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## Effectiveness of Early Postpartum Follow-up on Breastfeeding Attrition

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EFFECTIVENESS OF EARLY POSTPARTUM FOLLOW-UP ON

Effectiveness of Early Postpartum Follow-up on Breastfeeding Attrition

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Date of Approval: May 20, 2018

# EFFECTIVENESS OF EARLY POSTPARTUM FOLLOW-UP ON

## Abstract

This quality improvement project evaluated the effectiveness of early postpartum follow-up in decreasing breastfeeding attrition rates among postpartum mothers in the first three weeks after delivery. Of special interest is the ability to identify possible differences among maternal characteristics such as age, ethnicity, race or parity. Although the benefits of breastfeeding are widely known and breastfeeding in the United States continues to rise, the breastfeeding rates among African-American women and other races remain lower with a notable significant gap. As of 2013, African American mothers lagged behind their white and Hispanic counterparts in the practice by at least 20 percentage points. A quasi-experimental design utilized a convenience sample of 26 women who are patients at a private obstetrical practice in the southern U.S., planning to breastfeeding, and had due dates during May 2017 through September 2017. Participants completed The Breastfeeding Attrition Prediction Tool (BAPT), Breastfeeding Information Toolkit, Maternal Breastfeeding Evaluation Scale (MBES), and interviews.

Most of the participants (94.4%) continued to breastfeed three weeks after delivery and none of the participants required additional referrals or support during the study. The screening process did not identify African American women at risk of breastfeeding attrition. There was no significant difference among income levels in regards to breastfeeding attrition. Participants reported the following breastfeeding barriers: sore nipples, lack of support, education, and work schedules.

*Keywords:* breastfeeding rates, breastfeeding initiation, breastfeeding attitudes, beliefs

Effectiveness of Early Postpartum Follow-up on Breastfeeding Attrition

## **Dedication**

I would like to dedicate this project to my grandson, Calvin Linton Fitzgerald Fenner, Jr., who transitioned to be with our heavenly father on November 25, 2017. To my amazing grandchildren, Morgan, Miles and Iliyana, you are my inspiration to do even more to decrease the health disparities among underserved populations.

## Acknowledgment

I would like to express my heartfelt appreciation and gratitude to my committee chair, Dr. Deborah MacMillan, for her untiring support through the course of this project. I truly appreciated her time, insight, direction, coaching, encouragement, compassion, and expertise in the planning and execution of this project. Words are not enough to express my true feelings. My continued gratitude goes forth to the members of my committee, Dr. Monica Ketchie and Marsha Ford, CNM for their support, guidance, and critiquing of this project. In addition, I would like to thank Dr. Janea Johnson for the time spent proof-reading and making corrective suggestions for the paper.

First, I thank God for His never-ending love for me and bringing to my remembrance, His Word, during the times of discouragement the verse of scripture, Mark 9:23, “if thou can believe, all things are possible to him that believeth!” Thank you to my sons LeDerrick and Calvin, grandchildren, my sister Katrina and friends for believing in me and the encouragement, spiritual support, and help at various stages of this project.

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## **Chapter 1. Introduction**

A women's decision about how to nourish her infant occurs long before conception or birth. Variables affecting this decision often include her environment, interpersonal interactions, culture, family, past experiences, age, confidence, and social circles or peer groups (Murimi, Dodge, Pope, & Erickson, 2010). The significant benefits of breastfeeding suggest the need for stronger support and education during the prenatal and immediate postpartum periods to increase breastfeeding initiation rates and continuation of breastfeeding after hospital discharge (Cross-Barnet et al., 2012; Kornides & Kitsantas, 2013). Providing support is an essential part of services necessary for expectant and new mothers who face multiple barriers to breastfeeding initiation and at risk of early breastfeeding cessation (Brand, Kathori, & Stark, 2011). In the early stages of breastfeeding many women experience challenges with problem-solving and developing effective techniques to increase breastfeeding duration, and developing efficient breastfeeding patterns after hospital discharge (Brand et al., 2011). Support and education presented formally or through interactional techniques, rather than pamphlets, often yield the best outcomes (Brand et al., 2011). A research study conducted by the World Health Organization on infant feeding strongly advised all mothers to initiate breastfeeding within the first hour after delivery and exclusively for at least six months (Di Manno, Macdonald, & Knight, 2015).

Statistically speaking, breastfed infants exhibited better healthcare outcomes, reduction in chronic diseases, improved cognitive ability, and were more socially adaptive (Andres et al., 2012). Researchers reported varying results when seeking to identify a possible correlation between breastfeeding initiation and duration (Khan, Vesel, Bahl, & Martines, 2015; Spencer & Grassley, 2013; Stuebe & Bonuck, 2014). African-American women, when compared to other

women from other ethnic groups, demonstrated the highest incidences of health disparity in the United States. These health gaps could directly impact breastfeeding initiation (Spencer & Grassley, 2013, p. 607). Breastfeeding rates among African-American women continue to validate a noticeable disparity compared to Hispanic, White non-Hispanic, Asian, and American Indian women (Spencer & Grassley, 2013). Khan et al. (2015) addressed neonatal mortality and morbidity as public health concerns in a systematic review. The authors determined that approximately three million newborns died in 2012 and 5 - 50% of those deaths occurred on the first day or within the first week of life (Khan et al., 2015). Early interventions during the prenatal phases of pregnancy, breastfeeding initiation, and exclusive breastfeeding during the first month of life could reduce the mortality rate (Khan et al., 2015).

### **Background**

Several researchers indicated breast milk was the optimal source of nourishment in infancy (Di Manno et al., 2015; Khan et al., 2015). A mother's milk provides the optimal amount of antibodies and nutrients needed for her infant to thrive (Di Manno et al., 2015). Breastfeeding provides a balanced amount of psychosocial and nutritional benefit for a child's development (Bonuck et al., 2014). Breastfed children reported fewer allergies and chronic illnesses when compared to those who were never breastfed (Clarkson & DuPlessis, 2011). Infants receive benefits from multiple systems of the body including endocrine, immune, gastrointestinal, cardiac, respiratory, and urinary statistics. Additionally, breastfeeding reportedly saved lives in cases of Sudden Infant Death Syndrome, lower respiratory tract infections, and Necrotizing enterocolitis (NEC) deaths (Stuebe & Bonuck, 2011). Despite the increased amounts of information available and marketing implemented by several organizations pertaining to

breastfeeding, only 27.3% of infants born in 2011 were exclusively being breastfed at 3 months of age (National Center for Chronic Disease Prevention and Health Promotion, 2014).

Stuebe and Bonuck (2014) suggested that lower-income, ethnically diverse women were less likely to report favorable attitudes towards breastfeeding, exclusively breastfed, and did so for longer durations than the national averages with pre-postpartum interventions. Maycock et al., (2013) found interventions to significantly increase breastfeeding at 6 weeks: 81.6% in the intervention group compared to 75.2% in the control group. Infants born to older fathers were more likely to be breastfed at 6 weeks compared to infants of younger fathers ( $P < .01$ ), and infants of fathers from high socioeconomic backgrounds were more likely than infants of fathers from low socioeconomic backgrounds ( $P = .013$ ). Breastfeeding is a key strategy to reach the Centers for Disease Control's (CDC) goal to improving the health of Americans. According to the 2014 CDC Breast Feeding Report Card, 79% of the newborn infants breastfed since birth did not continue for the recommended time, 49% of infants born in 2011 were still being breastfed at 6 months, and 27% of the infants were still breastfed at 12 months (CDC, 2017).

Brand, Kothari, and Stark (2011) discussed how the challenges women encounter during the initial breastfeeding period directly contributed to breastfeeding attrition and cessation. They identified multiple characteristics associated with the discontinuation of breastfeeding: babies born to cohabitated unmarried parents, the lack of support from a partner or spouse, and lower socioeconomic status. An increase in parental bonding and breastfeeding duration was also noted in this study with infants of married parents. The increasing breastfeeding disparities are dispersed among racial groups, educational levels, and socioeconomic statuses, which directly affects breastfeeding initiation and duration. While breastfeeding is initiated in instances, it is not maintained for the recommended period of time. The objective of this quality improvement

project is to evaluate the effectiveness of post-partum follow-up in decreasing breastfeeding attrition rates among postpartum mothers.

### **Problem Statement**

Although the benefits of breastfeeding are widely known, the breastfeeding rates between African-American women and those of other races remain significantly lower. The Centers for Disease Control identified a notable 20 percentage point gap in the State of Georgia in 2014. The CDC reported the following rates for Georgia residents during 2014: ever breastfeed 70.3%, breastfeed at 6 months 40.3%, breastfeed at 12 months 20.7%, exclusively breastfeed at 3 months 27.3%, and exclusively breastfeed at 6 months 14.5% (CDC, 2017). Healthy People 20/20 established the goal of increasing the following rates: ever breastfeed 81.9%, breastfeed at 6 months 60.6%, breastfeed at 12 months 34.1%, exclusively breastfeed at 3 months 46.2%, and exclusively breastfeed at 6 months 25.5%. Georgia currently lags significantly below the Healthy People 20/20 goals for all populations, with an even greater disparity existing for African-American women (United States Breastfeeding Committee, 2018).

### **Purpose of the Study**

The purpose of this translational project is to determine if an early postpartum intervention program decreases the breastfeeding attrition rate among postpartum mothers in the first three weeks after delivery. Of special interest is the ability to identify if differences exist based on maternal characteristics such as age, ethnicity, race, or parity. Additionally, the researcher will explore the potential factors contributing to breastfeeding cessation: fears of inadequate milk supply, latching difficulties, and painful or clogged milk ducts, which can be successfully addressed through continued support and patient education (Brand et al., 2011). Other concerns such as sexuality issues, postpartum contraception, dietary concerns, maternal

smoking (tobacco or marijuana), negative self-image or being embarrassed regarding breastfeeding in public contribute to the early cessation of breastfeeding (Brand et al., 2011). The initiation of breastfeeding does not by any means indicate mothers breastfeed exclusivity for the recommended six month period established by Healthy People 20/20 (United States Breastfeeding Committee, 2018). Early breastfeeding support and postpartum follow-up can provide the encouragement needed to assist a mother in overcoming challenges and continuing breastfeeding.

### **Study Aims**

This translational research study addressed the following three specific aims:

**Specific Aim I.** To implement a screening process for African-American women during the antepartum period that will identify women who are at risk for early breastfeeding attrition.

**Specific Aim II.** To implement a postpartum breastfeeding support intervention for African-American women between the ages 18 and 35 that will decrease the breastfeeding attrition rate.

**Specific Aim III.** To identify barriers to continued breastfeeding and provide support measures.

### **Clinical Research Questions**

**Clinical Question 1.** *What percentage of African American women ages 18 to 35, who receive an early postpartum intervention and support at one-week postpartum will continue to breastfeed at 3 weeks postpartum?*

**Clinical Question 2.** *What percentage of African American women ages 18 to 35, who received early postpartum intervention and support at one-week postpartum required referral for further support?*

**Clinical Question 3.** *Did the screening process identify African women ages 18 to 35 who were at risk for early breastfeeding attrition?*

**Clinical Question 4.** *What barriers were identified for African American women ages 18 to 35 that were associated with breastfeeding attrition?*

### **Significance of Study**

The American Academy of Pediatrics recommends mothers exclusively breastfeed their infants for at least the first 6 months, with a continuation up to 12 months. Research demonstrates a persistent racial disparity in breastfeedings rates between African American mothers and those of other races (Center for Disease Control and Prevention, 2016). Initial maternal care practices occurring after childbirth have a lasting impact on a mother's ability to successfully start and maintain breastfeeding (Brand et al., 2011). Even in baby-friendly designated hospitals, a 2011 CDC Morbidity and Mortality Weekly Report found inconsistencies in breastfeeding support indicators between hospitals located in areas with a higher percentage of African American residents compared to hospitals located in areas with fewer African American residents. Baby-friendly hospitals located in largely African American areas often failed to adhere to the Ten Steps to Successful Breastfeeding required to retain their designation as a baby-friendly facility.

