

UNDERSTANDING INFANT FEEDING PRACTICES IN UNDERSERVED MOTHERS

by

Kimberly D. Miskow

A Senior Honors Project Presented to the

Honors College

East Carolina University

In Partial Fulfillment of the

Requirements for

Graduation with Honors

by

Kimberly D. Miskow

Greenville, NC

May 2016

Approved by:

Kim Larson, PhD, RN, MPH

Undergraduate Department of Nursing Science, College of Nursing

Abstract

Purpose: A program evaluation was conducted to assess the barriers and facilitators for breastfeeding among low-income, minority women.

Methods: The records of 54 postpartum women served by a local health department were audited for barriers and facilitators related to breastfeeding practice. Interviews of 5 key informants were conducted and local and state breastfeeding policies were reviewed.

Results: Among the 54 postpartum charts, 79.6% were Latino, and 20.4% were non-Latino. The women had an average age of 28 years and a range of 14-41 years. Only 54.8% of Latinos and 18.2% of non-Latinos ($p=.031$) had initiated breastfeeding at the initial postpartum visit (Healthy People 2020 goal for breastfeeding initiation is 81.9%). Most Latinos were single (79.1%), unemployed (76.7%), multigravida (88.4%), receiving WIC (90.7%), and delivered at the local community hospital (81.1%). Latinos were less likely to have a high school or post-high school education (19.5%) as compared to non-Latinos (80.0%, $p=.001$). Key informants revealed that major barriers included lack of maternal breastfeeding support, especially from grandmothers. Breastfeeding policies at the state and local levels lacked specific recommendations for breastfeeding duration.

Conclusions: Recommendations include incorporating American Academy of Pediatrics guidelines for breastfeeding and intentionally tracking breastfeeding status data at 6 months and increasing breastfeeding education and community outreach to increase widespread acceptance.

Keywords: breastfeeding, WIC, underserved mothers

Understanding Infant Feeding Practices Among Underserved Mothers

Infant feeding practices can include exclusively breastfeeding, exclusively formula feeding, a combination of breastfeeding and formula feeding, and/or the addition of other supplements such as water or juice. The Centers for Disease Control and Prevention (CDC) endorses breastfeeding as one of the best ways that a mother can protect the health of her infant (2014). The American Academy of Pediatrics suggests exclusive breastfeeding through 6 months of age for optimal childhood development and growth (Eidelman & Schlaner, 2012). Although 79% of infants in the United States are breastfed initially, only 19% are exclusively breastfed for the first 6 months (CDC, 2014).

Background and Significance

The Healthy People 2020 goal for breastfeeding is to increase the number of infants who initially breastfed from the current 79% to 81.9%, as well as increasing the number of babies breastfed exclusively at 6 months from the current 19% to 25.5% (CDC, 2013). These goals also include workplace support for breastfeeding, reducing newborn supplementation, and increasing breastfeeding friendly hospital environments (CDC, 2013). These goals support the evidence-based benefits of breastfeeding and are an attempt at improving the number of breastfed infants to current recommendations.

There is a significant link between infant feeding practices and eating habits and childhood obesity (Karp, Lutenbacher, & Dietrich, 2010). Obesity and eating habits play an important role in the development of many chronic diseases, including diabetes mellitus (Karp et al., 2010). In addition, breastfeeding reduces the risk of infant mortality by Sudden Infant Death Syndrome (SIDS) (Lind, Perrine, & Li, 2014). Breastfed infants have also shown lower rates of

common infectious diseases, such as respiratory infections, otitis media and allergic reactions (Hedberg, 2013).

Breastfeeding also provides many positive effects for the health of the mother. Reeves and Woods-Giscombe (2015) demonstrated that breastfeeding contributes to the return of reproductive organs to pre-pregnancy state and the return to pre-pregnancy weight sooner. These authors also found that breastfeeding increases maternal-infant bonding. Other investigators (Hedberg, 2013) found breastfeeding can decrease the risk for ovarian and breast cancer in mothers.

Though breastfeeding rates overall in the US are below Healthy People 2020 goals, rates among underserved mothers (including low income, less than high school education, and minorities) are even lower (Campbell, Wan, Speck, & Hartig, 2013). Women participating in the Women Infants and Children (WIC) program, a government nutritional program for low income families, were 12% less likely to breastfeed than the general population (Hedberg, 2013). The breastfeeding rate for African American women is only 58.1% (Eidelman & Schlaner, 2012). The initiation rate for Hispanic mothers is higher than average at 80.6% (Eidelman & Schlaner, 2012), however, 33% of Hispanic mothers supplement their newborns, which is higher than white (22%) or African-American mothers (28%) (Linares, Rayens, Dozier, Wiggins, & Dignan, 2015). This negatively impacts the current and future health of their infants. Nurses can play a major role in meeting the Healthy People 2020 goals to change breastfeeding trends across America. The purpose of this program evaluation is to understand the factors influencing and discouraging breastfeeding practice among medically underserved mothers and to make recommendations to increase breastfeeding rates in a rural eastern North Carolina county.

