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Intention to Breastfeed: Breastfeeding Attitudes, Norms, Self-Efficacy, Social Support Network and Community Resources of African American, Low-income, Emerging Adult Women, Pregnant for the First Time

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INTENTION TO BREASTFEED: BREASTFEEDING ATTITUDES, NORMS, SELF-EFFICACY, SOCIAL SUPPORT NETWORK AND COMMUNITY RESOURCES OF AFRICAN AMERICAN, LOW-INCOME, EMERGING ADULT WOMEN, PREGNANT FOR THE FIRST TIME

By

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When you see something that is not right, not fair, not just, say something! Do something! Get in trouble! Good trouble! Necessary trouble!

---John Lewis

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African American (AA) women continue to have the lowest rates of breastfeeding. This continues to create a health disparity even though breastfeeding is extensively recognized in the scientific and health care communities as the optimal feeding choice for infants. This study examined the relationship between the external variables (social support network and community resources) and the explanatory variables (attitudes, norms, and perceived self-efficacy) and intention to breastfeed, for the AA, first time, low-income, emerging adult pregnant woman. The Integrated Behavior Model (IBM) was used as the theoretical framework to guide this study in better understanding the variables influencing breastfeeding intention. Survey instruments, including the Iowa Infant Feeding Scale, Perceived Norms Scale, Breastfeeding Self Efficacy Scale- Short Form, Social Support Network Checklist and Community Resources Checklist; were completed with 60 self-identified African American women aged 18–30 (M = 26.47 years), with 9–17 (M = 12.8) years of education who were also in their last trimester of pregnancy. All participants were also primiparous and WIC eligible. Instruments were conducted at a one-time occurrence. A logistic regression analysis was used to determine the significant contribution of the external and explanatory variables on breastfeeding intention. Breastfeeding self-efficacy was found to be a statistically significant predictor of intention to breastfeed.

African American women such as our participants are critical partners as we develop systems of care to decrease disparities and increase African American women's successes with the breastfeeding behavior. These findings support the importance of having diverse, culturally sensitive mechanisms that support self-efficacy around intention of this behavior. Targeting self-efficacy with future interventional research is paramount.

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Chapter 1:

Introduction and Background of the Problem

African American (AA) women in the United States continue to have the lowest breastfeeding rates, compared to White non-Hispanic, Asian, American Indian, and Hispanic women. The low breastfeeding rates create a persistent health disparity [1] that is a particular problem for first time mothers, commonly in the emerging adulthood group. Breastfeeding is extensively recognized in the scientific and health care communities as the optimal feeding choice for infants due to the myriad of health benefits for maternal, infant and maternal-infant dyad outcomes[2,3,4,5]. Lack of sufficient breastfeeding and use of alternative artificial infant supplementation formulas have negative health outcomes such as infant mortality and obesity that already affect the AA community at much higher rates than that of the Caucasian community[6,7,8]. To many mothers, the idea of breastfeeding may seem natural and rather uncomplicated, but for AA women, it has been determined that some new mothers find the intention around the breastfeeding behavior quite foreign. AA new mothers' reluctance around the intention to breastfeed, a precursor to breastfeed behavior, is not fully understood and warrants a focus on cultural considerations[7,8,9,10,11,12,13,14].

Ethnic and/or cultural differences, specifically with AA families, have been determined to have a significant impact on their decision not to breastfeed; for example, it has been reported that AA women have, in comparison to their Caucasian counterparts, different attitudes, perceived norms and perceived self-efficacy related to breastfeeding[105,16,17,18]. There is also a need to analyze other variables apart from

perceptions and attitudes. Variables such as lack of or limited support from their social support network might have a significant impact, especially among new mothers[19,20]. For example, first time, single mothers who must single handedly provide for the child, might return to work shortly after giving birth as a necessity; this lack of social support from significant persons in their network may contribute to a negative attitude toward breast feeding[21,22,23]. In addition to significant social support persons, community resources used by this population may contribute to breastfeeding attitudes and intentions[16,17]. Although some studies have been conducted to elicit these variables for low-income mothers in general, little has been noted specific to the AA mother[16,17].

It is well understood that AA, low income, new mothers report financial and emotional stressors during the perinatal experience that are heightened by inadequate or incongruent social support from their partners and the greater community[16,18,21,24]. Young mothers, as emerging adults, may be especially vulnerable as this is a time period when they are seeking independence and moving through their own life stages, while also transitioning to motherhood[20,22]. Given these issues and the existing gap in breastfeeding rates, this study proposes to examine the attitudes, norms, perceived self-efficacy, social support network, community resources and intentions around breastfeeding for the AA, low-income, emerging adult woman pregnant for first time.

Significance

This study is significant in that it addresses a well-known health disparity, which is low infant breastfeeding rates among the AA community through a focus on intention to breastfeed, a precursor to breastfeeding behavior[14]. Breastfeeding reduces the likelihood of infant diarrheal episodes, ear infections early in life, influences a 35%

reduction in sudden infant death syndrome (SIDS); as well as reducing the risk of obesity and Type 2 Diabetes in adulthood [25,26]. Breastfeeding also has pertinent maternal health benefits including postpartum weight loss, a reduction in the risk for cardiovascular episodes, a reduction in the risk for Type 2 Diabetes and a reduction in the risk of several cancers[26,27]. In addition, breastfeeding facilitates mother-infant bonding, well known to enhance the long-term mother-child relationship and the child's overall development[26,28]. Even more concerning is that African Americans have the highest infant mortality when compared to all other race categories[29,30]. This study addressed Healthy People 2020/2030 specific breastfeeding goals related to this health inequity among African American women who are behind other ethnic groups[31,32]. Among the factors to be addressed, includes an infant care objective to increase the proportion of infants who are breastfed and to reduce the proportion of breastfed newborns who receive formula supplementation. This study also addressed ways to link the well-known, extensive health benefits of breastfeeding to behavior intention with the AA population, filling an existing health disparity gap.

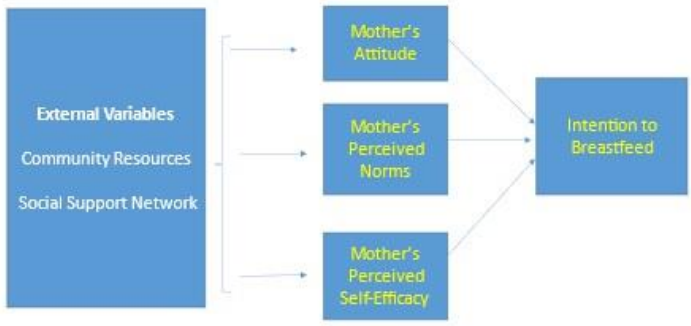
Innovation

This study was the first to consider cultural influences as indicated with breastfeeding perceptions and attitudes as well as the social support network on breastfeeding intention for the population of AA new mothers during pregnancy. This study also used an approach to focus on behavioral intent during pregnancy, rather than initiation and duration, which have failed to understand the behavior intention first. It is well understood that intention leads to behavior[14]. Based upon this premise, it is

important to connect breastfeeding feeding intention to breastfeeding initiation and ultimately duration in this population. However, the variables impacting feeding intention are yet to be analyzed from a cultural perspective of the AA population. A social support network of important persons in one's life as well as community resources around breastfeeding is also deemed as highly valuable and associated with success in breastfeeding initiation; however, understanding how social support networks and community resources influence beliefs and impacts breastfeeding intention in this population is imperative first. Cultural beliefs and attitudes influence health behavior; likewise, beliefs and attitudes around breastfeeding influence the breastfeeding decision and may have threads specific to this population. A solution is currently missing, that is specific to the necessities and health outcomes in this population which mirror a lack of breastfeeding acceptance.

The Integrative Behavior Model (IBM)[14] was used to guide this study in better understanding the variables influencing breastfeeding intention, including constructs from the Theory of Reasoned Action and the Theory of Planned Behavior (See Figure 1).