Other notable factors contributing to the lower breastfeeding rates among African American women include family support and influence, financial resources, education, professional support, preconceptions about breastfeeding, perceptions that breastfeeding is inferior to formula, and mothers having to return to work early in the postpartum period (Danawi, Estrada, Hasbini, & Wilson, 2016). Social stigma may also play a role in lower breastfeeding rates with myths such as, "breastfeeding is for poor people" (Radzysinski &

Callister, 2016) circulating in various communities. These factors coupled with the lack of African American mothers featured in marketing and educational materials hinders breastfeeding efforts among this demographic.

### **Definition of Terms**

The following terms were used throughout the project. The following operational definitions provided the context and background for the terms.

**Actual behavior control.** Actual behavioral control is the prerequisite skill an individual needs to acquire or perform before mastering particular ability. It oftentimes influences the perceived behavioral control (Boslaugh, 2013) and behavior. A women's greater sense of control over the ability to breastfeed was demonstrated with the BAPT by a higher score.

**Attitude.** The operational definition of attitude involves the degree to which an individual's positive or negative value is placed on performing a specific behavior (Boslaugh, 2013). Attitude could be inferred from verbal or nonverbal responses reflected by a person's perceptions, beliefs, evaluations, and feelings about an object or event (Lewallen, 2006). Breastfeeding attitude was conceptualized for this study as positive or negative sentiments related to breastfeeding. The positive and negative breastfeeding sentiment scales on the BAPT measured the attitudes of the participant's responses.

**Intention.** The operational definition of intention is how willing a person is to try a specific behavior (Wambach et al., 2011). Intention may also be defined as a persons intention to perform a behavior when the behavior is viewed positively and when the person is influenced by the belief of others that the behavior should be performed (Boslaugh, 2013).

**Breastfeeding.** The definition of breastfeeding attrition utilized for this study was adopted from the World Health Organization as cessation of breastfeeding prior to eight weeks

post-delivery. The operational definition of discontinuation of breastfeeding includes a complete cessation of any breastfeeding and early discontinuation of cessation before six months.

Exclusive breastfeeding is operationally defined as only breast milk being fed to infants without other liquids such as water or juice or solids (Infant and Young Child Feeding: Model Chapter for Textbooks for Medical Students and Allied Health Professionals, 2008). Attrition and exclusive breastfeeding were evaluated during the one-week follow-up telephone call and at the home visit., which occurred three weeks after birth.

**Perceived behavioral control.** The operational definition of perceived behavioral control described an individual's belief they can perform a behavior (Boslaugh, 2013). These beliefs may influence both behavioral and normative beliefs (Boslaugh, 2013). The perceived breastfeeding control was conceptualized for this study as maternal subjective norms and maternal perceived behavioral control related to ease or difficulty of breastfeeding. Subjective norms were measured by the Social and Professional Support (SPS) scale on the BAPT. High scores indicated strong support for breastfeeding. The BAPT evaluated behavioral control by measuring the woman's perception of the ease or difficulty projected in breastfeeding.

### **Assumptions, Limitations and Delimitations**

As with most studies, assumptions, limitations, and delimitations were evident. The researcher assumed the participants clearly comprehend the interventions planned and continued throughout the duration of the study. The primary limitation of this study involved the timeframe of implementing the intervention and data collection process and the number of participants for the study. Studying African American mothers was a delimitation of the study because this population disproportionately breastfed at lower rates than other mothers and continued to do so shorter than the recommended timeframe.

## **Conclusion**

The underlying causes of breastfeeding attrition are influenced by multiple variables including those susceptible to attitudes and behaviors formed over a period of time. (Murimi, Dodge, Pope, & Erickson, 2010). Breastfeeding an infant can be interpreted as a learned behavior from cultural experiences and familial behaviors (Kornides & Kitsantas, 2013). A woman has a right to decide how she will provide nourishment for her infant. Providing postpartum support and information about the benefits of breastfeeding can provide foundational knowledge to aid in continuing a mother's choice to breastfeed her newborn. The research provides adequate documentation of the benefits of continuing to breastfeed for the mother and infant. Moreover, education and support substantiates the positive impact interventions can have for both the family and the community. Women who receive early postpartum interventions to support continued breastfeeding practices are more likely to continue breastfeeding for the recommended period of at least six months. The purpose of this study was to investigate how breastfeeding interventions impacted new mothers' breastfeeding initiation and continuation.

## Chapter 2. Review of Literature

Even though medical evidence indicate the long and short-term benefits of breastfeeding, mothers still choose other options to provide nourishment to their children. Breastfeeding initiation and duration varying among mothers based on ethnicity, socioeconomic background, education, and age. Mothers in Georgia breastfeed their children at lower rates than mothers overall. Additionally, African American mothers initiate breastfeeding and continue the practice at lower rates than mothers from other ethnic backgrounds (CDC, 2017; United States Breastfeeding Committee, 2018). The purpose of this translational project is to determine if an early postpartum intervention program decreases the breastfeeding attrition rate among postpartum mothers in the first three weeks after delivery.

The purpose of this chapter is to discuss the background of breastfeeding literature and provide a scholarly backdrop for this study. Components of the chapter include a discussion of the theoretical framework, an overview of breastfeeding and maternal breastfeeding attitudes. The chapter also addresses breastfeeding trends among African American mothers. A systematic approach was used to search for evidenced-based nursing databases, breastfeeding journals, medical databases and other databases such as Research Gate, CINAHL and EBSCO. One hundred and five (105) articles were identified with the original search, with only twenty-five (25) meeting the project criteria reporting research that utilized a type of measurement to predict the likelihood of breastfeeding attrition. Of the eighty (80) articles excluded, twenty (20) did not report original research but instead summaries of other research, five (5) were published in foreign journals and could not be obtained through interlibrary loan, twenty (20) were more than five (5) years old, and thirty (30) did not thoroughly discuss breastfeeding attrition and were directed more towards breastfeeding benefits.

## Theoretical Framework

The theory of planned behavior (TPB) was the theoretical framework selected for this project. Ajzen developed the theory of planned behavior in 1985 to examine influential factors on intention and behavior (Lewallen, 2006). Scholars in several fields, including but not limited to public relations, advertising, and healthcare, use the theory to study human behavior. Intention often reflects if an individual decides to exert some effort towards a behavior, which is within his or her control. The theory of planned behavior was used in this project to examine the relationship of subjective norms, perceived control, breastfeeding knowledge, attitudes, and self-efficacy in determining breastfeeding intention, duration or attrition (Ajzen, Joyce, Sheikh, & Cote, 2011).

The theory of planned behavior links beliefs to attitudes, perceived behavioral controls and subjective norms. This proposed concept was established to improve the predictive power of the theory of reasoned action by adding behavioral controls (Lewallen, 2006). Control behaviors by other acquaintances or one's self can be influenced by life experiences or other factors such as second-hand information regarding the behavior thereby affecting the perceived difficulty with the presenting behavior (Lewallen, 2006). Success in performing a specific behavior is often dependent upon an individual's desire and intention and the availability of applicable resources. The lack of resources or opportunity can influence an individual's perceived behavioral control, thus affecting his or her behavioral intention to perform a specific behavior (Lewallen, 2006). Several researchers documented their use of the TPB because of its nonvolitional aspects of breastfeeding reported throughout the literature (Lewallen, 2006).

Ajzen (1985) presented the theory of planned behavior for the first time in the article published in 1985, *From intentions to actions: A theory of planned behavior*. The theory was

informed by the concept of reasoned action, which encompassed learning theories, consistency theories, and expectancy-value theories (Lewallen, 2006). Components of the theory include attitude, subjective norms, and motivations. Attitude describes how people evaluate their behaviors: either favorably or unfavorably. It also describes how people consider the outcomes or consequences associated with certain behaviors (Rise, Sheeran, & Hukkelberg, 2010). A person's thoughts about how significant people in his or her life or peer groups want them to behave (approve or disapprove) describe subjective norms. Motivations involve the results of a person's intentions. Ajzen et al. (2011) recently added an additional factor: perceived behavioral control. This concept addresses the level in which a person believes he or she controls given behaviors (Kim, Ham, Yan, & Choi, 2013). In essence the theory describes how people are more likely to attempt or intend to perform certain actions or tasks if they think they will be successful or people in their lives support the efforts (Montano & Kasprzyk, 2015).

As with every theory, strengths and weaknesses emerge. The theory can be used to describe behaviors not suitably addressed by the theory of reasoned action (Yousafzai, Forxall, & Pallister, 2010). The addition of the perceived behavioral control component of the theory helps explain the correlation between intention and behavior in instances when intent does not appear to be the exclusive cause of the behavior (Schwarzer, 2014). The theory of planned behavior was found to be a successful means to predict behaviors associated with health-related actions such as condom use, exercise, and breastfeeding (Ajzen, 2011). As a theory based on cognitive functions and processes, critics discount the impact of the theory on human behavior because it does not address prior experiences. It also omits the moment in time a person makes a decision. For example, people may make decisions based on current conditions: a decision made at one moment may not be the same in a similar circumstance at a different time (Yoon, 2011).

The theory does not address a person's access to resources and knowledge necessary to make decisions (Greaves, Zibarras, & Stride, 2013). Even with the limitations, the theory of planned behavior is the best-suited theoretical framework for this study.

The numerous variables identified throughout research interfering with a woman's decision to breastfeed parallel closely to the TPB's modifiable concepts of perceived behavioral control, subjective norms, and concepts of attitudes. Lewallen and Street (2010) contended the TPB was the ideal framework for studying breastfeeding attrition. An illustration of the TPB, in terms of breastfeeding is demonstrated in Appendix A.

### **Breastfeeding**

As previously stated, proven health benefits for infants and mothers are linked to breastfeeding. These benefits include protection against common illness and reducing childhood and adolescent obesity (Meedya, Fahy, & Kable, 2010). Researchers estimated more than 1.5 million lives could be saved annually if infants were breastfed during the first year of life (Gregory & Walker, 2013; Wambach & Riordan, 2014). Scholars also reported an association between breastfeeding duration and lower rates of cardiovascular disease and childhood obesity (Ricci, 2013). However, some mothers choose to breastfeed their children for short periods of time or not at all. In order to provide a backdrop to this study several components of the breastfeeding process deserve explanation: initiation, postpartum challenges, and duration. Of additional importance for this study is breastfeeding patterns among African American women.

#### **Breastfeeding Initiation**

Infants receiving breastmilk from their mothers within one hour of birth, early initiation of breastfeeding, ensure babies receive nutrient-rich first milk, colostrum. Many medical organizations and professionals recommend exclusive breastfeeding for at least the first year of

life (Nygvist et al., 2013; Wen, Simpson, Rissel, & Baur, 2012; Victora et al., 2016). According to the report published by the Center for Disease Control and Prevention (2016), 82.5% of infants were breastfed at least once, 55.3% of infants were breastfed at six months, 33.7% of infants were breastfed at one year, 46.6% of infants were breastfed exclusively for three months, and 24.9% of infants were breastfed exclusively for six months. Additionally, skin to skin contact between infants and their mothers during this time frame helps with the breastfeeding initiation process and was found to increase the likelihood of exclusive breastfeeding for up to four months and longer duration of breastfeeding (Khan, Vesel, Bahl, & Martines, 2015). Most healthy babies are born with the instinct to breastfeed and latch onto their mother's breast (Mischke & Plosch, 2013). Under ideal circumstances, infants immediately latch to their mother's breast and initiate nursing to remove the colostrum without external support or assistance (Mohrbacher & Kendall-Tackett, 2010). However, other studies indicated breastfeeding was not instinctive for infants and mothers needed to be patient and continue making breastfeeding attempts (Ryan, Todres, & Alexander, 2011). The inability for infants to latch onto their mothers' breasts also impacts women's self-efficacy. In cases where infants cannot latch, nurses and midwives provide techniques to mothers to help facilitate the process (McQueen, Dennis, Stremler, & Norman, 2011). Previously conducted research indicated that mothers' confidence and intentions and infants' instinctive latching impacted breastfeeding initiation (Meedya, Fahy, & Kable, 2010; McQueen et al., 2011; Mohrbacher & Kendall-Tackett, 2010).