Literature Review/Synthesis

This literature review was conducted using the East Carolina University Laupus Library OneSearch, a large search tool housing multiple databases. The articles selected were limited to the last five years (2010-2015) to maintain the most current research. The articles all examined barriers and/or facilitators to breastfeeding. Studies reviewed included: secondary analyses; longitudinal, correlational, cross sectional, retrospective, mixed method, and theoretical studies; chart reviews; and systematic reviews. Main search terms included: “breastfeeding underserved,” “breastfeeding barriers,” “breastfeeding low income,” “infant feeding underserved,” and “infant feeding low income.”

Several articles (Reeves & Woods-Giscombe, 2014; Chin et al., 2013; Gross et al., 2014) contributed to the organizing framework for this literature review. The authors (Reeves & Woods-Giscombe, 2014; Chin et al., 2013; Gross et al., 2014) used Bronfenbrenner’s socio-ecological model in identifying themes in infant feeding practice decisions. Therefore, the organizing framework for this literature review will use a systems approach and include: the individual (knowledge and existing beliefs), the microsystem (relationships and support), the exosystem (community), and the macrosystem (culture, policy and history).

Individual Level

The individual’s knowledge or lack thereof played an integral role in infant feeding practice. Many women assert that they feel that their health care provider did not spend enough time talking with them about breastfeeding (Reeves & Woods-Giscombe, 2014). Insufficient health teaching on the part of the healthcare provider plays into lower breastfeeding rates.

Clinical treatments can present further barriers to breastfeeding. Lind et al. (2014) found that

mothers who receive pain medication during the laboring process were more likely to have a delay in onset of lactation due to a decrease in serum oxytocin levels after administration. Health care providers need to take medication side effects into a mother's breastfeeding plan and discuss options with her in cases like these (Lind et al., 2014) because poor milk production is cited as a major barrier to breastfeeding (Linares et al., 2015).

Jefferson (2014) found that in a sample of 174 African American women, most women thought positively about breastfeeding and believed that breastfeeding was healthier for their infant, but formula feeding was more convenient. Personal previous experience along with a positive attitude is positively correlated with breastfeeding (Jefferson, 2014). Other individual factors that affect breastfeeding are age (increased age positively correlated with breastfeeding), duration of time in the US (increased time in the US negatively correlated with breastfeeding) and whether the pregnancy was planned or not (planned pregnancy positively correlated with breastfeeding) (Haughton, Gregorio, & Perez-Escamilla, 2010).

Microsystem

The microsystem includes the effects of the family and peers as either supports or deterrents. The father of the baby has been found to play the biggest role in persuading or swaying the mother's infant feeding choice more than anyone else or any other factor in the woman's life (Reeves & Woods-Giscombe, 2014; Van Wagenen, Magusson, & Neiger, 2015). Though these males play a large role in the infant feeding decision, women tend to have more positive attitudes about breastfeeding than men (Jefferson, 2014). Further, in an online survey of 502 American men of all races and backgrounds aged 21-44, only 38.6% supported breastfeeding in public (Van Wagenen et al., 2015). This study utilized the Iowa Infant Feeding

Attitude Scale (IIFAS) where a higher score is correlated with a more positive outlook on breastfeeding; White men had the highest scores followed by African American men, followed by Hispanic men with the lowest IIFAS score (Van Wagenen et al., 2015).

Other family members, especially females, and peers can provide support to women and also show them that breastfeeding can be done and is a realistic goal (Reeves & Giscombe, 2014). However, other's opinions can also harm a mother's desire to breastfeed. Others may view breastfeeding as "spoiling" the infant, too painful, or a waste of time, and these opinions turn a new mother against breastfeeding (Reeves & Woods-Giscombe, 2014). Women who feel uncomfortable talking with female family members and peers about the subject of breastfeeding because it may be considered "taboo" are less likely to seek support or advice and less likely to breastfeed (Reeves & Woods-Giscombe, 2014). Karp et al. (2010) found in their study of low income, first time mothers that the mothers relied more on information from female family members or their own personal beliefs rather than information from health care professionals (Haughton, Gregorio, & Perez-Escamilla, 2010).

