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The primary purpose of this study was to examine the relationship between race and infant feeding attitude on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. The secondary purpose of this study was to examine the perceived cultural influences on infant feeding decisions and breastfeeding initiation.

A descriptive non-experimental mixed-methods design was used in this study to examine the relationship between race and infant feeding attitudes on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. This study used a convenience sample and participants were recruited at prenatal classes from three different geographical locations in North Carolina. A Prenatal Data Collection Tool was used to gather demographic data and information about intended feeding patterns. The Iowa Infant Feeding Attitude Scale was used to measure the variable of infant feeding attitudes. In addition to the instruments used for this study, an open ended question about culture was included as part of the survey Participants were contacted by the researcher after discharge by phone to determine breastfeeding initiation. Results suggest that race was not a significant variable and there is no difference in infant feeding attitude scores between African American and Caucasian women in this study. There was also no difference in the relationship between decision to breastfeed and breastfeeding initiation in African American and Caucasian women. Infant Feeding Attitude was found

to be a predictor of decision to breastfeed and breastfeeding initiation. Study findings will be used to assist healthcare providers in understanding the relationship between infant feeding attitude and breastfeeding practices that may affect the disparity that exist in the breastfeeding practices of African American women.

INFANT FEEDING ATTITUDES, FEEDING METHOD CHOICE, AND BREASTFEEDING INITIATION AMONG AFRICAN AMERICAN AND CAUCASIAN WOMEN

by

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Approved by

_____
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This dissertation is dedicated to my husband, Barry, and to my two children, Mariah and Tyler. Without their love and support, completion of this dissertation would not have been possible or worthwhile.

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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CHAPTER I

INTRODUCTION

Breastfeeding has many benefits for both the infant and mother. However despite these many benefits, African American women are less likely than Caucasian women to breastfeed their babies. If African Americans choose to breastfeed, they frequently discontinue breastfeeding before 6 months postpartum, thus depriving their infants of important nutritional and developmental benefits (CDC, 2010).

Infants are deprived of many benefits when women decide not to breastfeed. Some of these benefits include increased resistance to infectious diseases, enhanced immune systems, and reduced risk for chronic diseases. Other benefits for infants include better growth and developmental outcomes. Babies who are breastfed develop better cognitive skills. They are also less likely to be obese. This may lead to the prevention of health disparities related to hypertension and heart disease that are caused by obesity in the African American population. Breastfed infants are less likely to suffer from diarrhea, ear infections, lower respiratory infections, urinary tract infections, and bacterial meningitis. Breast milk helps protect infants against allergies, Sudden Infant Death Syndrome, and digestive disorders (American Academy of Pediatrics, 2005; Chen & Rogan, 2004; Dennis, 2002; Hale, 2007; James & Lessen, 2009; Pemberton, 2005; Petryk, Harris, & Jongbloed, 2007; Li, Rock, & Grummer-Strawn, 2007; Schiff, 2006; Weinstein, Oleske, & Bogden, 2006). In addition, a study conducted by the World Health Organization

(Horta et al., 2007) found evidence to suggest that breastfeeding may have long term positive effects for the infant. Lower mean blood pressure, lower total cholesterol, higher performance in intelligence tests, and lower prevalence of overweight/obesity and type-2 diabetes was found in subjects who were breastfed.

Infants are not the only ones who benefit from breastfeeding. Breastfeeding also improves the mother's physical and mental health. Breastfeeding promotes weight loss in the mother, reduces the risk of breast and ovarian cancers, reduces post-delivery bleeding, causes more rapid uterine involution and may reduce the occurrence of postpartum depression. Women who breastfeed exclusively also experience lactation amenorrhea and have less than a 2% chance of becoming pregnant within the first six months following delivery. Other benefits for the mother include decreased risk of hip fractures and osteoporosis in the postmenopausal period. There are psychological benefits for both mother and infant as the act of breastfeeding is a time of physical contact and closeness which nurtures the bond formed between the two (American Academy of Pediatrics, 2005; Dennis, 2002; Hale, 2007; James & Lessen, 2009; Schiff, 2006; Weinstein et al., 2006).

Breastfeeding not only benefits the individual infants and mothers, but socioeconomic benefits for the family, employers, the health care system and the nation also exist (American Academy of Pediatrics, 2005; James & Lessen, 2009; Schiff, 2006; Weinstein et al., 2006). Breastfeeding is less expensive than buying baby formula. This provides cost savings for the family. Breastfeeding also may result in the infant having fewer illnesses, potentially reducing the number of hospital visits and medical costs for parents.

Decreased hospital visits may also reduce health care costs to insurers. Employers benefit when parents miss less time from work because their infant is healthy.

Breastfeeding is recommended by professional groups as the preferred method of infant feeding. The American Academy of Pediatrics (2005) recommended exclusive breastfeeding of infants for 4 to 6 months. After 6 months the recommendation is breastfeeding with the introduction of solid foods with no limit on breastfeeding duration. Appropriate environmental and professional support for breastfeeding mothers is also recommended by the Academy. These guidelines are based on the known child health, maternal health, and community benefits of breastfeeding. The World Health Organization (WHO) recommended that breastfeeding be initiated within the first hour after birth and also recommends exclusive breastfeeding for up to 6 months of age (World Health Organization, 2008). The American College of Obstetricians and Gynecologists (2007) also strongly supported breastfeeding initiation by encouraging health care professionals and employers to support women in choosing to breastfeed. The American Dietetic Association promotes breastfeeding and encourages advocacy of activities that enhance longer duration in order to optimize benefits (James & Lessen, 2009). The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) (2008) also supports breastfeeding recommendations of the American Academy of Pediatrics and the breastfeeding positions of *Healthy People 2010* and the World Health Organization. AWHONN believes breastfeeding should be encouraged by health care professionals during the prenatal period and continue through the first year of life. This organization believes that the choice to breastfeed is influenced by cultural beliefs and

values and these aspects should be considered when promoting breastfeeding. All of these professional organizations recognize and support breastfeeding in an effort to improve maternal and infant health.

Healthy People 2010 had two major goals; (1) increase the quality and years of healthy life and (2) eliminate health disparities. Increasing the proportion of mothers who breastfed their babies was one of the target focus areas of *Healthy People 2010* (U.S. Department of Health and Human Services, 2000). Increasing breastfeeding initiation rates may assist to eliminate the health disparities that exist in the African American population by increasing the number of African American women and infants who will reap the many benefits associated with breastfeeding. African American women fall well below the *Healthy People 2010* goal of 75% of women to initiate breastfeeding in the early postpartum period (defined as ever having breastfed) (CDC, 2010).

The National Health and Nutrition Examination Survey showed that from 1993 to 2004, the percent of children who were ever breastfed continued to increase in the United States (CDC, 2007). This increase, however, was smaller for African Americans. The percentage of African American women who have ever breastfed continues to be below that of other races. Only 50.1% of African American children were ever breastfed, compared to 71.5% of Caucasian children. In April of 2008, the Centers for Disease Control and Prevention released findings from the National Health and Nutrition Examination Surveys for the years from 1999 to 2006. Results of this survey showed that breastfeeding rates (defined as ever having been breastfed or received breast milk) increased overall for each racial group and significantly increased among African

American women from 36% to 65%. Despite this increase, which was the highest increase in all racial groups, African American women still fall behind Mexican Americans, who increased from 67% to 80%, and Caucasians, who increased from 62% to 79%. Additionally lower breastfeeding rates based on lower family income status were found among non-Hispanic white and non-Hispanic black infants. However, when each ethnic group was divided into lower income status and higher income status, the breastfeeding rates for non-Hispanic black infants were significantly lower compared to non-Hispanic white and Mexican-American infants. Women of all race-ethnicity groups who were unmarried, poor, lived in rural areas, were less than 20 years old and had a high school education or less, breastfed less often (McDowell, Chia-Yih, & Kennedy-Stephens, 2008).

The lower rates of initiation of breastfeeding in African American women may increase their infant mortality rates, an important health disparity that affects this population. Chen and Rogan (2004) conducted a study to examine the effect of breastfeeding on postneonatal mortality in the United States. Results suggested that breastfeeding can reduce mortality for infants in their first year of life. With this fact in mind, it is important to examine the influences on breastfeeding initiation in African American women. According to the Maternal and Child Health Bureau (2003) infant mortality rates for both African Americans and Caucasians overall have declined. However, the infant mortality rate for African Americans continues to be 2.5 times that of Caucasians. In North Carolina, although overall infant mortality rates have also declined, the 2009 North Carolina Infant Mortality Report shows that the infant mortality rate for

minorities, 14.1%, is more than twice the mortality rate for Caucasians, 5.4% (North Carolina State Center for Health Statistics, 2010).

Despite the many benefits of breastfeeding, barriers exist that may contribute to lower initiation rates. These barriers affect breastfeeding initiation as well as breastfeeding continuation. Lack of knowledge regarding how to determine whether the infant is receiving sufficient amounts of breast milk may lead to the decision to bottle-feed, because the amount of milk consumed can be easily determined. Women may also lack knowledge about the mechanics of breastfeeding and the benefits associated with breastfeeding. Women may perceive a lack of support from the baby's father or the mother's significant other, the women's mother, family, employers and health care providers. Lack of support may adversely affect the decision to breastfeed and breastfeeding initiation because of the negative emotional impact as well as the lack of practical assistance (Meier, Olson, Benton, Eghtedary, & Song, 2007). The financial need to return to work may also negatively influence the decision to breastfeed if the woman perceives breastfeeding during employment to present insurmountable problems.

Demographic variables influence breastfeeding initiation. Women who are less than 20 years of age, have a high school education or less, or are unmarried are less likely to breastfeed their infants (McDowell, Chia-Yih, & Kennedy-Stephens, 2008). Health beliefs and attitudes toward breastfeeding may also be barriers to breastfeeding (Corbett, 2000; Wambach et al. 2005). Beliefs and attitudes toward breastfeeding may be influenced by culture (Corbett, 2000; Kong & Lee, 2004; Underwood et. al., 1997)

In summary, there are many benefits associated with breastfeeding for the mother, the infant and society. Breastfeeding is an important source of nutrition and recognized as beneficial by professional organizations including The American Academy of Pediatrics, The World Health Organization, The American College of Obstetricians and Gynecologists, the Association of Women's Health, Obstetric and Neonatal Nurses and the American Dietetic Association. All of these organizations have encouraged breastfeeding by issuing position statements that promote support for the mother to initiate and sustain breastfeeding for as long as possible. Despite the many benefits and recommendations, breastfeeding initiation rates among women in the United States remain below the *Healthy People 2010* goals, with African American women having lower breastfeeding initiation rates when compared to women of other races. Research is needed to identify variables that contribute to this low rate so that nursing interventions can be designed to improve breastfeeding initiation, which may contribute toward decreasing health disparities.

Disparities in breastfeeding initiation among Caucasian and African American women are well documented in the literature (Humphreys, Thompson, & Miner, 1998; Khoury, Moazzem, Jarjoura, Carothers, & Hinton, 2005; Lee, Rubio, Elo, McCollum, Chung, & Culhane 2005; Lu, Prentice, Yu, Inkelas, Lange & Halfon, 2003; Pippins, Brawarsky, Jackson, Fuentes-Afflick, & Haas, 2006). The reasons the disparities exist, however, are less obvious. A significant factor accounting for differences in breastfeeding initiation rates may be the lack of research related to culture and its influence on breastfeeding knowledge, attitudes toward breastfeeding, the decision to

breastfeed and initiation of breastfeeding. Research in this area may lead to innovative strategies that could reduce differences in initiation rates.

The primary purpose of this study was to examine the relationship between culture and infant feeding attitudes on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. Research in this area may begin to close the gap that exists in breastfeeding initiation rates between these two groups. Results of this study may be used to suggest interventions to close the breastfeeding initiation gap that exists between Caucasian and African American women. Ultimately the study results may enhance the understanding of practitioners as they begin to implement activities that lead to increased breastfeeding initiation rates among African American women

CHAPTER II

A REVIEW OF THE LITERATURE

This chapter discusses a review of the literature on the factors that influence breastfeeding in African American women. Some of these factors that are discussed include professional support, family support, demographic factors such as marital status, age, and education level; breastfeeding beliefs and knowledge and culture. Articles reviewed included only studies that used African American women in the study sample.

Support

Many factors influence the decision to breastfeed. Several studies (Cricco-Lizza, 2005; Humphreys, Thompson, & Miner, 1998; Mahoney & James, 2000; Meier, Olson, Benton, Eghtedary, & Song, 2007; Mickens, Modeste, Montgomery, & Taylor, 2009; Miracle, Meier, & Bennett, 2004; Wagner, Hulsey, Southgate, & Annibale, 2002; Wambach & Koehn, 2004) suggest that one of the factors influencing the decision to breastfeed and breastfeeding initiation in African American women is support. Two sources of support include professional and family.

Professional Support

Evidence of the importance of professional support and its influence on breastfeeding decisions is illustrated in a qualitative study to identify the strengths, operation

procedures, and areas of improvement in the Breastfeeding Initiative's Mother-to-Mother Peer Counselor Program (Meier, Olson, Benton, Eghtedary, & Song, 2007). This program is a collaboration between the Michigan Department of Community Health's Women, Infants, and Children (WIC) Division and Michigan State University. The purpose of the program was to increase breastfeeding rates among low-income women through the use of peer counselors. Researchers wanted to assess satisfaction and experiences from the provider and receiver perspectives. The study used six focus groups: three of peer counselors and three of program participants. Twenty WIC program participants took part in one of the three focus groups made up of all program participants, 50% were African American. Twenty-two peer counselors participated in one of three focus groups, 50% were African Americans. This study showed that the peer counselor model was effective to support low-income breastfeeding women. The quality of services provided by the WIC program, which included emotional and practical assistance along with the breast pumps provided by the peer counselors, resulted in satisfaction among both peer counselors and participants. The services provided by the peer counselors included: 1) at least one prenatal home visit (if participants were enrolled prenatally) plus monthly telephone calls up to delivery; 2) a visit in the hospital if this policy was established by the hospital and local agency; 3) a phone call two days following delivery; 4) at least one home visit as soon as possible after discharge and another during the first month; additional visits encouraged; 5) at least weekly phone calls during the first month; and 6) at least monthly phone calls during the first year of breastfeeding.

Mickens, Modeste, Montgomery and Taylor (2009) conducted a study using a convenience sample of 109 African American women attending a WIC clinic in California. The purpose of the study was to identify factors that impact low-income women's infant feeding decisions. The participants ranged in age from 18 to 45 years old. A structured 45- item questionnaire was completed by the participants to assess beliefs, attitudes, and level of social support in relation to intention to breastfeed. The questionnaire was developed using a conceptual framework of the social learning theory. It was pilot tested using 10 African American women in a WIC clinic in another county in California for content validity. Face validity of the instrument was also tested using a panel of Registered Dieticians and International Board Certified Lactation Consultants. The results indicated that support groups may be a factor in the decision to breastfeed. Women in the study were more than twice as likely to plan to breastfeed when they attended a support group as compared to those who did not attend a support group. This study also emphasized that an important determinant of the actual decision to breastfeed in African American women may be planning to breastfeed before delivery.

Another study involving a population using WIC was done by Cricco-Lizza (2005), who conducted an ethnographic study to explore the context of African American women's infant-feeding decisions in an urban WIC clinic in New York. The researchers collected data using participant observation and interviews with 319 people that included 130 African American women and 189 of their relatives and friends. From this group, 11 key informants, who were African American or Caribbean American, were also interviewed. Findings of the study revealed that (1) the WIC environment set a positive

tone for service; (2) WIC employees treated the women with caring and respect; (3) WIC participants believed that WIC was a source of support in time of need; and (4) WIC had a positive influence toward breastfeeding on infant-feeding decisions. This positive influence was accomplished through the use of posters, nutritionists and lactation counselors who provided information on breastfeeding and encouraged participants to breastfeed. Although bottle feeding was facilitated by the availability of free formula, breastfeeding decisions by almost half of the participants were encouraged by personalized breastfeeding promotion with trusting relationships with WIC providers. An interesting finding in this study was that even though bottle feeding was the norm among the sample, almost one half of the 11 key informants initiated breastfeeding.

Miracle, Meier, and Bennett (2004) conducted a study that demonstrated the importance of nurse and physician support in the decision to breastfeed. This study, conducted in a Special Care Nursery in Chicago, examined maternal decisions about providing breast milk for very-low-birth-weight infants after their mothers originally wanted to formula-feed. Semi-structured interviews were conducted with 21 mothers, 71% of whom were African American. The participants reported that they originally chose to formula feed because they had no breastfeeding role models. They reported that they were fearful of pain and lifestyle modifications, and lacked knowledge regarding the importance of their milk for their infants. After discussing the health benefits of breast milk with the nurse or physician, all the participants changed their decision from formula to breastfeeding and identified benefits of breastfeeding to themselves and their infants. The participants denied feeling pressured, coerced or guilty about the decision change,

thus providing evidence that the nurse and physician's role in providing information about the benefits of breast milk is important to initiation of breastfeeding.

Wagner, Hulsey, Southgate, and Annibale (2002) conducted a study to improve breastfeeding initiation rates at an urban medical center. The researchers hypothesized that providing an educational forum for health care staff about lactation and the benefits of breastfeeding would improve rates of breastfeeding initiation. A breastfeeding educational program was developed and implemented for health care providers, including medical staff, house officers, and nursing staff. Data were collected at the Perinatal Data Center from the records of newborns admitted at the Medical University of South Carolina. Two study periods, one before and one after the implementation of the educational program were compared to examine the outcome variable of change in breastfeeding initiation rates. The sample in the patient study cohort was 66% African American and this percentage remained constant during the two study periods. Results of the study indicated that implementation of the educational program was associated with higher rates (from 18.9% to 47.1%) of breastfeeding initiation and continued breastfeeding at discharge during the two study periods. Rates of breastfeeding initiation at discharge showed greatest improvement in mothers of preterm infants.

Humphreys, Thompson, and Miner (1998) studied a cross-sectional convenience sample of 982 women in the Grady Health System in Atlanta, Georgia to describe the relationship between breastfeeding intention among socioeconomically disadvantaged pregnant women and maternal demographics, previous breastfeeding experience, and social support. The two hypotheses for the study were 1) breastfeeding intention is

positively correlated with women's reported likelihood of compliance with social contacts who support breastfeeding; age; education; amount of previous breastfeeding experience; Caucasian and Hispanic ethnicity; hearing about breastfeeding benefits from a larger number of different sources; and hearing about the benefits of breastfeeding from health professionals; and 2) breastfeeding intention is negatively correlated with women's reported likelihood of compliance with social contacts who support formula feeding, later prenatal care onset, single marital status, parity, and African American ethnicity. African Americans were 80.2% of the sample. A 70-item, 6-page questionnaire about women's infant feeding plans, their likelihood of compliance with influential social contacts' advice, previous breastfeeding experience, sources from whom they heard about breastfeeding benefits and demographic information was used to collect data. Results of the study supported most of the hypothesized relationships with breastfeeding intention. Older maternal age, higher education, more breastfeeding experience, Hispanic ethnicity, and hearing about breastfeeding benefits from family members, the baby's father, and lactation consultants were positively correlated with breastfeeding intention. Hearing about breastfeeding benefits from health professionals other than lactation consultants was not positively correlated with breastfeeding intentions. The attitudes of health care professionals did not influence infant feeding decisions, but the beliefs of members of the women's social support networks did. Results varied when controlling for no breastfeeding experience and any breastfeeding experience, so tailoring breastfeeding interventions based on women's level of experience was recommended.

In more recent articles professional support and its influence on breastfeeding are shown in several studies (Cricco-Lizza, 2005; Meier, Olson, Benton, Eghtedary, & Song, 2007; Miracle, Meir, & Bennet, 2004; Wagner, Hulsey, Southgate, & Annibale, 2002). However, in the study conducted by Humphreys, Thompson, and Miner (1998) the attitudes of the health care providers did not influence the decision to breastfeed indicating there may be mixed results regarding the importance of professional support.

Family Support

Wambach and Koehn (2004) studied disadvantaged urban pregnant adolescents to describe decision-making about infant feeding choices and to identify recruitment and retention issues related to research participation in this population. This qualitative study used five focus groups at prenatal clinics in two urban teaching medical centers in the Midwest. A convenience sample of 14 participants was 86% African American. The Theory of Planned Behavior was used to guide this study. Results showed two major themes: benefits versus barriers of breastfeeding and bottle-feeding, and independent choice versus social influence. Ambivalence and uncertainty were common threads throughout both themes. The study participants were able to identify benefits of breastfeeding and formula feeding even though barriers to choosing each were apparent. Bottle-feeding was viewed as simple and automatic while breastfeeding was viewed as a complex process. This view of breastfeeding led to feelings of uncertainty about choosing this method and affected the decision to combine breast and bottle-feeding. Feelings of uncertainty about breastfeeding were also attributed to the participant's social network

not encouraging breastfeeding. Participants who reported that they had made the decision to breastfeed independently also experienced lack of encouragement which led to feelings of uncertainty.