Figure 1: IBM Theoretical Framework Model.



The IBM framework was used because it weighs on behavioral beliefs influence on intention, which made it culturally relative to guide the study[14]. According to the IBM, behavioral intention is determined by three concepts, the first of which being attitude toward the behavior, summed up by beliefs based on previous experiences, influenced by cultural norms. The second concept found to impact behavioral intention is perceived norm, built upon the social pressure one feels to perform or not to perform a behavior. The third concept identified to impact behavioral intention is personal agency, represented as perceived self-efficacy for this study, indicating a perceived amount of control over one's behavior and one's degree of confidence, which is imperative to behavior intention[14,33]. The IBM supports the idea that behavior is also influenced by external factors, indicated as the demographic variables for this study[14,33].

Purpose of Study

Currently, most of the research is descriptive and/or exploratory, specific to the AA mothers' population and this study provided a new approach that utilized a regression design to predict behavior intention. The purpose of this quantitative predictive study was to connect variables and predict the behavior intention of breastfeeding. A central premise was that intent to breastfeed, leads to initiation of the behavior. It was first important to understand the explanatory variables (attitude, norms, perceived self-efficacy) related to intention of breastfeeding among AA, low income, new mothers. An understanding of explanatory variables was coupled with an understanding of how the selected external variables (social support network and community resources) were also related to intention of breastfeeding. The understanding of how the explanatory and external variables impact intention will guide a tailored intervention towards increasing establishment of the breastfeeding behavior among the AA population. To examine this, the following specific aim was proposed:

Aim 1: To examine the relationship between the external variables (breastfeeding social support network and community resources) and the explanatory variables (breastfeeding attitudes, subjective norms, and perceived self-efficacy for breastfeeding) and intention to breastfeed among AA, low-income, emerging adult women pregnant for the first-time.

Conclusion

This study sought to better understand the low breastfeeding rates, with a focus on breastfeeding intention specific to AA mothers, using a regression analysis. Even with

the extensive knowledge of the health benefits of breastfeeding, there continues to be a consistent disparity, with AA women having the lowest breastfeeding rates. The results of this study may serve to prepare for healthcare delivery that will ultimately reduce the existing disparity.

Four more chapters follow. Chapter II is a review of the literature, the selected variables and women meeting the criteria of this study. In Chapter II, the discussion on the gap in literature surrounding the influences for breastfeeding, specific to the AA woman will also be addressed, warranting the work of this study. In Chapter III, the topics discussed include the research design and specific details of how the study was conducted. The research results are provided in Chapter IV, followed by an interpretation of the findings in Chapter V.

Chapter 2

Review of Literature

This chapter reviewed the literature as it relates to the selected variables within the Integrated Behavior Model (IBM)[14] and the specific population of African American women. An overview of breastfeeding in relation to the external and explanatory variables will be reviewed. Database articles and research studies published between 2005-2021 from PubMed, CINAHL, Cochrane, Embase and PsychINFO were synthesized and analyzed to develop this literature review that was guided by the research aims and theoretical framework of this study.

Integrated Behavior Model

Clarifying the variables fundamental to the preference for adoption of a behavior is key to the advancement of a successful behavioral outcome, in this case breastfeeding. Although the IBM, with constructs of Theory of Reasoned Action and the Theory of Planned Behavior, is well known to support understanding behavior and even health behavior; it has yet to be used with breastfeeding intention of this population. Utilization of this theory was a suitable and viable technique in guiding the selection of relevant data and to ultimately propose explanations. As previously noted, the IBM framework was used because it weighs on behavioral beliefs and use of intention, which made it culturally relative to guide this study[33]. Additionally, the IBM notes behavioral intention to be determined by attitude toward the behavior, perceived norm toward the behavior and self-efficacy noted around behavior[14,33]. The IBM supports the idea that behavior is also influenced by other factors, indicated as the external variables for this study[14,33].

Additionally, there is evidence for the IBM in predicting the initiation of breastfeeding in several populations that included the AA population. IBM constructs were found to be influential with breastfeeding initiation in a sample that included Caucasian, Hispanic and African American Women, ages 18-45 years of age during their second and third trimesters[34]. The use of the IBM therefore was vital in interpreting and proposing an understanding of intention around breastfeeding for participants in this study.

External Variables

A variety of demographic characteristics have been reported in the literature with differing relationships to breastfeeding behavior. Some demographic characteristics such as education and socioeconomic status are essential variables because they may impact the level of information exposure, thus they are accounted for with the sampling in this study. Household composition (marital status) and employment status were also considered with this study to serve as descriptive indicators of the population.

Mothers who are more educated with higher sources of income are more likely to have exposure to and an understanding of the impact and importance around breastfeeding[15,35]. More so, mothers with more education are also more likely to be formally employed, which implies they can take maternity leave and may experience less barriers to breastfeeding[35]. In the limited studies conducted on breastfeeding intention with other population groups, education received specific to breastfeeding was a variable impacting breastfeeding intent; likely this variable would provide the same influence for this population[35,36]. Likewise, maternal education, marital status and employment level have all been found to be influential variables with breastfeeding duration with mothers in general and would likely be important for breastfeeding intention as well[37]. However,

education and employment status, both aspects of socioeconomic status, are controlled for with the sampling of only low-income women; therefore, these two demographic variables will only be described[15,35,37]. Other potential variables such as age, race identification and primiparity are well documented to influence both breastfeeding initiation and duration and are therefore, being accounted for with the participant selection criteria[35,36,37,38,39].

The external variables identified as salient for this study and that make-up part of the framework (in addition to the demographic characteristics) are the social support network and community resources. Some type of social support around the breastfeeding behavior and interactions with community resources for all mothers has proved valuable for both breastfeeding initiation and breastfeeding duration[41,42]. Support around breastfeeding for the AA mother has shown to be valuable for breastfeeding initiation, but at the same time social support has been reported as less likely to occur for these same women[24,40]. Some qualitative studies interviewing AA women report incongruent messages and a lack of availability from these support persons[24,42,43]. The available support persons within the network most likely to be identified by the AA population include the mothers' significant other and health care professionals; however these persons have also been noted to provide limited breastfeeding specific education and mixed messages by supplying free formula[23,24]. This suggests the importance of social support persons on new AA mothers' beliefs and attitudes toward breastfeeding. Household composition, implying marital status, is often an indicator of the social support network and subsequently a potential indicator of the degree of perceived support or help received from others. As noted above in demographics, it is an influential

variable to breastfeeding behavior. In this study, the focus was on the social support network as a whole, being influential to the breastfeeding intention. The premise is that the social support network might also affect breastfeeding intention in this population. Therefore, included as an external variable. Since the social support network will be addressed, the marital status variable, which is related to the social support network,[21] will only be described.

Community resources is noted as another salient external variable for the study. It is assumed that specific community resources could lead to greater breastfeeding intention among this population of women. When community sites or programs exist that support the breastfeeding behavior, women are positively influenced through peer support around this health behavior[12,16,44]. Communities that support the breastfeeding behavior may also be able to help with potential barriers. For example, community resources prior to and following delivery provide for a more seamless transition with health behaviors[12,16]. Additionally, communities and community sites supporting breastfeeding may also have resources and supports in place for persons making up the social support network, which in turn may influence the woman's decision around breastfeeding[6]. It is therefore warranted to examine community resources further.

Explanatory Variables

To predict breastfeeding intention, the salient explanatory variables were attitudes toward breastfeeding, subjective norms around breastfeeding and perceived self-control with the behavior, identified as self-efficacy in this study. It is essential to note in this review that although explanatory variables for women initiating breastfeeding have been

reported, most of this research has not been inclusive to the population this study addresses.

