice?

8. What is the most important reason that you decided to [breast-feed or bottle-feed] your baby?

9. What would you tell another woman who asked for your advice about whether to breast-feed or bottle-feed?

10. Thinking back over your pregnancy, how did you feel about the ways that your body changed while you were pregnant?

11. What does the word "woman" mean to you? What words would you use to describe a woman?

APPENDIX D

DEMOGRAPHIC QUESTIONNAIRE

BACKGROUND INFORMATION

The following questions will tell us what you have in common with other women who recently gave birth at Forsyth Memorial Hospital. **All of your answers are confidential**.

1. What is your birthdate? ☐ - ☐ - ☐
   month day year

2. What category below best describes your racial/ethnic background? If you are of mixed racial/ethnic background, check the category with which you most closely identify yourself.

   ☐ 1 Asian or Pacific Islander (This area includes, for example, China, India, Japan, the Philippine Islands, Korea, Samoa, etc.)

   ☐ 2 Hispanic (Persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race)

   ☐ 3 African-American (not Hispanic) (Persons having origins in any of the black racial groups of Africa)

   ☐ 4 American Indian or Alaskan Native (Persons having origins in any of the original peoples of North America)

   ☐ 5 White (not Hispanic) (Persons having origins in any of the original peoples of Europe, North Africa, or the Middle East)

3. What is your marital status?

- ☐ 1 Married, living with husband
- ☐ 2 Living as married (not legally married)
- ☐ 3 Have an involved partner but not living together
- ☐ 4 Separated
- ☐ 5 Divorced
- ☐ 6 Widowed
- ☐ 7 Single (never married)

4. On the scale below, please check the ONE answer that BEST describes the highest level of formal education you have COMPLETED.

- ☐ 1 No formal education
- ☐ 2 Grade school (1-8 years)
- ☐ 3 Some high school (9-11 years)
- ☐ 4 High school graduate
- ☐ 5 Vocational or training school after high school
- ☐ 6 Some college
- ☐ 7 Associate degree (AD or AA)
- ☐ 8 College graduate (BA or BS)
- ☐ 9 Some college or professional school after college
- ☐ 10 Completed a master's degree
- ☐ 11 Completed a doctoral degree (Ph.D., M.D., D.D.S., J.D.)

5. If you are currently married, on the scale below, please check the ONE answer that BEST describes the highest level of formal education YOUR SPOUSE completed.

- ☐ 1 No formal education
- ☐ 2 Grade school (1-8 years)
- ☐ 3 Some high school (9-11 years)
- ☐ 4 High school graduate
- ☐ 5 Vocational or training school after high school
- ☐ 6 Some college
- ☐ 7 Associate degree (AD or AA)
- ☐ 8 College graduate (BA or BS)
- ☐ 9 Some college or professional school after college
- ☐ 10 Completed a master's degree
- ☐ 11 Completed a doctoral degree (Ph.D., M.D., D.D.S., J.D.)
- ☐ 12 N/A (Not Applicable)

6. Roughly how much income from all sources (including earnings, pensions, investments, etc.) did your household have last year (before taxes)?

- ☐ 1 Less than $10,000
- ☐ 2 $10,000 to $19,999
- ☐ 3 $20,000 to $34,999
- ☐ 4 $35,000 to $49,999
- ☐ 5 $50,000 to $74,999
- ☐ 6 $75,000 to $99,999
- ☐ 7 $100,000 or greater

8. Which of the following people live in the same household that you do? (Circle ***ALL*** that apply.

1) your baby
2) your baby's father
3) your mother
4) your father
5) your grandmother
6) your grandfather
7) other family members. How many? _____
8) others who are not family members. How many? _____

9. Altogether, how many people, including yourself, live in your household?

_____ people

10. Please tell us the city or town, county and state in which you live.

City or town _____,

County _____, State _____

Thank you for participating in this interview. Your responses provide us with important information that helps us to understand the needs of mothers and infants. Would you agree to be contacted later about how your feeding choice is working out for you, if we continue our study? If so, would you give us your name and phone number so that we can contact you later?

Name _____

Telephone number _____

APPENDIX E

CODING FOR EPISTEMOLOGICAL QUESTIONS

CODING CATEGORIES FOR EPISTEMOLOGICAL QUESTIONS

1. Rely on experts?

   1, yes; 2, no; 3, sometimes, some of them, etc.