Mahoney and James (2000) studied 66 women to explore correlates of planned breastfeeding among postpartum women in a low-income, urban family practice. The majority of the participants (95%) were African Americans, single (95%) and completed a median of 12 years of schooling. The study was conducted in an academic family medicine training site in upstate New York. Demographic, clinical, and attitudinal factors were examined. Anticipated infant feeding practices are affected by these factors. The study used a cross sectional design. A structured survey instrument and an interview were administered to participants. The survey was used to obtain information on demographics, relevant clinical history, past infant feeding practices and current infant feeding plans and attitudes. Women with less than a high school education planned breastfeeding less often, while women who were encouraged by the baby's father and their own mother were more likely to plan to breastfeed.

Hill, Arnett, and Mauk (2008) conducted a study to provide a better understanding of the process used by low-income pregnant and/or postpartum women when deciding whether to breastfeed. The study used the Theory of Reasoned Action as the guiding framework. Participants were primarily Hispanic, 69%, and African American, 18%. The study took place in a hospital in Texas. Data were collected by having participants complete a survey. A total of 88 participants completed the survey. Results of the study showed that 78% of the participants intended to breastfeed and 74% intended to

breastfeed for 6 months. Results also showed that significant other's opinions, such as family and friends, influence feeding intentions among this population of low-income women.

Synthesis of Studies of Breastfeeding Support

All of these studies (Cricco-Lizza, 2005; Hill, Arnett, & Mauk, 2008; Humphreys, Thompson, & Miner, 1998; Mahoney & James, 2000; Meier, Olson, Benton, Eghtedary, & Song, 2007; Mickens, Modeste, Montgomery, & Taylor, 2009; Miracle, Meier, & Bennett, 2004; Wagner, Hulsey, Southgate, & Annibale, 2002; Wambach & Koehn, 2004) show that women who receive support and encouragement are more likely to breastfeed. The use of peer counselors, support programs through WIC, nurse and physician support, social network support and support from the baby's father and the mother's mother influence breastfeeding initiation. Despite the research that shows providing role models (Miracle, Meier, & Bennett, 2004) and education programs to nurses and physicians (Wagner, Hulsey, Southgate, & Annibale, 2002) has proven to be successful, breastfeeding initiation rates still remain lower in African American women. This suggests other strategies may be needed to encourage this population to breastfeed. Support, especially from family and social networks, is an important aspect of one's culture, but is only one part of culture according to Madeleine Leininger's theory of Culture Care Diversity and Universality (Leininger & McFarland, 2006).

Demographic Factors

Demographic factors are also cited in the literature as affecting infant feeding decisions. Research suggests that women who are older, educated, married and Caucasian are more likely to breastfeed (Chin, Myers, & Magnus, 2008; Humphreys, Thompson, & Miner, 1998; Lee et al. 2005; McDowell, Chia-Yih, & Kennedy-Stephens, 2008; McKee, Zayas, & Jankowski, 2004; Persad & Mensinger, 2008; Pippins, Brawarsky, Jackson, Fuentes-Afflick, & Haas, 2006; Saunders-Goldson & Edwards, 2004; Sharps et al., 2003; Wambach et al. 2005). In a study conducted by Pippins et al. (2006), after controlling for other demographic characteristics, breastfeeding initiation was not affected by racial or ethnic differences. This suggests that demographic factors play a significant role in influencing the decision to breastfeed. In this study a racially diverse sample was used to identify risk factors that affect breastfeeding initiation and duration of less than one month. The purpose of the study was to examine the relationship between maternal depressive symptoms and breastfeeding among a racially diverse cohort. Researchers used surveys and medical records to collect data from 1,448 women, 12% African American, in the San Francisco Bay area who delivered singleton infants. The Center for Epidemiologic Studies Depression Scale, short form, was used to assess depressive symptoms and the Perceived Stress Scale, short form, was used to measure perceived stress. Breastfeeding initiation and duration of breastfeeding at one month postpartum were the outcome variables. Depressive symptoms during or prior to pregnancy and depressive symptoms in the postpartum period were the independent variables. Age,

race/ethnicity, level of educational attainment, marital status, economic means (lack of money or food), parity, method of delivery, breastfeeding instruction or preparation, smoking during pregnancy or postpartum, presence of a chronic disease during pregnancy, self-reported health status postpartum, and perceived stress were covariates in the study. Although all women included in the analysis received information on breastfeeding practices during pregnancy, 5.6 % never initiated, and of those women who did initiate, 11% breastfed for less than one month. Before adjusting for other demographic and clinical characteristics, African American women were significantly more likely to not initiate breastfeeding compared to Caucasian women. After adjusting for demographic and clinical characteristics there were no racial or ethnic differences found in breastfeeding initiation. Some of the factors that were significantly associated with lack of breastfeeding initiation were lower educational attainment, insufficient money for food, delivery by Cesarean section, smoking during or after pregnancy, and chronic disease during pregnancy. African American women were more likely to breastfeed for less than one month. Breastfeeding initiation was not affected by depressive symptoms during or prior to pregnancy.

Demographic factors and Hispanic culture showed an association with breastfeeding intention in a study of African American and Hispanic women (McKee, Zayas, & Jankowski, 2004). Researchers studied 174 women during the third trimester of pregnancy, at two weeks following delivery and three months postpartum to identify predictors of planning to breastfeed and successful breastfeeding initiation and persistence, including the relationship to maternal depressive symptoms, social support,

and mothers' perception of closeness to their infants. Interviews and survey instruments were used to collect data from African American (43%) and Hispanic women (57%) from primary care health centers in the Bronx, New York. The instruments used in this study included the Beck Depression Inventory to measure depression; the Mothers' Perceived Relationship to Infant scale, a 22-item instrument created to measure women's perceived relational closeness with their infants; the Norbeck Social Support Questionnaire to measure social support in the women's lives, and the Biculturality Scale to assess acculturation in the Hispanic participants. This scale assessed identification with Hispanic and American culture. The variables examined in this study were ethnicity, education; age of other children, depressive symptoms and social support. Rates of intention to breastfeed were similar between African Americans and Hispanics when comparing age, marital status, or number of children born. Higher education was associated with intention to breastfeed. Increased likelihood of planning to breastfeed among Hispanics was associated with greater identification with Hispanic culture. There was no relationship found between breastfeeding practice and social support or depressive symptoms among any of the participants. The perception of closeness to their infants was greater among breast feeders compared to bottle-feeders.

Another study that provides evidence that demographic factors such as education and marital status are associated with the decision to breastfeed was conducted by Sharps et al. (2003). In a case-controlled study of postpartum African American mothers with inadequate prenatal care in Washington D.C., 210 women from four urban hospitals were recruited during their hospital stay. The Maternal Health Belief Questionnaire, Adult-

Adolescent Parenting Inventory, and the Carolina Parent Support Scale were used to collect data. The Maternal Health Beliefs Questionnaire measures four areas: perceived childhood susceptibility to illness, perceived severity of these illnesses, and perceived ability of medical care to prevent illness and perceived barriers, and benefits of health care. The Adult-Adolescent Parenting Inventory measures the parenting knowledge and child-rearing practices of adolescents and adults. The number of various sources of formal and informal social support and the perceived helpfulness of these sources were measured by the Carolina Parent Support Scale. Results indicated that women who chose to breastfeed were more educated, employed before birth, married, and using contraception after childbirth. Those who chose to breastfeed also had a higher perception of severity of childhood illness, were less likely to reverse parent-child roles and had a lower perception of hassle from their infant's behavior. In this study breastfeeding behavior was not influenced by the perception of existing formal or informal social support.

Chin, Myers and Magnus (2008) conducted a study that examined the relationship between race and education on breastfeeding initiation among women in Louisiana. The study also examined whether the interaction effect between race and education on breastfeeding initiation found in previous research was present in the study sample they used. The study also looked at whether factors associated with breastfeeding initiation were different based on the race of the mother. The data for this study came from the 2000-2004 Louisiana Pregnancy Risk Assessment Monitoring System whose target population for the survey is all mothers living in Louisiana who gave birth to a living

infant during the sampling interval. The sample for this study was 3,515 women; 1,373 African American and 2,142 Caucasian. The results of the study indicate that women who initiated breastfeeding were more likely to be older, Caucasian, married, more educated, and have a higher income. Results also indicate African American women were less likely to initiate breastfeeding than Caucasian women. Also as education level increased the odds of initiating breastfeeding increased. There was no interaction between race and education as it related to breastfeeding initiation. Results also showed that the factors associated with breastfeeding initiation that differed by race among African American women were higher maternal education, being married, and not participating in WIC during pregnancy.

In a study conducted by Persad and Mensinger (2008) the association between intent to breastfeed and sociodemographic factors were examined. The purpose of the study was to provide a descriptive analysis of the socio-demographic characteristics, breastfeeding intent, and breastfeeding attitudes of women attending an inner city prenatal clinic to determine if breastfeeding attitudes are associated with breastfeeding intent and socio-demographic variables. The Theory of Reasoned Action was used to guide research. The participants were recruited from an inner city hospital in New York City. Ages ranged from 14 to 34 years of age. The convenience sample of one hundred primiparas completed two survey instruments; a socio-demographic form and the Iowa Infant Feeding Attitude Scale. The surveys were read out loud face-to-face to each participant in an interview format. The majority of the participants, 86%, were black and the remainder of the participants identified themselves as mixed or white. Nineteen percent of the

women identified themselves as Hispanic. The majority of the participants, 79%, intended to breastfeed. The following variables were associated with breastfeeding intent: positive breastfeeding attitudes, higher household incomes, being born outside the United States, being Afro-Caribbean as opposed to African American, having family, peer, and partner support for breastfeeding, attending breastfeeding classes, and having greater years of education.

Synthesis of Studies of Demographic Variables

Research studies that provide evidence of the association between demographic factors and the decision to breastfeed support the need to examine breastfeeding initiation in African American women, because African American women who are unmarried, uneducated, and younger are less likely to breastfeed. Initiation rates in this population are lower than in any other cultural group. The relationship between culture and feeding attitudes in this population needs to be studied in an effort to determine if there is an effect on the decision to breastfeed. It is acknowledged that in some studies there is no effect of race after demographic factors are taken into account.

Breastfeeding Beliefs and Knowledge

In addition to support and demographic factors, another influencing factor cited in the literature that has a major impact on the decision to breastfeed is perceived success. Women who feel they will be successful at breastfeeding are more likely to breastfeed. In a study conducted by Saunders-Goldson and Edwards (2004), perceived success was one

of the best predictors for breastfeeding intention. These researchers surveyed 95 African American women who intended to breastfeed at two military prenatal clinics in the northeastern United States. The purposes of the study were to (1) assess African American women's intent to breastfeed; (2) describe the relationship between breastfeeding intent and maternal age, breastfeeding knowledge, education, parity, and variables in the Theory of Planned Behavior; and (3) determine the factors that were the best predictors of breastfeeding intent. A large percentage (95%) of African American women reported intentions to breastfeed, however only 27% of them intended to breastfeed exclusively. Age, education, social pressures (perceived subjective norms), and perceived success (behavioral control) in breastfeeding were positively correlated with intention to breastfeed. Age and perceived success (behavioral control) in breastfeeding were the best predictors of breastfeeding intent. Knowledge of breastfeeding was assessed by the total number of correct responses of 14 multiple choice questions on the Minnesota Infant Feeding Questionnaire. Only 42% of women accurately answered one-half of the questions assessing breastfeeding knowledge; the rest had less breastfeeding knowledge.

Perceived success in breastfeeding can influence the decision to breastfeed in African American women. These perceptions are based on insight, intuition and knowledge. These can all in some way be influenced by culture. Studies need to be conducted that examine the relationship between culture, attitudes related to infant feedings and the decision to breastfeed. Research in this area may assist in the development of interventions that increase breastfeeding initiation rates.

In addition to perceived success, the effect of perceived benefits of breastfeeding on the decision to breastfeed has also been cited in the literature (Hannon et al., 2000; Heining et al. 2006; Joffe & Radius, 1987; Khoury et al., 2005; McCann, Baydar, & Williams, 2007). Heining et al. (2006) used focus groups to examine relationships among maternal beliefs, feeding intentions, and infant-feeding behaviors. The goal of the study was to better understand why low-income women use non-optimal infant-feeding practices, such as early introduction of formula and solid foods, even though extensive education and counseling is provided by WIC agencies. The specific aim of the study was to identify factors that affect infant feeding intentions and behavior in the first 6 months postpartum. The Theory of Planned Behavior was used to guide the study. A total of 65 participants, 41% African American, from three Women, Infant, and Children (WIC) agencies in Northern California were interviewed. The majority of participants believed breastfeeding was beneficial but they also believed that early introduction of formula and solid foods were unavoidable in certain circumstances. Some of these circumstances included breastfeeding difficulties, medical complications, infant fussiness and promotion of infant sleep. Results also indicated that English-speaking mothers often ignored advice that was given by medical providers and WIC staff who were sources of infant-feeding information. Advice was ignored if it was not perceived as working for the family's circumstances. As a result, English-speaking mothers would not ask for assistance when having difficulties with breastfeeding because they believed the providers would not understand the reasons they were not following infant-feeding recommendations. These

mothers instead relied on relatives and others for infant-feeding guidance. Spanish-speaking mothers tended to adhere to advice that was given by health care providers.

Khoury, Moazzem, Jarjoura, Carothers, and Hinton (2005) surveyed 733 postpartum women, 53.3% African American, in Mississippi to examine factors associated with breastfeeding initiation in low-income women. The Theory of Planned Behavior was used to guide the study. Researchers used a mail survey and telephone follow-up to collect data. The outcome variable was infant feeding method, breastfeeding or bottle-feeding. Other variables included the Theory of Planned Behavior constructs of attitude, subjective norm, and perceived control, and sociodemographic characteristics. Higher breastfeeding initiation rates were associated with higher knowledge of the benefits of breastfeeding. Higher initiation rates were also associated with health care system support, including lactation specialist and peer counselors, and family support. Embarrassment about breastfeeding was associated with lower initiation rates. Lower initiation rates were also associated with women who were African American, WIC-certified, working full-time, not married and less educated.

Hannon et al. (2000) conducted a qualitative study to explore minority teen mothers' perception of breastfeeding and the influence on infant feeding choices. The study used semi-structured ethnographic interviews and focus groups to collect data. There were 35 participants, 21 were African American. The mean age of the participants was 15.7 years. The study was conducted at two locations in Chicago, Illinois. Of the 35 participants, almost half of those interviewed in the prenatal period planned to breastfeed. Three fourths of the remaining half who were interviewed in the prenatal period were

indecisive. More than half of the participants interviewed three months postpartum had at least attempted to breastfeed their infants. The three main influences on infant feeding decisions and practices were 1) their perceptions of the benefits of breastfeeding; 2) their perceptions of the problems with breastfeeding; and 3) influential people. Perceptions of the benefits to breastfeeding included bonding, baby's health, baby's IQ, and convenience. Perceptions of problems associated with breastfeeding included pain, public exposure, unease with the act of breastfeeding, breastfeeding myths, inconvenience, and return to school. These problems were identified as barriers to breastfeeding. Influential people in the decision to breastfeed included the participant's mother, health care professionals, friends, relatives, teachers, and the baby's father.

Joffe and Radius (1987) conducted a prospective study with 254 pregnant adolescents, 93% African American, to identify factors that relate to the choice of infant feeding method. Participants were recruited from two prenatal clinics that serve primarily disadvantaged women living in Baltimore City, Maryland. Age range of the participants was 12 to 19. Participants completed a questionnaire that was developed from preexisting surveys that addressed infant feeding choices from research on adolescent behaviors and health-related concerns as well as areas underrepresented in the literature. The items addressing attitudes were derived from the Health Belief Model. The dependent variables in the study were measures of behavioral intent regarding infant feeding. Results of the study indicated that participants who intended to breastfeed were those who perceived more benefits to breastfeeding, who wanted more knowledge about it, who were

breastfed themselves, who reported a supportive social environment, and who perceived fewer barriers to breastfeeding.

McCann, Baydar, & Williams (2007) examined and analyzed data from a 1-year longitudinal study that used WIC participants to obtain information about attitudes regarding infant feeding and about infant-feeding practices. The WIC Infant Feeding Practice study was a nationally representative study that surveyed women enrolled in WIC or whose infants were enrolled in WIC. The sample consisted of 1,095 African American, Hispanic and Caucasian women. Results of the study indicated that over half of the participants, 56%, initiated breastfeeding. Of those who initiated breastfeeding, 34% were African American and 53% were Caucasian. Perceived benefits were associated with breastfeeding initiation and longer breastfeeding duration.

These studies (Hannon et al., 2000; Heining et al. 2006; Joffe & Radius, 1987; Khoury et al., 2005; McCann, Baydar, & Williams, 2007) provide evidence of the influence that perceived benefits have on breastfeeding initiation. Women who believe that breastfeeding is healthier for their infants are more likely to breastfeed. Perceived benefits are based on beliefs derived from knowledge, attitudes and culture. The influence of culture on breastfeeding initiation is important to consider when differences in initiation rates exist between African American and Caucasian women. The influence of culture in African American women needs to be examined.

Similar to perceived benefits, health beliefs have also been cited (Corbett, 2000) as a factor that influences breastfeeding initiation. Health beliefs encompass what is believed to be beneficial as well as what may be harmful. These beliefs are powerful motivators

for incorporating behaviors that may alter the health status of an individual. In a study conducted by Corbett (2000) health beliefs were a major factor in the infant feeding decisions of African American women. The purpose of this study was to explore the infant feeding style of low-income African American women, using an ethnographic field study design with intensive interviewing. Participants were 10 African American women enrolled in Medicaid and a WIC program in three counties surrounding a metropolitan center in the southeastern United States. The researcher developed a cultural-ecological framework that was used to guide this study. This framework states that biological, psychological, social, cultural, and economic factors affect actions and beliefs regarding infant feeding. Over half of the participants planned to breastfeed at the time of discharge from the hospital, but only two were exclusively breastfeeding at the time the interviews were conducted when the infants were 2 weeks of age. Three participants were combining breastfeeding and bottle-feeding. The participants who chose to breastfeed stated they did so because of information and encouragement they received from health care providers during prenatal care. Beliefs about breast milk being the best for the baby influenced participants to breastfeed whereas beliefs and attitudes about crying being interpreted as not being satisfied contributed to infants being bottle-fed. Study results also showed a general lack of knowledge among participants regarding breastfeeding as well as lack of support of breastfeeding in the participants' environment.

This study (Corbett, 2000) shows the influence of health beliefs on breastfeeding initiation and how these beliefs are influenced by many factors. One of the factors that influence health beliefs is culture, and cultural beliefs likely differ between African

American and Caucasians. These differences and how they affect health care decisions need to be examined. As a result, the relationship between culture and infant feeding attitudes on breastfeeding initiation needs to be studied.

Breastfeeding knowledge has also been cited in the literature as influencing breastfeeding initiation. Miracle, Meier, and Bennett (2004) found that participants changed their feeding decision from formula feeding to breastfeeding, or providing breast milk to their infants, after they discussed the benefits of breast milk with health care providers. Similarly, Khoury, Moazzem, Jarjoura, Carothers, and Hinton (2005) discovered that higher breastfeeding initiation rates were found in study participants who had knowledge of breastfeeding benefits. Learning the benefits of breastfeeding from lactation consultants was positively correlated with breastfeeding intention in a study conducted by Humphreys, Thompson, and Miner (1998).

Wagner, Hulsey, Southgate, and Annibale (2002) conducted a study that led to higher breastfeeding initiation rates after an education program was implemented for health care providers. Education programs enable health care providers to receive information that is necessary in order to convey accurate and complete knowledge. Stolzer and Zeece (2006) conducted a pilot study to determine whether low income women were receiving accurate and inclusive breastfeeding advice from their attending physicians, and found that health care providers were not providing such information. The Ecology of Breastfeeding Survey was developed and administered at a WIC clinic in a Midwestern American city to assess medical health provider information. Questions were based on findings contained in the Surgeon General's Blueprint for Action on Breastfeeding document. The

sample consisted of 104 women with a mean formal education level of 8.5 years. African Americans were 6.3% of the sample. Low income women in this study were not receiving complete and accurate information regarding the various ways breastfeeding is beneficial for both mother and child. Analysis revealed that providers in this study were informing participants that breastfeeding is beneficial and that it can reduce infections, otitis media, allergies, and other childhood diseases, but were not informing participants that breastfeeding also decreases morbidity rates, hospital admissions, asthma, diabetes, and certain types of childhood cancers. Participants also were not informed that breastfeeding decreases the risk of maternal breast and ovarian cancers and that breastfeeding can act as a natural contraceptive.