### **Postpartum**

Postpartum is defined as the time period immediately after a woman gives birth (Khan et al., 2015). Women experience physiological changes during this period, which are often

managed with rest or medication. For example, mothers may experience chills; afterpains; lochia (a bloody vaginal discharge); sore neck, jaw, arm, and vaginal muscles; and breast swelling or discomfort (Razurel, Bruchon-Schweitzer, Dupanloup, Irion, & Epiney, 2011). The changes experienced vary from woman to woman and each pregnancy. Additionally, the changes may depend on the delivery method: natural or cesarean. The duration of these changes can last for a few hours or several months (Ricci, 2013).

Related to this study, postpartum changes also impact breastfeeding. The hormone progesterone influences breast tissue growth during pregnancy. Breasts prepare for lactation during pregnancy to allow the breasts to produce colostrum (foremilk) within 72 or 96 hours after delivery. Most women begin to produce normal milk within three to five days after delivery (Gregory & Walker, 2013). After birth, the endocrine system triggers milk production (Wambach & Riordan, 2014). Thyroid, estrogen, cortisol, progesterone, and prolactin hormones impact the brain chemicals leading to milk production and emotional wellness. The hormones are geared to work in concert to foster lactation; however, at times the hormones combat lactation and emotional wellness for new mothers (Negron, Martin, Almog, Balbierz, & Howell, 2013).

### **Breastfeeding Duration**

A myriad of factors impact a women's decision to initiate and continue breastfeeding. Breastfeeding education or training, support systems, and knowledge is positively associated with continued breastfeeding (Cross-Barnet et al., 2012; Komides & Kitsantas, 2013; Meedya et al., 2010). Some mothers need training and assistance to get babies to latch and overcoming tender or sore breasts. Women who receive breastfeeding education and training continue the practice for more months than those without assistance (Meedya et al., 2010). Mothers with support systems from peer groups, family members, partners, or nurses/midwives initiate and

continue breastfeeding longer than women without formal and informal support networks (Cross-Barnet et al., 2012). Women who understand the health benefits linked to breastfeeding choose to do so longer than women who lack knowledge about breastfeeding (Komides & Kitsantas, 2013). Breastfeeding barriers include returning to work or school, lack of information about the benefits of breastfeeding, and limited breastfeeding support (Bell, Lacombe, Gallagher, Ferland, & Couture, 2012; Stuebe & Bonuck, 2011; Wojcicki et al., 2010). Many women cease breastfeeding when they return to work or school because breastfeeding rooms or breast milk storage options are not available (Bell et al., 2012). Women who are not familiar with the benefits of breastfeeding are less likely to initiate or continue the process (Wojcicki et al., 2010). Lack of support from family, peers, or healthcare professionals impede women's choice to continue breastfeeding (Stuebe & Bonuck, 2011).

### **African American Women Breastfeeding Trends**

Stark differences in breastfeeding initiation and duration exist between African American and white women. For example, 64.3% of African American and 81.5% of white infants were breastfed between 2010 and 2013. These rates represent a 17.2 percentage point gap. Breastfeeding initiation rates were lower among African American mothers than white mothers and more African American infants were never breastfed compared to white infants by 15 percentage points. Additionally, exclusive breastfeeding at 6 and 12 months occurred at significantly lower rates among African American infants compared to white infants (Center for Disease Control and Prevention, 2017).

The synthesis of the literature meeting the criteria for the study revealed four major themes related to why African-American women breastfeed less than other races: (1) influences and myths, (2) lack of a reliable source for information, (3) resuming work or school, and (4)

transitional support, helpers who shared their beliefs and interest in breastfeeding. New mothers reported the following myths about breastfeeding in a study conducted by Li, Fein, Chen, and Grummer-Strawn (2008): infants not being satisfied when solely breastfed, babies fed with formula sleep better than breastfed babies, and breastfeeding changes mothers' breasts (size, shape, and sensation). Women of color, African American and Latina mothers, were more likely to believe these myths compared to women of other ethnic groups. Educating women who are at risk for early breastfeeding attrition about how to effectively problem-solve, coupled with the proper techniques can provide steps towards increased breastfeeding duration (Brand et al., 2011). In their linear mixed model study, Thomson, Tussing-Humphreys, Goodman, Landry and Olender (2017) discovered addressing barriers for breastfeeding and increasing knowledge about breastfeeding were not effective in empowering southern African American women to initiate or continue breastfeeding. However, this study did support the need for efforts which improve breastfeeding outcomes in any socioeconomic group with culturally relevant education, social and environmental supports that make breastfeeding the economical choice, more convenient for mothers and more accepted by the general population. A noted highlight throughout the research is an interprofessional approach with a patient-centered emphasis being instrumental to improving breastfeeding initiation rates (Kornidas & Kitsantas, 2013; Smith et. al, 2012, Radzyminski & Callister, 2016). Other studies like those conducted by Adams (2014) suggest reasons why African American women breastfeed less than their Caucasian counterparts. This study raises a concern regarding certain hospitals in the black communities failing to support a women's effort to breastfeed. Participants returning to school or work Li et al.'s (2008) study reported academic and occupational demands as a reason to stop breastfeeding. Specifically, mothers considered breastfeeding inconvenient, especially when they worked in

environments without lactation facilities or the financial means to express (pump) and store. These concerns were expressed by African American women more than mothers of other ethnicities. As previously stated, transitional support is an important indicator of breastfeeding initiation and duration, which is especially true for African American women. African American mothers with breastfeeding support systems and role models were more likely to breastfeed and continued to do so for the recommended timeframe (Beal, Kuhlthau, & Perrin, 2016).

### **Maternal Breastfeeding Attitudes**

Exposure to breastfeeding information from different media sources, maternal knowledge of breastfeeding benefits, family and clinician support, and peer experiences influence breastfeeding outcomes (Lutenbacher, Karp, & Moore, 2016). In a BINGO and PAIRING single-blind randomized study conducted by Stuebe and Bonuck (2011), the researchers measured the association between intentions to exclusively breastfeed and knowledge of infant health benefits, feeding guidelines and comfort related to breastfeeding in social settings. Among the 883 participants, exclusive breastfeeding was 45.9%, mixed feeding 46.1%, and 8.0% exclusive formula feeding. The multivariate-adjusted models revealed women who disagreed that “infant formula is as good as breastmilk” were more likely to exclusive breastfeed versus exclusive formula feed (odds ratio 3.44, 95% confidence interval 1.80-6.59) compared to women who agreed to the statement. The study also found that women who felt more comfortable breastfeeding in public intended to exclusively breastfeed for 0.84 months longer (95% confidence interval 0.41-1.28) than those who had a feeling of being uncomfortable. This study documents that maternal knowledge about breastfeeding health benefits for the infant and a mother’s comfort with breastfeeding being directly associated with the intention to breastfeed.

Therefore, interventions such as early postpartum follow-up which addresses these types of issues may increase exclusive breastfeeding and duration.

Stuebe and Bonuck (2011) conducted a study about how mothers' knowledge, comfort levels, and intentions impacted breastfeeding outcomes. The authors explored the association between women's intent to breastfeed exclusively, knowledge about the health benefits of breastfeeding for infants, and breastfeeding comfort levels in social settings. Participants, representing various ethnic and socio-economic backgrounds, were divided into control and comparison groups based on breastfeeding support received. The researchers also compared the results of this study to data collected and analyzed from the second National Infant Feeding Practices Study. The 883 participants were divided into three groups: 45.9% exclusive breastfeeding intentions, 46.1% mixed feeding intentions, and 8.0% exclusive formula feeding intentions. Participants in the study were more likely to agree about the benefits of breastfeeding (lower rates of ear or respiratory infections, diarrhea, and obesity) compared to the national sample. Additionally, women who reported feeling comfortable breastfeeding in public intended to breastfeed exclusively for 0.84 months longer than those who reported feeling uncomfortable (Stuebe & Bonuck, 2011).

In their study about early exclusive breastfeeding, Wojcicki, Gugig, Tran, Kathiravan, Holbrook, and Heyman (2010) investigated mothers' breastfeeding attitudes and intentions. The researchers targeted Special Supplemental Women, Infants, and Children (WIC) Program participants who were reported to demonstrate lower breastfeeding rates and did not believe the health benefits associated with breastfeeding. Specifically, participants were recruited and selected based on their WIC participation status and relationship with two hospitals in San Francisco, California. The purpose of the study was to calculate exclusive breastfeeding

frequency during the postpartum period and measure mothers' attitudes about breastfeeding. The researchers conducted structured interviews with women who delivered healthy newborns recently to collect data for the study. Between one and four days postpartum 79.8% of participants exclusively breastfed. The scholars did not report significant differences between participants who used formula or mixed feeding. Other findings included the following independent risk factors for reduced mixed and/or formula feeding at one to three days postpartum: Asian/Pacific Islander ethnicity, college graduate, and perceptions that breastfeeding was uncomfortable or physically painful (Wojcicki et al., 2010).

Meedya, Fahy, and Kable (2010) conducted a literature review to address the following research question: "What modifiable factors positively influence breastfeeding duration? (p. 135). Using keywords such as breastfeeding, initiation, duration, cessation, education, intervention, confidence, support, and self-efficacy, the authors performed a search of the following online platforms: New South Wales Department of Health, Cochrane Database, Medline, Science Direct, and CINAHL. The researchers critically examined articles published in the English between 2000 and 2009 to explore if a positive association existed between bio-psycho-social factors and prolonged breastfeeding. The articles included studies conducted using the following methods: random control trials, systematic reviews, and cohort studies. The researchers found the following factors impacted women's decision to breastfeed: social support, breastfeeding intention, and breastfeeding confidently. Breastfeeding intention was found to be the strongest factor associated with breastfeeding initiation and duration. The authors indicated education and interventions could increase and enhance breastfeeding practices and behaviors. Moreover, the researchers determined, "midwifery interventions aimed at promoting and

prolonging breastfeeding should positively modify the woman's breastfeeding intention, her social support, and her breastfeeding confidence" (Meedy, Fahy, & Kable, 2010, p. 144).

### **Maternal Breastfeeding Intention**

A number of variables were identified in the literature that influenced maternal intention to breastfeed, especially for the African American woman. A study conducted by Luttenbacher, Karp, and Moore (2015) provided evidence that breastfeeding was a learned skill which most women can perform with a few exceptions. The study highlighted two historical factors which may influence African American women's decisions to breastfeed: slavery and media.

Slavery is the first legacy, in which many African American women were used to wet nurse their slave owner's children, often leaving their own children hungry (Lutenbacher et al., 2016). Another factor involved the rise in popularity of formula feeding. This method became popular via the media during the 1950s among women in the upper and middle classes (Lutenbacher et al., 2016). Formula feeding at this time was viewed as a status symbol because many African American families could not afford to purchase expensive formula. Once formula companies began offering free samples to hospitals and formed partnerships with national nutrition programs such as the Women Infant and Children's (WIC) program, low-income families chose formula feeding as their method of feeding their infants, rather than breastfeeding (Lutenbacher et al., 2016).

Other variables indicated by the Centers for Disease Control evolved around the 2011 Maternity Practices in Infant Nutrition and Care (mPINC) survey, which found facilities with more than 12.2% African American population were less likely to implement three specific indicators; helping mothers to initiate breastfeeding early (46%), allowing infants to spend the majority of their time in the room with their mothers, room-in (27.7 % as compared to 39.4% in

other facilities), and limiting what infants drink to only breast milk (13.1% compared with 25.8%) (Adams, 2014). A systematic review conducted by Manno, Macdonald and Knight (2015) investigated predictors of breastfeeding behaviors in all populations not just African American women. Researchers concluded from this study that intergenerational breastfeeding continuity was consistently correlated with breastfeeding intention, initiation, and duration.