Having seen a family member or another woman (especially of the mother's own ethnicity/race) breastfeed increases the chances that the mother will breastfeed (Reeves & Woods-Giscombe, 2014; Jefferson, 2014). However, living with an excessive number of family members in a small space such as an apartment, often the case for underserved women can also mean less privacy for the mother which may decrease their desire to breastfeed (Reeves & Woods-Giscombe, 2014).

Exosystem

The exosystem includes community and environmental influences. Populations with high density, crowded, low income inner city areas, may discourage breastfeeding among mothers as a result of lack of privacy or negative community views (Reeves & Woods-Giscombe, 2014). The young men in these communities may bully mothers who breastfeed further discouraging the mother (Reeves & Woods-Giscombe, 2014).

The Women's Infant and Children (WIC) program is a government program to offer nutritional support to women and is a strong advocate for breastfeeding. WIC participants have opportunities to participate in breastfeeding peer counseling programs, receive extra education, breast pumps, nursing bras and breast shields along with a variety of coupons for healthy foods to eat while breastfeeding (Reeves & Woods-Giscombe, 2014). Presence of a peer counselor provided through WIC offers extra education and support to women who otherwise may not get the information and encouragement they need (Rozga, Kerver, & Olson, 2014; Campbell, Wan, Speck, & Hartig, 2013). However, some controversy exists about the WIC program. Some believe that women have been pushed towards formula feeding as WIC participants because formula is offered for free (Reeves & Woods-Giscombe, 2014).

Other community resources may influence breastfeeding outcomes. An innovative community resource remote video conferencing may improve breastfeeding outcomes. Mothers in a qualitative pilot study by Habibi et al. (2012) reported that remote lactation consultation via videoconferencing could be a powerful resource for women who live in a rural location with no health care providers or those who are unable to leave those easily. These mothers all had post-secondary education and 10 of the 12 mothers were white (Habibi et al., 2012).

Women in drug rehabilitation are an exceptionally vulnerable breastfeeding population. O'Connor, Collett, Alto, and O'Brien (2013) reported that women with opioid dependence in a rural and underserved population, who were maintained on Buprenorphine during their pregnancy, had a breastfeeding initiation rate of 76% and that 66% continued to breastfeed at 6-8 weeks postpartum. These women received regular medical care for their addiction and their pregnancy (O'Connor et al., 2013). With support and proper education, women with major personal barriers can still make the best choices for their infant.

Macrosystem

The macrosystem consists of culture, history, and laws. Hospitals providing formula samples to mothers tend to send the message that they may not be successful at breastfeeding, which can unconsciously deter new mothers (Reeves & Woods-Giscombe, 2014). American culture is largely influenced by advertising and the constant advertising promoting formula feeding can mislead women to believe that formula is as healthy for their infant as breastmilk, and that it is a status symbol (Reeves & Woods-Giscombe, 2014). Further, Sadacharan, Grossman, Matlak, & Merewood (2013) found a positive correlation between women who did not receive any formula samples or coupons and women who did not receive a postpartum hospital discharge bag at all and exclusive breastfeeding up to 6 months.

Cultural values and beliefs contribute to the decision to breastfeed. US culture includes the use of female breasts in advertising for purposes other than breastfeeding and is largely associated with sexuality (Reeves & Woods-Giscombe, 2014). Hispanic women are most likely to breastfeed (Haughton et al., 2015) while African American women are least likely to breastfeed (CDC, 2013; Lynch, Bethel, Chowdhury, & Moore, 2011). A quantitative longitudinal

study by Linares et al. (2015) that followed 72 Hispanic mothers living in Urban Kentucky found that 94% of their sample initiated breastfeeding, with 50% exclusively breastfeeding immediately postpartum. In this sample, only 26% were still exclusively breastfeeding at 2 months postpartum, and 22% exclusively breastfed at 4 months postpartum (Linares et al., 2015). The most common reason cited for stopping exclusively breastfeeding was perception of low milk supply and breastfeeding difficulties (Linares et al., 2015), indicating that while Hispanic women are likely to attempt breastfeeding, they do not receive proper education and often perceive their milk supply as “low.” Linares et al. (2015) also found that Hispanic women were most likely to exclusively breastfeed if they rated their partner as the most important person in their life; this reflects the importance of support and strong familial relationships in Hispanic culture.