In addition to breastfeeding knowledge obtained from health care providers, knowledge obtained from attending childbirth classes has also been associated with the increased likelihood of breastfeeding initiation. Lu et al. (2003) examined sociodemographic disparities in attendance at childbirth classes, and evaluated the association of attendance with breastfeeding initiation. This study was conducted using telephone interviews with parents of a nationally representative cross-sectional sample of 2,068 children ages 4 to 35 months. The National Survey of Early Childhood Health which was developed by the American Academy of Pediatrics and the University of California, Los Angeles Center for Healthier Children, Families and Communities was used for the telephone surveys. The survey was fielded by the National Center for Health Statistics and oversampled African American and Hispanic children to permit precise estimates for these populations. The sample for this study was 1,540 mothers; 15%

African American. The variables studied were attendance of childbirth education classes and breastfeeding initiation. Results of the study indicate that overall, two thirds (66%) of the children's mothers had never attended a childbirth class. Caucasian mothers were twice as likely as African American mothers to have ever attended. In this sample, women who were Hispanic or African American, poor, never married, and with less than a high school education were less likely to have attended a childbirth class. Being married, having some college education, and having a household income of greater than $35,000 was associated with an increase in the likelihood of ever attending a childbirth class. In this study age was not significantly associated with childbirth class attendance. Overall, 69% of the children were breastfed, but children of mothers who were African American, less educated, low-income, unmarried, or younger were less likely to be breastfed. Attendance at childbirth classes was associated with a 75% increase in the likelihood that a child was breastfed for all participants.

Breastfeeding knowledge is clearly a factor that influences the decision to breastfeed. This includes information regarding breastfeeding techniques, complications and benefits. This knowledge can be acquired from health care providers, lactation consultants and childbirth classes. In addition to these sources, family and social networks play a major role in providing breastfeeding information. Knowledge obtained in this manner is influenced by culture. Culture can be a key component affecting knowledge and therefore breastfeeding initiation. Studies examining culture and its relationship with infant feeding attitudes on breastfeeding initiation are needed to increase breastfeeding rates in African American women.

Culture

Culture plays a major role in health care decisions and behaviors, including breastfeeding initiation. In a literature review conducted by Wambach et al. (2005) it was found that in addition to the major factors already discussed, cultural influences also affected breastfeeding initiation. Wambach et al. (2005) summarized major findings of research studies conducted within selected areas during the past 20 years. These selected areas included health outcomes, factors associated with initiation and duration of breastfeeding, common problems, special populations, and infant-feeding practices in developing countries. The researchers used standard databases and English –language scientific literature. Certain factors were frequently associated with breastfeeding initiation. These include maternal characteristics such as older age, more education, more affluence and being married. Agreed upon factors related to personal attributes include positive attitudes and beliefs toward breastfeeding, persistence and confidence. Barriers to breastfeeding initiation include the mothers' need to return to work and lack of informal (family, social network), formal (health care providers) and environmental (places to breastfeed while out of the house, public, media) support. Findings also showed that national media campaigns, prenatal education, and peer support have been used as interventions to increase breastfeeding initiation but have not been consistently effective. The literature review on the selected area of the effect of ethnicity and low income on breastfeeding revealed that the importance of cultural influences on breastfeeding practices has been emphasized. Wambach concluded that there are,

however, few studies that have been published describing culturally relevant modes of information and service.

Underwood et al. (1997) conducted a study to determine the influence of cultural and economic variables on the decision made by low-income African American women regarding infant feeding, and culture was found to greatly influence infant feeding decisions. Participants reported that values and beliefs influenced the type of infant feeding they chose. They also reported that many of their feeding practices were learned from family members and others within their community. Even though this study provides evidence of an association between culture and infant feeding attitudes and decisions, more research in this area is needed to increase breastfeeding initiation rates which remain low in African American women. This study used a small purposive sample of 35 African American women. Seventeen percent of the participants were caregivers, but had no children of their own. Research studies using larger sample sizes of prenatal African American women need to be conducted.

Summary of Literature Review

In summary, there are many factors cited in the literature that influence breastfeeding initiation. Some of these factors include support, demographics, such as marital status, age, education level, and race; perceived success, perceived benefits, health beliefs and breastfeeding knowledge. All of these factors are influenced by culture; however, few studies are cited in the literature that examines the effects of culture on factors that

influence breastfeeding. Research is needed in this area because culture plays a major role in health care decisions and health care behaviors. Many of the studies reviewed did not use a theoretical framework to guide their research. Of those that did, none used a nursing theoretical model except one study, conducted by Lewallen & Street (2010), that examined issues related to initiating and sustaining breastfeeding in African American women and used Madeline Leininger's theory of Culture Care Diversity and Universality as a guide.

A nursing theoretical model exists that acknowledges the role culture plays in all health care decision and behaviors. This research study used Madeleine Leininger's Theory of Culture Care Diversity and Universality as a framework. This theory emphasizes the importance of culture to life experiences, decisions, and behaviors. Leininger's theory was used to examine the relationship between culture and infant feeding attitudes on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. Following is a discussion of Leininger's theory and studies that have used it as a framework. The only published study found that has used Leininger's theory to guide breastfeeding initiation research was Lewallen & Street (2010).

Theoretical Framework: Madeleine Leininger's Culture Care Diversity and Universality

Studies exist in the literature that examine the prevalence and rate of breastfeeding in different ethnic groups (Bonuck, Freeman, & Trombley, 2005; Kelly, Watt, & Nazroo, 2006; Wieman, DeBois, & Berenson, 1998). These studies show that ethnicity may be a factor in the decision to breastfeed and the duration of breastfeeding. Few studies examine the relationship between culture and infant feeding attitudes in African American women. Kelly, Watt, & Nazroo (2006) examined patterns of breastfeeding across different racial and ethnic groups. One of the findings suggest that cultural factors influenced initiation of breastfeeding in Indian, Pakistani, Bangladeshi, black Caribbean, and black African mothers when compared to white mothers. Variables such as support, age, perceived success in breastfeeding, education level, and perceived benefits have been examined in relationship to infant feeding decisions, but the impact of cultural factors on infant feeding decisions in African American women have been less well studied.

Many studies have not used theory to guide research; of those that have, the Theory of Planned Behavior has been the most commonly used (Heining et al. 2006; Khoury et al., 2005; Saunders-Goldson & Edwards, 2004; Wambach & Koehn, 2004). Culturally specific research is needed to examine the relationship between infant feeding attitudes and initiation of breastfeeding among African American women, and this would best be done with a theoretical foundation that relates specifically to culture to guide the

research. A theory with a cultural focus used to examine variables related to breastfeeding initiation may provide answers that can help decrease disparities that exist between African American women and Caucasian women. For this study Madeleine Leininger's theory of Culture Care Diversity and Universality (Leininger & McFarland, 2006) was used to examine the relationship between culture and infant feeding attitudes on the decision to breastfeed and initiation of breastfeeding in African American and Caucasian women. This section will discuss (1) Leininger's theory, (2) the theoretical underpinnings, (3) the variables in the model and (4) how the theory is appropriate to guide breastfeeding research.

Madeleine Leininger's theory of Culture Care Diversity and Universality is based epistemically and ontologically on the premise that care is the foundation of nursing, healing and wellbeing. The interconnected phenomenon of culture care was incorporated to conceptualize the theory and show the interrelationships of care to culture and different cultures (Leininger & McFarland, 2006). Culture care is the term Leininger uses to describe culturally based care. Leininger's theory suggests that culture is comprehensive and care is embedded in culture. Culture is comprehensive because it influences every aspect of an individual's life. According to the theory, culture influences education, economics, politics and law, values and beliefs, family and social interactions, religion, philosophical views and technological dimensions. The tenet of Leininger's theory is that a relationship exists between care diversity and the differences and similarities among cultures. This tenet addresses the fact that there are aspects of nursing care that may be the same across various cultures but there also exist differences among cultures that need

to be examined and reflected in nursing care. The relationship between care diversity and universality among cultures is analyzed to discover, document, know and explain meanings and uses of culturally congruent care. The goal of the theory is to provide care that is culturally congruent and can be used to improve health and well-being (Leininger & McFarland, 2006).

The theory of Culture Care Diversity and Universality has three theoretically predicted action and decisions modes. These modes are 1) culture care preservation and-or maintenance; 2) culture care accommodation and-or negotiation; and 3) culture care repatterning and-or restructuring (Leininger & McFarland, 2006). Each of these modes is culturally specific and can be used as a guide to breastfeeding research because of the potential effect of each mode on the attitudes and beliefs of African American women in regard to the decision to breastfeed and initiation of breastfeeding. These modes also address cultural beliefs. Cultural beliefs are important to consider in research on African American women. Cultural beliefs are related to healthcare practices, and the decision to breastfeed and initiation of breastfeeding may be influenced by cultural beliefs.

Culture Care Preservation and-or Maintenance

The mode of culture care preservation and-or maintenance refers to those interventions or decisions that enable members of a specific culture to maintain their cultural beliefs and values. This mode maintains that there are supportive, assistive, facilitative and enabling professional acts or decisions that can help with this process (Leininger & McFarland, 2006). Research examining African American women's infant

feeding attitudes and how this may affect the decision to breastfeed and the actual initiation of breastfeeding can be applied to this mode. Research can be used to understand what nurses can do to assist African American women with the decision to breastfeed while still maintaining cultural values and beliefs.

Kong and Lee (2004) studied women in Hong Kong to examine the personal, social, cultural, facilities and environmental and other factors contributing to women's decision to breastfeed. First-time mothers' knowledge of breastfeeding and its influence on their breastfeeding intentions were also explored. Results of this study indicated that cultural factors were influential in the decision to breastfeed. The husband's opinion was ranked as the second most important factor in the decision to breastfeed. The infant's mother's knowledge and attitude ranked first. Researchers concluded that this finding was a result of the attitudes related to the submissiveness of women in Chinese culture. Similarly, McKee, Zayas, and Jankowski (2004) examined predictors of the decision to breastfeed and predictors of successful breastfeeding initiation and persistence, including the relationship to maternal depressive symptoms, social support, and mothers' perception of closeness to their families. Participants were Hispanic and African American. Results indicated that among the Hispanic participants greater identification with Hispanic culture was associated with increases in the likelihood of planning to breastfeed. The most important predictors of planning to breastfeed in this study were education and ethnicity. African American women in this study showed lower prenatal rates of intent to breastfeed than Latinas. These studies (Kong & Lee, 2004; McKee, Zayas, & Jankowski, 2004) provide examples of how culture may affect feeding choices. They also show the

importance of allowing members of a specific culture to maintain cultural beliefs and values as identified in Leininger's mode of culture care preservation and-or maintenance.

Culture Care Accommodation and-or Negotiation

The next mode, culture care accommodation and-or negotiation, refers to those interventions or decisions that allow members of a specific cultural group to incorporate or negotiate culturally congruent care. This mode maintains that there are creative provider care actions or decisions that can assist, accommodate, facilitate or enable individuals from various cultures to adapt or negotiate care that may affect their health or wellbeing. The care that is adapted or negotiated by an individual of a specific cultural group reflects the cultural values and beliefs of that individual (Leininger & McFarland, 2006). The decision of African American women to breastfeed and the initiation of breastfeeding may be influenced by culture. These behaviors may also be influenced by the ability of care providers to assist African American women to either adapt to or negotiate cultural beliefs in order to receive the benefits associated with breastfeeding. The cultural beliefs and values of this population would still be present as the adapting or negotiation takes place. When the beliefs and values of the individual are present and acknowledged, individuals of specific cultural groups may be more likely to decide to breastfeed and initiate breastfeeding. Lewallen and Street (2010) explored issues related to initiating and sustaining breastfeeding in African American women. Results indicate that although many participants made the decision to breastfeed by themselves, the decision was also influenced by their significant others, families and friends. Participants

chose to breastfeed even though some of the influences were negative. The participants were able to negotiate negative influences and chose to breastfeed because of the associated benefits. Negative influences were acknowledged in order to maintain cultural values and beliefs, and participants were able to adapt breastfeeding behaviors that can affect health and wellbeing. The influence of culture must be acknowledged before negotiation can take place. This study looked at the influence of culture by examining the relationship between culture and infant feeding attitudes on the decision to breastfeed and breastfeeding initiation.

Culture Care Repatterning and-or Restructuring

The third mode of Leininger's theory, culture care repatterning and-or restructuring, refers to those actions or decisions that assist members of a specific cultural group to transform or alter their health patterns in order to achieve beneficial outcomes. This mode maintains that positive health practices and outcomes can be accomplished by assisting, supporting, facilitating, or enabling measures by care providers that help individuals from different cultures to change or modify their health behaviors (Leininger & McFarland, 2006). Lack of knowledge has been cited (Lu et al. 2003; Stolzer & Zeece, 2006) as one of the factors that affect breastfeeding initiation. Lewallen and Street (2010) found that lack of knowledge about the benefits and mechanics of breastfeeding was one of the themes that African American participants identified as affecting initiation and continuation of breastfeeding. Also, Wagner et al. (2002) conducted a study to improve breastfeeding initiation rates and found that a breastfeeding educational program for

health care providers accomplished this goal. Research on culture, which influences knowledge, and the relationship on the decision to breastfeed can provide information related to what care providers can do to assist this population to alter attitudes that may negatively affect breastfeeding initiation.

Theoretical Constructs of the Theory

There are several major theoretical constructs of this theory. These constructs are as follows: care, culture, emic care, etic care, cultural and social structure factors, ethnohistory, environmental context, worldview, culture care preservation and-or maintenance, culture care accommodation and-or negotiation, culture care repatterning and-or restructuring, culturally congruent care, care diversity and culture care universality. Care is a major construct and central to the theory. Care is defined as the experiences or ideas that help others with actual or anticipated needs to improve a condition or way of life. Care has cultural and symbolic meanings which are essential to provide culture specific care (Leininger & McFarland, 2006).

Culture is another major construct of this theory. It is also important as a guide to conduct research on African American women and their decision to breastfeed and initiation of breastfeeding. Leininger defined culture as "the learned, shared, and transmitted values, beliefs, norms, and lifeways of a particular culture that guides thinking, decisions, and actions in patterned ways and often intergenerationally" (Leininger & McFarland, 2006, p. 13). The decision to breastfeed may be based on values and beliefs that were learned and shared by others of the same culture. This decision

could also be based on family patterns and beliefs that have been passed on from one generation to the next. Thus culture may have a large impact on the decision of African American women to breastfeed and initiate breastfeeding and will have an important role in guiding research in this area.

Other constructs of the theory are emic care and etic care. Leininger (2006) differentiated between emic care and etic care to examine contrasting culture care phenomena. Emic care refers to those intuitively learned and traditional behaviors used to assist individuals with evident or anticipated health needs. Etic care refers to those formally learned professional knowledge and practices obtained through educational programs (Leininger & McFarland, 2006).

The construct of cultural and social structure factors encompasses a variety of comprehensive and diverse influences that may directly or indirectly affect health and wellbeing. These factors include religion or spirituality, kinship or social ties, politics, legal issues, education, economics, technology, political factors, philosophy of life, and cultural beliefs and values with gender and class differences (Leininger & McFarland, 2006).

Another construct of the theory is ethnohistory. Leininger defines ethnohistory as

> past facts, events, instances, and experiences of human beings, groups, cultures, and institutions that occur over time in particular contexts that help explain past and current lifeways about culture care influencers of health and wellbeing or the death of people (Leininger & McFarland, 2006, p. 15).

The construct of environmental context refers to the entirety of an experience, situation or event that provides background and serves to offer meaning within a specific cultural setting. Worldview as a construct refers to how individuals look at their world and form values about their world and about life (Leininger & McFarland, 2006). Culture care preservation and-or maintenance, culture care accommodation and-or negotiation, and culture care repatterning and-or restructuring are constructs of the theory as well as predicted action and decision modes. These were discussed previously. The construct of culturally congruent care refers to the knowledge, acts and decisions that are culturally based and used to incorporate the cultural values and beliefs of individuals for their health and wellbeing, prevent illness, disabilities or death. Care diversity as a concept refers to the variations and differences in providing beneficial care among individuals with respect to their values, beliefs and behaviors that are associated with culture. The construct of culture care universality refers to the similar or commonly shared behaviors, values or beliefs of individuals or cultures that guide care providers to assist individuals to achieve healthy outcomes (Leininger & McFarland, 2006). Each of these constructs can be used to guide research related to African American women and the decision to breastfeed and the initiation of breastfeeding because they all reflect culture and relate to attitudes and behaviors that may be influenced by culture.

In addition to the constructs, the theory of Culture Care diversity and Universality has four major tenets and eleven assumptions. The four major tenets of the theory are as follows:

1. Culture care expressions, meaning, patterns and practices are diverse yet there are shared commonalities and some universal attributes.
2. The worldview, multiple social structure factors, ethnohistory, environmental context, language, and generic and professional care are critical influencers of cultural care patterns to predict health, well-being, illness, healing, and ways people face disabilities and death.
3. Generic emic [folk] and etic [professional] health factors in different environmental contexts greatly influence health and illness outcomes.
4. From an analysis of the above influencers, three major actions and decision guides were predicted to provide ways to give culturally congruent, safe, and meaningful health care to cultures. The three culturally based action and decision modes were: (a) culture care preservation and-or maintenance; (b) culture care accommodation and-or negotiation; (c) culture care repatterning and-or restructuring. Decision and action modes based on culture care were key factors predicted for congruent and meaningful care. Individual, family, group, or community factors are assessed and responded to in dynamic and participatory nurse-client relationships.

(Leininger & McFarland, 2006, p. 17-18)

The theoretical assumptions of the theory of Culture Care Diversity and Universality are as follows:

1. Care is the essence and the central dominant, distinct, and unifying focus of nursing.
2. Humanistic and scientific care is essential for human growth, wellbeing, health, survival, and to face death and disabilities.
3. Care (caring) is essential to curing or healing for there can not be curing without caring.
4. Culture care is the synthesis of two major constructs that guide the researcher to discover, explain, and account for health, wellbeing, care expressions, and other human conditions.
5. Culture care expressions, meanings, patterns, processes, and structural forms are diverse but some commonalities (universalities) exist among and between cultures.
6. Culture care values, beliefs, and practices are influenced by and embedded in the worldview, social structure factors (e.g., religion, philosophy of life, kinship, politics, economics, education, technology, and cultural values) and the ethnohistorical and environmental contexts.
7. Every culture has generic [lay, folk, naturalistic; mainly emic] and usually some professional [etic] care to be discovered and used for culturally congruent care practices.
8. Culturally congruent and therapeutic care occurs when culture care values, beliefs, expressions, and patterns are explicitly known and used appropriately, sensitively, and meaningfully with people of diverse or similar cultures.

9. Leininger's three theoretical modes of care offer new, creative, and different therapeutic ways to help people of diverse cultures.
10. Qualitative research paradigmatic methods offer important means to discover largely embedded, covert, epistemic, and ontological culture care knowledge and practices.
11. Transcultural nursing is a discipline with a body of knowledge and practices to attain and maintain the goal of culturally congruent care for health and wellbeing.

(Leininger & McFarland, 2006, p. 18-19)

The tenets and assumptions of the theory are essential in guiding research that is culturally based. Culturally based research is important in examining African American women's decision to breastfeed and the initiation of breastfeeding. The theory of Culture Care Diversity and Universality provides the framework for determining whether culture is a factor in the decision to breastfeed and initiation of breastfeeding. This theory can be used to guide culturally specific research that may be able to provide information that can be used to decrease disparities that exist between African American and Caucasian women in relation to breastfeeding.

Quantitative Application

Leininger's theory provides a way to examine the relationship between culture and health care behavior. Previous research done using Leininger's model has used qualitative methods. Many variables have been studied that have been shown to have an

effect on the decision to breastfeed and breastfeeding initiation. There is a gap in the literature on the influence of cultural factors compared to other influences and the relationship of these cultural factors with health behaviors as they influence decisions to breastfeed and breastfeeding initiation. The cultural factors as described in the Theory of Culture Care Diversity and Universality can be measured using quantitative methods, which can provide important empirical data to contribute to the body of knowledge on breastfeeding initiation in African American women. These data can then be evaluated and the results can be used to assist African American women to initiate breastfeeding. For example, some of the cultural factors that may influence infant feeding attitudes and breastfeeding initiation that can be used as variables in quantitative research include education, socioeconomics, and health beliefs. These variables can be measured using reliable and valid instruments that may be able to predict health care behaviors or provide causal explanations. These outcomes can then be used to develop interventions that may increase breastfeeding initiation rates in African American women.