Breastfeeding Attitudes

Breastfeeding attitudes do exist that limit breastfeeding initiation or bring about untimely breastfeeding discontinuance. The literature around breastfeeding attitudes is quite limited with this population and is specific to breastfeeding initiation and maintenance. In examining the literature, beliefs and attitudes around breastfeeding were important and influential in breastfeeding behaviors and to initiation of breastfeeding. The literature indicates beliefs specific to milk production including the belief of perceived insufficient milk supply, leading to further beliefs that milk production was not satisfactory to meet the needs of the infant[6,8,10]. When new mothers were concerned about a lack of milk production, this was found to impede with both successful breastfeeding initiation and duration[7,10,11]. The belief that breastfeeding is painful also emerged from the literature. Pain associated with an improper latch has been highly reported as an indicator to cease breastfeeding[6,8,11,43]. Additionally, the belief that breastmilk may not satisfy the infant emerged. The idea of being able to ascertain infant signs of adequate intake also emerged as a key indicator in feeding attitudes and ultimately in effective breastfeeding initiation[43,45, 46]. When it was apparent that the infant was satisfied from the breastmilk, the use of supplementation was less likely and this led the mother to feel more confident[15,42]. These beliefs were consistent regardless of race, age or socioeconomic status and although they were noted specific to initiation and maintenance, it could be surmised they would influence breastfeeding intention in the same way[6,10,18,42].

The attitudes and beliefs are often negative and thus provides more justification for trying to understand how they influence intention to breastfeed. For example, it could be speculated that work-related situations, such as an early return to work and lack of parental leave, contribute to negative attitudes and are among the most important limitations to breastfeeding intentions. Current research does propose a greater expectation for returning to work, more immediately with this population and thus there is a need to study these attitudes around the breastfeeding behavior[35,37]. Parental leave arrangements are intended to improve the maternal-child bonding and wellbeing; however, access to parental leave accommodations may fluctuate for the women and their significant others in this population[37]. In addition to employment barriers, it has been noted the idea of competing priorities with demands of additional children, the home, school and a perceived lack of time for breastfeeding contribute to this overall sense of "competition" and may influence the attitudes, norms and perceived self-efficacy around the breastfeeding behavior[38,39]. African American women, especially those with a low income, return to work earlier than do women in other racial/ethnic groups and are more likely to experience challenges to breastfeeding, including inflexible work hours and a lack of accommodations by employers that are supportive of breastfeeding practices; potentially contributing to negative attitudes and the subjective norms around breastfeeding[40,42].

There are also situational and historical issues that may lead to negative attitudes and beliefs toward breastfeeding for this population. It has been noted that although public breastfeeding is an intended and supported practice with health regulating bodies, AA women are reported to have a negative perception of this health behavior outside of a

private space[47]. Many AA women consider this health behavior embarrassing or taboo and express overall discomfort with breastfeeding[45,46,47]. Negative historical factors are also associated with breastfeeding and have been shown to create unconscious biases among African Americans, in general, that influence attitudes toward the behavior and may impact the subjective norms within the community[45]. The breastfeeding behavior has been observed in African American history as associated with slavery and suppression, further complicating the contextualization around this health behavior[45]. Given these situational and historical issues, it is not surprising this population has reported negative attitudes toward the breastfeeding behaviors.

Breastfeeding Subjective Norms

When it comes to subjective norms, breastfeeding for AA women may be deemed as likely to not be supported by those within the social network or the greater community. African American women perceived social pressure from others to not engage in the breastfeeding behavior, impacting their own attitudes and self-efficacy[47]. These subjective norms emerge from foundational beliefs and emerge as a result of culture and overall life experiences; some AA women have noted, that while they believe breastfeeding is natural, it was still not regarded as culturally acceptable[45,47]. These subjective norms have also emerged from an unsupportive breastfeeding climate which has promoted the use of baby formula as the cultural norm[47,48]. Social support women get from their social networks around breastfeeding, for example, and perceived expectations around the breastfeeding behavior have been shown to have a significant impact on whether these women will continue to exclusively breastfeed[45,47,48]. It is

therefore likely that subjective norms about breastfeeding may contribute to intention, which is an antecedent to breastfeeding initiation and duration.

Breastfeeding Perceived Self-Efficacy

African American women have shown to have high confidence in their self-efficacy around the breastfeeding behavior, but this self-efficacy was also enhanced for those initiating the breastfeeding behavior (as opposed to initiating formula feeding) and those who had a social network confirming this self-efficacy[49,50]. Self-efficacy is well known to be a significant factor for all women who are successful with breastfeeding initiation and breastfeeding duration[15,37,46] and would likely be necessary for breastfeeding intention. However, there is a lack of evidence on the influence of self-efficacy on intention to breastfeed.

Relationship among Attitudes, Subjective Norms, Self-Efficacy, and Intention

There is some evidence supporting the relationship among attitudes, subjective norms, self-efficacy and breastfeed behavior; however, there is a paucity of evidence on these variables' influence on breastfeeding intentions in this population. Attitudes and perceived norms around the breastfeeding behavior are reported in the literature as influential to both breastfeeding initiation and breastfeeding duration and impact self-efficacy, but again the reports are limited for this population[6,14,35,36,37]. Further, negative perceptions of breastfeeding in the AA community were found to influence the woman's attitude and self-efficacy and directly impact the AA woman's decision to breastfeed[45]. Societal attitudes overall were found to have a greater impact on a mother's ability to decide as to whether to initiate breastfeeding or to continue breastfeeding up to an initial

period of six months and these attitudes were more likely to be negatively associated in the AA communities[1,47]. This denotes the impact of a woman's social environment, which amplifies her attitudes on breastfeeding and directly impacts the woman's perceived self-efficacy with the breastfeeding behavior. There is also evidence suggesting the importance of support. For example, African American women's attitudes towards the breastfeeding behavior were found to be enhanced through support groups, one-on-one support and mentoring by health care practitioners, which ultimately influenced self-efficacy[44,48]. With that being said, few studies have identified beliefs, specific to the AA community, with the understanding these beliefs are likely to impact the breastfeeding behavior of intention. Specific perceived norms for the AA population have also yet to be fully addressed, justifying the need for this study content.

Summary

The outcome of intention to breastfeed has shown to be an effective indicator leading to breastfeeding initiation for other groups of women[24]. Although there is a lack of evidence surrounding breastfeeding intention with the AA community, it could be surmised understanding the variables influencing intention, will be important before we can support initiation and maintenance of the behavior.

Chapter 3

Research Methods

Study Design

This predictive correlational study used a regression analysis to determine the significance of the selected external variables and explanatory variables on breastfeeding intention. This approach allowed for a better understanding of the breastfeeding behavior for AA women. The research plan, including the methodology, study participants, procedures, analysis method and ethical concerns are also primary components of this chapter.

Study Sample and Selection

The target population for this was study was AA, low-income women in the emerging adult age group and in their last trimester of their first pregnancy. The decision to be inclusive of the last trimester time frame was based on the proximity to making the infant feeding decision, congruent with the IBM model noting that behavior intention is more accurate, the closer it is observed to the behavior implementation[14]. A cross-sectional, convenience sample was used to recruit participants that met the eligibility criteria from Black Infant Health (BIH) and BreastfeedLA in Southern California. All participants were screened for eligibility based on the following inclusion criteria: must a) be women who are in their last trimester of pregnancy; b) be in emerging adulthood (18-30 years of age); c) represent themselves as African American; d) live at or below the U.S. poverty line (determined by Women, Infants & Children (WIC) eligibility); and e) be primiparous. Participants were excluded if they: a) had a chronic infectious disease

where breastfeeding is contraindicated (HIV, T-cell lymphotropic virus, Ebola, Hepatitis C) or needed to take a medication that is contraindicated with breastfeeding (Antineoplastics, Drugs of abuse, Some anticonvulsants, Sulfa drugs)[51]. Additionally, infant related conditions (known in-utero) that may interfere with breastfeeding or influence the infant feeding decision (ex. cleft palate, heart defect, neurologic sequela, etc.) were also excluded[51]. Primiparity and low-income status are known to be influential determinants of breastfeeding intention for all mothers and were controlled for through the sample selection process[52,53]. Women of child-bearing age can include a wide age range, also creating potential differences in matureness, that may impact health decisions. In addition to this age group being a common population for reduced breastfeeding rates, targeting only one stage of development (emerging adulthood) also controlled for some consistency with the level of maturity. Emerging adulthood is its own distinct period where persons are becoming independent and peers are more likely to influence health behavior decisions, which may also impact social support and norms, influencing breastfeeding intention[52,53,54].