Using the mediation model approach, Nommsen-Rivers, Chantry, Cohen, and Dewey (2010) studied disparities in breastfeeding intentions among first-time mothers based on sociodemographic characteristics such as ethnicity. The scholars interviewed 532 expectant first-time mothers (41% white – non-Hispanic, 27% Hispanic, 14% African American, 12% Asian, and 6% mixed race or other ethnicity) to ascertain their exposure to breastfeeding, comfort level with breastfeeding and formula feeding, and breastfeeding self-efficacy. The data was analyzed using logistic regression. The goal of the study was to evaluate mediating and independent effects of the variables related to mothers' intention to fully breastfeed for at least six months. Among all participants, formula and breastfeeding comfort and breastfeeding self-efficacy were found to independently predict breastfeeding intention, with formula feeding comfort having the largest effect. Even though they experience similar rates of breastfeeding comfort, self-efficacy, and exposure when compared to mothers of other ethnic backgrounds, African American women reported the highest levels of formula feeding comfort. "Formula feeding comfort mediated 37% of the disparity in breastfeeding intentions between African American and non-African American women" (Nommsen-Rivers et al., 2010, p. 31).

The objective of Lewallen and Street's (2010) study was to explore the issues related to breastfeeding initiation and duration among African American women. The authors collected data by performing focus group interviews with self-identified African American women

residing in three regions (urban, suburban, and rural) of a southeastern state in the United States of America. Each of the 15 participants, recruited by lactation consultants, recently breastfed (currently or within the last 12 months) their children and were 18 years of age and older. Six of the participants were currently breastfeeding their children at the time of the study. Three major themes emerged during the study: lack of knowledge about breastfeeding benefits, managing the breastfeeding process, difficulties and discomfort breastfeeding in public, and lack of support or encouragement for breastfeeding. The researchers discovered the following reasons women started and/or stopped breastfeeding: type of advice women received about breastfeeding (useful or not useful) and cultural issues and stigmas associated with breastfeeding. The cultural issues and stigmas were more evident among African American participants. Based on the data analysis, the researchers concluded women need early interventions and continued support related to the breastfeeding benefits and management (Lewallen & Street, 2010).

### **Conclusion**

Even though research provided data about the short term and long term benefits of breastfeeding, initiation and duration rates need improvement. Several factors influence mothers' decisions to breastfeed: myths, support, and knowledge. In addition to the overall breastfeeding rates, gaps exist between African American women and those of other races and ethnic groups.

### **Chapter 3. Methodology**

This quality improvement project evaluated the effectiveness of an early postpartum follow-up program designed to decrease breastfeeding attrition rates among postpartum mothers in the first three weeks after delivery. Of special interest is the ability to identify if differences based on maternal characteristics such as age, ethnicity, race, or parity existed. During the antepartum period women were evaluated to determine if they were at high risk for early breastfeeding attrition.

#### **Study Aims**

This translational research study has the following three specific aims:

**Specific Aim I.** To implement a screening process for African-American women during the antepartum period that will identify women who are at risk for early breastfeeding attrition.

**Specific Aim II.** To implement a postpartum breastfeeding support intervention for African-American women between the ages 18 and 35 that will decrease the breastfeeding attrition rate.

**Specific Aim III.** To identify barriers to continued breastfeeding and provide support measures.

#### **Research Design**

The translational research design was used to conduct this study. As a relatively novel research method, translational research marries clinical research and scientific inquiry which gained prominence around 2000 (Khodyakov, Mikesell, Schraiber, Booth, & Bromley, 2016). This interdisciplinary research method, often used in the healthcare profession, describes scholarly exploration which expands from the bench to the bedside. Instead of conducting research in a laboratory, scholars using this method conduct studies in natural environments.

Researchers use this method to investigate medical interventions, the impact of new drugs or devices, or patient treatment options (Christian, 2015).

### **Clinical Research Questions**

**Clinical Question 1.** *What percentage of African American women ages 18 to 35, who receive an early postpartum intervention and support at one-week postpartum will continue to breastfeed at 3 weeks postpartum?*

**Clinical Question 2.** *What percentage of African American women ages 18 to 35, who received early postpartum intervention and support at one-week postpartum required referral for further support?*

**Clinical Question 3.** *Did the screening process identify African women ages 18 to 35 who were at risk for early breastfeeding attrition?*

**Clinical Question 4.** *What barriers were identified for African American women ages 18 to 35 that were associated with breastfeeding attrition?*

### **Setting**

This project was conducted at a privately owned obstetric practice located in an urban city in the southeastern region of the United States. The practice served a diverse population with approximately three hundred (300) clients per month. Although the focus of this project was aimed at decreasing the breastfeeding attrition rates for African-American women, all women whether they participated or not potentially benefited from the intervention.

### **Population and Sample**

A convenience sample of women who were patients at a private obstetrical practice in the southern region of the United States who planned to breastfeed and had due dates between May and September 2017 were recruited for this study. The physicians at the practice gave the

researcher permission to conduct the study at the location and provided a list of mothers who met the study criteria. The researcher had initial access to hundreds of mothers because the clinic served more than 300 expectant mothers monthly.

### **Variables**

The primary outcome variables for this study were breastfeeding initiation and duration. The breastfeeding intervention program was the dependent variable. The following themes were also addressed in the study: actual behavior control, attitude, breastfeeding, and perceived behavioral control. Actual behavior control represented a women's greater sense of control over the ability to breastfeed was demonstrated with the BAPT by a higher score. The positive and negative breastfeeding sentiment scales on the BAPT measured the attitudes of the participant's responses. Attrition and exclusive breastfeeding were evaluated during the one-week follow-up telephone call and at the home visit. Subjective norms were measured by the Social and Professional Support (SPS) scale on the BAPT. The high scores indicated strong support for breastfeeding. The BAPT evaluated behavioral control by measuring the woman's perception of the ease or difficulty projected in breastfeeding. The researcher used the Breastfeeding Attrition Prediction Tool (BAPT) to assess participants' risk for breastfeeding attrition. The baseline data collected was compared to actual breastfeeding rates collected three weeks after delivery.

### **Feasibility and Needs Assessment**

The clinic serves approximately three hundred (300) patients monthly with between twenty-five (25) and thirty (30) deliveries monthly. Patients represent various ethnic groups (African American, Hispanic, white, Asian, and multiracial) from a wide range of socio-economic backgrounds. The researcher offered the intervention, Postpartum Breastfeeding

Support Group, to all interested patients; however, the study focused on African American new mothers.

Considering the demographic data of participants, this study is needed. As discussed in the literature review, African American mothers exhibited lower rates of breastfeeding initiation and duration when compared to women of other ethnic groups. This study is needed to determine if early interventions positively impacted breastfeeding initiation and duration among African American women. Additionally, research also indicated mothers with support and education/training were more likely to breastfeed compared to those without encouragement or knowledge.

### **Budget and Costs**

The researcher developed the intervention and provided it to clients of the clinic free of charge. The clinic administrators granted the researcher access to the copier to print materials, meeting space, and telephone lines to contact patients. Home visits occurred at participants' homes.

### **Timeline**

The study was conducted between July and October 2017 (one month before and three weeks after deliveries between August and September 2017). The intervention, implementing the Postpartum Breastfeeding Support Group, occurred between July and October 2017. The researcher administered the Breastfeeding Attrition Prediction Tool to participants after they complete the informed consent form. Participants also received the Breastfeeding Information Tool Kit at that time. The clinic notified the researcher when participants delivered: the researcher called participants within one week of delivery to assess breastfeeding support needs and schedule the home visit/assessment within two weeks.

## **Project Phases**

The three phases of the project include planning or pre-intervention, intervention, and post-intervention phases.

### **Planning/Pre-Intervention Phase**

The planning/pre-intervention phase included creating and posting flyers in the office to inform patients about the Postpartum Breastfeeding Support Group (intervention) and the study. All patients at the clinic will have access to the Postpartum Breastfeeding Support Services regardless of their participation in the study. With help from the site manager and Certified Nurse Midwife (CNMW), the researcher identifies all of the African American female clients at the clinic with due dates between May and September 2017 who planned to breastfeed (25 – 30 deliveries were anticipated during this timeframe). The researcher compiled a list of potential participants to contact via phone or in person to describe the project. In addition to contacting potential participants via phone, the researcher made arrangements to meet with patients during their routine visits to share information about the study and collect signed informed consent forms.

### **Intervention Phase**

The Breastfeeding Attrition Prediction Tool (BAPT) was used to identify women during the antenatal period, who were at risk for early breastfeeding attrition. All participants received a Breastfeeding Information Toolkit and a follow-up phone call at one week postpartum. During the phone call participants were asked key Red Flag Questions that would indicate initial problems with breastfeeding.

#### **Red Flag Questions**

- i. # times per day baby is nursing

- ii. # wet diapers per day
- iii. # soiled diapers per day
- iv. Use of formula or water during this time
- v. Sore or bleeding nipples

Positive responses to these questions prompted an immediate referral to either a lactation consultant or pediatrician. If answers to questions indicated the need for immediate assessment, then the participant was referred for evaluation by a pediatrician. All Participants were asked to schedule a home support visit within the first two weeks following delivery. During this visit the Maternal Breastfeeding Evaluation Scale (MBES) and infant weight were used to evaluate Maternal Enjoyment and Role Attainment (14 items), Infant Satisfaction and Growth (8 items), and Lifestyle/Maternal Body Image (8 items).

### **Post-Intervention Phase**

Data entry, collection, and analysis; reporting the findings; and dissemination of the results occurred during the post-intervention phase.

### **Potential Risks, Benefits, and Human Participants Protection**

The researcher strictly adhered to Institutional Review Board protocols in regards to working with human subjects and expectations from the clinic. The researcher stored data in a secure location and will destroy the files after three years. Moreover, the researcher did not use identifying information to report the findings to protect participants' identity. The researcher used identification numbers to distinguish participants. The participants were not at risk due to their role in the study. Participants were not exposed to harm and could withdraw at any point in the process without penalty.

**Participant Motivation**

Participants received ten-dollar gift cards from a local merchant for completed participation in the project. The researcher purchased the cards and no outside funds or marketing information was used for the purchase of these tokens of appreciation.

**Consent**

All participants signed a consent form. Information on the consent was be provided about how to contact the researcher and contact information for the Georgia College IRB site. Participants were given a copy of the informed consent to keep for their records.

**Assent**

Not applicable. No minors were involved in this project.

**Risk and Data Security**

No formal names were recorded. Each participant was instructed to use their assigned code on all project forms. The researcher maintained these documents under double lock and key or password protected locations. Hard copy documents were filed in a specified two-drawer locked file cabinet and a locked door. Electronic files were stored on a password-protected computer. The principal investigator had sole access to the drawer and computer. All research records will be maintained for a minimum period of three years and shredded at the end of the three-year period.

**Benefits**

The project benefits participants by increasing their knowledge of the benefits of breastfeeding and providing support to new mothers. If the mothers initiate and continue breastfeeding, their infants will reap the benefits of breastfeeding such as reduced illness and

diseases. Participants may benefit from information and breastfeeding support during this project. Mothers willing to breastfeed may be more successful because of the support provided.

### **Data Collection Method**

Data was collected using interviews and responses to the Breastfeeding Attrition Tool (BPAT) and Maternal Breastfeeding Evaluation Scale.

#### **Interviews**

The researcher asked participants Red Flag questions to determine their success and comfort with breastfeeding within a week of delivery. Additionally, the researcher conducted home visits to administer the Breastfeeding Information Tool Kit and provide additional support for participants.

#### **Breastfeeding Attrition Tool (BPAT)**

The Breastfeeding Attrition Tool is an instrument designed to predict breastfeeding initiation and duration. The instrument measures the number of times and days a mother breastfeeds her child(ren) (Wambach, Aaronson, Breedlove, Domian, Rojjanasrirat, & Yeh, 2011).