The figure below is Leininger's Sunrise Model that can be used to help depict the theory of Culture Care Diversity and Universality. It can also be used in research on African American women's decision to breastfeed and initiation of breastfeeding to depict the linkage of the framework and the study variables that may be used.

Figure 1

Leininger's Sunrise Model to Depict the Theory of Culture Care Diversity and Universality

(Leininger & McFarland, 2006)

Use of the Theory of Culture Care Diversity and Universality

The theory of Culture Care Diversity and Universality is a well established theoretical framework used in nursing practice, education and research. Established by Madeleine Leininger (Leininger & McFarland, 2006), this theory is used in many different ways in the nursing literature. For example, it is used to describe how incorporating cultural values, beliefs and practices in nursing actions and decisions can have a positive impact on clinical outcomes (Forchuk, 2001; Lazure, Vissandjee, Pepin, & Kerouac, 1997; Melkus et. al., 2004). It is used to describe the correlation of a culturally sensitive curriculum on nursing educational outcomes (Desantis, 1991; Leininger, 1997). This theory is also used to understand the relationship between various cultural groups and the existence of health disparities (Berkowitz, 2005; Underwood, 2005).

Less obvious in the nursing literature is the use of the theory of Culture Care Diversity and Universality as a theoretical framework for nursing research. There are only a few research articles that cite Leininger's theory as a theoretical basis (Anuforo, Oyedele, & Pacquiao, 2004; Bonura, Fender, Roesler, & Pacquiao, 2001; Chiu, 2000; Ehrmin, 2005; Higgins, 2000; Holt, 2001; Hubbert, 2005; Lewallen & Street, 2010; McFarland, 1997; MacNeil, 1996; Rosenbaum, 1991) and these studies apply the theory in different ways.

In two of the studies, Leininger's theory is used to investigate the health of older Greek-Canadian widows by focusing holistically on their descriptions, explanations and meanings (Rosenbaum, 1990; Rosenbaum, 1991). According to Leininger's theory, the

health of people can be predicted if the cultural values, expressions, and forms of care are known (Leininger & McFarland, 2006). MacNeil (1996) applied Leininger's theory by using the Sunrise Model to investigate care among Baganda women providing care to family members with AIDS in the home.

Leininger's theory was used to explain the congruency of the culturally meaningful nursing care actions and decisions with the cultural values and practices of men residing in the rural Midwest in the study conducted by Sellers, Poduska, Propp, & White (1999). Leininger's theory suggests that knowledge is needed to assess, know, and understand clients and design and implement culturally congruent care (Leininger & McFarland, 2006). Higgins (2000) applied Leininger's theory by examining the social organization, environment, worldview, and cultural values, beliefs and caring ways of ten members of Puerto Rican families. The Sunrise model was also used to provide a holistic view. Holt (2001) applied Leininger's theory by using the values that were identified in the study to discuss the implications for health care within institutional and community settings. Immigrant women from Eritrea were interviewed in this study. Bonura, Fender, Roesler, and Pacquiao (2001) used Leininger's theory to explain culture specific end-of-life care. Participants consisted of 16 professional caregivers, family members, and rabbis who had experience with end-of-life care for Jewish patients. Anuforo, Oyedele, and Pacquiao (2004) applied Leininger's theory by planning culturally congruent care based on the data collected and the three major action modes of the theory. Data were collected from 50 male and female participants from the three main Nigerian ethnic tribes. Ehrmin (2005) applied the theory by examining whether using the three action modes with the

substance-dependent African American women would influence outcomes toward their health and well-being status. Hubbert (2005) used the theory to identify, analyze, and discuss cultural care patterns. Study participants were homeless adults, male and female, who identified themselves as Euro-American, Hispanic or African American.

Implications for Research

This theory, used mostly in ethnonursing qualitative research, is an invaluable framework for understanding the similarities and differences between cultural groups. Understanding differences in practices and attitudes is important in developing culturally congruent care. Studies using Leininger's theory as a guiding framework for research with African American women are limited. More research is needed within the African American population and in particular, with African American women and issues that affect their health decisions and behaviors. Breastfeeding research is deficient in the utilization of theoretical frameworks to guide studies that relate specifically to culture. This study used Leininger's Theory of Culture Care Diversity and Universality to examine how culture affects infant feeding attitudes and breastfeeding. Specifically, the concepts from Madeleine Leininger's model used in this study were cultural values and lifeways, kinship and social factors, educational factors, and economic factors.

Purpose of the Study

The purpose of this study was to examine the relationship between culture and infant feeding attitudes on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. The secondary purpose of this study was to examine the perceived cultural influences on infant feeding decisions and breastfeeding initiation.

Cultural differences will be examined between African American and Caucasian women in this study. Although culture is more complex than simply race, there are no measures, or only imperfect measures, for African American and Caucasian cultures. The breastfeeding statistics that indicate there is a disparity that exists between African American and Caucasian women are listed by race, therefore this study will examine differences in these two groups.

Study Hypotheses

The hypotheses for this study were:

1. African American women will have lower infant feeding attitude scores than Caucasian women.
2. Caucasian race, higher infant feeding attitude scores, higher socioeconomic status and higher education level will predict decision to breastfeed.
3. Caucasian race, higher infant feeding attitude scores, higher socioeconomic status and higher education level will predict breastfeeding initiation.

4. The relationship between the decision to breastfeed and the initiation of breastfeeding does not vary by race.

CHAPTER III

METHODS

A descriptive non-experimental mixed method design was used in this study to examine the relationship between race and infant feeding attitudes on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. Non-experimental designs are appropriate for describing the characteristics of a group without the introduction of an intervention (Polit & Beck, 2004). In this study, infant feeding attitudes was compared between the two groups, and the relationship between these attitudes and the choice to breastfeed, along with the actual initiation of breastfeeding, was examined. Additionally, the participants' perception of the influence of their cultural background on their infant feeding choices was described.

Participants were asked to complete a Prenatal Demographic Data Assessment and The Iowa Infant Feeding Attitude Scale during their last trimester at a prenatal care class. All participants were contacted by telephone after delivery to determine their feeding method.

Two participants, one African American and one Caucasian, with lowest scores on the Iowa Infant Feeding Attitude Scale (IIFAS) were chosen from each data collection site for an additional telephone interview that was conducted after delivery. Low scores on the IIFAS indicate a preference for formula feeding. A brief open ended interview

guide was used to obtain information about the factors that influenced how they decided to feed their infants and how they fed their infants.

Protection of Human Subjects

Approval to conduct this study was obtained from the Guilford County Health Department, the Birthing Center at Gaston Memorial Hospital and the Maternity Center at Carolinas Medical Center in Charlotte as well as from the Institutional Review Board at The University of North Carolina at Greensboro. Site Institutional Review Board approval was also obtained from Carolinas Medical Center in Charlotte, North Carolina (See appendix). Participants were recruited to participate in the study by the researcher and were informed that their participation was strictly voluntary. Consent forms were distributed with the surveys and it was explained that telephone contact would be made by the researcher after the birth of their baby to assess their infant feeding method.

Confidentiality was maintained. Informed consent, the purpose of the study and the study process were explained to participants prior to the beginning of the prenatal classes. Participants were given time to complete the surveys. Surveys were distributed and collected by the researcher, typically at the beginning of class.

Completed surveys and consent forms were maintained in a locked file cabinet and data were entered into SPSS. Disks with data were also kept in a locked file cabinet and computer access was password protected.

Setting and Sample

This study took place in the Piedmont region of North Carolina. Participants were recruited at prenatal classes from three different locations in order to obtain information from women of different cultural and socioeconomic backgrounds. Prenatal classes at the Guilford County Health Department, the Birth Place at Gaston Memorial Hospital and the Maternity Center at Carolinas Medical Center in Charlotte were used to recruit participants. The Guilford County Health Department is located in Greensboro, North Carolina. Greensboro is 53.6% Caucasian and 37.4% African American (On Board LLC, 2010). Approximately 10 to 15 participants typically attended the prenatal classes offered in a series of consecutive weekdays at least twice a month and the majority of the participants were African American. The Birthing Center at Gaston Memorial Hospital is located in Gaston County, North Carolina. Gaston County is 81.4% Caucasian and 13.9% African American (On Board LLC, 2008b). Approximately 15 couples typically attended each of the prenatal classes offered twice a month and two to three of these couples were African American. The Maternity Center at Carolinas Medical Center is located at Carolinas Medical Center in Charlotte which is in Mecklenburg County, North Carolina. Charlotte is 55.1% Caucasian and 32.7% African American (On Board LLC, 2008a). Approximately 10 to 20 couples typically attended prenatal sessions that were offered at various times during the month and one to three of these couples were African American.

Estimated sample size for this study based on a statistical power analysis with an estimated effect size of .40, power of .80 and an alpha level of .05 was 196 (Polit &

Beck, 2004). In order to obtain an adequate sample size, based on the power analysis, and also account for potential problems in data collection and subject retention, a target sample size of 250 was used for this study. In order to address cultural differences, a sample close to 50% African American and 50% Caucasian was sought. Polit and Beck (2004) found that nursing studies with an effect size in the range of .20 to .40 are most common in the nursing literature. They examined the average effect sizes for nursing studies using the t-test and found that the average effect was .35 for all studies published in *Nursing Research* and *Research in Nursing and Health* in 1989 (Polit & Beck, 2004).

Two hundred eight participants were recruited for this study. Of the 208 participants, 133 were Caucasian and 75 were African American. Of these, 193 completed the study by completing the surveys at the prenatal classes and also by answering follow-up questions asked after delivery via telephone. Of the 15 participants that did not complete the telephone follow-up, five listed numbers that were disconnected, five listed numbers that were invalid, four participants were unable to be reached after multiple attempts and one participant did not list any contact information.

Preliminary analysis with 208 participants determined that there was no significant difference in Infant Feeding Attitude scores between the two groups. There was only a very small difference in mean scores. Mean score for African Americans = 64.88 (SD=6.76), and Caucasian = 65.09 (SD = 9.62) (See Table 1). Therefore, post hoc power analysis was considered, and according to Polit & Hungler (1995), 690 or more participants would be needed in each group (African American and Caucasian) to conclude that a difference this small was significant. Since recruitment of that many

additional participants was not feasible, the decision was made to end recruitment with 208 participants.

Table 1

Differences in Overall Infant Feeding Attitude Scores

	Race				
	African American (75)	Caucasian (133)	t	df	p value
Infant Feeding Scores	64.88	65.09	173	206	863
	(6.76)	(9.62)			

Standard Deviations appear in parentheses below means

Inclusion Criteria

This study used a convenience sample. Inclusion criteria for the study were: 1) women 18 and older. This allowed for information to be obtained from women in their primary childbearing years as well as from older teenagers and older mothers. 2) in the last trimester of pregnancy defined as 28 weeks and higher. 3) able to read and speak English. 4) self-defined as either African American or Caucasian.

Participants younger than 18 were excluded from the study. Participants younger than 18 may lack the emotional maturity and social experience to provide information that could be used in the study. Women from ethnic groups other than African American or Caucasian were excluded because the study specifically targeted these two groups. Women who were in their first and second trimesters were excluded in order to target women taking prenatal classes, which are more commonly attended in the last trimester.

Variables and their Measurement

The variables for this study were operationalized as follows:

- An African American woman is one who self-identifies as an African American.
- A Caucasian woman is one who self-identifies as Caucasian.
- Infant feeding attitudes was defined as the woman's preference to breastfeeding or formula feeding. This was determined by the score on the Iowa Infant Feeding Attitude Scale.
- Decision to breastfeed for the purposes of this study was defined as the woman's self-reported intention to breastfeed. This was measured using the Prenatal Data Collection Tool.
- Breastfeeding initiation was defined as ever having breastfed. This means suckling the infant at the breast or feeding expressed milk at least once in the infant's life. Breastfeeding initiation was measured by using self-report. This information was collected verbally over the phone after the participant had been discharged home.
- Culture for the purposes of this study was defined as self-identified race, African American or Caucasian.

Leininger defined culture as, "the learned, shared, and transmitted values, beliefs, norms and lifeways of a particular culture that guides thinking, decisions, and actions in patterned ways and often intergenerationally" (Leininger & McFarland, 2006, p. 13).

Culture evolves over time and is influenced by factors such as history, environment, social status, religion and experience. These factors are often shared by individuals of the same race. These individuals transmit shared traditions, customs, attitudes and beliefs based on this evolution from one generation to the next. Sharing the same beliefs, values and patterns bind individuals together under one identity as a group even though this process is not always a conscious one. Although it is acknowledged that cultural influences may differ within races, in this study culture was measured by self-identified race because of the shared system of beliefs, values and behavioral expectations that guide the daily living for each group, African American or Caucasian.

Instruments and their Relationship to Variables in the Theory of Culture Care Diversity and Universality

The variables from Madeleine Leininger's model that were used in this study were educational factors, economic factors, cultural values and lifeways, and kinship and social factors.

Educational factors were measured by question #3 on the Prenatal Demographic Data Assessment. Economic factors were measured by one of three questions on the Prenatal Demographic Data Assessment: #5, #6, or #7.

Leininger also depicts cultural values and lifeways as variables on her Sunrise Model that illustrates her theory. Cultural values are defined as values that are derived from culture, identify desirable ways of acting or knowing, guide decision making, and are often held over long periods. This study measured this variable in two ways: First, the

Iowa Infant Feeding Attitude Scale was used to determine if infant feeding attitudes predict the decision to breastfeed and breastfeeding initiation. Second, qualitative question #4 was asked in a small subset of the sample. This question addressed how participants felt culture had influenced how they planned to feed their baby.

Kinship and social factors are also depicted as variables on Leininger's Sunrise Model. These variables as well as cultural values and lifeways were examined in research question #5. This question asked how culture had influenced infant feeding decisions.

Kinship and social factors as well as cultural values and lifeways were examined in research question #6. This research question was answered by a subset of the participants (one African American and one Caucasian participant per data collection site with one of the lowest infant feeding scores) using the qualitative interview questions. Kinship is specifically addressed in qualitative question #2 which asks about family patterns, beliefs and practices in regards to infant feeding. It is also specifically addressed in qualitative question #4 which asks about family influences on infant feeding. Qualitative questions #1, #3, and #4 all addressed kinship and social factors and cultural values and lifeways. Qualitative question #1 was an open ended question about what was involved in how participants decided to feed their infants. Qualitative question #3 also asked for the most important reason for the infant feeding decision. Qualitative question #4 addressed the influence of culture on infant feeding decisions.

The Prenatal Demographic Data Assessment was used to gather demographic data and information about intended feeding patterns. Demographics included age, race,

household income, and highest level of education attained. Information about previous breastfeeding experience was also collected.

The Iowa Infant Feeding Attitude Scale, IIFAS, (De La Mora, Russell, Dungy, Losch, & Dusdieker, 1999) was used to measure the variable of infant feeding attitudes. This 17-item instrument uses a five-point Likert scale ranging from “strongly disagree” to “strongly agree” to measure responses. The items are worded so that half of the questions reflect a preference toward breastfeeding and the other half reflect a preference toward formula feeding. An example of an item reflecting preference toward breastfeeding is “Breast milk is the ideal food for babies” and an example of one reflecting preference toward formula feeding is “Formula feeding is more convenient than breastfeeding”. Items reflecting preference toward formula feeding are reversed scored, and then the responses are summed. A higher score indicates a preference for breastfeeding. Possible scores on this instrument range from 17 to 85.

Reliability and validity of this instrument have been reported in the literature. Cronbach’s alpha scores for this instrument range from .85-.86, indicating high reliability. This instrument has also been documented to have predictive validity in predicting choice of feeding method (De La Mora, Russell, Dungy, Losch & Dusdieker, 1999).

There is currently no instrument available in the literature that will measure cultural attitudes and beliefs in relation to breastfeeding. By comparing two different cultural groups using the Iowa Infant Attitude Scale, maternal attitudes were compared using culture as a variable. Previous research using this tool indicated that maternal attitudes

are important predictors of both choice and feeding method and the duration of breastfeeding among breastfeeding women (Dungy, Losch, & Russell, 1994; Shaker, Scott, & Reid, 2004).

Pilot Study

A pilot study was conducted prior to implementing the research study to determine if the two surveys, the Prenatal Demographic Data Assessment and the Iowa Infant Feeding Attitude Scale, were easy to read and understand. The pilot study also provided information regarding how long it may take participants to fill out the two surveys.

For the pilot study, a target sample of six women, three African American and three Caucasian, was sought to individually complete the Prenatal Demographic Data Assessment and the Iowa Infant Feeding Attitude Scale. This sample was representative of the study sample targeting equal numbers of African American and Caucasian women. Participants for the pilot study were recruited by flyers that were placed in an African American church in Shelby, North Carolina and a private university in Boiling Springs, North Carolina. Inclusion criteria for the pilot study were : 1) women 18 and older; 2) women who currently were pregnant or had an infant; 3) women who spoke and read English; and 4) women who defined themselves as either African American or Caucasian. Participants responding to contact information on the flyer and meeting inclusion criteria were asked to meet and complete the Prenatal Demographic Data Assessment and the Iowa Infant Feeding Attitude Scale and provide feedback related to

readability and understanding of the questions asked. Subjects signed an informed consent to participate in the pilot study. No incentives were given for participation. Data were collected using the demographic survey instruments. Notes were taken regarding verbal feedback provided by the participants.

Eight participants completed the pilot study. There were five African Americans and three Caucasians. Ages ranged from 21 to 35 years old. Five of the participants were single and three were married. Five of the participants were pregnant and three had infants. Three of the participants had Baccalaureate Degrees, two were high school graduates, one had a graduate degree, one had some college education, and one did not complete high school.

All of the participants stated that the surveys were easy to read and understand. There were no suggestions for changes and none of the participants felt there were any words that needed to be substituted to make the survey more understandable. It took the participants five to twenty minutes to complete both surveys.

Data Collection Procedures

Recruitment

The researcher recruited participants based on the inclusion criteria. All of the study data were collected by the researcher. Participants were recruited at prenatal classes. Information about various prenatal classes was obtained by accessing facility websites. Access to the prenatal classes was obtained with the assistance of lactation consultants,

registered nurses, and program directors responsible for coordinating and conducting classes at the facilities. Types of classes available for recruitment varied depending on the facility. Some examples of classes included a Baby Beginnings class offered at the Birth Center at Gaston Memorial Hospital that taught child care techniques and hospital procedures for delivering mothers and Prepared Parent Childbirth classes offered at Carolinas Medical Center.

Surveys were administered and collected as participants attended prenatal classes, typically at the beginning of class. The researcher explained the study and the study process to the participants at the beginning of the class. It was explained that participation in the study was voluntary. This explanation also included information about the consent form, the Prenatal Demographic Data Assessment form and the Iowa Infant Feeding Attitude scale. Participants were also informed that they would be given a $10 Wal-mart gift card as an incentive to participate in the study. Participants were asked if they had any questions and rarely were questions asked. Not all of the class participants chose to complete the surveys. Participants who wanted to participate usually raised their hands after the study was explained and then were given all of these forms, the Prenatal Demographic Data Assessment, the Iowa Infant Feeding Attitude Scale and two copies of the consent form, in a manila envelope and were asked to complete and return the forms in the same envelope after sealing it. Participants were told to return one copy of the consent form and to keep a copy for themselves. Pencils were provided. Time was allowed for participants to complete the surveys. Surveys and consent forms were completed and returned to the researcher in approximately 15 to 20 minutes. Participants

were encouraged to complete the surveys in the allotted time, however if they preferred to mail the survey, self-addressed, stamped envelopes were provided. All of the surveys were completed in class and none of the participants chose to mail the surveys.

Study participants were contacted by the researcher approximately 3 weeks after their due date by phone to determine breastfeeding initiation. In addition, two women from each site, one African American and one Caucasian, with the lowest scores on the Iowa Infant Feeding Attitude scale were chosen to interview further. Low scores on the Iowa Infant Feeding Attitude Scale indicate a preference for formula feeding. Interviews were conducted to obtain more information as to why they preferred formula feeding (Refer to Qualitative Interview Questions in the Appendix). The two participants from each of the sites determined to have low infant feeding attitude scores were contacted and agreed to participate in the interviews.