There is little guidance in the literature concerning appropriate size of a predictive correlational study. Although a larger sample size is often valued, several factors were considered in deciding the research sample size[52,53]. One consideration was the homogeneity of the population, indicating when the population is relatively homogenous with respect to the characteristics, as in our case with selected participant criteria (race, age of participant, socioeconomic status, gestational age and primiparity); a small sample may be adequate[52,53]. Additionally, the number of variables and sensitivity of the measures impact the sample size, where some advocate somewhere between 10-20

subjects per variable or others advocate five times the number of variables, to accurately calculate power for later clinical trials[53,55,56,57]. Thus for 6 variables in analysis and to measure proportions of women who intend to breastfeed with a margin of error of no more than 0.15, under worst-case standard error; a sample size of 60 subjects was found to yield a margin of error of 0.14[53,55,56]. To further support this, the established measures used have proven to be sensitive in their ability to measure the identified concepts, also validating our sample size. Our sample of 60 subjects met the identified criteria for sample estimate effect size. A power analysis will be conducted for the primary aim(s) in the future, larger study.

Participant Recruitment and Enrollment

Participants were initially recruited through personal contact and through the Facebook pages of BreastfeedLA and the Orange County Breastfeeding Coalition. The "flyer" posted on both sites indicated the reason for the study, study criteria and contact information for the principal investigator (See Flyer in Appendices). The potential participants were provided a phone number to call or text if they were interested in the study and were interviewed by telephone to assess preliminary eligibility criteria. These methods were initially chosen as evidence supported the use of social media, specifically Facebook, as a means to reach the emerging adulthood population[58,59]. Historically, this population has been harder to reach due to high mobility and social media is a platform trusted and well used by the emerging adult group[59,60]. Additionally, the use of social media platforms allows for ease of connecting and sharing information more broadly to intended audiences[59,60,61]. However, recruitment from only these methods was slower than anticipated and did not result in the sample size needed. As noted, the slow

enrollment was approached by continual monitoring of the enrollment process and making adjustments to maximize participation. Additionally, slow enrollment was reviewed based on the reasons why participants were not able to enroll, which was primarily due to not meeting the gestational age criteria. This spurred an IRB revision, approved by the committee members, to change the inclusion criteria from the last month of pregnancy to the last trimester of pregnancy. An additional recruitment method was added with the community partner of Black Infant Health in both Long Beach, California and Los Angeles, California (See Letter of Support in Appendices). The PI was available to be on-site at Black Infant Health with flyers, provided potential participants with recruitment information and was able to verify preliminary eligibility. The recruitment plan for solely African American women was indicative of the current disparity in breastfeeding establishment within this population and additionally supported the current infant health inequities associated with a lack of breastfeeding in this population. Participants were able to self-identify with the characteristics required for the study and ultimately sixty participants were recruited and completed the study. Recruitment spanned a year time frame for completion overall, but once connected with Black Infant Health as a recruitment partner, full recruitment was completed in three months.

Once preliminary criteria were met, the PI and the participant set-up a meeting at a mutual site (per the participant request) to obtain the consent for participation in the study. After the partnership with Black Infant Health for recruitment, consent and study completion occurred at one time. Privacy was addressed by meeting in a space where the participant was comfortable to complete the tools. Additionally, confidentiality was maintained as the information was collected. As noted, the slow enrollment was

approached by continual monitoring of the enrollment process and making adjustments to maximize participation, as was done with the addition of Black Infant Health.

Protection of Human Subjects

Willingness to participate in the current study was verified through both verbal and written consent from the participants prior to implementation of the study instruments (See Consent in Appendices). The participants had the opportunity to not complete or answer all instruments of the study. Approval for the study was obtained from the University of Nebraska Medical Center's Institutional Review Board (IRB # 724-18-EP) prior to implementation of the study (See IRB Letter in Appendices). A brief overview of the study, including contact information for the PI was provided for any interested participants. No individual identifying information was obtained to allow for confidentiality when reporting. Participants were reminded of the potential benefits this research may have for the future of mother and baby outcomes. Participants were also reminded of the minimal to no risk associated with adherence to this study. The participants were given a five-dollar Target gift card upon completion of the survey instruments to compensate for their time to/from the study site and for their time during the survey completion. Financial incentives have been found to be motivating for potential participants with recruitment and have been noted as an approach that acknowledges participants for their time and effort[62]. Specifically, reasonable use of financial incentives has been found to contribute to minority participation without using coercion and affirming participants' value and the importance of their time and effort[62,63]. Some type of incentive has also been shown to equalize the burden placed on

participants, specifically minority participants in relation to time and travel for participation[63,64].

Participants were also reminded and given a copy of the educational institution's Rights of Participants as part of the consent form. To address the potential loss of confidentiality, all research materials were only handled by the PI and were linked with the data files by ID code only to assure anonymity. In addition, the participants' consent forms were kept in a locked file separate from the other study materials. All data collected using the subject ID numbers and paper forms were stored in a locked filing cabinet in the PI's office.

In addition, The American Nurse Code of Ethics, a noble and ethical code of conduct set forth by the American Nurses Association, was adhered to as well (See Code of Ethics in Appendices). This author strived to report all research findings accurately and without intentional bias.

Data Collection, Management and Analysis

Instruments were completed as a one-time occurrence, at a site convenient for the participant and mutually agreed upon. This was most often at the Black Infant Health services office. The PI collected data from the outlined measures via paper/pencil and once the instruments were completed, the information was added to the study database by the PI. The study variables including the instruments used are further described here. Instruments used for data collection in terms of alpha values, number of items and estimated time to complete are in Table 1.

Table 1: Study Variables and Instruments. *Alphas for the current study.

Study Variables, Instruments	Alpha Values	# Items	Est. Time
External Variables			
Demographic Profile	NA	4	4 min
Community Resources	NA	1	1 min
Social Support Network	NA	1	1 min
Explanatory Variables: Attitude and Beliefs			
-Breastfeeding Self-Efficacy Scale (Short Form BSES-SF)	.96 .93*	14	15 min
-Iowa Infant Feeding Attitude Scale (IIFAS)	.85-.86 .67*	17	20 min
-Measure for Subjective Norms	0.71*	4	5 min
Intention Outcomes			
-Item Intention Measure (BI) Mother	NA	1	2 min

Demographic Variables

The demographic profile, including factors that may have influenced the participants' answers were identified as age, education, marital status and professional or employment status. Participants were asked to indicate their age, in years. Participants were asked to indicate their highest degree or level of education completed with options for year in high school, year in college, and post-college. For current household status, participants were asked to indicate if they were single (never married), single never married, but in a partnership (living a majority of the time in separate households), single never married, but in a partnership (live the majority of the time in the same household),

married, widowed, or divorced. Participants were asked about their professional or employment status, including the main job/type of work and where they currently spend most of their time for a job/work. The participants were given seven options for employment options, including managerial/professional work, technical/sales work, administrative support work, service work, precision production/craft/repair work, operator/fabricator/laborer work and not working. Each option included a definition using specific work titles that may be within each category. Additionally, participants had an eighth option of "other" with a space to write-in an area of employment/work, if not indicated in the list provided. These four items took approximately up to four minutes for completion.