The history of breastfeeding in the United States took a turn in the post-World War II era (Martucci, 2012). At this time, hospitals began to proliferate and there was a strong trend towards having babies in the hospital environment (Martucci, 2012). Hospital births soon outnumbered home births in the United States for the first time and by 1950 home births were more obsolete; this meant newborn nurseries provided scheduled formula feedings by a nurse (Martucci, 2012). Women and families regarded the information and support received in the hospital as fact and at this time, formula became highly regarded by the public and normalized in the US (Martucci, 2012). By the 1970s breastfeeding rates began to rise again, but it was widely believed until 1974 that breastfeeding had the same benefits as formula feeding (Martucci, 2012).

Historically, African American slaves were forced to be “wet nurses” and nurse their own children along with the master’s children, which sometimes meant their own children received

less than sufficient nutrition (Reeves & Woods-Giscombe, 2014). The history of breastfeeding among African American women as well as the trend to pass along breastfeeding education from female family member to female family member rather than seek it from a health care professional can inhibit the African American woman's drive to breastfeed.

Currently women in the U.S. enter the workforce in equal numbers as men. Mothers who work are less likely to breastfeed than mothers who do not work because of several work related issues (Atabay et al., 2014). Public breastfeeding policy in the workplace greatly affects a working mother's ability to sustain exclusive breastfeeding for the recommended 6 months (Atabay et al., 2014). While there has been increasing breastfeeding policy in the US, more will be required to help mothers be able to work and continue to breastfeed (Atabay et al., 2014). Hospital policy can affect breastfeeding outcomes as well. Li et al. (2014) found that the results of their study indicate that "...having a written hospital policy addressing breastfeeding is significantly associated with an increase in breastfeeding rates" (p. 94).

Breastfeeding has many benefits to both mother and baby including increased immunity, decreased risk of breast cancer, less financial burden, effective bonding and many more. Breastfeeding values, composed of beliefs and values, are engrained in a culture. The research on breastfeeding indicates there are barriers and facilitators on many levels. Therefore, the purpose of this study was to understand the facilitators and barriers regarding breastfeeding among a subsample of women served by a local health department.

Project Questions

1. Are there ethnic and racial differences in breastfeeding practices?
2. What are the characteristics of women who breastfeed exclusively for 6 months?

3. What are the breastfeeding barriers for this subsample of women?
4. What breastfeeding friendly hospital initiatives are available to these mothers?

Methodology

Project Design

A program evaluation was conducted in a health department that serves a low income minority population to understand the breastfeeding practice in this population. This health department (HD) provides services through Public Health Nurses (PHN), Nurse Practitioners, Social Workers, Nutritionists, and Physicians. Numerous programs and services are provided through the HD including environmental health, WIC, physical examinations, health teaching, referrals and home visits. Postpartum home visiting includes physical assessments of the mothers and newborns, emotional support, breastfeeding support, education on newborn needs and topics, fostering of bonding, coordination of care to address the needs of the mother and baby and referrals in the community.

This project was part of a community health clinical practicum where I worked with a public health nurse in the local health department for seven weeks. During the practicum I worked in the health department serving mothers and children. In the WIC office, I was able to observe the area in which the peer counselor assists the mother in breastfeeding. I also learned about the WIC food packages and how WIC promotes breastfeeding in the local community.

The goal of this project was to support breastfeeding practice among underserved women in eastern North Carolina. The objectives of this project were:

- By February 24, 2016, review the demographics and barriers of 50 health records of postpartum women served by the local Health Department through an audit to determine barriers and facilitators at the individual, microsystem, exosystem and macrosystem levels.
- By February 24, 2016, interview five key informants in Duplin County about breastfeeding resources and policies to determine one barriers and facilitators at the individual, microsystem, exosystem and macrosystem levels.
- By February 24, 2016, review and analyze the current breastfeeding policies at the local hospital and at the local health department to compare the policies to the current best practices for breastfeeding to determine if the policies present barriers, facilitators, or both at the individual, microsystem, exosystem, and macrosystem levels to new mothers.

Setting and Sample

Duplin County has a population of approximately 60,000 and is comprised of 70.2% White, 26.0% Black and 21.6% Hispanic (US Census, 2015). The windshield survey, a method of data collection implemented through observing people in their environment, revealed a rural, agricultural region that included poultry and pork processing plants. The community has many assets including a local health department, community college, career center, large winery, large exposition center, hospital, 4H program and Cooperative Extension for Youth. The agricultural output in the community provides many jobs to community members. The area lacks a public transportation system and the majority of the housing seems to be single family homes and trailers. Numerous signs are posted warning against the use of methamphetamines. Secondary data reveals the infant mortality rate in Duplin County from 2010-2014 was Whites 8.1/1000 and

for Blacks was 14.0/1000. Clearly, major health disparities exist in Duplin County. Lack of access to health care may contribute to disparities present.