#### **Maternal Breastfeeding Evaluation Scale**

Leff, Jefferis, and Gagne (1994) reported on the development and testing of an instrument to measure satisfaction with breastfeeding. The Maternal Breastfeeding Evaluation Scale (MBES) contains 30 items divided into three subscales: Maternal Enjoyment and Role Attainment (14 items), Infant Satisfaction and Growth (8 items), and Lifestyle/Maternal Body Image (8 items). This instrument was mailed to women in northern New England who had given birth within the past year. They were asked to consider their most recent breastfeeding experience when responding to the questions. Although not designed to predict the duration of

breastfeeding, *16 of the 30 items did discriminate between women who breastfed briefly (6 weeks or less) and women who breastfed longer than 6 weeks.*

### **Data Analysis Plan**

The researcher took notes during interviews and compiled the data manually. Data from the Breastfeeding Attrition Tool and Maternal Breastfeeding Evaluation Scale was entered into an Excel spreadsheet listing responses for the designated demographic variables, age, the level of education, the number of prior pregnancies, prior breastfeeding experience and location of residence. Next, the data was uploaded into the SPSS for analysis. The researcher conducted the following analysis: descriptive statistics, t-tests, and Chi-square tests. The results of data analysis determined if the intervention was successful and provided evidence of a change in breastfeeding attrition rates in the targeted population.

### **Conclusion**

A woman has a right to decide how she will provide nourishment for her infant. Many outside stimulants can negatively influence whether she chooses to breastfeed or bottle-feed her infant. She may not have sufficient support or accurate information to continue breastfeeding. Providing postpartum support and information about the benefits of breastfeeding can provide foundational knowledge to aid in continuing her choice to breastfeed her newborn. The research provides adequate documentation of the benefits of continuing to breastfeed for mother and infant and substantiates the positive impact interventions can have on the family and the community.

The researcher used convenience sampling select participants for the study. The expectant African American mothers attended an OB/GYN clinic in a metropolitan area of the southern region of the United States with anticipated delivery dates between May and September

2017 and planned to breastfeed. The researchers administered the Breastfeeding Attrition Tool and Maternal Breastfeeding Evaluation Scale and conducted interviews to assess breastfeeding initiation and duration during the first three weeks of their infants' lives. The qualitative data was coded and sorted. The quantitative data was analyzed using SPSS to run the following reports: descriptive statistics, t-tests, and Chi-square tests.

## Chapter 4. Research Findings

The results of this translational research design project on the effectiveness of early postpartum follow-up on breastfeeding attrition are presented in this chapter. The findings reported here include descriptive information concerning African American women between the ages of 18 and 35 who planned to breastfeed and had due dates between May 2017 and September 2017. Each participant completed the Breastfeeding Attrition Prediction Tool (BAPT) during a prenatal visit between 32 and 36 weeks gestation. Participants who remained in the study agreed to a brief telephone follow-up and completed the Maternal Breastfeeding Evaluation Scale (MBES) during the 3-week postpartum home visit. This chapter provides a thorough report of instruments used in the study, description of participants, the research findings.

Data collection began on May 23, 2017 with recruiting women during prenatal visits and collecting the BAPT. Approximately two weeks before the earliest delivery date, the researcher checked the OB/GYN electronic records and met with the midwives to determine if any of the participants delivered. If a participant had delivered and was one week postpartum, a follow-up phone call was made to introduce the “red flag” questions and schedule the three week home visit. The Maternal Breastfeeding Evaluation Scale (MBES), a thirty-item tool, divided into three subscales; Maternal Enjoyment, Infant Satisfaction and Lifestyle was used to collect data during the three-week postpartum visit. The MBES was analyzed using a score of 1 for strongly agree, up to 5 for strongly disagree. The terms worded negatively were reflected in the scoring. Those items were 3, 5, 8, 13,14 ,15,19, 22, 27, 28, and 29. Scores were reverse coded, by transforming the scores and subtracting each participant’s rating from 6 ( i.e., 1 becomes 5, 2, becomes 4, etc.).

### **Demography of Participants**

This convenience sample consisted of 26 participants who were clients of a privately owned OB-GYN inner-city practice in southeast region of the United States. Twenty-six (26) participants began the study and eighteen (18) completed both the study and follow-up intervention. Eight (8) participants were “lost to follow-up” (30%, N=26). The participants ranged in age from 19 to 37 years old, with a mean age of 25.42 years old. The characteristics of the participants’ are displayed in Appendix B. Income levels ranged from \$10,000 or less to \$55,000 a year with the lower income levels being 50% of the participant population. Fifty percent of women had breastfed before and fifty percent had never breastfed.

The Kruskal-Wallis analysis was performed to determine if any significant differences existed between the participants who were lost to follow-up and those completing the study. Variables collected and examined from the BAPT subscales included the following participant characteristics including: age, educational level, ethnicity, income, marital status, and type of provider. No significant difference was noted between these two groups with exception of income (  $H= 4.16 (1)$ ,  $p= 0.041$  with a mean rank of 15.84 of those remaining in the study and 9.75 for participants lost to follow-up). Participants who were lost to follow-up had a significantly lower income than participants who remained in the study. The correlation between the main outcome variable breastfeeding at follow-up was analyzed using Pearson Correlation and displayed in Appendix H.

Of the twenty-six (26) participants, eighteen (18) completed the study and the MBES tool. There were no significant correlation between the main outcome variable of breastfeeding at follow-up and the subscales of the Maternal Breastfeeding Evaluation scale. In addition, there were also no significant correlation between the subscales for the MBES and that of the BAPT.

## Findings

The findings for this study will be reported and organized by the four clinical research questions.

### Clinical Questions

**Clinical Question 1.** *What percentage of African American women ages 18 to 35, who receive an early postpartum intervention and support at one-week postpartum will continue to breastfeed at 3 weeks postpartum?*

The MBES instrument was used to measure breastfeeding satisfaction which was a strong indicator for the continuation of breastfeeding. Descriptive statistics were used to evaluate the results of the MBES subscales maternal enjoyment, and role attainment, infant satisfaction and growth and lifestyle/ maternal body image. Statistics at the 3-week follow-up showed 94% (N=17) of the mothers who initiated breastfeeding after delivery were still breastfeeding at the 3-week postpartum follow-up visit. There were no significant correlations between the subscales of the MBES and the subscales of the BAPT.

**Clinical Question 2.** *What percentage of African American women ages 18 to 35, who received early postpartum intervention and support at one-week postpartum required referral for further support?*

The seventeen participants who remained in the study did not require a referral or additional support during the study. The principal researcher provided continued support for each participant as needed throughout the project.

**Clinical Question 3.** *Did the screening process identify African women ages 18 to 35 who were at risk for early breastfeeding attrition?*

The BAPT in its original form was designed to identify women at risk for breastfeeding attrition. A Pearson Correlation Sig. (2-tailed) analysis of the data measured the relationship strength between the variables. Prior breastfeeding experience was negatively correlated with the BFC Control and there were no significant correlations between the outcome variable breastfeeding at follow-up and the subscales of the instrument. Age was negatively correlated with the BFC control. The Kruskal-Wallis analysis determined that with the exception of income there was no significant difference between the participants who were lost to follow-up and those who completed the study.  $H= 4.16 (1), p= 0.041$  with a Mean rank of 15.84 of those remaining in the study and 9.75 for participants lost to follow-up. Therefore, the project data did not support this clinical question.

**Clinical Question 4.** *What barriers were identified for African American women ages 18 to 35 that were associated with breastfeeding attrition?*

The Red Flagg questions used during the telephone follow-up identified four areas as barriers associated with breastfeeding attrition; sore nipples, lack of support, educational level, and low-income level. The participant who stopped breastfeeding by the 3-week postpartum visit had no previous breastfeeding experience and described sore nipples as the contributing factor leading to the cessation of breastfeeding. Table 1 displays the barrier data.

**Table 1. Breastfeeding Barriers**

Barrier	Percent (N=16)
Sore Nipples	50%
Lack of Support	27.5%
Education level	3.6%- (Grade School) 35.7 % - ( High School)
Income – ( remained in study) (lost to F/U)	15.84 % 9.75 %

## **Conclusion**

The participants of the study included twenty-six (26) women who recently delivered babies and were patients at the same privately-owned OB/GYN clinic in the southeast region of the United States. The mean age was 25.42 and fifty percent of the participants previously breastfed. No significant differences between mothers who breastfed and those who did not were reported based on income levels, the breastfeeding follow upscales of the Maternal Breastfeeding Evaluation scale, and MBES subscales of the BAPT. The interventions seems to increase participants' breastfeeding duration. Chapter 5 will include a discussion of the findings presented in this chapter.

## **Chapter 5. Conclusions, Discussion, and Suggestions for Future Research**

This translational project was structured to evaluate the effectiveness of an early postpartum intervention on breastfeeding attrition rates among African American women age 18-35. The research question addressed in this project was, *in African American women age 18 to 35 does an early breastfeeding support intervention at three weeks' postpartum, decrease breastfeeding attrition rates during the postpartum period.* This chapter includes a summary of the study, limitations, summary of findings, conclusions, and recommendations for future research.

### **Summary of the Study**

Even though physicians promote the benefits of breastfeeding and rates of breastfeeding increased overall in recent years, goals established by the Centers for Disease Control have not been met (CDC, 2017). Additionally, gaps exist between African American mothers and those from other ethnic backgrounds in terms of breastfeeding initiation and duration. Differences in breastfeeding behaviors are also evident based on educational background, socioeconomic status, and family or peer support (United States Breastfeeding Committee, 2018). The purpose of this translational project is to determine if an early postpartum intervention program decreases the breastfeeding attrition rate among postpartum mothers in the first three weeks after delivery. The research investigated breastfeeding patterns among mothers within three weeks of giving birth to determine potential factors contributing to breastfeeding cessation.

There were three specific aims for this project: (1) to implement a screening process for African American women during the antepartum period that will identify women who are at risk for early breastfeeding attrition, (2) to implement a postpartum breastfeeding intervention for African American women between the ages of 18 and 35 that will decrease the breastfeeding

attrition rate, and (3) to identify barriers to continued breastfeeding and provide support measures.

This project explored the use of an early postpartum intervention which was inclusive of a phone call follow-up at one-week postpartum, home visit at three-weeks postpartum, weighing the infant, a breastfeeding toolkit and 5 “red flag” questions to determine breastfeeding issues and barriers. The home visits and phone calls provide participants an opportunity to ask questions and receive one-to-one breastfeeding consultation. The population for this project was comprised of clients from an urban city in the southeastern United States in a privately owned obstetrical practice that serves a diverse population with approximately three hundred clients per month.

This study addressed the following clinical questions:

1. What percentage of African-American women between the ages 18 and 35 who receive an early postpartum intervention and support at one-week postpartum will continue to breastfeed at 3 weeks postpartum?
2. What percentage of African-American women between the ages 18 and 35, who received early postpartum intervention and support at one-week postpartum required referral for further support?
3. Did the screening process identify African-American women ages 18 to 35 who were at risk for early breastfeeding attrition?
4. What barriers were identified for African American women ages 18 to 35 that were associated with breastfeeding attrition?

The researcher administered the Breastfeeding Attrition Tool (BFAT) and Maternal Breastfeeding Evaluation Scale and conducted interviews with the participants. Demographic

information was collected along with analysis of the results of the responses to questions presented on the two instruments. Even though the study focused on the breastfeeding behaviors of African American patients of an OB/GYN clinic in the metropolitan area of an urban city in the southern region of the United States, all patients of the clinic could benefit from the intervention and were considered the population. However, the population was limited to patients expected to deliver their child(ren) between May and September 2017 between the ages of 18 and 35 years old, which resulted in twenty-six (26) participants for the entire duration of the study.