External Variables: Social Support Network and Community Resources

For the external variable of social support network, participants were asked to check which people they had who would help them to breastfeed. The explanation was given to participants that this could be a person available to do housework or other baby cares to allow the participant time to breastfeed. There were 5 potential support persons listed and participants had the option to choose as many persons as applicable. The provided support persons included spouse/significant other/boyfriend, mother, grandmother, girlfriend, or a nurse at a specific location. There was a sixth option noted as "other" with space to note whom that person was. The total number was determined based on participant responses, and all "marked" responses were added together to calculate a total score. Completion of the social support network took approximately up to one minute for completion of the measure.

A study-devised checklist format was used for participants to indicate which community resources were used. Participants were asked to identify community resources that they had used during the current pregnancy related to information around infant feeding and were able to check multiple options. There were seven potential community resource options including healthcare provider/OBGYN/Midwife, community health center, hospital-based classes, private community classes, Internet/online/mobile resources, information from a family member/friend and books. There was an eighth option listed as "other" with a space for notation if the previous options did not capture their use of resources. The first seven options also probed for specific comments if indicating use as a community resource, for example, if noting hospital-based classes, the participant was asked to list the site, if the participant listed family member/friend, the participant was asked to indicate the relationship. The total number was determined based on participant responses, and all "marked" responses were added together to calculate a total score. Completion of the community resources checklist took approximately up to one minute for completion.

Explanatory Variables

Breastfeeding Attitude. The explanatory variable of Breastfeeding Attitudes was measured with the Iowa Infant Feeding Attitude Scale (IIFAS). This scale was designed to cover various attitude dimensions of infant feeding with some questions written concerning the costs of infant feeding (Formula feeding is more expensive than breastfeeding), nutrition (Breast milk is the ideal food for babies), convenience (Formula feeding is preferred if returning to work) and infant bonding (Breastfeeding increased mother-infant bonding). When completing the scale, respondents were asked to indicate

their agreement with each statement on a 5-point Likert scale from "strongly disagree" to "strongly agree." The scale included 17 items, with half of the questions favorable toward breastfeeding and the others favorable toward formula use. This scale took approximately up to twenty minutes to complete for the participants. The total scale score was calculated by summing the responses for the 17 items. With the seventeen items on the IIFAS and the use of a five-point Likert scale, scores may range from 17-85 (higher scores reflecting a positive attitude towards breastfeeding).

Previous studies support the validity of the IIFAS in assessing attitudes towards infant feeding methods[65]. Construct validity was assessed by high correlations with measures of similar constructs[65]. Predictive validity was found as women's attitudes toward the chosen feeding method was correlated to their infant feeding method in the postpartum period[65]. The scale provides a valid assessment of attitudes toward the infant feeding method and was able to differentiate between women who planned to breastfeed their infants versus those who planned to formula feed[65]. Although the developers of the scale reported an alpha value of .85-.86, The Cronbach's alpha statistic was 0.672 for this study sample.

Breastfeeding Subjective Norms. The norms measure was devised following the guidelines of Azjen[14]. In the scale, participants were asked if most African American people in the community approved or disapproved of the breastfeeding behavior with potential responses using a Likert type scale with values from strongly disagree (-3) to strongly agree (3). Participants were also asked if most African American women in the community performed the breastfeeding behavior and if they (as the participants) were motivated to do what most African American persons in the community thought they

should do regarding the infant feeding decision. Again, participants had potential responses using a Likert type scale with values from strongly disagree (-3) to strongly agree (3). The measure for subjective norms included four items, taking participants up to five minutes for completion. The subjective norms variable was initially created by combining all 4 variables, but the motivation item did not correlate with the other three, so this item was removed. The composite score for subjective norms was subsequently created by combining 3 (of the 4), scales by adding them together (after the disapprove item was reverse scored). The Cronbach's alpha statistic was 0.71 for the remaining three variables, indicating an acceptable level for internal consistency.

Perceived Breastfeeding Self-efficacy. The explanatory variable of perceived self-efficacy was measured using the Breastfeeding Self-Efficacy Scale Short-Form (BSES-SF). The BSES-SF was used to assess breastfeeding confidence among mothers intending to breastfeed and has had extensive use and evaluation in a wide variety of settings and populations[66,67]. It consisted of 14 items intended to measure the participant's perceived ability to breastfeed her infant. All items were preceded by the phrase "I can always…" and used a five-point Likert scale for rating from 1 ("not at all confident") to 5 ("always confident"). The total scale score was calculated by summing responses for the 14 items. With the fourteen items on the BSES-SF and the use of a five-point Likert scale, scores may range from 14-70 (higher scores indicating confidence with breastfeeding), the participants were overall confident with the breastfeeding behavior with a mean around 51. This scale took participants approximately up to fifteen minutes to complete.

Content validity for the 14 item BSES-SF was judged by a panel of experts and obtained through qualitative interviews[66]. Predictive validity was demonstrated through positive correlations between BSES-SF scores and infant feeding patterns at 6 weeks postpartum and through significant mean differences between breastfeeding and bottle-feeding mothers at 4 and 8 weeks postpartum[67]. Construct validity was assessed using factor analysis, comparison of contrasted groups and correlations with measures of similar constructs[66,67]. The developers of the scale reported alpha values of 0.96. Consistently, the Cronbach's alpha statistic of 0.93 in this study with the BSES-SF, indicates a high internal reliability among the fourteen items. These values indicate this tool would be appropriate in determining self-efficacy for the breastfeeding behavior for this population.

Intention to Breastfeed. The intention measure was devised following the guidelines of Azjen[14]. The measure for intention included one item, taking participants approximately two minutes for completion. Participants were asked if they intended to breastfeed with potential responses on a Likert type scale from very unlikely (-3) to very likely (3). For analysis, breastfeeding intention, the dependent variable, was described as dichotomous (due to the limited spread of answers throughout the available responses); indicating participants who answered 3 (very likely) or those answering less than 3 (indicating some hesitancy) to the intention of breastfeeding. All tools used for the demographic, external and explanatory variables are listed in the appendices. (See Demographic Profile and Instruments in Appendices).

Data Management and Analysis

Data management was overseen by the PI through both data collection and entering data into an Excel (2019) document. During the data entering process, no missing data were noted, and all entries were verified, referring back to the participant surveys, identified with an anonymous study ID code. A regression analysis, specifically logistic regression, was conducted to evaluate whether attitudes, subjective norms, or perceived self-efficacy most notably influenced breastfeeding intention and whether these explanatory variables influenced breastfeeding intention over and above the effects of the selected external variables (social support network and community resources). In the statistical model, breastfeeding intention was treated as the dependent variable. The external variables that designate demographics (age, education, marital status and employment status) were described but were not included with the analysis. To address the aim, the external variables (social support network and community resources) and the scores of the explanatory variables (attitudes, perceived norms, perceived self-efficacy) were entered into the regression model, to determine statistical significance.

The intent of this analysis was to produce results that would indicate significant predictors of breastfeeding intention for the identified population. The decision rule for analysis for this study was based on previous literature [37,41,68] indicating known findings for some of the demographic variables and unknown findings for others as well as high correlations with some variables that will be controlled for with the sampling process.

Chapter 4

Results

IBM SPSS Statistics (2017) software version 25 was used to analyze the data. Both descriptive and inferential statistics such as frequency distribution, mean, median, standard deviation and regression were used to determine results of the study.