The HD aims to provide services to all people and not deny services to anyone. The HD does not ask anyone about their immigration status and does not require a social security number to receive services. Though all people may receive services at the HD on a sliding scale fee based upon income, undocumented immigrants may still have barriers to access. Medicaid is only available to citizens; expectant undocumented mothers may receive 2 months' coverage of emergency Medicaid and many choose to use this Medicaid during the latter part of their pregnancy. All residents may have a barrier by way of transportation; there is no public transportation available and the HD is open 8:00am-5:00pm, so work obligations may prevent access.

WIC is a public program run through the Department of Agriculture. WIC is helpful to all eligible residents as WIC does not require immigration status. This program lasts from maternal pregnancy until the child is five years of age and provides vouchers for specific grocery store items such as milk and produce rather than giving recipients free range to choose any foods as it is a nutritional support program. The Supplemental Nutritional Assistance Program (SNAP), or food stamps, is only available to citizens, so undocumented immigrants may lack this form of access to food assistance.

Economically, this community falls below North Carolina averages across the board. In NC, total households making less than \$10,000 annually is 8.2%, while in Duplin County it is 12.1%. Households making \$10,000-\$14,999 account for 6.3% of NC and 9.0% of Duplin County (US Census, 2014). In NC, the median household income is \$46,693 while in Duplin

County it is more than \$10,000 less at a median of \$34,787 (US Census, 2014). In NC, the average household income is \$64,555 while in Duplin County it is \$46,666 (US Census, 2014). The percentage of households in NC that have received SNAP benefits within a year of 2014 was 14.4% while in Duplin County it was 20.9% of the population (US Census, 2014). In terms of access barriers due to uninsured status, in NC 15.5% of the total population is uninsured while 22.8% of Duplin County's population remains uninsured (US Census, 2014). Of these figures, 6.8% of NC's children under 18 years of age are uninsured compared to 8.0% of children in Duplin County (US Census, 2014).

Breastfeeding is cited as a strategy in the NC Prevention Action Plan as a means to address obesity in the population (North Carolina Institute of Medicine, 2010). Many sources show that formula feeding is linked to an increased risk for obesity when compared to people who were breastfed. The plan includes using social marketing to help people make better choices when eating and when feeding their children (North Carolina Institute of Medicine, 2010). The Action Plan hopes to use this social marketing as a vehicle to mobilize policy changes in areas related to healthy living including breastfeeding (North Carolina Institute of Medicine, 2010).

Data Collection

Data collection included a record audit, key informant interviews, and review and analysis of breastfeeding practice policies. The action steps for each of these methods will be described in this section.

Chart Review

A chart review was conducted on 54 postpartum women. Inclusion criteria for the sample was women who are currently postpartum and using the local health department as their primary care location. The audit tool used included individual, relationships, community and societal level factors. Data was collected using this audit tool to assess barriers and facilitators to breastfeeding in the sample. All data collection took place under the supervision of a PHN preceptor. The PHN preceptor was available in the role of liaison to connect vital resources needed for data collection and as supervisor of the project.

Action steps for the chart audit were: PHN preceptor requested 50 postpartum records from the office manager. I was assigned a temporary login for the HD electronic health record system; the office manager provided 54 records dated 1/29/2015 to 12/28/2015. These charts were filtered by the office manager using the diagnosis code for post-partum visit. To meet this diagnosis code, the patients must have come for their post-partum visit within 6 weeks of delivery. Visits made longer than 6 weeks post-partum were coded as Family Planning visits and excluded from the review. Under the supervision of the PHN preceptor, I systematically reviewed each health record (HR) to search for the information indicated on the attached audit tool: age, ethnicity, marital status, employment status, educational level, primi or multigravida, prenatal care, planned or unplanned, safe living situation with running water and working appliances, participating in WIC, baby's birth place and infant feeding practice (see appendix); missing information was highlighted and rechecked.

Key Informant Interviews

The PHN preceptor helped to identify five key informants who were interviewed using structured interview questions. I interviewed key informants who have contact with minority

post-partum women on a regular basis to assess their knowledge of breastfeeding resources and breastfeeding recommendations. Key informants were 2 PHNs, 2 WIC staff members, and one hospital nurse. Interview questions were: 1. Describe the breastfeeding services in this community; 2. What policies do you know that are related to breastfeeding in your community; 3. Tell me what you know about the current recommended practice for breastfeeding; 4.