Data Analysis Procedures

This section will describe data analysis procedures used to answer the research questions. Analysis of data is presented in Chapter 4. SPSS was used to analyze the quantitative data.

Research Question #1

Is there a difference in infant feeding attitude scores between African American and Caucasian women?

Analysis Procedure. The ordinal level variable, infant feeding attitude was measured using the Iowa Infant Feeding Attitude Scale. The nominal level variable of race was measured by self-report. An independent t-test was used to determine if there was a significant difference in attitude scores between African American and Caucasian women.

Hypothesis. African American women will have lower infant feeding attitude scores than Caucasian women.

Research Question #2

Do race, infant feeding attitude, socioeconomic status and education predict decision to breastfeed?

Analysis Procedure. The variables race, socioeconomic status, education and decision to breastfeed was measured by self-report using the Prenatal Demographic Data Assessment. Race and decision to breastfeed are nominal level variables. Education is an ordinal level variable. Socioeconomic status was determined by using income as a variable and is an interval level variable. There were three questions on the Prenatal Demographic Data Assessment that examined socioeconomic status. Socioeconomic status was determined by the question with the highest percentage of participants responding and/or the question with the best variability. All three questions had high response rates but question #7 which asked about income had the best variability therefore income was used as the variable for socioeconomic status. The ordinal variable infant feeding attitude was measured using the Iowa Infant Feeding Attitude Scale.

Logistic regression was used to determine whether race, infant feeding attitude, socioeconomic status and education predict the decision to breastfeed. Race, infant feeding attitude, socioeconomic status and education level were the independent variables. Decision to breastfeed was the dependent variable.

Hypothesis. Caucasian race, higher infant feeding attitude scores, higher socioeconomic status and higher education level will predict decision to breastfeed.

Research Question #3

Do race, infant feeding attitude, socioeconomic status and education predict breastfeeding initiation?

Analysis Procedure. The variables race, socioeconomic status and education were measured by self-report using the Prenatal Demographic Data Assessment. The variable infant feeding attitude was measured using the Iowa Infant Feeding Attitude Scale. The variable breastfeeding initiation was measured using self-report of breastfeeding the infant at least one time. Race and breastfeeding initiation are nominal level variables. Infant feeding attitude and education level are ordinal level variables. Socioeconomic status was determined by using income as a variable and is an interval level variable. There were three questions on the Prenatal Demographic Data Assessment that examined socioeconomic status. Socioeconomic status was determined by the question with the highest percentage of participants responding and/or the question with the best variability. All three questions had high response rates but question #7 which asked about income had the best variability therefore income was used as the variable for

socioeconomic status. Logistic regression was used to determine whether race, infant feeding attitude, socioeconomic status and education predict breastfeeding initiation. Race, infant feeding attitude, socioeconomic status and education level were the independent variables. Breastfeeding initiation was the dependent variable.

Hypothesis. Caucasian race, higher infant feeding attitude scores, higher socioeconomic status and higher education level will predict breastfeeding initiation.

Research Question #4

Is there a difference in the relationship between decision to breastfeed and breastfeeding initiation in African American and Caucasian women?

Analysis Procedure. The variables decision to breastfeed and race was measured by self-report using the Prenatal Demographic Data Assessment. The variable breastfeeding initiation was measured using self-report. Decision to breastfeed, race, and breastfeeding initiation are nominal level variables. Chi square was used to determine the association between decision to breastfeed and breastfeeding initiation according to race.

Null Hypothesis. The relationship between the decision to breastfeed and the initiation of breastfeeding does not vary race.

The qualitative questions about cultural influences on infant feeding decisions and the factors that influence infant feeding decisions were analyzed using qualitative content analysis methodology (Waltz, Strickland & Lenz, 2005). Responses were analyzed and categories were identified. Themes were then developed and used to describe cultural influences on infant feeding decisions and factors that influence infant feeding decisions.

Research Question #5

How has culture influenced infant feeding decisions?

Analysis Procedure. This qualitative question was part of the Prenatal Demographic Data Assessment completed by all participants. This question was analyzed using qualitative content analysis methodology. Themes developed from identified categories were used to describe cultural influences on infant feeding decisions.

Research Question #6

What factors influence how African American and Caucasian women decide to feed their infants?

Analysis Procedure. This research question was answered using a subset of the study sample. The subset consisted of one African American and one Caucasian participant per data collection site with one of the lowest infant feeding scores. The women with the lowest scores were asked to answer the questions. The sample subset was interviewed using four qualitative questions. These data were analyzed using qualitative content analysis methodology. Themes developed from identified categories were used to more thoroughly describe cultural influences that may affect infant feeding decisions.

CHAPTER IV

RESULTS

The primary purpose of this study was to examine the relationship between race and infant feeding attitude on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. The secondary purpose of this study was to examine the perceived cultural influences on infant feeding decisions and breastfeeding initiation. This chapter will detail the study findings including a description of the sample, analysis of the research questions and summary of the results.

Sample

A convenience sample was used for this study. The sample consisted of 208 participants recruited from three data collection sites, the Guilford County Health Department in Greensboro, North Carolina, the Birth Place at Gaston Memorial Hospital in Gastonia, North Carolina and the Maternity Center at Carolinas Medical Center in Charlotte, North Carolina. Table 2 provides information on the demographic characteristics of the participants. All of the women were English –speaking, over 18 years old, and, in their last trimester of pregnancy (28 weeks gestation or above). The majority of women (91.8%) were first time mothers. Of the women who were not first time mothers most (82.4%) reported one previous birth. All 208 participants completed the Iowa Infant Attitude Survey and the Prenatal Demographic Data Assessment.

Table 2

Demographic Characteristics of Participants (N=208)

Variables		Number	Percent
Age			
	18-20	31	14.9%
	21-25	51	24.5%
	26-30	61	29.3%
	31-35	47	22.6%
	36-40	16	7.7%
	40-45	2	1.0%
Race			
	African American	75	36.1%
	Caucasian	133	63.9%
Level of Education			
	Did not complete High School	7	3.4%
	High School graduate	26	12.5%
	Associate Degree	20	9.6%
	Baccalaureate Degree	49	23.6%
	Graduate Degree	45	21.6%
Marital Status			
	Single	83	39.9%
	Married	122	58.7%
	Separated	2	1.0%
	Widowed	1	0.5%
WIC			
	Yes	95	45.7%
	No	113	54.3%
Insurance			
	Medicaid	85	40.9%
	Private insurance	113	54.3%
	Self-pay	4	1.9%
	Medicaid and private insurance	6	2.9%
Income			
	Less than $20,000	70	33.7%
	$20,000-39,999	25	12.0%
	$40,000-$59,999	17	8.2%
	$60,000-$79,999	20	9.6%
	$80,000-$99,999	25	12.0%
	$100,000 or more	50	24.0%
Employment			
	Yes	139	66.8%
	No	69	33.2%
Number of Hours Employed			
	20 hours or less	20	9.7%
	21-39 hours	28	13.5%
	40 hours	76	36.5%
	Greater than 40 hours	7	3.3%

Table 3 provides demographic information about the study participants according to race. The African American population was different from the Caucasian population. African American participants were more likely to be younger, not married, receiving WIC and Medicaid, be of a lower socioeconomic status, according to income, and be unemployed.

Table 3

Demographic Characteristics of African American versus Caucasian Participants

Variables		African American (N=75)	Caucasian (N=133)
Age			
	18-20	21 (28%)	10(7.5%)
	21-25	28 (37.3%)	23(17.3%)
	26-30	13 (17.3%)	48(36.1%)
	31-35	10 (13.3%)	37(27.8%)
	36-40	3 (4%)	13(9.8%)
	40-45	0	2(1.5%)
Level of Education			
	Did not complete high school	5 (6.7%)	2(1.5%)
	High School graduate	14 (18.7%)	12(9%)
	Some college	36 (48 %)	25(18.8%)
	Associate Degree	3 (4%)	17(12.8%)
	Baccalaureate Degree	11 (14.7%)	38(28.6%)
	Graduate Degree	6 (8%)	39 (29.3%)
Marital Status			
	Single	59 (78.7%)	24 (18%)
	Married	13 (17.3%)	109 (82%)
	Separated	2 (2.7%)	0
	Widowed	1 (1.3%)	0
WIC			
	Yes	63 (84%)	32(24.1%)
	No	12 (16%)	101(75.9%)
Insurance			
	Medicaid	61 (81.3%)	24 (18%)
	Private Insurance	9 (12%)	104 (78.2%)
	Self Pay	1 (1.3%)	3 (2.3%)
	Medicaid and Private Insurance	4 (5.3%)	2 (1.5%)
Income			
	Less than $20,000	51 (68)	19 (14.4%)
	$20,000-$39,999	14 (18.7%)	11 (8.3%)
	$40,000-$59,999	2 (2.7%)	15 (11.4%)
	$60,000-$79,999	1 (1.3%)	19 (14.4%)
	$80,000-$99,999	2 (2.7%)	23 (17.4%)
	$100,000 or more	5 (6.7%)	45 (34.1%)
Employed			
	Yes	35 (46.7%)	104 (78.2%)
	No	40 (53.3%)	29 (21.8%)
Number of Hours Employed			
	20 hours or less	11 (34.4%)	9 (9%)
	21-39 hours	10 (31.2%)	18 (18.1%)
	40 hours	11 (34.4%)	65 (65.7%)
	Greater than 40 hours	0	7 (7%)

The 208 participants consisted of 85 participants from the Guilford County Health Department, 41 participants from The Birth Place at Gaston Memorial Hospital and 82 participants from The Maternity Center at Carolinas Medical Center in Charlotte, North Carolina. Table 4 provides information on the demographic characteristics of participants according to data collection site.

Table 4

Demographic Characteristics of Participants According to Data Collection Site

	Guilford County Health Department (n=85)	The Birth Place at Gaston Memorial Hospital (n=41)	The Maternity Center at Carolinas Medical Center (n=82)
Variables	n(percent)	n(percent)	n(percent)
Age			
18-20	26 (30.6%)	3 (7.3%)	20 (2.4%)
21-25	34 (40.0%)	9 (2.2%)	8 (9.8%)
26-30	17 (20.0%)	14 (34.1%)	30 (36.6%)
31-35	8 (9.4%)	12 (29.3%)	27 (32.9%)
36-40	0	3 (7.3%)	13 (15.9%)
40-45	0	0	2 (2.4%)
Race			
African American	65 (76.5%)	1 (2.4%)	9 (11.0%)
Caucasian	20 (23.5%)	40 (97.6%)	73 (89.0%)
Level of Education			
Did not complete High School	7 (8.2%)	0	0
High School Graduate	18 (21.2%)	7 (17.1%)	1 (1.2%)
Some College	44 (51.8%)	9 (22.0%)	8 (9.8%)
Associate Degree	5 (5.9%)	10 (24.4%)	5 (6.1%)
Baccalaureate Degree	10 (11.8%)	7 (17.1%)	32 (39.0%)
Graduate Degree	1 (1.2%)	8 (19.5%)	36 (43.9%)
Marital Status			
Single	69 (81.2%)	7 (17.1%)	7 (7.3%)
Married	13 (15.3%)	34 (82.9%)	75 (92.7%)
Separated	2 (2.4%)	0	0
Widowed	1 (1.2%)	0	0
WIC			
Yes	83 (97.6%)	6 (14.6%)	6 (7.3%)
No	2 (2.4%)	35 (85.4%)	76 (92.7%)
Insurance			
Medicaid	79 (92.9%)	6 (14.5%)	0
Private insurance	2 (2.4%)	34 (82.9%)	77 (93.9%)
Self Pay	0	1 (2.4%)	3 (3.7%)
Medicaid and Private Insurance	4 (4.7%)	0	2 (2.4%)
Income			
Less than $20,000	65 (76.5%)	3 (7.3%)	2 (2.4%)
$20,000-$39,999	16 (18.8%)	6 (14.6%)	3 (3.7%)
$40,000-$59,999	3 (3.5%)	6 (14.6%)	8 (9.8%)
$60,000-$79,999	1 (1.2%)	9 (22.0%)	10 (12.2%)
$80,000-$99,999	0	6 (14.6%)	19 (23.2%)
$100,000 or more	0	10 (24.4%)	40 (48.8%)
Employment			
Yes	36 (42.4%)	34 (82.9%)	69 (84.1%)
No	49 (57.6%)	7 (17.1%)	13 (15.9%)
Number of Hours Employed			
20 hours or less	14 (16.5%)	1 (2.4%)	5 (6.0%)
21-39 hours	14 (16.5%)	5 (12.2%)	9 (10.9%)
40 hours	7 (8.2%)	24 (58.5%)	45 (54.9%)
Greater than 40 hours	0	0	7 (8.6%)

Of the 208 participants, 193 also completed the phone call follow-up questions. Most of those who did not complete the phone call follow-up questions could not be reached or provided phone numbers that were invalid. Fifteen participants did not complete the follow up phone call. Demographically they were no different from those who participated. Most of those, 46.6% (n=7), were from the Maternity Center at Carolinas Medical Center and 40% (n=6) were from the Guilford County Health Department and 13.3% (n=2) were from the Birth Place at Gaston Memorial Hospital. All of the participants not participating in the follow up phone call were in their last trimester of pregnancy, 28 weeks gestation or above. The majority (86.7%; n=13) were first time mothers. Table 5 provides information on the demographic characteristics of those not participating in the follow up phone call. Analyses of the data, using the 208 participants recruited and the 193 participants completing the study, supports the conclusion that there was no significant difference in those who completed the study and those initially recruited. The following analyses are based on the 208 women recruited for this study. The analyses reflect missing cases which accounts for the fifteen participants who did not complete the study.

Table 5

Demographic Characteristics of Those Not Participating In the Follow Up Phone Call

Variables		Number	Percent
Age			
	18-20	2	13.3%
	21-21	3	20.0%
	26-30	6	40.0%
	31-35	4	26.7%
Race			
	African American	6	40.0%
	Caucasian	9	60.0%
Level of Education			
	Did not complete High School	1	6.7%
	High School Graduate	2	13.3%
	Some College	2	13.3%
	Associate Degree	2	13.3%
	Baccalaureate Degree	2	13.3%
	Graduate Degree	6	40.0%
Marital Status			
	Single	5	33.3%
	Married	9	60.0%
	Separated	1	6.7%
WIC			
	Yes	7	46.7%
	No	8	53.3%
Race of WIC recipients			
	African American	63	66.3%
	Caucasian	32	33.7%
Insurance			
	Medicaid	6	40.0%
	Private Insurance	9	60.0%
Income			
	Less than $20,000	6	40.0%
	$20,000-$39,999	1	6.7%
	$40,000-$59,999	1	6.7%
	$60,000-$79,999	2	13.3%
	$80,000-$99,999	3	20.0%
	$100,000 or more	2	13.3%
Employment			
	Yes	9	60.0%
	No	6	40.0%
Number of Hours Employed			
	35	1	6.7%
	40	7	46.7%

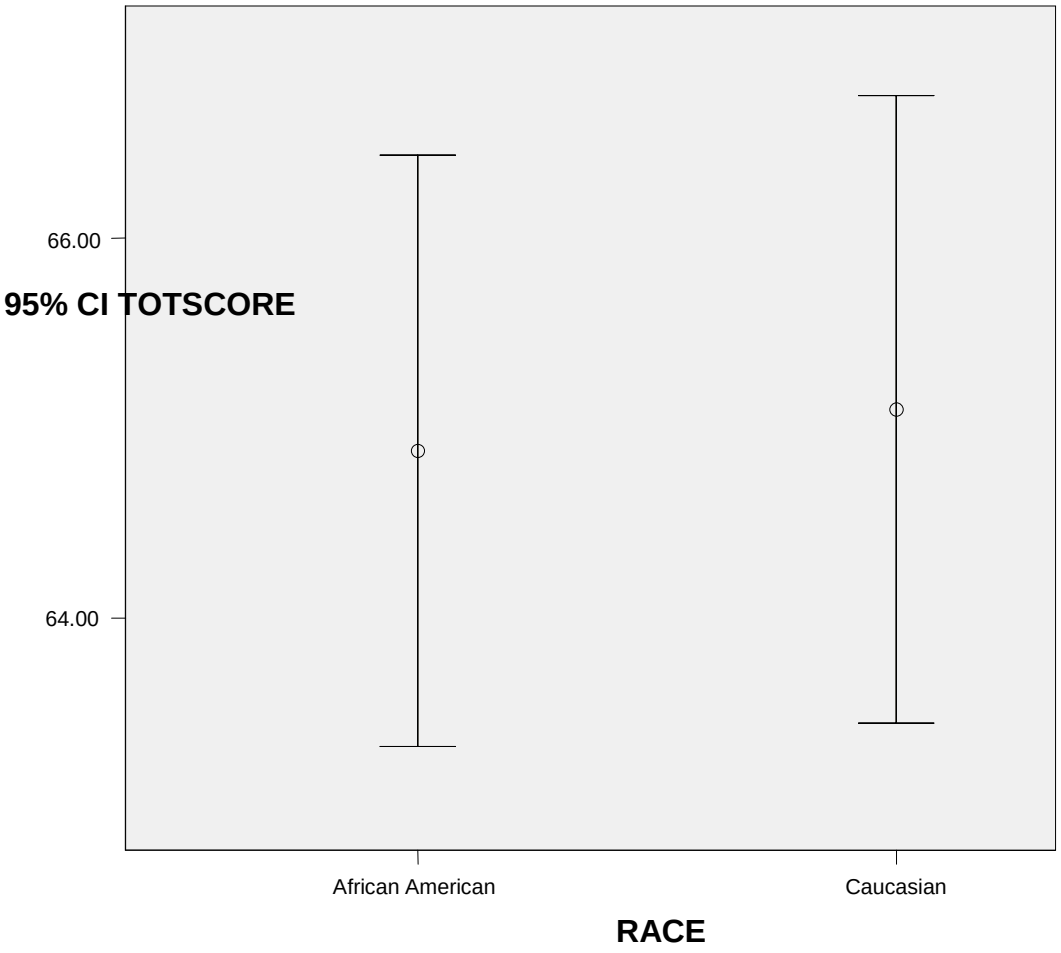
Analysis of Research Questions

Question #1: Is there a difference in infant feeding attitude scores between African American and Caucasian women?

An independent samples t-test was conducted to test the hypothesis that African American women will have lower infant feeding attitude scores than Caucasian women. A low score indicates preference toward formula feeding. The possible range of scores for the Iowa Infant Feeding Attitude Scale is a minimum of 17 and maximum of 85. There are no cut-offs established for favoring breast feeding or formula feeding. The test was not significant, $t(206) = -.173$, $p=.863$, indicating that there is no significant difference in infant feeding attitude scores between African American and Caucasian women. African American women's scores ($M=64.88$, $SD=6.76$) were similar to Caucasian women's scores ($M=65.09$, $SD=9.62$). Figure 1 depicts total infant feeding scores in African American and Caucasian study participants. Infant feeding attitude scores according to data collection site are provided in Table 6.

Figure 2

Infant Feeding Attitude Scores of African American and Caucasian Participants



TOTSCORE= Total Infant Feeding Attitude Score

CI= Confidence Interval

Table 6

Infant Feeding Attitude Scores According to Data Collection Site

	Guilford County Health Department		The Birth Place at Gaston Memorial Hospital		The Maternity Center at Carolinas Medical Center	
Race	African American	Caucasian	African American	Caucasian	African American	Caucasian
number	65	20	1	40	9	73
Mean	65.00	67.00	65.00	63.80	64.00	65.28
Standard Deviation	7.09	6.43	----	10.57	4.41	9.82

Question #2: Do race, infant feeding attitude, socioeconomic status and education predict decision to breastfeed?

A logistic regression was conducted to test the hypothesis that Caucasian race, higher infant feeding attitude scores, higher socioeconomic status and higher education level will predict decision to breastfeed. Socioeconomic status was measured by the interval level variable of income. There were three questions on the Prenatal Demographic Data Assessment that examined socioeconomic status. The questions pertained to income, insurance, and receiving WIC. Income was chosen to measure socioeconomic status in the regression equation because it had the highest percentage of participants responding and the best variability. The variables in the hypothesis for research question #2 were entered in two blocks to determine the most discriminating variables. Education, income and total infant feeding attitude score were entered in block 1 which was significant ($p < .001$) and accounted for 11.1 to 32.6% of the variance in the decision to breastfeed. The Hosmer and Lemshow Test indicated a good fit ($p = .656$) of the model. Only total infant

feeding attitude score made a significant contribution ($p < .001$) to the model. Race was entered in block 2 to determine if it significantly added to the prediction above that afforded by income, education and total infant feeding attitude score and it was not significant ($p=.29$). The total model, all variables with race added, was significant ($p < .001$), highly predictive, and accounted for 13.1 to 38.5% of the variance in decision to breastfeed. The model was a good fit (Hosmer and Lemeshow, chi-square = 6.719, df=8, $p = .567$). Total infant feeding attitude score ($p< .001$) was the only variable that was a significant predictor of decision to breastfeed. The odds of deciding to breastfeed were 1.3 (1.298, CI=.750-2.245) times higher for those with higher socioeconomic status and 1.2 (1.211, CI=1.079-1.358) times higher for those with higher infant feeding attitude scores. Table 7 provides results of the logistic regression analysis conducted to determine whether selected variables predict the decision to breastfeed.