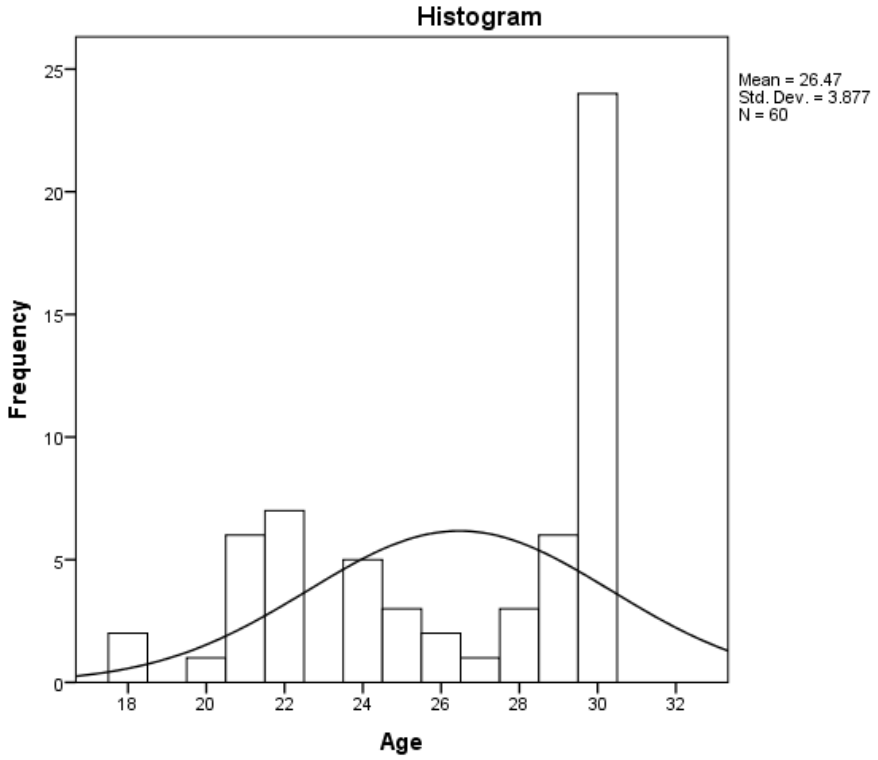
Characteristics of Sample

The sample was inclusive to 60 participants identifying as both women and African American. The participants ranged in age from 18-30 years, the mean age was 26.5 years (SD= 3.9), while the median and mode year were 28.5 and 30 years, respectively (See Table 2 and Figure 2).

Table 2: Descriptive Statistic of Age.

Statistics		
Age		
N	Valid	60
	Missing	0
Mean		26.47
Median		28.50
Mode		30
Std. Deviation		3.877
Minimum		18
Maximum		30

Figure 2: Histogram Distribution for Age. This appears to be left skewed as most of the respondents were around 30 years of age.



See Table 3 for other sample characteristics. The mean educational level for participants was 12.8 years (SD= 1.8), indicating the average participant had completed high school and possibly some college. Marital status varied: 22.8% of the participants were single, never married; 20.7% were married and 21.7% were single, never married, but in some type of partnership. Working status also varied: 21.7% of the participants were not working, 15.2% identified their professional or employment status as “other”, often citing school as the indicator and 14.1% and 21.7% indicated they worked in the

service field or as administrative support, respectively. As noted in the inclusion criteria previously, all participants were also WIC eligible and primiparous. Also as previously mentioned, participants were not included if they reported any of the exclusionary criteria. The participation agreement rate was extremely high at 98.9% with one refusal to participate due to time constraints. A more common reason for inability to participate was due to potential participants not meeting initial inclusion guidelines with 28.2% not meeting selection criteria. Of the participants not meeting selection criteria, the most common reason was due to not being in the last month of pregnancy. This was identified as a potential barrier to completion of the study and an IRB revision was then completed and approved to change the criterion to women in their last trimester of pregnancy. Additionally, of the participants not meeting selection criteria, 30.7% were ineligible due to being outside of the emerging adult age range of 18-30 years, 19.2% were not primiparous, 15.4% were not WIC eligible or did not know their status to self-identify in this way and 11.5% did not identify as African American. Of the potential participants not meeting selection criteria, 57.7% were excluded, based on more than one of the previously listed criteria.

Table 3: Demographic Characteristics. Characteristics as reported by participants (N=60).

CHARACTERISTICS	N	%
GENDER		
FEMALE	60	100
RACE		
AFRICAN AMERICAN	60	100
LIVING SITUATION		
SINGLE	20	33.3
SINGLE NEVER MARRIED, IN PARTNERSHIP, LIVE SEPARATELY	6	10
SINGLE NEVER MARRIED, IN PARTNERSHIP, LIVE TOGETHER	13	21.7
MARRIED	18	30
WIDOWED	0	0
DIVORCED	3	5
EMPLOYMENT STATUS		
MANAGERIAL/ PROFESSIONAL	6	10
TECHNICAL/SALES	1	1.6
ADMINSTRATIVE SUPPORT	14	23.3
SERVICE WORK	7	11.6
PRECISION/PRODUCTION/ CRAFT/REPAIR	0	0
OPERATOR/FABRICATOR/ LABORER WORK	0	0
OTHER	13	21.6
NOT WORKING	19	31.6
EDUCATIONAL STATUS		
HS YEAR 1	4	6.7
HS YEAR 2	0	0
HS YEAR 3	3	5.0
HS YEAR 4	17	28.3
COLLEGE YEAR 1	23	38.3
COLLEGE YEAR 2	4	6.7
COLLEGE YEAR 3	4	6.7
COLLEGE YEAR 4	3	5.0
POST-COLLEGE/OTHER	2	3.3

Descriptions of External and Explanatory Variable Measures

The means, standard deviations and ranges are provided below and in Table 4 for the main variables in the study.

Table 4: Participant Characteristics and Descriptive Statistics.

Variable		Mean (SD) or n (%)
Age		26.5 (3.9)
Self-efficacy		51.3 (11.8)
Attitude		55.8 (8.1)
Social support network		2.1 (1)
Community resources		2.6 (1.6)
Subjective norms		4 (3.9)
Breast feeding intention		2.3 (1.4)
Very Likely to Breastfeed		
	No	20 (33.3%)
	Yes	40 (66.7%)

Descriptions of External Variable Measures

Social Support Network

The mean for the social support network was 2.1 (SD=1), indicating on average, participants noted two persons within their social support network. The means, standard deviations and ranges for the individual items are in Table 5.

Table 5: Social Support Table.

Social Support Network	M	SD	Range
Spouse/Significant Other/Boyfriend	0.75	0.44	0-1
Mother	0.6	0.5	0-1
Grandmother	0.22	0.42	0-1
Girlfriend	0.22	0.42	0-1
Nurse/HCP	0.01	0.25	0-1
Other	0.27	0.45	0-1

Seventy-five percent of the participants reported a significant other/spouse or boyfriend as a member of their social support network. Sixty percent of the participants reported their own mothers as part of their social support network. They were least likely to select a health care professional, such as a nurse as a part of their social support network, with only 1% choosing this option. It is worth noting, 27% (SD=0.45) included the "other" category and 94% of these respondents wrote-in an identified support person. Of the write-in persons, 33.3% of the time this was a sibling and 26.7% of the time it was noted to be an agency (WIC and BIH were identified). The other support measures noted were friends and other family members (Aunt, Cousins, Nieces) at both 20% of the time.

Community Resources

As a whole, the mean for community resources was 2.6 (SD=1.6), indicating participants on average, noted somewhere between two and three community resources being used. The means, standard deviations and ranges for the individual items are in Table 6.

Table 6: Community Resources Table.

Community Resources	M	SD	Range
HCP/OBGYN/Midwife	0.78	0.42	1-8
Community Health Center	0.32	0.5	1-8
Hospital Based Classes	0.17	0.38	1-8
Private Community Classes	0.15	0.36	1-8
Internet or Online/Mobile Resources	0.37	0.49	1-8
Information from a Family Member/Friend	0.37	0.49	1-8
Books	0.27	0.45	1-8
Other	0.22	0.42	1-8

A little more than 78% of participants noted they had used a community resource during this pregnancy, such as a healthcare provider/OBGYN/Midwife for information around infant feeding practices. In addition, 36.7% of participants said they had used online/mobile resources and 36.7% had reported using information from a family member or friend, most notably the significant other, when reported. The participants were least likely to use hospital-based classes or private community classes to garner this information with only 16.7% and 15% reporting these uses, respectively.