Breastfeeding rates in North Carolina are 68.2% which is below both the national average and the Healthy People 2020 goals. What do you think could be done to increase these rates?

Breastfeeding policy review

The policies of the local hospital and state and county WIC program were collected and reviewed. I analyzed all policies for identifiable AAP breastfeeding recommendations that included recommendations for and/or recognition of: exclusive breastfeeding for the first 6 months of life; breastfeeding in combination with the introduction of complementary foods until at least 12 months of age; and continuation of breastfeeding for as long as mutually desired by mother and baby. I compared the current policies to recommended best practice and to each other. This project focused on systems-level interventions as a way to assess if the breastfeeding programs currently in place are parallel with best practices.

Findings

Among the 54 postpartum charts, 79.6% were Latino, and 20.4% were non-Latino. The women had an average age of 28 years and a range of 14-41 years. Latinos (average age 29.14 years) were significantly older than non-Latinos (average age 23.55 years, $p=.012$). Most Latinos were single (79.1%), unemployed (76.7%), multigravida (88.4%), receiving WIC (90.7%), and delivered at the local community hospital (81.1%). Latinos were significantly less likely to have

a high school or post-high school education (19.5%) as compared to non-Latinos (80.0%, $p=.001$). Findings for the dependent variable (breastfeeding status) reveal that only 54.8% of Latinos and 18.2% of non-Latinos ($p=.031$) had initiated breastfeeding at the initial postpartum visit (Healthy People 2020 goal for breastfeeding initiation is 81.9%). The proportion of planned Latino pregnancies (54.8%) was significantly higher than the proportion of planned non-Latino pregnancies (18.2%, $p=.031$). Latinos are significantly more likely (90.7%) than non-Latinos (63.6%) to be enrolled in WIC ($p=.024$).

Key informants expressed that although resources exist in the community, especially within the WIC program, the majority of mothers don't access them. Resources existing in the community per the key informants included: breastfeeding and parenting classes for prenatal and postpartum mothers at the local hospital; lactation consultation available by phone; WIC peer counselors; WIC nutritionists; WIC resources and food packages; monthly breastfeeding class at HD in English and in Spanish; monthly breastfeeding peer support group at the HD; and a Smart Start grant used in Head Start PreKs to support breastfeeding. Most of the HD clinic nurses are trained in breastfeeding practices as well.

As far as policies regarding breastfeeding in the community, the local hospital does not offer formula unless requested by families. The staff also utilizes the Golden Hour (the first hour after the baby's birth) to initiate breastfeeding and skin-to-skin contact. Rooming in is used also to promote mother-baby bonding and breastfeeding on demand. The HD mandates that all prenatal moms are educated on breastfeeding to ensure they have sufficient information to make a choice. Though there are federal laws that protect breastfeeding mothers, due to the high concentration of industrial and farm work in the areas, one key informant reported that these areas of work are largely noncompliant and do not allow mothers to pump in places other than

the restroom. Some mothers even report being bullied in the workplace for breastfeeding, per key informants. Of the five key informants, four were aware of the current AAP and CDC recommendations for breastfeeding.

All key informants reported that education of the family members, husbands, partners, and grandmothers of new mothers was needed to improve breastfeeding practice. Lack of support and misinformation, especially from grandmothers, was a recurrent theme; some grandparents in the community consider breastfeeding to be “gross” or “nasty” or may believe it can make a baby sick. Key informants communicated that lack of community support for breastfeeding was also a common barrier to new moms and that an increase in education to the public to bolster their breastfeeding knowledge would likely help. One key informant suggested that more incentives should be offered to increase breastfeeding.

As supported by the literature, Latinos are more likely to breastfeed than non-Latinos. Key informants made this observation and believe that time in the US has affected Latino mothers and influenced their infant feeding practices, also supported by the literature. These findings suggest that cultural attitudes about breastfeeding bear a lot of weight with new mothers. One key informant felt that all community members must provide the same supportive messages about breastfeeding from hospital and HD doctors and nurses to receptionists.

The AAP recommends: exclusive breastfeeding for the first 6 months of life; breastfeeding in combination with introduction of complementary foods until at least age 12 months of age; and continuation of breastfeeding as long as it is mutually desired by mother and baby. After review of the state WIC policy, the HD WIC policy and the local hospital breastfeeding policy, I found that the only policy that stated explicitly the recommendations was

the local hospital breastfeeding policy and it only stated that the recommendation was to breastfeed exclusively for 6 months.