### **Reliability**

The internal consistency of the BAPT was conducted. Instrument reliability was tested with Cronbach alpha coefficient measures for each of the four subscales; Negative Breastfeeding Sentiment (NBS) Attitudinal Scale (.892), Positive Breastfeeding Sentiment (PBS) Attitudinal Scale (.611), Social and Professional Support Scale (SPS) (.903), and Breastfeeding Control Scale (BFC) (.640). The Cronbach alpha coefficient obtained for the Maternal Breastfeeding Evaluation Scale was (.582).

### **Limitations**

The primary limitation in this project was a small convenience sample size which focused on improving the breastfeeding attrition rates within an urban population of a privately owned obstetrical practice in an urban city. This is a small practice with limited staffing, two Medical Assistants, an Office Manager, one full-time Certified Nurse Midwife and one part-time Midwife. The Midwives were responsible for the managing prenatal care of approximately three hundred clients per month, as well as deliveries. The small sample size decreases the possibility of extending the obtained results for the given sample to the whole population and limits the

statistical power. Whether or not the BAPT was effective in determining in the prenatal period the possibility of breastfeeding attrition as it has been found to be in the postpartum period was undetermined because of the sample size. In addition, women who were undecided about breastfeeding may have been reluctant to participate for fear they would quit breastfeeding too soon. The 94-item BAPT instrument may have also been a deterrent to participation and contributed to the decrease in sample size by women feeling overwhelmed with the number of questions.

Another limitation of this project was the four-week time frame allotted for data collection. This time frame did not allow adequate time to analyze and study the effectiveness of an early postpartum intervention. The four-weeks did not allow for the implementation of problem-solving tactics in decreasing the number of lost to follow-up participants or to improve project outcomes. The use of time-series data is essential in evaluating and understanding the prediction of behavior of variables across various fields.

### **Summary of Findings**

The findings for each of the quantitative research questions indicated no significant differences emerged. Specifically, no significant differences existed between MBES and BAPT scores to determine if early postpartum interventions and support at one-week postpartum decreased breastfeeding attrition rates among African American women between the ages of 18 and 35 (Clinical Question 1). A significant difference did not exist for mothers still breastfeeding three weeks postpartum who received breastfeeding support among African American women between the ages of 18 and 35 (Clinical Question 2). A significant difference did not exist for mothers still breastfeeding at three weeks postpartum who previously planned to exclusively breastfeed among African American women between the ages of 18 and 35 (Clinical Question

3). Qualitative data was used to address Clinical Question 4: What barriers were identified for African American women between the ages 18 and 35 were associated with breastfeeding attrition? Participants reported lack of familial support and sore nipples as barriers associated with breastfeeding attrition. Additionally, participants to ceased breastfeeding within three weeks after delivery possess lower education levels (high school education).

### **Conclusions**

The following conclusions emerged to connect the findings to previously conducted research.

**Clinical Question 1.** *What percentage of African American women ages 18 to 35, who receive an early postpartum intervention and support at one-week postpartum will continue to breastfeed at 3 weeks postpartum?* The Maternal Breastfeeding Evaluation Scale (MBES) was used to measure breastfeeding satisfaction. By the 3-week postpartum visit 94 % of the participants had continued to breastfeed their infants. This tool contained 30 items divided into three subscales; Maternal Enjoyment and Role Attainment, Infant Satisfaction and Growth, and Lifestyle and Maternal Body Image. Descriptive statistics were used to evaluate the results of the MBES subscales maternal enjoyment, and role attainment, infant satisfaction and growth and lifestyle/ maternal body image. On the instrument, the eighteen participants had a mean score of 62.33 (SD = 4.53) (Range 54.0 to 68.00) for maternal enjoyment and role attainment, M 35.07 (SD =3.47) (Range 28.00 to 40.00) for infant satisfaction and growth and a M 32.23 (SD = 8.56) (Range 21.00 to 40.00) for lifestyle / maternal body image. Results obtained were significant for Maternal Enjoyment and Role Attainment with a mean of 62.23 (SD 4.53). Leff, Jefferis, and Gagne (1994) using the same tool for their study, mailed the instrument to women in northern New England who had given birth within the past year. Participants were asked to consider their

most recent breastfeeding experience in response to the questions. Although this tool was not originally designed to predict breastfeeding duration, *16 of the 30 items did discriminate between women who breastfed briefly (6 weeks or less) and women who breastfed longer than 6 weeks.* The statistical significance of maternal enjoyment could indicate a positive impact of an early postpartum intervention and support to the continuation of breastfeeding. The results of this study indicated participants who began breastfeeding continued to do so one-week postpartum and was consistent with the work of Johnson, Kirk, Rosenblum, and Muzik (2015) who conducted a study about breastfeeding initiation and duration during the first month of life in an urban setting. Appendix I. displays the MBES data

**Research Question 2.** *What percentage of African American women ages 18 to 35, who received early postpartum intervention and support at one-week postpartum required referral for further support?* Of the participants who remained in the study no one required a referral for additional postpartum support. Brand, Kothari and Stark (2011) in a similar study examining factors relating to early discontinuation of breastfeeding at 2 weeks postpartum, validate the importance of providing positive professional support, problem-solving and education, during the early postpartum period and its effect on the duration of breastfeeding. This is a significant finding for this project. Even though the participants did not request or require additional support to continue breastfeeding, they may have developed virtual networks. Considering the age of participants, it is likely they used social media and joined parenting groups. Social media and connecting to other mothers who breastfeed was reported as a contributing factor to breastfeeding initiation and duration among African American mothers (Asiodu, Waters, Dailey, Lee, & Lyndon, 2015).

**Clinical Question 3.** *Did the screening process identify African women ages 18 to 35 who were at risk for early breastfeeding attrition?* The Breastfeeding Attrition Prediction Tool (BAPT) is based on the Theory of Planned Behavior. The tool was originally designed to identify women at risk for breastfeeding attrition through the measurement of subjective norms, perceived behavioral control, infant feeding attitudes, and positive and negative prenatal attitudes about breastfeeding. The screening process using the BAPT tool did not definitively identify women at risk for early breastfeeding attrition in this project. Comparatively, Dick, Evans, Arthurs, Barnes, Caldwell, Hutchins et al. (2002) used the BAPT in a study with 269 women in North Carolina and Florida who planned to breastfeed for at least 8 weeks. In contrast, the BAPT was effective in predicting 78 % of women who stopped breastfeeding before 8 weeks and 68% of those who were still breastfeeding. Negative breastfeeding sentiments and control subscales were the only subscales with clinical significance in their study. A comparative analysis was conducted in this project to determine the significant differences between participants who were lost to follow-up (30%, N=26) and those who completed the study (N=18). Characteristic variables examined were age, educational level, ethnicity, income, type of health care provider, marital status, in addition to the BAPT subscales. No significant differences were discovered between these groups except for income, which was significantly lower for those participants reported as lost to follow-up. Johnson et al. (2015) also addressed the social and support systems used to encourage African American mothers to continue breastfeeding.

**Clinical Question 4.** *What barriers were identified for African American women ages 18 to 35 that were associated with breastfeeding attrition?* Despite the well-known benefits of breastfeeding for both infant and mother, the rates in the United States and Georgia continue to be below the Healthy People 2020 breastfeeding objectives. Several barriers were identified

during this project as hindrances to the continuation of breastfeeding and breastfeeding attrition.; sore nipples, lack of support, educational level and income. Thomson et al., (2017) longitudinal analysis of Delta Healthy Sprouts participants' measured breastfeeding intent, breastfeeding behaviors, initiation and duration in the postnatal period in three Mississippi counties. The analysis (N=82) discusses a home visiting project targeting a rural, southern population of African American mothers. Barriers identified as contributors to the low rates of 39% (21 of 54) initiation and short duration of breastfeeding were, low educational levels, low income and breastfeeding beliefs. Similar results were documented in a systematic review conducted by Manno, Macdonald and Knight (2015), which included culture and lack of familial support as barriers to breastfeeding initiation and duration. Brand, Kothari and Stark (2011) discuss in their study women who are of lower socioeconomic status as being less likely continue breastfeeding, partly due to the availability of the Women Infant & Children (WIC) supplemental food program. Other authors discussed peer support and facilities available for mothers to comfortably and privately breastfeed or extract milk after they returned to work as deterrents to the continuation of breastfeeding (Johnson, Kirk, Rosenblum, & Muzik, 2015).

### **Implications for Practice**

Breastfeeding attrition may be related to many factors. Women of all socioeconomic levels, race, marital status and demographic lines encounter barriers to breastfeeding. However, the findings in this project indicate the key contributors to breastfeeding attrition to be low income (as indicated by the BAPT), educational level, lack of support and sore nipples.

Evaluating the effectiveness of the BAPT instrument being administered during the last trimester of the pregnancy, compared with administering the tool during the immediate postpartum phase, would allow the nurse time to interact with the participant and possibly

prevent early breastfeeding attrition. Nurse and healthcare providers could then respond to any questions, listen for cues of anxiety regarding breastfeeding, and guide women through a positive process of breastfeeding initiation. Healthcare providers should make every effort to initiate the discussion of breastfeeding and provide supportive measures both prenatally and post-delivery to promote positive breastfeeding outcomes. Ultimately, mothers should be encouraged to involve their families early into the breastfeeding experience, prenatally and during the immediate post-partum period.

In addition, interventions should be aimed at populations less likely to initiate breastfeeding and those at risk for breastfeeding cessation, so infants can reap the benefits from the physical, psychological, and nutritional properties of breastmilk as suggested by the Healthy People 2020 objectives.

### **Future Research**

Replication of this study using a larger sample size and women from a community prenatal clinic may improve population diversity of the project. Although previous research has focused on identifying variables or barriers that influence breastfeeding attrition, further research is needed to test strategies which promote clinical interventions within the community. Using a prediction tool as a mechanism to identify variables leading to early attrition is one step, but the next step should be the development and evaluation of clinical interventions healthcare providers can implement in practice to increase breastfeeding duration.

### **Strengths**

There have been many studies evaluating the low rate of initiation and short duration of breastfeeding in the African-American population. Few have examined an African American women's perspective, behavior influences or strategies that influence breastfeeding. The

integration of home visits and breastfeeding toolkits early in the postpartum phase is an innovative strategy for providing support and improving breastfeeding rates. The home visits positively influenced breastfeeding beliefs and created social and environmental support for each participant. The breastfeeding toolkit provided culturally relevant education, which made breastfeeding more acceptable, convenient and the economical choice for infant feeding.

### **Summary**

Early breastfeeding cessation is commonly influenced by latching difficulties, painful breasts, fears of inadequate milk supply, lack of education about breastfeeding, low economic status and lack of environmental or familial support. Due to the many factors influencing whether or not a woman decides to breastfeed, the duration rates vary widely from the recommendation advised by the World Health Organization (WHO) and the Centers for Disease Control (CDC) of 6 months of exclusive breastfeeding. It is important to note that a woman's attitude towards breastfeeding, either negative or positive develops early in the pregnancy, and there is very little change during the pregnancy or immediate postpartum period. Mothers who planned to exclusively breastfeed felt more in control of their ability to breastfeed and had less negative views regarding breastfeeding as demonstrated by a higher breastfeeding sentiment and low negative breastfeeding sentiment on the BAPT. The Theory of Planned Behavior emphasizes evaluating behavior, perceived behavioral control, and social and professional support. Changing a women's behavior requires the implementation of positive interventions and influences which focus on providing support and enhancing her control over the ability to successfully breastfeed. The ascribed interventions which influence a change in attitude must occur early in the pregnancy and can successfully be introduced by the healthcare provider during the prenatal visit. Nurses and other healthcare professionals must make a concerted effort to dispel the myth

among African-American women that “*breastfeeding is for poor people*” to decrease the significant gap in breastfeeding rates within this population.