Descriptions of Explanatory Variable Measures

Breastfeeding Attitudes

For this sample, the mean for breastfeeding attitudes was 55.8 (SD= 8.1), as answered by participants, meaning they were overall more favorable toward breastfeeding. The means, standard deviations, and range of scores for the individual items are in Table 7.

Table 7: IIFAS Scale Results. *Inversely scored.

	M	SD	Range of Scores
Question 1*	2.72	1.13	1-5
Question 2*	2.9	1.47	1-5
Question 3	4.48	0.97	1-5
Question 4*	2.13	1.19	1-5
Question 5	3.4	0.99	1-5
Question 6*	2.93	1.31	1-5
Question 7	3.25	1.26	1-5
Question 8*	1.88	1.66	1-5
Question 9	3.77	1.23	1-5
Question 10*	2.35	1.05	1-5
Question 11*	2.58	1.18	1-5
Question 12	4.25	1.08	1-5
Question 13	4.07	1.13	1-5
Question 14*	2.8	1.26	1-5
Question 15	3.72	1.18	1-5
Question 16	4.48	0.95	1-5
Question 17*	4.05	1.23	1-5
Total Score	55.76	8.08	17-85

Participants in this study scored most favorable to breastfeeding in the areas of its importance to mother-infant bonding (M=4.48, SD=0.97), cost effectiveness (M=4.48, SD=0.95) and the nutritional benefits of breastmilk (*M=2.72, SD=1.13). Participants in

this study were not as likely to view public breastfeeding as shameful or negative (*M=2.13, SD=1.19). However, participants were likely to feel that breastfeeding would interfere with some lifestyle choices, such as occasional alcohol use (*M=4.05, SD=1.23). The average total score of the scale was 55.8 (SD=8.1), as answered by participants. The total IIFAS score can range from 17 to 85 with higher scores reflecting a more positive attitude towards breastfeeding. The total IIFAS scores can be further categorized into groups: 1) positive to breastfeeding (score 70-85), 2) neutral to breastfeeding (score 49-69) and positive to formula feeding (score 17-48).

Subjective Norms

The mean for subjective norms was 4 (SD=3.9), as answered by participants. The means, standard deviations, and range of scores for the individual items are in Table 8.

Table 8: Subjective Norms Scale Results.

	M	SD	Range of Scores
Question 1	1.82	1.55	-3-3
Question 2	-1.03	1.59	-3-3
Question 3	1.12	1.71	-3-3
Question 4	0.18	2.07	-3-3

Almost 82% (M=1.82, SD=1.55) of the respondents reported they believed most African American people in their community approved of the breastfeeding behavior, which was validated with only about 15% (M= -1.03, SD=1.59) of the respondents believing most African American persons in their community would disapprove of the behavior.

Seventy percent (M=1.12, SD=1.71) of the respondents believed that most African American women in their community would perform the breastfeeding behavior and 43% (M=0.18, SD=2.07) of the respondents reported being motivated to do what most African American persons in their community thought they should do in regard to infant feeding. All scales were based on the responses of -3 to 3, indicating strongly disagree to strongly agree, respectively.

Breastfeeding Self-Efficacy

The mean for breastfeeding self-efficacy was 51.3 (SD=11.8), as answered by the participants. The means, standard deviations, and range of scores for the individual items are in Table 9.

Table 9: Breastfeeding Self-Efficacy Scale Results.

	M	SD	Range of Scores
Question 1	3.45	0.98	1-5
Question 2	3.68	1.11	1-5
Question 3	3.6	1.18	1-5
Question 4	3.72	1.19	1-5
Question 5	3.65	1.15	1-5
Question 6	3.38	1.15	1-5
Question 7	3.43	1.31	1-5
Question 8	4.05	1.25	1-5
Question 9	3.43	1.2	1-5
Question 10	4	1.10	1-5
Question 11	3.58	1.17	1-5
Question 12	3.78	1.09	1-5
Question 13	3.83	1.15	1-5
Question 14	3.63	1.07	1-5
Total Score	51.28	11.84	14-70

Respondents on this scale were most likely to feel confident and a comfortability breastfeeding with family members present (M=4.05, SD=1.25) and with being able to deal with the fact that breastfeeding can be time consuming (M=4, SD 1.10). These respondents were least likely to feel confident with being able to determine satiety for the baby with breastfeeding (M=3.45, SD=0.98). Additionally, these respondents were not as likely to feel confident with breastfeeding a crying baby (M=3.38, SD=1.15), not as likely to feel confident about the continuation of breastfeeding (M=3.43, SD=1.31) and not as likely to feel confident in feeling satisfied with the breastfeeding experience (M=3.43, SD=1.31). The average total score of the scale was 51.28 (SD=11.8), as answered by participants and the total BSES-SF score can range from 14 to 70 with higher scores reflective of greater levels of breastfeeding self-efficacy. There has only been one study done to further classify the ranges for a cut-off point and this was done with Japanese women[69]. The findings from this study indicated a cut-off point of at least 50. The BSES-SF for this study was noted to be an independent predictor of increased odds of breastfeeding intention.

Results Addressing Aim

The aim of this study was to examine the relationship between the external variables (sum of total number of persons in social support network providing support and sum of total number of community resources) and the explanatory variables (attitudes, norms, and perceived self-efficacy) and intention to breastfeed among AA, low-income, emerging adult women pregnant for first-time.

Logistic Regression

Logistic regression was a well-suited analytical technique for assessing and describing the outcome variable of intention to breastfeed. This technique was best for testing the association between the selected predictor variables and the outcome variable. It was important to include for this population, in order to assess which variables may be more influential to intention of the breastfeeding behavior, as limited information exists. As noted on the outcome variable, there were few responses outside of the I intend to breastfeed "likely" and "very likely" responses. With the limited responses spread throughout the remaining five available responses, it was beneficial to make the outcome variable dichotomous with a yes/no option (indicated by "very likely" and all other responses). It was concluded that an answer outside of "very likely" indicated some type of hesitation around breastfeeding intention and without the dichotomization, it would be difficult to make any inferences[70,71]. Using this method allowed for the eventual creation of an adjusted model indicating the variables most closely associated (positively and negatively) with the outcome of breastfeeding intention, an important precursor to the breastfeeding behavior.

Unadjusted Model Results

The following model displays the unadjusted analysis of the association between each variable and breastfeeding intention. Breastfeeding intention as the dependent variable was described as dichotomous, indicating participants who answered 3 (very likely) or those answering less than 3 (indicating some hesitancy) to the intention of breastfeeding (See Table 10).

Table 10: Unadjusted Model Results.

Variable	OR_CI	P
BSES	1.12 (1.04 - 1.21)	0.003
IIFAS	0.98 (0.91 – 1.05)	0.504
SS Network	1.33 (0.74 - 2.42)	0.340
Community Resources	0.95 (0.68 - 1.34)	0.770
Subjective Norms	1.22 (1.04 - 1.42)	0.014

Adjusted Model Results

The final model displays the adjusted analysis with variables most associated with breastfeeding intention (3 vs. <3). The final model shows that breast feeding self-efficacy (BSES-SF) is the one statistically significant independent predictor of increased odds of breastfeeding intention. Although not statistically significant, subjective norms had a p-value approaching significance at 0.06 (See Table 11).

Table 11: Adjusted Model Results.