Discussion

The majority of this population was Latino and the majority of the mothers who were breastfeeding were Latino. Marital status, employment status, primi or multigravida status, planned or unplanned pregnancy status, WIC status, birth location status (community hospital or major medical center), educational level and age were not significant in terms of breastfeeding as the dependent variable. However, Latinos were significantly more likely to breastfeed than non-Latinos ($p=.031$).

Latinos had certain significant characteristics that may have made it more feasible for them to breastfeed. Latinos were significantly older (average age 29.14 years) than non-Latinos (average age 23.55 years, $p=.012$), which may allow mothers to make more mature and informed decisions at an older age. Latinos were also significantly more likely to have a planned pregnancy (54.8%) than non-Latinos (18.2%, $p=.031$) which is a known facilitator. Furthermore, over 90% of Latino mothers were enrolled in the WIC program than non-Latino mother (63.6%, $p=.024$). The WIC program offers more extensive food vouchers for mothers who breastfeed which may contribute to the higher rate of breastfeeding in Latino mothers in this community as the vast majority are taking part in this program.

This community has many resources though they are underutilized. The county is spread out and the HD resources and local hospital are concentrated in the county seat. With the lower income of this population, transportation may be a likely issue that prevents mothers from using available resources. Reasons for underutilization should be explored further. Asking mothers

who do attend breastfeeding classes and support groups what barriers their peers face in attending these classes could be one way to start the conversation. Educating and involving the most important people in the mother's life about this crucial decision could make a vital difference.

Hospital and state and local WIC policies for breastfeeding were not explicit about the AAP breastfeeding recommendations. Recommendations should be explicitly stated and staff members should articulate these recommendations. It would improve the efficacy of these policies to be explicit in goals and expectations, and then slowly work to achieve these recommended standards in the community. It is likely ineffective to tell mothers that "breast is best" and not provide specific guidelines for breastfeeding.

Conclusions

Low income, rural mothers face great challenges when breastfeeding-- distance from resources, lack of familial and community support and knowledge deficits regarding the benefits of breastfeeding. Intentional, consistent and specific messages about breastfeeding should be provided to all new mothers. Furthermore, the community should focus on development and enforcement of breastfeeding policies and procedures, especially at local worksites. Involving community members in the planning of community activities and actively using community member feedback and recommendations may increase overall success in improving breastfeeding rates. In terms of community outreach efforts to increase breastfeeding rates, feasible and affordable educational opportunities should be made available to mothers. Increased efforts should be made in helping women complete their high school or higher educational aspirations.

References

- Atabay, E., Moreno, G., Nandi, A., Kranz, G., Vincent, I., Assi, T.,...Heymann, S.J. (2015). Facilitating working mothers' ability to breastfeed: Global trends in guaranteeing breastfeeding breaks at work, 1995-2014. *Journal of Human Lactation*, 31(1), 81-88. doi: 10.1177/0890334414554806
- Campbell, L.A., Wan, J., Speck, P.M., & Hartig, M.T. (2013). Women, Infant and Children (WIC) peer counselor contact with first time breastfeeding mothers. *Public Health Nursing*, 31(1), 3-9. doi:10.1111/phn.12055
- Centers for Disease Control and Prevention (CDC). (2013). Breastfeeding report card. Retrieved from <http://www.cdc.gov/breastfeeding/pdf/2013breastfeedingreportcard.pdf>
- Center for Disease Control and Prevention (CDC). (2014). Promotion & support. Retrieved from <http://www.cdc.gov/breastfeeding/promotion/index.htm>
- Chin, N.P., Cuculick, J., Starr, M., Panko, T., Widanka, H., & Dozier, A. (2013). Deaf mothers and breastfeeding: Do unique features of Deaf culture and language support breastfeeding success? *Journal of Human Lactation*, 29(4), 564-571. doi: 10.1177/0890334413476921
- Eidelman, A.I., & Schlaner, R.J. (2012). Executive summary: Breastfeeding and the use of human milk. *Pediatrics*, 129(3), 600-603.
- Gross, T.T., Powell, R., Anderson, A.K., Hall, J., Davis, M., & Hilyard, K. (2015). WIC peer counselors' perceptions of breastfeeding in African American women with lower incomes. *Journal of Human Lactation*, 31(1), 99-110. doi: 10.1177/0890334414561061
- Habibi, M.F., Nicklas, J., Spence, M., Hedberg, S., Magnuson, E., & Kavanagh, K.F. (2012). Remote lactation consultation: A qualitative study of maternal response to experience and