2. If not, who or what?

   If 1 is 1, then leave 2 blank. If 1 is 2 or 3, it should be answered. If not, its missing.

   RECORD 1ST AND 2ND RESPONSES

   1. self, gut feeling, intuition, instinct, common sense
   2. own mother
   3. other mothers, family members, friends, Dad, someone with experience, etc.
   4. own experience
   5. books, videos
   6. other (Mother Nature)

3. How do you know someone is an expert?

   RECORD 1ST AND 2ND RESPONSES

   1. doctor or other health professional (nurse, lactation consultant)
   2. education, credentials, information, knowledge, has done studies, teaches
   3. experience
   4. recommended by others
   5. other
   6. you don't know

4. If experts disagree, do you think someday they will come to agreement?

   1. yes
   2. no
   3. maybe, not necessarily, should, depends, etc.
   4. don't know

5. How do you know what is right, or true?

1. subjective (feels right, intuition, etc)
2. procedural (books, research, majority opinion, etc.)
3. empirical (trial and error, something good comes out of it)
4. prayer or Bible
5. other
6. don't know, or cannot know

6. If you were breastfeeding and had problems, what would you do?

RECORD 1ST, 2ND, AND 3RD RESPONSES

1. pediatrician or other doctor
2. other expert (La Leche League, nurse, lact. consultant, hosp. or clinic personnel)
3. self
4. own mother
5. other mothers, friends, family members, etc.
6. books
7. stop breastfeeding (Always record this one. If three have already been recorded, put in place of 3rd response.

7. If you were bottlefeeding and had problems, what would you do?

RECORD 1ST, 2ND, AND 3RD RESPONSES

1. pediatrician or other doctor
2. other expert (La Leche League, nurse, lact. consultant, hosp. or clinic personnel)
3. self
4. own mother
5. other mothers, friends, family members, etc.
6. books
7. try breastfeeding (Always record this one. If three have already been recorded, put in place of 3rd response.

8. What is the most important reason you chose the feeding method you did?

RECORD 1ST, 2ND, AND 3RD RESPONSES

1. baby's health
2. mother's health
3. easier to lose weight
4. bonding/closeness, something that bottle doesn't offer
5. physical discomfort of breastfeeding
6. mental or emotional discomfort of breastfeeding
7. tried breastfeeding but had difficulty
8. convenience/time/patience/husband or others can feed
9. returning to work or school
10. smoking
11. less expensive
12. always wanted to/God created, etc.
13. dangerous (infections, problems with breastfeeding)
14. other
15. no reason, just decided, etc.

9. What would you tell another woman about whether to breast of bottle-feed?

1. breast-feed, or try to
2. bottle-feed
3. up to her, no advice, which ever is better for her, etc.

10. How did you feel about pregnancy changes?

RECORD 1ST, 2ND, AND 3RD RESPONSES

1. did not like weight gain
2. did not mind weight gain
3. sick
4. pain
5. liked baby's movements
6. did not like baby's movements
7. strange, weird

(continued on next page)

8. miraculous, amazing, etc.
9. emotional
10. special treatment
11. stretch marks
12. glad its over
13. worried about not gaining weight
14. other

10A. Global classification of responses to 10

1. generally positive
2. generally negative
3. about equal positive and negative
4. negative, but worth it

11. What does the word "woman" mean to you?

RECORD 1ST, 2ND, AND 3RD RESPONSES

1. adult female over a certain age (any definitional response)
2. mother, pregnancy, childbirth, lactation, life-giver
3. caretaker, nurturer, sensitive, loving, patient, self-sacrificing, etc.
4. responsible, strong, capable, experience, smart, independent, can balance work and family, can be head of hh, confident, mature, etc.
5. better than a man
6. me, you, my mother, other individual woman
7. other (made from the rid of man, feminist, feminine, unique, complex, wife, etc.

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BIOGRAPHICAL SKETCH

Teresa Rust Smith received her undergraduate education at the University of North Carolina at Asheville and the University of Florida where she graduated with a Bachelor of Science degree in psychology in 1987. She received her master's degree from the University of Florida in sociology in 1990. After completing course work for the doctoral degree in 1992, she moved to Winston-Salem, North Carolina, where she has worked at Wake Forest University as a research associate in the Bowman Gray School of Medicine since 1992 and a visiting instructor in sociology since 1993.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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