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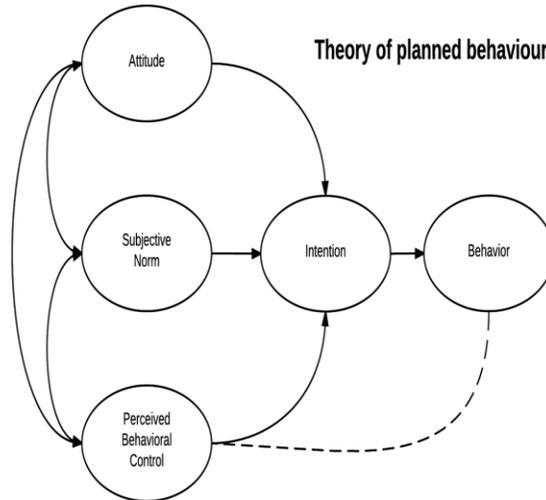
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## Appendix A

### Robert Orzanna



#### Attitude Toward Breastfeeding

- Painful
- Messy
- Time consuming
- Embarrassing
- Hard to do in Public

#### Subjective Norm

- Referent's disapproval of breastfeeding
- Lack of social support

#### Perceived Behavioral Control

- Low confidence in ability to breastfeed
- Low motivation
- Belief that breastfeeding is difficult
- Low commitment

## Appendix B

### INFORMED CONSENT

I, \_\_\_\_\_, agree to participate in the research, *Effectiveness of Early Postpartum Follow-up on Breastfeeding Attrition in African American Women Age 18-35* which is being conducted by Joyce Bouknight-Gant, MSN/Ed, RN, CLC, who can be reached at joyce.bouknightgant@bobcats.gcsu.edu. I understand that my participation is voluntary; I can withdraw my consent at any time. If I withdraw my consent, my data will not be used as part of the study and will be destroyed.

The following points have been explained to me:

1. The purpose of this study is determining if breastfeeding attrition rates will decrease with the implementation of an early postpartum follow-up and support intervention.
2. The procedures are as follows: you will be asked to complete two questionnaires, one at the beginning of the study and the second one after your baby delivers.
3. Your name will not be connected to your data. Therefore, the information gathered will be confidential. You will be given an ID number.
4. You will be asked to sign two identical consent forms. You must return one form to me before the study begins, and you may keep the other consent form for your records.
5. You may find that some questions are invasive or personal. If you become uncomfortable answering any questions, you may cease participation at that time.
6. This research project is being conducted because of its potential benefits, either to individuals or to humans in general. The expected benefits of this study include an increase in breastfeeding initiation with a continuance to at least 6 months and a decrease in breastfeeding attrition.
7. You are not likely to experience physical, psychological, social, or legal risks beyond those ordinarily encountered in daily life or during the performance of routine examinations or tests by participating in this study.
8. Your individual responses will be confidential and will not be released in any individually identifiable form without your prior consent unless required by law.
9. The investigator will answer any further questions about the research should you have them now or in the future (see above contact information).
10. In addition to the above, further information, including a full explanation of the purpose of this research, will be provided at the completion of the research project on request.
11. You will receive a \$ 10.00 gift card as a thank you from me at the end of the study.
12. By signing and returning this form, you are acknowledging that you are 18 years of age or older.

---

Signature of Investigator

Date

---

Signature of Participant

Date

## Appendix C

### Telephone Script

#### **Study Introduction:**

Hello, my name is Joyce Gant and I am a researcher at Georgia College and State University. I met with you before your baby was born. I am calling you today to see how things are going with you and your baby. Is this a good time for us to talk? Do I have your permission to ask a few questions?

Red Flag Questions to be asked:

I am going to ask you some questions that will help me to know how you and your baby are doing. Will that be ok with you?

**RED FLAG QUESTIONS** to be asked:

- .# times per day baby is nursing
- # wet diapers per day
- # soiled diapers per day
- Use of formula or water during this time
- Sore or bleeding nipples

#### **IF RED FLAG QUESTIONS Concerns then:**

If answers to questions indicate the need for immediate assessment, the participant will be referred for evaluation by pediatrician or emergency room.

I am concerned about (specific area of concern – the number of wet diapers per day that your baby is having). I would like to have you call your pediatrician or go to the emergency room and have the baby evaluated. What can I do to assist you in doing this?

#### **IF RED FLAG QUESTIONS DO not raise concerns, then the conversation would continue:**

From the answers to my questions it sounds like you and your baby are doing fine. I would like to schedule a time for your home visit. It will take place at a time of convenience for you within the next two weeks. During the visit I will be weighing your baby and asking the same questions that we just went over. I will also answer any questions you have about breastfeeding or caring for your baby.

At the end of the visit, I will ask you to complete a brief questionnaire about your experience feeding your baby.

#### **Closure Statement:**

If you have any questions or concerns after this call or visit, please feel free to contact me. My name is Joyce Gant and I can be reached at 404 913 0328 or by email [joycebouknightgant@bobcats.gcsu.edu](mailto:joycebouknightgant@bobcats.gcsu.edu).

Thank you for taking the time out of your busy schedule to speak to me today.

## Appendix D

### Breastfeeding Attrition Prediction Tool (BAPT)

PLEASE CIRCLE THE NUMBER THAT MOST CLOSELY DESCRIBES HOW YOU FEEL ABOUT EACH STATEMENT.

Strongly disagree      Strongly agree

- |  |             |
|--|-------------|
| 1. Breastfeeding is more convenient than formula feeding.                  | 1 2 3 4 5 6 |
| 2. Breastfeeding is painful.   |             |
| 3. Formula feeding allows the mother more freedom.                         |             |
| 4. Infant formula can cause allergies.                                     |             |
| 5. Breastmilk is healthy for the baby.                                     |             |
| 6. No one else can help feed the baby when you breastfeed.                 |             |
| 7. It is difficult to breastfeed in public.                                |             |
| 8. Formula fed babies tend to get sick.                                    |             |
| 9. Breastmilk is more nutritious than infant formula.                      |             |
| 10. Breastfeeding makes your breasts sag.                                  |             |
| 11. Formula feeding is easier than breastfeeding.                          |             |
| 12. Formula fed babies are more fussy than breastfed babies.               |             |
| 13. Breastfeeding makes you closer to your baby.                           |             |
| 14. Breastfeeding makes returning to work difficult                        |             |
| 15. Formula fed babies are easier to satisfy than breastfed babies.        |             |
| 16. Formula fed babies tend to be overweight.                              |             |
| 17. Breastfeeding is more economical than formula feeding.                 |             |
| 18. When you breastfeed you never know if the baby is getting enough milk. |             |
| 19. Mothers who formula feed get more rest than breastfeeding mothers.     |             |
| 20. Breastfeeding is natural.  |             |
| 21. Breastfeeding is more time consuming than formula feeding.             |             |
| 22. Formula feeding lets the father become close to the baby.              |             |
| 23. Infant formula can cause constipation.                                 |             |
| 24. Breastfeeding is best for the baby.                                    |             |
| 25. Breastfeeding is personally satisfying.                                |             |
| 26. Breastfeeding is messy.  |             |
| 27. Breastfeeding ties you down.   |             |
| 28. Breastfeeding helps you bond with your baby.                           |             |
| 29. Mothers who formula feed get back into shape sooner.                   |             |

FOR EACH OF THE FOLLOWING INDIVIDUALS INDICATE HOW MUCH THEY WANT YOU TO BREASTFEED.

- |  |               |
|--|---------------|
| Definitely NOT breastfeed              |               |
| Definitely Not Applicable              | 1 2 3 4 5 6 0 |
| 30. The baby's father thinks I should: |               |
| 31. My mother thinks I should:         |               |

32. My mother-in-law thinks I should:
33. My sister thinks I should: 1 2 3 4 5 6 0
34. My closest female friend thinks I should:
35. My doctor thinks I should:
36. My midwife thinks I should:
37. La Leche League thinks I should:
38. Your hospital nurses think I should:
39. Your baby's doctor think I should:
40. Your childbirth educator thinks I should:
41. Other relatives think I should:
42. People who are important to me think I should:

PLEASE INDICATE BELOW HOW IMPORTANT EACH OF THE FOLLOWING STATEMENTS ARE TO YOU.

NOT Important  
to me

Important  
to me

PLEASE CIRCLE THE NUMBER THAT MOST CLOSELY DESCRIBES HOW YOU FEEL ABOUT EACH STATEMENT.

Strongly  
disagree

Strongly  
agree

1. Breastfeeding is more convenient than formula feeding. 1 2 3 4 5 6
2. Breastfeeding is painful. 1 2 3 4 5 6
3. Formula feeding allows the mother more freedom. 1 2 3 4 5 6
4. Infant formula can cause allergies. 1 2 3 4 5 6
5. Breastmilk is healthy for the baby. 1 2 3 4 5 6
6. No one else can help feed the baby when you breastfeed. 1 2 3 4 5 6
7. It is difficult to breastfeed in public. 1 2 3 4 5 6
8. Formula fed babies tend to get sick. 1 2 3 4 5 6
9. Breastmilk is more nutritious than infant formula. 1 2 3 4 5 6
10. Breastfeeding makes your breasts sag. 1 2 3 4 5 6
11. Formula feeding is easier than breastfeeding. 1 2 3 4 5 6
12. Formula fed babies are more fussy than breastfed babies. 1 2 3 4 5 6
13. Breastfeeding makes you closer to your baby. 1 2 3 4 5 6
14. Breastfeeding makes returning to work difficult. 1 2 3 4 5 6
15. Formula fed babies are easier to satisfy than breastfed babies. 1 2 3 4 5 6
16. Formula fed babies tend to be overweight. 1 2 3 4 5 6
17. Breastfeeding is more economical than formula feeding. 1 2 3 4 5 6
18. When you breastfeed you never know if the baby is getting enough milk. 1 2 3 4 5 6
19. Mothers who formula feed get more rest than breastfeeding mothers. 1 2 3 4 5 6
20. Breastfeeding is natural. 1 2 3 4 5 6
21. Breastfeeding is more time consuming than formula feeding. 1 2 3 4 5 6
22. Formula feeding lets the father become close to the baby. 1 2 3 4 5 6
23. Infant formula can cause constipation. 1 2 3 4 5 6
24. Breastfeeding is best for the baby. 1 2 3 4 5 6

25. Breastfeeding is personally satisfying. 1 2 3 4 5 6
26. Breastfeeding is messy. 1 2 3 4 5 6
27. Breastfeeding ties you down. 1 2 3 4 5 6
28. Breastfeeding helps you bond with your baby. 1 2 3 4 5 6
29. Mothers who formula feed get back into shape sooner. 1 2 3 4 5 6

FOR EACH OF THE FOLLOWING INDIVIDUALS INDICATE HOW MUCH THEY WANT YOU TO BREASTFEED.

Definitely NOT breastfeed	Definitely breastfeed	Not Applicable
------------------------------	--------------------------	-------------------

30. The baby's father thinks I should: 1 2 3 4 5 6 0
31. My mother thinks I should: 1 2 3 4 5 6 0
32. My mother-in-law thinks I should: 1 2 3 4 5 6 0
33. My sister thinks I should: 1 2 3 4 5 6 0
34. My closest female friend thinks I should: 1 2 3 4 5 6 0
35. My doctor thinks I should: 1 2 3 4 5 6 0
36. My midwife thinks I should: 1 2 3 4 5 6 0
37. La Leche League thinks I should: 1 2 3 4 5 6 0
38. Your hospital nurses think I should: 1 2 3 4 5 6 0
39. Your baby's doctor think I should: 1 2 3 4 5 6 0
40. Your childbirth educator thinks I should: 1 2 3 4 5 6 0
41. Other relatives think I should: 1 2 3 4 5 6 0
42. People who are important to me think I should: 1 2 3 4 5 6 0

PLEASE INDICATE BELOW HOW IMPORTANT EACH OF THE FOLLOWING STATEMENTS ARE TO YOU.