- recommendations for survey development. *Journal of Human Lactation*, 28(2), 211-217.
doi: 10.1177/0890334411432716
- Haughton, J., Gregario, D., & Perez-Escamilla, R. (2010). Factors associated with breastfeeding duration among Connecticut special supplemental nutrition program for Women, Infants and Children (WIC) participants. *Journal of Human Lactation*, 26(3), 266-273. doi: 10.1177/0890334410365067
- Hedberg, I.C. (2013). Barriers to breastfeeding in the WIC population. *Journal of Maternal/Child Nursing*, 38(4), 244-249. doi: 10.1097/NMC.0b013e3182836ca2
- Jefferson, U.T. (2014). Infant feeding attitudes and breastfeeding intentions of Black college students. *Western Journal of Nursing Research*, 26(10), 1338-1356. doi: 10.1177/0193945913514638
- Karp, S.M., Lutenbacher, M., & Dietrich, M.S. (2010). The associations of psychosocial factors and infant feeding beliefs in young, first time, low income mothers. *Issues in Comprehensive Pediatric Nursing*, 33(4), 268-287. doi: 10.3109/01460862.2010.531533
- Li, C., Li, R., Ashley, C.G. , Smiley, J.M., Cohen, J.H., & Dee, D.L. (2014). Associations of hospital staff training and policies with early breastfeeding practices. *Journal of Human Lactation*, 30(1), 88-96. doi: 10.1177/0890334413484551
- Linares, A.M., Rayens, M.K., Dozier, A., Wiggins, A., & Dignan, M.B. (2015). Factors influencing exclusive breastfeeding at 4 months postpartum in a sample of urban Hispanic mothers in Kentucky. *Journal of Human Lactation*, 31(2), 307-314. doi: 10.1177/0890334414565711

- Lind, J.N., Perrine, C.G., & Li, R. (2014). Relationship between use of labor pain medications and delayed onset of lactation. *Journal of Human Lactation*, 30(2), 167-173. doi: 10.1177/0890334413520189
- Lynch, S., Bethel, J., Chowdhury, N., & Moore, J.B. (2011). Rural and urban breastfeeding initiation trends in low-income women in North Carolina from 2003 to 2007. *Journal of Human Lactation*, 28(2), 226-232. doi: 10.1177/0890334411430086
- Martucci, J. (2012). Maternal expectations: New mothers, nurses, and breastfeeding. *Nursing History Review*, 20, 72-102. Retrieved from <http://search.proquest.com.jproxy.lib.ecu.edu/docview/883570745?accountid=10639>
- North Carolina Institute of Medicine. (2010). Prevention for the Health of North Carolina: Prevention Action Plan. Retrieved from <http://www.nciom.org/wp-content/uploads/NCIOM/projects/prevention/finalreport/PreventionReport-July2010.pdf>
- O'Connor, A.B., Collett, A., Alto, W.A., & O'Brien, L.M. (2013). Breastfeeding rates and the relationship between breastfeeding and neonatal abstinence syndrome in women maintained on Buprenorphine during pregnancy. *Journal of Midwifery & Women's Health*, 58(4), 383-388. doi: 10.1111/jmwh.12009
- Reeves, E.A. & Woods-Giscombe C.L. (2015). Infant-feeding practices among African American women: Social-ecological analysis and implications for practice. *Journal of Transcultural Nursing*, 26(3), 219-226. doi: 10.1177/1043659614526244
- Rozga, M.R., Kerver, J.M., & Olson, B.H. (2015). Self-reported reasons for breastfeeding cessation among low-income women enrolled in a peer counseling breastfeeding support program. *Journal of Human Lactation*, 31(1), 129-137. doi: 10.1177/0890334414548070

- Sadacharan, R., Grossman, X., Matlak, S., & Merewood, A. (2014). Hospital discharge bags and breastfeeding at 6 months: Data from the Infant Feeding Practices Study II. *Journal of Human Lactation*, 30(1), 73-79. doi: 10.1177/0890334413513653
- US Census. (2014). 2010-2014 American Community Survey 5-Year Estimates. Retrieved from: <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>
- US Census. (2015). Quick facts, United States: Duplin County, North Carolina. Retrieved from: <http://quickfacts.census.gov/qfd/states/37/37061.html>
- Van Wagenen, S.A., Magnusson, B.M., & Neiger, B.L. (2015). Attitudes toward breastfeeding among an internet panel of U.S. males aged 21-44. *Maternal and Child Health Journal*, 19(9), 2020-2028. doi: 10.1007/s10995-015-1714-1