Table 7

Logistic Regression of Selected Independent Predictor Variables on Decision to Breastfeed

Predictor Variable	B	SE	Odds Ratio	95% CI	Wald Statistic	p
Infant Feeding Attitude Score	.191	.059	1.211	1.079-1.358	10.581	.001
Socioeconomic Status	.261	.280	1.298	.750-2.245	.868	.351
Education	-.002	.374	.998	.479-2.076	.000	.995
Race	-2.248	1.184	.106	.010-1.075	3.606	.058

B = b weight, SE = standard error, p = p value

Question #3: Do race, infant feeding attitude, socioeconomic status and education predict breastfeeding initiation?

A logistic regression was conducted to evaluate the hypothesis that Caucasian race, higher infant feeding attitude scores, higher socioeconomic status and higher education level will predict breastfeeding initiation. Socioeconomic status was measured by the interval level variable of income. There were three questions on the Prenatal Demographic Data Assessment that examined socioeconomic status. Income was chosen to measure socioeconomic status because it had the highest percentage of participants responding and the best variability. The variables were entered in two blocks to determine the most discriminating variables. Education, income and total infant feeding attitude score were entered in block 1 which was significant ($p < .001$) and accounted for 14.9 to 35% of the variance in breastfeeding initiation. The Hosmer and Lemshow Test indicated a good fit ($p = .997$). Only total infant feeding attitude score made a significant contribution ($p < .001$). Race was entered in block 2, which was not significant ($p = .877$), to determine if it significantly added to the prediction above that afforded by income, education and total infant feeding attitude score. The total model was significant ($p < .001$) and highly predictive, and accounted for 14.9 to 35% of the variance in breastfeeding initiation. The model was a good fit (Hosmer and Lemeshow, chi-square = 1.209, df=8, $p = .997$). Total infant feeding attitude score ($p< .001$) was the only variable that was a significant predictor. The odds of breastfeeding initiation were 1.3(1.277, CI=.773-2.108) times higher for those with higher socioeconomic status and 1.3 (1.276, CI=1.137-1.432) times higher for those with higher infant feeding attitude scores. Table 8

provides results of the logistic regression analysis conducted to determine whether selected variables predict breastfeeding initiation.

Table 8

Logistic Regression of Selected Independent Predictor Variables on Breastfeeding Initiation

Predictor Variables	B	SE	Odds Ratio	95% CI	Wald Statistic	p
Infant Feeding Attitude Score	.244	.059	1.276	1.137-1.432	17.097	.000
Socioeconomic Status	.244	.256	1.277	.773-2.108	.910	.340
Education	-.267	.300	.766	.426-1.378	.794	.373
Race	.116	.755	1.123	.256-4.932	.024	.887

B = b weight, SE = standard error, p = p value

Question #4: Is there a difference in the relationship between decision to breastfeed and breastfeeding initiation in African American and Caucasian women?

A chi-square test was conducted to determine the relationship between the decision to breastfeed and the initiation of breastfeeding in African American and Caucasian women. The results of the test were not significant, X^2 (1, N=190) = 1.14, p =.197, indicating that there is no significant difference in the relationship between decision to breastfeed and breastfeeding initiation in African American and Caucasian women. Table 9 shows the relationship between decision to breastfeed and breastfeeding initiation in African American and Caucasian women.

Table 9

Decision to Breastfeed and Initiation in African American and Caucasian Women

Initiation	Decision to Breastfeed	Race: African American	Race: Caucasian	Total
No	No	1	8	9
	Yes	5	1	6
	Total	6	9	15
Yes	No	0	2	2
	Yes	63	110	173
	Total	63	112	175

Question #5: How has culture influenced infant feeding decisions?

This open-ended question was addressed as part of the Prenatal Demographic Data Assessment completed by all participants. The question on the Assessment form read as follows: *The word culture means beliefs and traditions passed down by your family and friends. How has culture affected how you plan to feed your baby?* Qualitative content analysis methodology (Elo & Kyngas, 2007) was conducted to first categorize the data and then to develop overall themes to describe cultural influences on infant feeding decisions. To begin the analysis, all of the responses with corresponding participant number and race were transcribed verbatim from the Prenatal Demographic Data Assessment to three separate Word documents according to site. Once responses from all three sites were transcribed each response was read to get an initial sense of the data. Then each site was examined separately to begin to develop categories.

There were twelve categories developed from the Guilford County Health Department site, nine categories from the Birth Place at Gaston Memorial Hospital, and sixteen categories from the Maternity Center at Carolinas Medical Center. The twelve categories from the Guilford County Health Department and the participant responses in each category are shown in Table 10.

Table 10

Guilford County Health Department Categories

Category	Number of Responses
Family Influence (Breast)	20
Family Influence (Formula)	1
Friends Influence	2
Previous Experience	3
Benefits	15
Culture didn't Affect	30
Influenced by classes/TV	2
Tradition	3
Miscellaneous (Breastfeeding)	8
Culture Affected	2
Miscellaneous (Formula)	1
Not Sure	1

There were nine categories that were developed from the Birth Place at Gaston Memorial Hospital site. The nine categories and the participant responses in each category are shown in Table 11.

Table 11

The Birth Place at Gaston Memorial Hospital Categories

Category	Number of Responses
Family Influence	6
Friends and Family Influence	7
Breastfeeding is best/benefits	10
Culture is Supportive	3
Support for Formula Feeding	1
Other reasons for Formula Feeding	1
Miscellaneous (Breastfeeding)	2
Miscellaneous (Formula Feeding)	2
Doctor Influence	1

The sixteen categories developed from the Maternity Center at Carolinas Medical Center site and the number of participant responses in each category is shown in Table 12.

Table 12

The Maternity Center at Carolinas Medical Center Categories

Category	Number of Responses
Women in Family Successful at Breastfeeding (Breastfeeding Encouraged)	8
Women in Family Did Not Breastfeed (Breastfeeding Encouraged)	1
Mother Breastfed	19
Mother (Others in Family) Did Not Breastfeed/Formula Fed	15
Family Influence	19
Wanted to Try	4
Healthiest Method	21
Body Made to Breastfeed	1
Culture didn't Affect	21
Culture Affected	9
Personal Choice	4
Benefits	20
Research	9
Education	7
Friends Influence	11
Left Blank/No Response	6

The categories from the three sites were then compared to examine similarities and differences in order to determine matching categories across sites. All three sites had a family influence category. All three sites also had friends influence as a category. All three sites had benefits as a category. All three sites also had a category related to other breastfeeding influences. The categories related to other breastfeeding influences from the Guilford County Health Department site were tradition, classes/TV, and previous experience. The category from the Birth Place at Gaston Memorial Hospital site was doctor influence. The categories from the Maternity Center at Carolinas Medical Center site were research, education and wanted to try.

Two sites, the Guilford County Health Department site and the Maternity Center at Carolinas Medical Center site, had a category called culture affected. The Birth Place at Gaston Memorial Hospital site had a category called culture is supportive. Two of the sites, the Guilford County Health Department and the Maternity Center at Carolinas Medical Center, had a category called culture didn't affect. Two sites, the Guilford County Health Department and the Birth Place at Gaston Memorial Hospital, had categories regarding formula feeding. The two categories from the Birth Place at Gaston Memorial Hospital site were support for formula feeding and other reasons for formula feeding. The categories from the Guilford County Health Department site were miscellaneous (formula) and family influence (formula). The Maternity Center at Carolinas Medical Center site had a category mother (others in family) did not breastfeed/formula fed. The Guilford County Health Department and the Birth Place at Gaston Memorial Hospital sites had categories called miscellaneous. The Guilford

County Health Department site had a miscellaneous (breastfeeding) category and a miscellaneous (formula) category. The Birth Place at Gaston Memorial Hospital site had a miscellaneous (breastfeeding) category and a miscellaneous (formula feeding) category. Other categories included a not sure category at the Guilford County Health Department; a personal choice category, a women in family did not breastfeed (but breastfeeding encouraged) category, a women in family successful at breastfeeding (breastfeeding encouraged), a mother breastfed category and a body made to breastfeed category at the Maternity Center at Carolinas Medical Center.

Matching categories with responses and participant number from all three sites were grouped and then combined into one Word document to form a total of 27 categories for the three sites. The 27 categories were : family influence, women in family successful at breastfeeding (breastfeeding encouraged), mother breastfed, family influence (formula), mother (others in family) did not breastfeed/formula fed, friends and family influence, friends influence, women in family did not breastfeed but encouraged it, breastfeeding is best/benefits, healthiest method, body made to breastfeed, research, education, culture is supportive of breastfeeding/culture affected, culture didn't affect, personal choice, support for formula feeding, other reasons for formula feeding, miscellaneous (breastfeeding), miscellaneous (formula feeding), doctor influence, previous experience, influenced by classes/TV, tradition, wanted to try, not sure, and left blank/no response. Table 13 shows the categories that were developed from all three sites and the number of participant responses in each category.

Table 13

Categories from Combined Data Collection Sites

Category	Number of Responses
Family Influence	45
Women in Family Successful at Breastfeeding (Breastfeeding Encouraged)	8
Mother Breastfed	19
Family Influence (Formula)	1
Mother (Others in Family) Did Not Breastfeed/Formula Fed	15
Friends and Family Influence	9
Friends Influence	11
Women in Family Did Not Breastfeed (Breastfeeding Encouraged)	1
Breastfeeding is Best/Benefits	45
Healthiest Method	21
Body Made to Breastfeed	1
Research	9
Education	7
Culture is Supportive of Breastfeeding/Culture Affected	14
Culture didn't Affect	51
Personal Choice	4
Support for Formula Feeding	1
Other Reasons for Formula Feeding	1
Miscellaneous (Breastfeeding)	10
Miscellaneous (Formula Feeding)	3
Doctors Influence	1
Previous Experience	3
Influenced by classes/TV	2
Tradition	3
Wanted to Try	4
Not Sure	1
Left Blank/No Response	6

Categories from all three sites were then analyzed to determine if categories across sites could be further collapsed. From the analysis it was determined that the twenty seven categories could be further collapsed to form nine categories for the three sites combined. The twenty seven categories were collapsed as follows: 1) The categories family influence, women in family successful at breastfeeding (breastfeeding encouraged), mother breastfed, family influence (formula), mother (others in family) did not breastfeed/formula fed, women in family did not breastfeed but encouraged it, support for formula feeding, wanted to try and friends and family influence were all combined to form the family influence category; 2) The category friends influence, and friends and family influence were combined to form the friends influence category; 3) The categories breastfeeding is best/benefits, healthiest method, body made to breastfeed, research, education, doctors influence, previous experience, influenced by classes/TV and wanted to try were combined to form the breastfeeding is best/benefits of breastfeeding category; 4) The categories culture is supportive of breastfeeding/culture affected, tradition, and wanted to try were combined to form the culture affected category; 5) The categories culture has not affected, previous experience and tradition were combined to form the culture has not affected category; 6) The categories personal choice and wanted to try were combined to form the personal choice category; 7) The categories miscellaneous (breastfeeding), miscellaneous (formula feeding) and the other reasons for formula feeding were combined to form the miscellaneous category; 8) The not sure category remained the same; and 9) the left blank/no response category remained the same.

Some of the quotes demonstrating that participants felt family influence may have affected their infant feeding decisions include,

> My mother and grandmother both breastfed.

> Culture has encouraged me to breastfeed. Everyone in my family did, and is highly recommended to me.

> My family all breastfeed and expects me to do the same because they believe its best for the baby. And I strongly agree.

> My mother breastfed all her children despite the many complications she had. For generations the babies in my family have been breastfed and I plan to continue it because of its benefits.

Some of the responses that were given indicating that friends may have influenced infant feeding decisions include,

> My friends and co-workers are big advocates of breastfeeding due to the massive amount of data out there that proves its health benefits. This is the main reason I am influenced/inclined to do so.

> Most of my friends are interested in health and healthy lifestyle. Breastfeeding is healthier for baby.

Some of the responses that indicate breastfeeding is best/benefits of breastfeeding was an influence in infant feeding decisions include,

> I don’t believe that I chose it for beliefs or traditions. After learning the benefits I wanted to breastfeed.

My decision is based on the best health interest of the baby as well as the cost effectiveness of breastfeeding due to our current economic standpoint.

I feel that my child will benefit a great deal from breast milk which I've learned from family, friends, and research via books and internet. Benefits include bonding between mother and baby, better immune system, and cost efficient.

Just knowing all the wonderful benefits of breastfeeding and knowing it is easier on the wallet.

Some of the responses in the "Culture Affected" category include,

My culture has helped me to determine what things I will and will not do as a mother.

I want to do what is best for my child and make the baby's immune system stronger. My culture is pretty supportive of breastfeeding. I also have a very strong support system when it comes to breastfeeding.

My culture has educated me in breastfeeding and has given me tools and suggestions encouraging me to breastfeed.

My culture has influenced my belief that breastfeeding is a natural and healthy way to care for my infant and protect him from disease. It's very clearly considered what's best for baby and mother.

Some of the responses in the "Culture has not Affected" category that indicate culture may not have an influence on infant feeding decisions include,

My culture has not really had an effect on my decision. I based it on the education and knowledge I have received from classes and learning how it would affect my child.

My decision to breastfeed was not made by my culture. I tried it with my 1st child and enjoyed it.

My culture hasn't really affected my plans to breastfeed my baby. Just because it didn't work for them doesn't mean it won't work for me.

My culture hasn't affected my decision on how to feed my baby because traditionally the women in my family formula fed their babies.

Culture hasn't influenced my decision on how I will feed my baby. Education on the benefits of breastfeeding and breast milk is the primary factor.

Some of the responses in the "Personal Choice" category include,

Everybody was bottle fed and I wanted to try something else.

Being a working mom, made me choose to breastfeed and formula.

I think my decision has been more independent as my mother did not breastfeed so I am the first to make the choice.

The twenty seven categories were collapsed into the nine categories based on the individual responses in each of the twenty seven categories. Some of the responses in the original twenty seven categories were split up into two categories because the responses fit into two of the nine categories that were formed. For example, one of the original twenty seven categories was wanted to try. Some of the individual responses in this category fit into the family influence category and some fit into the culture affected category so the responses were put where they fit. Another example is the tradition

category that was one of the twenty seven original categories. Some of the individual responses fit in the culture affected category and some fit in the culture has not affected category so the responses were placed where they fit. The final nine categories formed were: family influence, friends influence, breastfeeding is best/benefits of breastfeeding, culture affected, culture has not affected, personal choice, miscellaneous, not sure, and left blank/no response. Table 14 shows the final nine categories and the number of participant responses in each category.

Table 14

Final Categories Collapsed from Combined Data Collection Sites

Category	Number of Responses
Family Influence	74
Friends Influence	19
Breastfeeding is Best/Benefits of Breastfeeding	66
Culture Affected	17
Culture Has Not Affected	56
Personal Choice	10
Miscellaneous	2
Not Sure	1
Left Blank/No Response	19

After the nine categories were formed, responses in each category were reread to develop themes across categories. Table 15 shows the final categories and themes. There

were three themes that cut across all the categories. The themes were: 1) personal influence; 2) impersonal influence; and 3) shared and learned influences. These themes were named using terms from Madeline Leininger's Culture Care Diversity and Universality theory (Leininger & McFarland, 2006). Personal influence refers to the influence of family, friends, and significant others. Madeline Leininger refers to these influences as kinship and social factors and cultural values and lifeways. Impersonal influence refers to environmental influences. Leininger refers to these influences as technological factors, philosophical factors, political and legal factors, economic factors and educational factors. Shared and learned influences are those influences that may be passed down or learned from others.

Table 15

Final Categories and Themes

Categories	Themes
Family Influence	1. Personal Influence
Friends Influence	2. Impersonal Influence
Breastfeeding is best/Benefits of Breastfeeding	3. Shared and Learned Influence
Culture Affected	
Culture Has Not Affected	
Personal Choice	
Miscellaneous	
Not Sure	
Left Blank/No Response	

In order to make sure trustworthiness of the qualitative data analysis procedure was achieved, another qualitative researcher with experience in breastfeeding research reviewed each step of the data analysis process and the results. Credibility was achieved by collaboration with the qualitative researcher to determine codes, categories, and themes. Inter-rater reliability was assessed by asking the qualitative researcher to review participant responses and how they were assigned to categories. Agreement percentage was 95% and was determined by dividing the total number of responses by the number of quotes that were in disagreement between the researchers. Any areas of disagreement were discussed and agreement was reached.

Question #6: What factors influence how African American and Caucasian women decide to feed their infants?

A subset of the study sample was used to answer this question. The subset consisted of one African American and one Caucasian participant from each of the data collection sites with the lowest infant feeding scores. The subset consisted of a total of six women, three African American and three Caucasian. Table 16 provides information on the demographic characteristics of the interviewed subset participants. Table 17 provides information on the demographic characteristics of the interviewed participants according to race.

Table 16

Demographic Characteristics of Interviewed Subset Participants

Variables	Number (N=6)	Percent
Age		
18-20	1	16.7%
21-25	2	33.3%
31-35	2	33.3%
36-40	1	16.7%
Education		
Did not complete high school	1	16.7%
High School graduate	1	16.6%
Some college	1	16.7%
Baccalaureate Degree	3	50.0%
Marital Status		
Single	4	66.7%
Married	2	33.3%
WIC		
Yes	2	33.3%
No	4	66.7%
Insurance		
Medicaid	3	50.0%
Private Insurance	3	50.0%
Income		
Less than $20,000	2	33.3%
$20,000-$39,999	1	16.7%
$60,000-$79,999	1	16.7%
$100,000 or more	2	33.3%
Employed		
Yes	4	66.7%
No	2	33.3%
Hours Employed		
25	1	16.7%
40	2	33.3%
Previous Births		
Yes	1	16.7%
No	5	83.3%

Table 17

Demographic Characteristics of Interviewed Subset Participants According to Race

	Race		Total(Percentages)
	African American (n=3)	Caucasian (n=3)	
Age			
18-20	1(33.3%)	0	1(16.7%)
21-25	0	2(66.7%)	2(33.3%)
31-35	2(66.7%)	0	2(33.3%)
36-40	0	1(33.3%)	1(16.7%)
Education			
Did not complete high school	1(33.3%)	0	1(16.7%)
High school graduate	0	1(33.3%)	1(16.7%)
Some college	0	1(33.3%)	1(16.7%)
Baccalaureate Degree	2(66.7%)	1(33.3)	3(50.0%)
Marital Status			
Single	2(66.7%)	2(66.7%)	4(66.7%)
Married	1(33.3%)	1(33.3%)	2(33.3%)
WIC			
Yes	1(33.3%)	1(33.3%)	2(33.3%)
No	2(66.7%)	2(66.7%)	4(66.7%)
Insurance			
Medicaid	1(33.3%)	2(66.7%)	3(50.0%)
Private Insurance	2(66.7%)	1(33.3%)	3(50.0%)
Income			
Less than $20,000	1(33.3%)	1(33.3%)	2(33.3%)
$20,000-$39,999	0	1(33.3%)	1(16.7%)
$60,000-$79,999	1(33.3%)	0	1(16.7%)
$100,000 or more	1(33.3%)	1(33.3%)	2(33.3%)
Employment			
Yes	2(66%)	2(66.7%)	4(66.7%)
No	1(33.3%)	1(33.3%)	2(33.3%)
Hours Employed			
25	0	1(50%)	1(33.3%)
40	1(100%)	1(50%)	2(66.7%)
Previous Births			
Yes	0	1(33.3%)	1(16.7%)
No	3(100%)	2(66.7%)	5(83.3%)

The overall study sample had 208 participants and the overall subset of participants that were interviewed had six participants. Comparing demographic factors of the study subset to the overall sample, the subset did not differ in age, income, insurance or WIC status, parity, employment and history of previous births. The subset was more highly educated and more likely to be single than the overall sample. See Table 2 for demographics of the entire sample and Table 16 for demographics of the subset.