NOT Important  
to me to me

43. Using a feeding method that is convenient is: 1 2 3 4 5 6
44. Using a feeding method that doesn't cause me pain is: 1 2 3 4 5 6
45. Using a feeding method that lets me have some freedom is: 1 2 3 4 5 6
46. Using a feeding method that won't cause allergies is: 1 2 3 4 5 6
47. Using a feeding method that is healthy for my baby is: 1 2 3 4 5 6
48. Using a feeding method that lets someone else feed my baby is: 1 2 3 4 5 6
49. Using a feeding method that is easy to do in public is: 1 2 3 4 5 6
50. Using a feeding method that protects my baby from getting sick is: 1 2 3 4 5 6
51. Using a feeding method that is nutritious is: 1 2 3 4 5 6
52. Using a feeding method that won't make my breasts sag is: 1 2 3 4 5 6
53. Using a feeding method that is easy is: 1 2 3 4 5 6
54. Using a feeding method that keeps my baby from being fussy is: 1 2 3 4 5 6
55. Using a feeding method that lets me be close to my baby is: 1 2 3 4 5 6
56. Using a feeding method that makes it easy to return to work is: 1 2 3 4 5 6
57. Using a feeding method that satisfies my baby is: 1 2 3 4 5 6
58. Using a feeding method that keeps my baby from being overweight is: 1 2 3 4 5 6
59. Using a feeding method that is economical is: 1 2 3 4 5 6
60. Using a feeding method where I know the baby is getting enough is: 1 2 3 4 5 6

61. Using a feeding method that lets me get lots of rest: 1 2 3 4 5 6
62. Using a feeding method that is natural is: 1 2 3 4 5 6
63. Using a feeding method that saves time is: 1 2 3 4 5 6
64. Using a feeding method that lets the father be close to the baby is: 1 2 3 4 5 6
65. Using a feeding method that doesn't cause constipation is: 1 2 3 4 5 6
66. Using a feeding method that is best for my baby is: 1 2 3 4 5 6
67. Using a feeding method that is personally satisfying is: 1 2 3 4 5 6
68. Using a feeding method that is not messy is: 1 2 3 4 5 6
69. Using a feeding method that doesn't tie me down is: 1 2 3 4 5 6
70. Using a feeding method that helps me bond with my baby is: 1 2 3 4 5 6
71. Using a feeding method that lets me get back into shape is: 1 2 3 4 5 6

HOW MUCH DO YOU CARE ABOUT THE FOLLOWING PEOPLES OPINION ON HOW YOU SHOULD FEED YOUR BABY?

Do not care at all	Care very much	Not Applicable
-----------------------	-------------------	-------------------

72. The baby's father 1 2 3 4 5 6 0
73. Your mother 1 2 3 4 5 6 0
74. Your mother-in-law 1 2 3 4 5 6 0
75. Your sister 1 2 3 4 5 6 0
76. Your closest female friend 1 2 3 4 5 6 0
77. Your doctor 1 2 3 4 5 6 0
78. Your midwife 1 2 3 4 5 6 0
79. La Leche League 1 2 3 4 5 6 0
80. Your hospital nurse 1 2 3 4 5 6 0
81. Your baby's doctor 1 2 3 4 5 6 0
82. Your childbirth educator 1 2 3 4 5 6 0
83. Other relatives 1 2 3 4 5 6 0
84. People who are important to you 1 2 3 4 5 6 0

PLEASE INDICATE THE DEGREE TO WHICH YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS.

Strongly

Disagree Agree

85. I have the necessary skills to breastfeed 1 2 3 4 5 6
86. I am physically able to breastfeed 1 2 3 4 5 6
87. I know how to breastfeed 1 2 3 4 5 6
88. I am emotionally ready to breastfeed 1 2 3 4 5 6
89. I am determined to breastfeed 1 2 3 4 5 6
90. I won't need help to breastfeed 1 2 3 4 5 6
91. I have total control over my breastfeeding 1 2 3 4 5 6
92. Breastfeeding is easy 1 2 3 4 5 6
93. I am confident I can breastfeed 1 2 3 4 5 6
94. I know I will have enough milk for the baby 1 2 3 4 5 6

DEMOGRAPHICS (not part of the BAPT ... this is what I used in my study, FYI)  
PLEASE CIRCLE THE CORRECT ANSWER OR FILL IN THE BLANKS FOR THE  
FOLLOWING QUESTIONS:

1. What is the PRIMARY method of infant feeding are you using with your new baby?
  - a. Breastfeeding (if circled, proceed to question #96)
  - b. Formula feeding (if circled, skip to question #100)
2. How long do you intend to breastfeed? \_\_\_\_\_
3. When did you decide you were going to breastfeed?
  - a. Before you became pregnant
  - b. During the first three months of your pregnancy (1st trimester)
  - c. During the middle three months of your pregnancy (2nd trimester)
  - d. During the last three months of your pregnancy (3rd trimester)
  - e. After the baby was born
4. How soon after the birth did you first breastfeed your infant? \_\_\_\_\_ (hours)
5. What was the main reason(s) you chose to breastfeed? (list as many reasons that apply)

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6. What is the birthdate of your newborn: \_\_\_\_\_
7. What type of birth did you have?
  - a. Vaginal birth
  - b. Cesarean birth
8. How much did your baby weigh at birth? \_\_\_\_pounds\_\_\_\_ ounces
9. What was your infant's sex? \_\_\_male \_\_\_female
10. Have you ever breastfed before?
  - a. Yes (if yes, proceed to question #105)
  - b. No (if no, skip to question #107)

## Appendix E

## Appendix I. Maternal Breastfeeding Evaluation Scale (MBFES)

If you breastfed more than one baby, base your answers on the most recent experience. Consider the overall breastfeeding experience, and please do not skip any questions.

Indicate your agreement or disagreement with each statement by circling the best answer:

SD = strongly disagree  
 D = disagree  
 N = no opinion or unsure  
 A = agree  
 SA = strongly agree

	Strongly Disagree				Strongly Agree
1. With breastfeeding I felt a sense of inner contentment.	SD	D	N	A	SA
2. Breastfeeding was a special time with my baby.	SD	D	N	A	SA
3. My baby wasn't interested in breastfeeding.	SD	D	N	A	SA
4. My baby loved to nurse.	SD	D	N	A	SA
5. It was a burden being my baby's main source of food.	SD	D	N	A	SA
6. I felt extremely close to my baby when I breastfed.	SD	D	N	A	SA
7. My baby was an eager breastfeeder.	SD	D	N	A	SA
8. Breastfeeding was physically draining.	SD	D	N	A	SA
9. It was important to me to be able to nurse.	SD	D	N	A	SA
10. While breastfeeding, my baby's growth was excellent.	SD	D	N	A	SA
11. My baby and I worked together to make breastfeeding go smoothly.	SD	D	N	A	SA
12. Breastfeeding was a very nurturing, maternal experience.	SD	D	N	A	SA
13. While breastfeeding, I felt self-conscious about my body.	SD	D	N	A	SA
14. With breastfeeding, I felt too tied down all the time.	SD	D	N	A	SA
15. While breastfeeding, I worried about my baby gaining enough weight.	SD	D	N	A	SA
16. Breastfeeding was soothing when my baby was upset or crying.	SD	D	N	A	SA
17. Breastfeeding was like a high of sorts.	SD	D	N	A	SA
18. The fact that I could produce the food to feed my own baby was very satisfying.	SD	D	N	A	SA
19. In the beginning, my baby had trouble breastfeeding.	SD	D	N	A	SA
20. Breastfeeding made me feel like a good mother.	SD	D	N	A	SA
21. I really enjoyed nursing.	SD	D	N	A	SA
22. While breastfeeding, I was anxious to have my body back.	SD	D	N	A	SA
23. Breastfeeding made me feel more confident as a mother.	SD	D	N	A	SA
24. My baby gained weight really well with breastmilk.	SD	D	N	A	SA
25. Breastfeeding made my baby feel more secure.	SD	D	N	A	SA
26. I could easily fit my baby's breastfeeding with my other activities.	SD	D	N	A	SA
27. Breastfeeding made me feel like a cow.	SD	D	N	A	SA
28. My baby did not relax while nursing.	SD	D	N	A	SA
29. Breastfeeding was emotionally draining.	SD	D	N	A	SA
30. Breastfeeding felt wonderful to me.	SD	D	N	A	SA

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## Appendix F

### Breastfeeding Tool Kit

#### 1. Your Guide to Breastfeeding

Resource: Office of Women's Health

#### 2. How to Continue Breastfeeding When You Can't Be with Your Baby (leaflet)

Resource: M.O.M. program by Playtex

#### 3. How to breastfeed your baby (leaflets)

a. holding your baby

b. latching on

c. burping your baby

Resource: AWHONN-Association of Women's Health Obstetric and Neonatal Nurses

#### 4. How to care for a baby's skin (leaflet)

Resource: AWHONN-Association of Women's Health Obstetric and Neonatal Nurses

#### 5. An Easy Guide to Breastfeeding for African American Women (booklet)

Resource: U. S. Department of Health and Human Services Office of Women's Health

#### 6. Growing Smart and Healthy Babies (booklet)

Resource: Georgia Department of Human Resources

#### 7. Signs that your baby is positioned poorly "Ouch" (bookmark)

**Signs that your baby is positioned well "Ahhh" (bookmark)**

Resource: Amy Spangler: amybabycompany.com

#### 8. Mini- Massager

Resource: Super Halifax Fashion

#### 9. Box of LilyPadz (breast pads)

Resource: [www.lilypadz.com](http://www.lilypadz.com)

**10. Mommie Ink Pen or Pencil**

**11. Breastfeeding Support Group Information**

Resource: Various organizations

**12. Infant Massage booklet**

Resource: Gerber

**13. Lactation Counselor contact information card**

**14. Participation “Thank you note”**

## Appendix G

### Demographic Characteristics of Participants

	N =26 Frequency (%)	M (SD)
<b>Age</b>		<b>25.42 (4.81)</b>
<b>Ethnicity</b>		
African American	24 ( 85.7%)	
Hispanic	1 (3.6%)	
Other	1 (3.6%)	
<b>Education</b>		
Grade School	1 (3.6%)	
High School	10 (35.7%)	
College 13-16	10 (35.7%)	
Graduate School	2 (7.1%)	
<b>Marital Status</b>		
Single	21 (75%)	
Married	5 (17.9%)	
Unknown/ Missing	2 (7.1%)	
<b>Prior Pregnancies</b>	10 ( 38.5%) 0 prior	
	7 (26.9%) 1 prior	
	7 (26.9%) 2 prior	
	1 (3.8%) 4 prior	
	1 (3.8%) 5 prior	
<b>Prior BF Experience</b>	13 ( 50%) Yes	
	13 ( 50%) No	
<b>Breastfed child in Past</b>		<b>4.72 (1.88)</b>

## Appendix H

### Outcome Variable: Breastfeeding at Follow-up

Variable	
Education	<p><math>r = 0.487, n = 16, p = 0.05</math>  <math>M = 2.85 (SD 1.047)</math>            This is a positive correlation as education level increase chance of BF at follow-up increases.</p>
Age	<p><math>r = 0.556, n = 16, p = 0.025</math>  <math>M = 25.42 (SD 4.810)</math>            This is a positive correlation as age increase chance of BF at follow-up increases.</p>
Prior Breastfeeding Experience	<p><math>r = 0.581, n = 16, p = 0.01</math>            This is a positive correlation, participants with past experience BF were more likely to be breastfeeding at follow-up.</p>
Income	<p><math>r = 0.613, n = 16, p = 0.012</math>            This is a positive correlation as income increase chance of BF at follow-up increases</p>

## Appendix I

### Maternal Breastfeeding Evaluation Scale (MBES)

Subscales	Mean (SD)
Maternal Enjoyment and Role Attainment	(14 items) M 62.23 (SD 4.53) (Range 54.00 to 68.00)
Infant Satisfaction and Growth	(8 items) M 35.07 (SD 3.47) ( Range 28.00 to 40.00)
Lifestyle/ Maternal Body Image	M 32.23 (SD 8.56) Range 21.00 to 40.00)