In comparing infant feeding attitude scores of the subset of participants who were interviewed to the larger sample there were also similarities. There were no significant differences in infant feeding attitude scores between African American and Caucasian women in both samples. An independent samples t-test was conducted to determine if there was a difference in infant feeding attitude scores between African American and Caucasian women in the subset of study participants with low infant feeding attitude scores. The test was not significant t (4) = 1.59, p=.187, indicating that there is no significant difference in infant feeding attitude scores between African American and Caucasian women in the subset. African American women's scores (M=58.66, SD = 6.50) were similar to Caucasian women's scores (M=48.66, SD = 8.73)

Table 18

Difference in Infant Feeding Attitude Scores in Subset Interviewed

	Race				
	African American	Caucasian	t	df	p
Infant Feeding Attitude Scores	58.66	48.66	1.59	4	.187
	(6.50)	(8.73)			

Standard Deviations appear in parentheses below means

To answer the research question, data from the six women in the subset were used. Each subset participant was telephone interviewed after delivery using a qualitative interview question guide (Refer to Qualitative Interview Questions in the Appendix). The telephone taped interviews were transcribed by a transcriptionist and the transcripts were reviewed for accuracy. Qualitative content analysis methodology (Elo & Kyngas, 2007) was used to develop themes from identified categories. The interview was read line by line to identify the main topics. Code words were then created from the main topics. Code words were reviewed and categories were identified and developed from the code words for each interview question. The first interview question was: Tell me about how you made up your mind about how to feed your baby. Did you change your mind about how you were going to feed, and if so why? The categories developed for this question were: influenced by family, decision based on breastfeeding benefits, personal health reasons, and convenience. The next interview question was: Tell me about your family beliefs and practices in regard to infant feeding. Who has been the most influential? What

have those people who were most influential done or said that influenced how you plan to feed your baby? The categories developed for this question were: family member's breastfed/encouraged, believe breastfeeding is the best method, and religion is not a factor. The next interview question was: What are some of the most important reasons that made you decide how to feed your baby? The categories that were developed included: family members influenced, breastfeeding benefits and convenience. The final interview question was: How we decide to feed our children is sometimes influenced by what we sometimes call culture which can be made up of race, religion, where you are from what family and friends think you should do, and other things. How do you feel like your culture has influenced how you plan to feed your baby? How has race influenced how you plan to feed your baby? The categories developed from this question were: family influenced, culture negatively affected and culture is not a factor. All of the categories were then reviewed and overriding themes were developed. The themes that were developed were: 1) family practices; 2) perceived/actual benefits; and 3) factors that are not an influence.

In order to make sure trustworthiness of the qualitative data analysis procedure was achieved, another qualitative researcher with experience in breastfeeding research reviewed each step of the data analysis process and the results. Credibility was achieved by collaboration with the qualitative researcher to determine code words, categories, and themes. Inter-rater reliability was assessed by asking the qualitative researcher to review participant responses to each interview question, code words that were developed from

the main topics, categories developed from code words and themes developed from categories. Agreement percentage was 100%.

The six women in the subset sample were the women in the study with the lowest infant feeding attitude scores. The mean score for the African American women in the subset was 58.66 (SD=6.50) and the mean score for the Caucasian women in the subset was 48.66 (SD=8.73) as shown in Table 18. Low infant feeding attitude scores indicate a preference toward formula feeding. Low infant feeding attitude scores may suggest less knowledge and negative attitude toward some aspect of breastfeeding. Of the six women in the subset sample, two of the participants were using formula only, two were breastfeeding and using formula and two were breastfeeding.

One of the participants who chose to use formula only was a breast cancer survivor and could not breastfeed and the other participant who chose to use formula only reported that she believed you had to watch what you ate when you breastfed and she did not want to do this. Both of the participants who chose to use formula only were Caucasian women. One of the participants who chose to formula feed and breastfeed reported that she started out formula feeding in the hospital but changed her mind when she got home. She stated that she still had enough milk so she started breastfeeding and also continued to formula fed. This participant was Caucasian. The other participant who chose to formula feed and breastfeed was African American and she reported that she chose to feed her infant this way because it was quicker. The two participants who chose to breastfeed were both African American. One of the participants who chose to breastfeed reported that she chose this method because she was breastfed, her sister breastfed her

baby, and she read research that helped her make this decision. The other African American participant who chose to breastfeed her infant stated,

> I had actually decided prior to, after my husband and I had discussed it. My mom breastfed and my younger sibling and we just talked about the health benefits of breastfeeding. Also the cost, the savings that you would have as far as formula and just feel there were more benefits and it just made more sense.

Study findings to determine what factors influence how African American and Caucasian women decide to feed their infants, may be inconclusive as only two of the participants in the sample subset had infant feeding scores that were congruent with their actual infant feeding behavior. This is an interesting finding because the infant feeding scores were significantly predictive of feeding intention and initiation, yet of the lowest scores, it was not predictive. This finding suggests that a larger sample of the subset may be needed to determine what factors may influence the decision to formula feed since all of the subset participants had infant feeding scores that indicated a preference toward formula feeding.

CHAPTER V

DISCUSSION

The purpose of this study was to examine the relationship between culture and infant feeding attitudes on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women. The secondary purpose of this study was to examine the perceived cultural influences on infant feeding decisions and breastfeeding initiation.

General Discussion

Although overall breastfeeding initiation rates have increased for all women, for African American women breastfeeding initiation rates are below that of other races (CDC, 2008). This study examined infant feeding attitudes, breastfeeding decisions, breastfeeding initiation and perceived cultural influences in African American and Caucasian women. The results of this study indicate that culture, as defined in the quantitative portion of this study by race, is not a significant predictor of decision to breastfeed and breastfeeding initiation in African American and Caucasian women in this sample. Results also indicate that there is no significant difference in infant feeding attitudes in African American and Caucasian women. Results suggest that infant feeding attitude is a predictor of decision to breastfeed and breastfeeding initiation in both African American and Caucasian women in this study. Results also suggest that there is no significant difference in the relationship between decision to breastfeed and

breastfeeding initiation in African American and Caucasian women. Qualitative results indicated that personal influence, impersonal influences, shared and learned influences, family practices and perceived/actual benefits may influence the decision to breastfeed and breastfeeding initiation.

Interpretation of Results

In this study there was no significant difference in the infant feeding attitude scores between African American and Caucasian women when using the Iowa Infant Feeding Attitude Scale (IIFAS) to measure preferences toward breastfeeding or formula feeding. The mean score for African American women was 64.88 (SD=6.76) and for Caucasian women was 65.09 (SD= 9.62). This finding suggests that the African American women in this sample were similar to the Caucasian women in the study and showed a preference toward breastfeeding. The possible range of scores for the Iowa Infant Feeding Attitude Scale is a minimum of 17 and a maximum of 85. Higher scores indicate a preference for breastfeeding. It was hypothesized that African American women would have lower infant feeding attitude scores than Caucasian women, indicating a preference toward formula feeding. This hypothesis is based on statistics (CDC, 2008) and studies (Chin, Myers, & Magnus, 2008; Forste, Weiss, & Lippincott, 2001; Khoury et. al., 2005; Li et. al., 2005; Murimi, Dodge, Pope, & Erickson, 2010; Sparks, 2010) in the literature that report that Caucasian women are more likely to initiate breastfeeding than African American women. Similar infant feeding attitude scores may reflect the possibility that

there are more similarities than differences in the African American and Caucasian women in this sample. Although participants represent two different races they all chose to attend a prenatal class. One potential explanation may be that the decision to attend a prenatal class may indicate the desire to do what is believed to be best for the infant thus the similarity in infant feeding attitude scores which indicate a preference toward breastfeeding. Attending prenatal classes also exposed participants to similar information about the benefits of breastfeeding which could also predispose these women to positive attitudes about breastfeeding. Studies in the literature (Dyson, McCormick, & Renfrew, 2005; Lu, et. al., 2003; Rosen, Krueger, Carney, & Graham, 2008) support the suggestion that prenatal classes may play a role in increasing breastfeeding initiation rates in African America women. Prenatal classes attended by participants were usually offered as part of a series of classes. Study surveys were distributed and collected by the researcher at the beginning of a class that was not the first in the series.

Similar infant feeding attitude scores between African American and Caucasian women may also be the result of the influence of family, friends and significant others. These influences may vary on factors other than or in addition to race. Attitudes toward breastfeeding are based on beliefs that may be influenced by factors such as perceptions about how others view breastfeeding. Mitra, Khoury, Hinton, & Carothers (2004) reported that perceived social support was a predictor of breastfeeding intentions. The majority of participants in this study attended prenatal classes accompanied by a support person that was usually a significant other or a friend. Support from family, friends, and significant others has been shown in the literature (Mahoney & James, 2000; Persad &

Mensinger, 2008; Wambach & Koehn, 2004) as a factor contributing to the decision to breastfeed and breastfeeding initiation. Women in this sample may have similar infant feeding attitudes because of the influence and support from family, friends or significant others.

African American women and Caucasian women's infant feeding attitude scores may have been similar because of the similarities in education level of the participants. Many of the study participants, 45.2%, reported having a college degree. This finding is similar to other studies (Khoury, Moazzem, Jajoura, Carothers, & Hinton, 2005; Lee, Rubio, Elo, McCollum, Chung, & Culhane, 2005) in the literature that show women with higher education levels are more likely to decide to breastfeed.

One of the assumptions of Madeline Leininger's theory of Culture Care Diversity and Universality (2006) may also provide a reason for the similarities in infant feeding attitude scores between African American and Caucasian women in this study. Assumption number five says that there is diversity among and between cultures but there are also commonalities that exist (Leininger & McFarland, 2006). Some of the commonalities between the participants in this study may include the knowledge and belief that breastfeeding is best, the desire to do what is best for the infant, and the support of family and friends which may have influenced the decision to breastfeed. All of the study participants attended prenatal classes and the majority of participants brought significant others or friends with them to the prenatal classes.

Similarities in infant feeding attitude scores between African American and Caucasian women may be the result of sample size in this study. Of the 208 participants

initially recruited, 193 completed the study by completing the surveys at the prenatal classes and also by answering follow-up questions asked after delivery via telephone. Prior to data collection, the estimated sample size for this study based on a statistical power analysis with an estimated effect size of .40, power of .80 and an alpha level of .05 was 196 (Polit & Beck, 2004). In order to obtain an adequate sample size, based on the power analysis, and also account for potential problems in data collection and subject retention, a target sample size of 250 was used for this study. After 208 participants were recruited, a post hoc power analysis was conducted and according to the power table for t-test in Polit & Hungler (1995), 690 or more participants would be needed in each group (African American and Caucasian) to determine that there was a difference in infant feeding attitude scores. After preliminary analysis determined there was no significant difference in infant feeding attitude scores between African American and Caucasian participants and that a sample size that was not feasible would be needed to determine differences, recruitment was stopped. Preliminary analysis determined there was only a very small difference in mean scores for African American (M=64.88, SD=6.76) and Caucasian (M=65.09, SD=9.62) women. A larger sample size is needed to determine if there is a real difference in infant feeding attitude scores.

Although there was no significant difference in infant feeding attitude scores between African American and Caucasian women, the study found that infant feeding attitude score was a significant predictor in the decision to breastfeed. This result is consistent with the findings of Persad and Mensinger (2008) that showed higher infant feeding attitude scores were associated with intention to breastfeed. Higher infant feeding attitude

scores on the Iowa Infant Feeding Attitude Scale (IIFAS) indicates a preference toward breastfeeding. A woman's attitude toward breastfeeding or formula feeding is important in determining which method of infant feeding she will choose (De La Mora, Russell, Dungy, Losch, & Dusdieker, 1999; Heining et. al., 2006). The decision to breastfeed is often made before birth and is associated with breastfeeding initiation (Ryser, 2004). Women who have a preference toward breastfeeding prior to giving birth may be more likely decide to breastfeed and actually initiate breastfeeding after delivery.

Higher infant feeding attitude scores and higher socioeconomic status were also associated with the actual decision to breastfeed. The odds of deciding to breastfeed were 1.2 (1.211, CI=1.079-1.358) times higher for those with higher infant feeding attitude scores and 1.3 (1.298, CI=.750-2.245) times higher for those with higher socioeconomic status. Higher infant feeding attitude scores indicate a preference toward breastfeeding. A positive attitude toward breastfeeding prior to birth may influence the decision to breastfeed. Higher socioeconomic status may indicate a higher level of education which has been found to increase the likelihood of deciding to breastfeed (Khoury, Moazzem, Jajoura, Carothers, & Hinton, 2005; Lee, Rubio, Elo, McCollum, Chung, & Culhane, 2005). Income was used as the variable for socioeconomic status in this study because the question regarding income on the Prenatal Demographic Data Assessment had a high response rate as well as the best variability of the three questions used to examine socioeconomic status.

Results of the study also found that infant feeding attitude scores were a significant predictor in actual breastfeeding initiation. Higher infant feeding attitude scores indicate a

preference toward breastfeeding. A preference toward breastfeeding can lead to an intent and decision to breastfeed. Intentions are important predictors of future behavior. Research (Caulfield et. al., 1998; Chezem, Friesen, & Boettcher, 2003; Heinig et. al., 2006; McKee, Zayas, & Jankowski, 2004) suggests that the intention to breastfeed is related to breastfeeding initiation.

Higher infant feeding attitude scores and higher socioeconomic status were also associated with actual breastfeeding initiation. The odds of actual breastfeeding initiation were 1.3 (1.276, CI=1.137-1.432) times higher for those with higher infant feeding attitude scores and 1.3 (1.277, CI=.773-2.108) times higher for those with higher socioeconomic status. This finding may be related to the finding that higher infant feeding attitude scores and higher socioeconomic status were related to decision to breastfeed. The decision to breastfeed may be a predictor of breastfeeding initiation.

Study results also found there was no significant difference in the relationship between decision to breastfeed and breastfeeding initiation in African American and Caucasian women. Results suggest that race does not have a significant influence in the relationship between the decision to breastfeed and breastfeeding initiation in the study population. The findings suggest that there may be similarities between African American and Caucasian women in the intention to breastfeed.These results are similar to the findings of Dowling, Shapiro, Burant, and Elfettoh (2009) that showed there was no significant difference in African American and Caucasian women's decision to provide breast milk to their preterm infants.

The finding of no significant difference in the relationship between the decision to breastfeed and breastfeeding initiation in the African American and Caucasian women in this study may indicate that breastfeeding initiation may be associated with confidence in the decision to breastfeed as a result of the presumed knowledge of the breastfeeding benefits gained by attending prenatal classes. Rosen, Krueger, Carney, & Graham (2008) found high breastfeeding initiation rates among their study sample participants who attended prenatal breastfeeding classes. There were 138 Caucasian, 25 African American, 13 Hispanic, 11 Asian/Pacific islanders and 7 other participants in this study. Participants in their study also had higher breastfeeding rates at 6 months when compared to the control group. Results of a study by Lu et. al. (2003) also suggests that increased breastfeeding initiation rates may be related to prenatal class attendance. All of the participants in this study chose to attend childbirth classes which may indicate motivation to learn and do what is best for their infants including breastfeeding.

Decreased barriers to breastfeeding initiation may be associated with the finding that there was no significant difference in the relationship between decision to breastfeed and breastfeeding initiation in African American and Caucasian women in this study. Lack of support, lower educational level, and lack of breastfeeding knowledge related to the benefits of breastfeeding are some of the barriers to breastfeeding that have been reported in the literature (ADA, 2009; Kouhry et. al., 2005; Meier, Olson, Benton, Eghtedary, & Song, 2007; Miracle, Meier, & Bennett, 2004; Sharps et. al., 2003). In this study, participants attended prenatal classes with a support person, 29.3% had some college experience with many, 45.2%, having received a college degree and all participants

received information on breastfeeding. The reduction of some of the barriers to breastfeeding in the study sample may be associated with increased similarities between the African American and Caucasian participants which resulted in no statistical difference being found between the decision to breastfeed and breastfeeding initiation.

The secondary purpose of this study was to examine the perceived cultural influences on infant feeding decisions and breastfeeding initiation. The research question was: How has culture influenced infant feeding decisions? On the Prenatal Demographic Data Assessment, participants were asked to answer the question, "How has culture affected how you plan to feed your baby?" Culture was defined as "beliefs and traditions passed down by your family and friends."

Two of the categories developed from the analysis were: Culture Affected and Culture has not Affected. These categories specifically relate to the research question. The category "Culture Affected" had 17 quotes included; 4 from African American participants and 13 from Caucasians. The fact that not many African American participants indicated that culture affected their feeding decision may indicate that other factors are more influential besides culture on infant feeding decisions in this study sample.

The "Culture has not Affected" category had 56 responses. Of the 56 responses, 30 were from African Americans participants and 26 were from Caucasians. This category had the highest number of responses in any of the 9 categories from the African American participants. This finding may suggest that influences other than culture may affect infant feeding decisions in the study sample.

Many of the responses to the question, "How has culture influenced how you plan to feed your baby?" mentioned family. This may indicate an assumption by participants that culture means family. Responses may suggest that culture to the participants in this study may consist of family and immediate friends versus an abstract notion of culture. One quote from a participant to demonstrate what was meant by culture is,

> Probably a lot. Not in terms of race or religion, but really culture in terms of what my mother did aunts did, friends did and what the majority of people I know did. I also consider myself a modern feminist and I think that breast feeding is acceptable in both feminist and traditional society.

Another quote also demonstrating what participants thought of as culture and demonstrating that culture may not actually be synonymous with race is,

> I believe my immediate culture helped define my decision to breastfeed for several reasons. First, my mother breastfed me and my other three siblings. Secondly, based upon the research I've read, I've found it to be the most advantageous for both parent and baby both financially and for nurturing.

Many participants cite family as a factor affecting infant feeding decisions. There were 74 responses in the "Family Influence" category. Of the 74 responses in the Family Influence category, 18 were from African Americans and 56 were from Caucasians.

In addition to reporting family as a factor affecting infant feeding decisions, participants also felt friends were an influence. There were 19 responses in the "Friends Influence" category. Of the 19 responses, 2 were from African Americans and 17 were from Caucasians.

Most of the responses in the "Friends Influence" category mention both family and friends. Of the 19 responses, 16 state the influence of family and friends. One of the constructs of Madeline Leininger's theory is cultural and social structure factors. This construct is comprised of a variety of influences that may directly or indirectly affect health and wellbeing. One of the influences is kinship and social factors (Leininger & McFarland, 2006). The number of responses in this category that address both friends and family may be an indication that both friends and family have an important influence, both directly and indirectly, on infant feeding decisions. Some examples of the inclusion of both friends and family in this category include,

"Breastfeeding is best/benefits of breastfeeding" was the category with the second highest number of responses. Family Influence had the highest number (74) and breastfeeding is best/benefits of breastfeeding had 66 responses. Of the 66, 19 were from African Americans and 47 were from Caucasians.

One finding when reading participant responses that addressed the benefits of breastfeeding was that some of the participants stated they were not "told" of the benefits but they "learned" of the benefits by other methods. This finding may suggest that impersonal and learned factors may be influential on infant feeding decisions. Some of the ways women said they learned were by taking classes, watching television, going to school and reading medical studies.

The Personal Choice category had 10 responses; 2 from African Americans and 8 from Caucasians. Four of the 10 quotes in the Personal Choice category seem to suggest that personal choice was influenced by family and friends. This finding may suggest that

family and friend influence may indirectly affect decisions made regarding infant feeding in this study sample.

The overall themes developed for the research question, “How has culture influenced infant feeding decisions?” were 1) Personal Influence; 2) Impersonal Influence; and 3) Shared and Learned Influences. Study findings suggest that race may not be as influential on infant feeding decisions as other factors in this study population. The themes suggest that the most important influences on infant feeding decisions in this study sample were personal influences such as family, friends, or significant others; impersonal influences which include environmental factors such as economics or educational factors; and shared and learned influences which may be passed down or learned from others.

A subset of the study sample (one African American and one Caucasian participant from each of the data collection sites with the lowest infant feeding scores) was used to answer the research question: What factors influence how African American and Caucasian women decide to feed their infants? Low infant feeding scores indicate a preference toward formula feeding. The themes that were developed from these interviews were: 1) family practices; 2) perceived/actual benefits; and 3) factors that are not an influence.

Two factors were recurrent themes in all the participant interviews: family practices and perceived and actual benefits. This is similar to the findings of the whole sample. The themes developed from the larger sample were 1) personal influence, which refers to the influence of family, friends, and significant others; 2) impersonal influence, which refers to environmental influences that Leininger (2006) refers to as technological factors,

philosophical factors, political and legal factors, economic factors, and educational factors; and 3) shared and learned influences, which are those influences that may be passed down or learned from others.

Implications

Results of this study suggest that there may be more similarities than differences in African American and Caucasian women in their attitudes about feeding their infants, deciding to breastfeed and initiating breastfeeding. The similarities in infant feeding attitude scores as well as the finding that the relationship between decision to breastfeed and breastfeeding initiation is similar in African American and Caucasian women does not support the assumption that race is a significant influence on breastfeeding initiation in this sample. Further research may need to focus on other variables such as income and education rather than race. In this study socioeconomic status, as defined by income, was associated with the decision to breastfeed. The odds of deciding to breastfeed were 1.3 times higher for those with higher socioeconomic status. Also, 29.3% of the participants in this study had some college experience with many, 45.2%, having received a college degree. These variables need to be explored further. Also, African American and Caucasian women did not appear to differ in the factors that influenced them to breastfeed. This may also be an indication that race is not the same as culture.

In addition to further research examining the influence of income and education on breastfeeding initiation in African American and Caucasian women, more research is

needed that compares African American and Caucasian women's infant feeding decisions and infant feeding practices. The focus of this research should be on determining if differences in infant feeding decisions and infant feeding practices exist. The research should use a large enough sample to be able to detect if there are differences. This study did not have a large enough sample even though the statistics showed that there is a disparity between races. Research needs to be done to determine what is causing this disparity so we can reduce it. Information can then be used to develop interventions that address these differences.

Results of this study also demonstrate there are implications regarding infant feeding attitudes. Higher infant feeding attitude scores were a predictor of decision to breastfeed and breastfeeding initiation in this study. Mean infant feeding attitude scores indicated a preference toward breastfeeding and were similar in African American and Caucasian participants. A woman's attitude toward infant feeding may influence the infant feeding method she chooses and strategies need to be developed to enhance positive attitudes toward breastfeeding. Educational strategies that focus on the benefits of breastfeeding should be considered since study results showed a preference toward breastfeeding in our sample of participants attending prenatal classes. These strategies should be implemented early in pregnancy to increase the likelihood of positive attitudes toward breastfeeding. This implication is supported by a study (Lewallen & Street, 2010) that found that African American women were not being talked to about the benefits of breastfeeding early in their pregnancy.

Another implication of this study is related to findings that suggest attending prenatal classes may have influenced infant feeding decisions and breastfeeding initiation. All of the participants attended prenatal classes which may suggest motivation to learn what is best for their infants. Prenatal classes provide breastfeeding information that may increase confidence in the decision to breastfeed and lead to breastfeeding initiation. Strategies that make information on breastfeeding more accessible to women need to be considered. Prenatal classes should be offered in alternate settings such as church, community centers, or online to provide more opportunities for women to attend.

Study results also suggest that the influence of family members, friends and significant may impact infant feeding decisions and breastfeeding initiation. Themes that were developed from the qualitative analysis encompass family influence. All of the participants attending the prenatal classes were accompanied by a support person who often times was a family member, friend or significant other. Strategies that include the presence and participation of those that may personally influence infant feeding decisions and practices need to be developed.

Limitations

There are some limitations that exist with this study. One limitation is that even though this study is comparing the infant feeding attitudes of two different cultural groups, the instrument used does not specifically measure cultural attitudes and beliefs. Therefore caution must be taken when making conclusions based on study results. Also all of the participants in the study were in prenatal classes which indicate a preconceived interest that may have affected the decision to breastfeed and breastfeeding initiation. Recruiting at prenatal classes may have also limited the ability to find differences in the decision to breastfeed and breastfeeding initiation between African American and Caucasian women. Participants attending prenatal classes may be different from the general population and may be more motivated to breastfeed.

Another limitation is the use of a convenience sample. As with all convenience samples, the accessible population may not be representative of the theoretical population, therefore it may be difficult to generalize the results of the study (Gliner & Morgan, 2000).

Sample size may also be a limitation of this study. Although 193 participants completed the study a larger sample size is needed to determine significant differences between African American and Caucasian participants.

Another limitation of this study is that the Iowa Infant Feeding Attitude Scale has only been used in a limited number of studies with African American women. Further psychometric testing using this population may be needed.

Race may not be a perfect proxy for culture; this is also a study limitation.

Conclusion

Although limitations exist, this study provides valuable information about infant feeding attitudes, feeding method choice and breastfeeding initiation in African American and Caucasian women. This study has provided evidence that there are similarities in infant feeding attitudes and breastfeeding initiation in African American and Caucasian women in this study and has shown that further research should be conducted using larger samples to examine differences in these groups. This study found that race may not be a significant influence on infant feeding decisions and breastfeeding initiation and other variables such as education and income need further exploration. This study has also demonstrated the influence that family, friend and significant other may have on the infant feeding decisions and breastfeeding initiation. This influence needs to be considered when developing strategies to promote breastfeeding.

This is the first study in the program of research of this investigator. Future research will focus on instrument development which is needed in this area to specifically measure differences in cultural attitudes about infant feeding behaviors. Future research is also needed that will focus on the development of interventions to decrease health disparities that exist in the breastfeeding behaviors of African American women.

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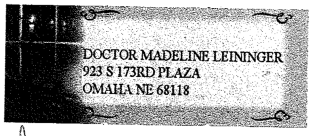
APPENDIX A

PERMISSION LETTER TO USE SUNRISE MODEL



December 13, 2010

Dr. Madeline Leininger
923 South 173rd Plaza
Omaha, Nebraska 68118

Dr. Leininger,

I am a doctoral student in the School of Nursing at the University of North Carolina at Greensboro. I am in the process of completing my dissertation. I am working on a research study that is examining breastfeeding in African American women and I am using your Culture Care Diversity and Universality theory as my guiding framework. I am writing to request permission to use the diagram of your sunrise enabler in my dissertation to help explain the theory.

Please contact me if you need further information. My email address is djstreet@uncg.edu. Thank you for considering my request.

Darlene Street
Doctoral Student
School of Nursing
The University of North Carolina at Greensboro

APPENDIX B

LETTER OF SUPPORT GUILFORD COUNTY HEATH DEPARTMENT

1100 East Wendover Avenue
Greensboro, NC 27405

October 28, 2008

Darlene J. Street MSN RN

Doctoral Student

School of Nursing

The University of North Carolina at Greensboro

Dear Mrs. Street,

I am writing to express support for your study "Infant Feeding Attitudes, Feeding Method Choice, and Breastfeeding Initiation among African American and Caucasian Women." I understand what you are trying to accomplish and it will be valuable information. The findings from your study will help in the development of interventions that address the cultural needs of African American women and therefore improve breastfeeding initiation rates in this population.

Our Childbirth Educator has agreed to allow you to attend her childbirth classes to discuss the purpose of your study and solicit survey participants. We further understand that you will be following up these women after they deliver for a brief interview to determine the feeding method selected for their babies. Our agency will require a copy of your IRB approval letter before surveys are conducted.

If I can be of further assistance please contact me at (336) 641-6130.

Sincerely,

Lisa Alexander

Lisa Alexander, MSN, RN

Nurse Manager

Guilford County Department of Public Health

1100 E. Wendover Ave.

Greensboro, NC 27405

Email: lalexan@co.guilford.nc.us

APPENDIX C

IRB APPROVAL FROM GASTON MEMORIAL HOSPITAL

Gaston Memorial Hospital
CaroMont Health

2525 Court Drive
Post Office Box 1747
Gastonia, NC 28053-1747
704-834-2000

November 21, 2008

Darlene Street, RN, MSN
Faculty
Gardner Webb School of Nursing
P. O. Box 997
Boiling Springs, NC 28017

Dear Ms. Street:

The Institutional Review Board appreciates your presentation of the following research study at the meeting held November 20, 2008: Infant Feeding Attitudes, Feeding Method Choice, and Breastfeeding Initiation Among African American and Caucasian Women. The items presented were the Research Study, the Iowa Infant Feeding Attitude Scale, Qualitative Interview Questions, Prenatal Demographic Data Assessment, and Informed Consent. The committee looks forward to hearing the results of the study upon completion by May 2009. Should you have any questions, please feel free to call.

Sincerely,

Andrea K. Serra, FACHE
Institutional Review Board Secretary

AKS/dw

C: Ellis Fisher, MD
Cathy Moore, RN
IRB File

APPENDIX D

IRB APPROVAL FROM CAROLINAS MEDICAL CENTER

Carolinas HealthCare System

June 3, 2009

Margaret Bodman, RN
10209 Wild Willow Lane
Charlotte, NC 28277

RE: Infant Feeding Attitudes, Feeding Method Choice, And Breastfeeding Initiation Among African American and Caucasian Women
IRB File # 06-09-07E

Dear Ms. Bodman:

I have reviewed your original protocol. On behalf of the Institutional Review Board, I hereby grant expedited approval of the above research proposal dated May 18, 2009, Recruitment Script for Prenatal Classes, Follow-up Phone Call For Data Collection Form, Iowa Infant Feeding Attitude Scale, Qualitative Interview Questions, Prenatal Demographic Data Assessment, and Informed Consent dated June 3, 2009 (expiration June 2, 2010) for use within the facilities of Carolinas HealthCare System. The HIPAA Authorization included within the consent form has also been approved. If you plan to use the application in institutions outside the Authority, you must submit it to the IRB at that institution for approval. Any changes to the research study must be presented to the IRB for approval prior to implementation.

Approval is for one year. In approximately 10 months, we will contact you for an annual review. *If you should complete the study prior to that time, notify the IRB office of the study's completion and provide us with follow-up regarding the results.* Please keep the committee informed of your progress and report promptly any adverse events to the IRB office. If we can be of further assistance, feel free to contact the IRB Office at 704-355-3158.

Please refer to the IRB file number in communication regarding this study.

Sincerely,

Michael Brennan, DDS
Chairman, IRB

Note: The IRB complies with the requirements found in Part 56 of the 21 Code of Federal Regulations and Part 46 of the 45 Code of Federal Regulations. Federal-Wide Assurance # 00000387. The Carolinas HealthCare System Institutional Review Board follows the ICH GCP guidelines with regard to the rights of human subjects.

P.O. Box 32861 • Charlotte, NC 28232-2861 • 704-355-3398

APPENDIX E

IRB APPROVAL FROM THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

OFFICE OF RESEARCH COMPLIANCE
2718 Beverly Cooper Moore and Irene Mitchell Moore
Humanities and Research Administration Bldg.
PO Box 26170
Greensboro, NC 27402-6170
336.256.1482
Web site: www.uncg.edu/orc
Federalwide Assurance (FWA) #216

To: Lynne Lewallen
Parent-Child Health (Nursing)
419 Moore Building

From: UNCG IRB

Authorized signature on behalf of IRB

Approval Date: 1/23/2009
Expiration Date of Approval: 1/22/2010

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)
Submission Type: Initial
Expedited Category: 7.Surveys/interviews/focus groups,6.Voice/image research recordings
Study #: 08-0203

Study Title: Infant Feeding Attitudes, Feeding Method Choice, and Breastfeeding Initiation among African American and Caucasian Women

This submission has been approved by the above IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

Study Description:

The purpose of this study is to examine the relationship between race and infant feeding attitude on the decision to breastfeed and breastfeeding initiation in African American and Caucasian women.

Regulatory and other findings:

This research, which involves pregnant women, meets criteria set forth in section 45 CFR 46.204. In accordance with 46.204(d), maternal consent is sufficient since the research holds prospect of direct benefit to the pregnant woman, the prospect of direct benefit to the pregnant woman and the fetus, or no prospect of benefit for the woman nor the fetus but the risk to the fetus is not greater than minimal and the purpose of the research is the development of important biomedical knowledge which cannot be obtained by any other means.

Investigator's Responsibilities

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

When applicable, enclosed are stamped copies of approved consent documents and other recruitment materials. You must copy the stamped consent forms for use with subjects unless you have approval to do otherwise.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented (use the modification form at ohre.unc.edu/forms). Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB using the adverse event form at the same web site.

APPENDIX F

PRENATAL DEMOGRAPHIC DATA ASSESSMENT

Prenatal Demographic Data Assessment

Please answer the following questions by placing a check in the correct blank.

1. How old are you?

   Less than 18 ____

   18-20 ____

   21-25 ____

   26-30 _____

   31-35 _____

   36-40 _____

   40-45 _____

   More than 45 _____

2. What is your race?

   African American _____

   Caucasian _____

   Other _____

3. What is your level of education?

   Did not complete High School _____

   High School graduate _____

   Some College _____

   Associate Degree _____

   Baccalaureate Degree _____

   Graduate Degree _____

4. What is your marital status?

   Single ____

   Married _____

   Separated _____

   Divorced _____

   Widowed _____

5. Are you a WIC (Women's Infants and Children) program participant?

   Yes _____

   No_____

6. What type of insurance do you have?

   Medicaid ____

   Private Insurance ____

   Self-Pay ____

7. What is your household income?

   Less than $20,000 ____

   $20,000-$39,999 _____

   $40,000-$59,999 _____

   $60,000-$79,999 _____

   $80,000-$99,999 _____

   $100,000 or more _____

8. Are you currently employed?

   Yes ____

   How many hours per week? _____

   No ____

9. How many weeks pregnant are you?

   27 weeks or below _____

   28 weeks or above _____

10. Have you had any previous births?

   No _____

   Yes _____

   If yes, how many? _____

   If previous births, how were babies fed?

   Baby #1 Formula ____ Breastfed _____ Breast milk in a bottle _____

   Combination of Formula and Breast milk _____

   Baby #2 Formula ____ Breastfed _____ Breast milk in a bottle _____

   Combination of Formula and Breast milk _____

   Baby #3 Formula ___ Breastfed ____ Breast milk in a bottle _____

   Combination of Formula and Breast milk

   Others: _____

11. How do you plan to feed your baby?

   Formula _____ Breastfeed_____Breast milk in a bottle _____

   Combination of Formula and Breast milk _____

12. How does your baby's father or significant other want you to feed the baby?

   Formula ____ Breastfeed _____ Breast milk in a bottle _____

   Combination of Formula and Breast milk _____

13. How does your mother want you to feed the baby?

   Formula ____ Breastfeed _____ Breast milk in a bottle _____

   Combination of Formula and Breast milk _____

14. Has anyone else besides your baby's father, significant other or your mother helped you decide how to feed your baby?

    No ___

    Yes ___ If yes, who? _____

    What did that person recommend? _____

15. What is your due date?

    Month _____ Date _____

16. The word culture means beliefs and traditions passed down by your family and friends. How has your culture affected how you plan to feed your baby?

Contact Information

Name _____ Home phone _____ Cell phone _____

If we can't reach you at the above phone numbers, who else could we call that would know how to reach you? (neighbor, family member or friend)

Name _____ Phone Number _____

This person's relationship to you: _____

APPENDIX G

PERMISSION TO USE IOWA INFANT FEEDING ATTITUDE SCALE

darlene street

From: Arlene de la Mora [adelamor@iastate.edu]
Sent: Friday, November 14, 2008 5:43 PM
To: dstreet@gardner-webb.edu
Subject: FW: permission to use research instrument
Attachments: IIFAS.pdf

Even though you didn't ask for it, I am attaching a copy of our paper that describes the psychometric properties of the IIFAS. You have our permission to use the scale in your research. The only request I have is that you share descriptive results (not individual) of any data collected using the IIFAS. Good luck with your study, it sounds exciting!
Arlene de la Mora

>From popserve Fri Nov 14 15:17:12 2008
Subject: FW: permission to use research instrument
Date: Fri, 14 Nov 2008 15:16:37 -0600
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: permission to use research instrument
Thread-Index: AclGjvMgb4OKXFNaQ9KD4o3Xqbw8twAD01HQ
From: "Russell, Daniel W [HD FS]" <drussell@mail.hs.iastate.edu>
To: "Delamora, Arlene [C I]" <adelamor@iastate.edu>
X-OriginalArrivalTime: 14 Nov 2008 21:17:13.0253 (UTC) FILETIME=[5CCDAD50:01C9469E]
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Sent: Friday, November 14, 2008 1:27 PM
To: drussell@iastate.edu
Subject: permission to use research instrument

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APPENDIX H

THE IOWA INFANT FEEDING ATTITUDE SCALE

Table - 1

The Iowa Infant Feeding Attitude Scale

SD-strongly disagree, **D**-disagree, **N**-neutral, **A**-agree, **SA**-strongly agree	**SD D N A SA**
1. The benefits of breast milk last only as long as the baby is breast fed*	1 2 3 4 5
2. Formula feeding is more convenient than breastfeeding*	1 2 3 4 5
3. Breastfeeding increases mother infant bonding	1 2 3 4 5
4. Breast milk is lacking in iron*	1 2 3 4 5
5. Formula fed babies are more likely to be overfed than breastfed babies	1 2 3 4 5
6. Formula feeding is the better choice if the mother plans to go back to work*	1 2 3 4 5
7. Mothers who formula feed miss one of the great joys of motherhood	1 2 3 4 5
8. Women should not breastfeed in public places such as restaurants*	1 2 3 4 5
9. Breastfed babies are healthier than formula fed babies	1 2 3 4 5
10. Breastfed babies are more likely to be overfed than formula fed babies*	1 2 3 4 5
11. Fathers feel left out if a mother breast feeds*	1 2 3 4 5
12. Breast milk is the ideal food for babies	1 2 3 4 5
13. Breast milk is more easily digested than formula	1 2 3 4 5
14. Formula is as healthy for an infant as breast milk*	1 2 3 4 5
15. Breastfeeding is more convenient than formula	1 2 3 4 5
16. Breast milk is cheaper than formula	1 2 3 4 5
17. A mother who occasionally drinks alcohol should not breastfeed her baby*	1 2 3 4 5

*Variables reverse scored to calculate total infant feeding attitude so that a strongly breastfeeding attitude has a score of 5 for each question giving a maximum score of 85 and minimum of 17
Mean score 71.2 SD 8.4 Cronbach's a = 0.79, median 72, range 28–85, interquartile range 66–77

De La Mora, A., Russell, D.W., Dungy, C.I., Losch, M., & Dusdieker, L. (1999). The Iowa Infant Feeding Attitude Scale: Analysis of reliability and validity. *Journal of Applied Social Psychology 29(11),* 2362-2380.

APPENDIX I

QUALITATIVE INTERVIEW QUESTIONS

Qualitative Interview Questions (to be administered to select participants during the postpartum follow up phone call

1. Tell me about how you made up your mind about how to feed your baby.
    1a. Did you change your mind about how you were going to feed, and if so why?
2. Tell me about your family beliefs and practices in regards to infant feeding. (Pause. After response ask next part of question)
    2a. Who has been the most influential?
    2b. What have those people who were most influential done or said that influenced how you plan to feed your baby?
3. What are some of the most important reasons that made you decide how to feed your baby?
4. How we decide to feed our children is sometimes influenced by what we sometimes call culture which can be made up of race, religion, where you are from, what family and friends think you should do, and other things. How do you feel like your culture has influenced how you planned to feed your baby? (After a hesitancy or initial response, each subset of culture will be asked separately, i.e. how has race influenced how you plan to feed your baby?)

APPENDIX J

FUNDING SOURCE FOR RESEARCH

Sigma Theta Tau International, Inc.
HONOR SOCIETY OF NURSING
GAMMA ZETA CHAPTER
University of North Carolina at Greensboro
School of Nursing
Greensboro, NC 27402-6172

February 10, 2009

Darlene J. Street
2611 Pebble Creek Drive
Shelby, NC 28152

Dear Darlene,

I am pleased to inform you that your grant application for your research titled "Infant Feeding Attitudes, Feeding Method Choice, and Breastfeeding Initiation among African American and Caucasian Women" has been recommended for funding by the Ruth P. Council Research Committee in the amount of $1,500.00.

While the research is in progress, please send an annual progress report to the Committee. Once the study is completed, please send a final report to include a listing of how funds were used for your activities. We respectfully ask you to return grant funds that you do not use.

I speak for the members of Gamma Zeta Chapter in wishing you the very best in your research. May your study of this topic be rewarding to you and to the nursing profession. We hope you can attend our Gamma Zeta/Alumni Association annual meeting and reception where you will be recognized on April 16th at 5:30 p.m. at the UNCG Alumni House Virginia Dare Room.

Sincerely,

Carol

Carolyn L. Blue, PhD, RN, CHES
Chair, Ruth P. Council Research Committee
Gamma Zeta Chapter, STTI, Inc.
Carol_Blue@uncg.edu