Variable	OR_CI	P
Breastfeeding Self-Efficacy (BSES-SF)	1.15 (1.05 - 1.26)	0.003
Breastfeeding Attitudes (IIFAS)	0.99 (0.89 -1.09)	0.789
Social Support Network	1.68 (0.81 - 3.48)	0.162
Community Resources	0.72 (0.46 - 1.12)	0.147
Subjective Norms	1.23 (0.99 - 1.54)	0.064

Chapter 5

Discussion

Research that examines culturally relevant variables, specific to African American women, influencing breastfeeding intention is limited. However, it is imperative as a health disparity exists, that this is examined as part of our efforts toward health equity. This study sought to address the existing gap by focusing on a sample of 60 AA women, using a regression analysis to determine the significance of the selected variables with the intention to breastfeed. The purpose of this quantitative predictive study was to predict the behavior intention of breastfeeding, which will ultimately inform healthcare practice. A central premise was that intent to breastfeed leads to initiation of the behavior; therefore, understanding intention was first warranted. It was important to understand the explanatory variables (attitude, norms, perceived self-efficacy) related to intention of breastfeeding among AA, low income, new mothers. This understanding of explanatory variables was coupled with an awareness of how intention of breastfeeding was also impacted by selected external variables (social support network and community resources). The understanding of how these explanatory and external variables impact intention will guide a tailored intervention towards supporting breastfeeding intention, in hopes of ultimately increasing establishment of the breastfeeding behavior among the AA population. To examine this, the following specific aim was proposed:

Aim 1: To examine the relationship between the external variables (social support network and community resources) and the explanatory variables (attitudes,

norms, and perceived self-efficacy) and intention to breastfeed among AA, low-income, first-time mothers in emerging adulthood.

In relation to the aim, the results of this study demonstrate that one explanatory variable, breastfeeding self-efficacy, was influential to breast feeding intention in this sample of AA new mothers (based on the adjusted model). African American women in this study were most likely to feel confident and a comfortability breastfeeding with family members present and with being able to deal with the fact that breastfeeding can be time consuming. This somewhat differs from previous literature, which indicates this population often has a negative view of breastfeeding in public or without a private space[10,11,16,18]. These women were least likely to feel confident with being able to determine satiety for the baby with breastfeeding which is also consistent with previous literature as a fear of women, in general; with perceptions of not having enough milk[10,11,16,37]. Additionally, these women were not as likely to feel confident with breastfeeding a crying baby, not as likely to feel confident about the continuation of breastfeeding and not as likely to feel confident in feeling satisfied with the breastfeeding experience. The unveiling of this content may indicate areas where healthcare providers can focus their conversation around supporting self-efficacy for breastfeeding.

African American women in this study indicated greater self-efficacy for the behavior based on responses to breastfeeding self-efficacy. In addition, because breastfeeding self-efficacy was noted to be statistically significant for predicting intention to breastfeed; targeting self-efficacy for future interventional research, using a power analysis is paramount. This breastfeeding self-efficacy scale is a straight-forward

instrument that could be implemented quickly and in a cost-effective way to determine those with higher/lower self-efficacy. Using this as a precursor to breastfeeding intention, individuals could quickly be targeted with interventions to support the breastfeeding behavior.

When one examines the responses to individual items in the questionnaire, one has a greater understanding of these women. A considerable number of AA women in the study also noted garnering information from remote/online resources, so the delivery method of this instrument should be examined as well. It may be pertinent to also consider how health care providers can collaborate more effectively with this population, to be seen as a member of the overall social network in supporting self-efficacy around the breastfeeding behavior.

In addition, it is interesting to examine responses about significant persons in their networks. The social support 1 (spouse, significant other, boyfriend) and social support 6 ("other"- sibling, agency, aunt cousin) persons were most often noted as members of the social support network. With this information, it seems imperative that these noted support persons be included with breastfeeding education delivery. It may also be of value to seek questions/concerns around breastfeeding intention directly from these individuals of the social support network, in addition to the AA woman. Other persons were also noted as part of the social support network, including the woman's mother and on average the AA women noted two persons as the make-up of their social support network; indicating the importance of asking the woman to identify her own social support network that will provide support around breastfeeding intention. In the event

family or friends are not available as part of the social support network, building a trusting relationship with an HCP or community health center may also be impactful around support for breastfeeding intention.

Interestingly, most of the AA women were age 30, although the study was open to ages 18-30. It could be surmised that those in the lower age range of emerging adulthood, may still be living at home or provided resources as dependents. Possibly, those in the older age range of the emerging adulthood are more likely to be independent and seeking resources such as Black Infant Health, where most of the women were recruited from. Additionally, there was some word-of-mouth that occurred by the women themselves, so snowballing of participants around the same age may have occurred. Also interesting is that the hospital-based classes were not likely to be chosen as a community resource to garner breastfeeding information. It may be that this population tends to associate a hospital site with "sick care" as opposed to health promotion type of classes. It may also be a factor that many of the traditional hospital-based classes were built around delivery for target groups that did not include this population. These classes may have been delivered at times or days that were not accessible for those working outside of the home or without childcare. Additionally, the classes may have been initially developed to support the more traditional nuclear family and those that do not fit this mold, may not feel comfortable attending.

Most AA women in this study reported using some type of community health site or HCP as a resource around infant feeding, but they were not as likely to include the HCP as a member of their social support network for breastfeeding. These women may have been more likely to report using a community health site, as most of the survey

completions took place at BIH, which could be considered a community health site. These findings are congruent with previous literature and although previous studies show a general trust by AA communities of their community health sites; some sites, such as WIC have been described as providing AA women with mixed messages around the breastfeeding behavior[16,17]. The women in this study were least likely to use hospital-based classes and private community classes to garner information on breastfeeding, also consistent with previous studies.

Responses varied around breastfeeding attitudes, as some were consistent with previous literature, and some provided new opportunities for insight, with this population. Overall, the women in this study were more favorable to the breastfeeding behavior. The AA women in this study noted breastfeeding to be most important for mother-infant bonding, as a means for cost effectiveness and due to its nutritional value. Contrary to previous literature, AA women in this study were not as likely to view public breastfeeding as shameful or negative, indicating a potential shift in attitudes toward the breastfeeding behavior. Similar to previous literature, the women in this study were likely to feel that breastfeeding would interfere with some lifestyle choices, such as occasional alcohol use, supporting the circulating idea that breastfeeding may be viewed as restricting or not compatible with other lifestyle choices[8,10,11,16]. Overall, the AA women in this study would be neutral to the breastfeeding behavior, based on responses to breastfeeding attitudes. These results are important to note, as healthcare professionals may work to focus educational content in these areas or use these concepts to start a conversation with this population on the breastfeeding behavior.

Somewhat varied from previous accounts, the AA women viewed breastfeeding overall as a norm and as a positive behavior with less than half of the responses supporting the need to do what the community members might deem as appropriate. These scores may have also been high due to response bias, as the women knew the study was focused on breastfeeding and possibly responded how they thought they should respond rather than how they might have otherwise. However, the continued importance these women noted around breastfeeding should not be ignored and rather should be highlighted as part of the infant feeding education and support mechanisms provided to AA women.

In relation to the norms, a very high number of women in this study reported they believed most AA people in their community approved of the breastfeeding behavior and would perform the breastfeeding behavior. As mentioned, less than half of the women in this study reported being motivated to do what they perceived the community thought they should do around infant feeding. This information is valuable as it entertains the idea that internal motivation may play a large role with breastfeeding intention for many women in this population. This is also valuable to note as some literature has indicated health care providers may assume this population does not plan to breastfeed and mold their education and health care delivery around this idea[24,48]. These results are similar to women in other race categories, and health care provider interactions should mirror the infant feeding platforms provided to other groups.

Limitations of study

Sample and Generalizability

Limitations of the current study include the inclusion criteria and the convenience sample. Restrictions were placed on the women in this study, including age, primiparity and socioeconomic status. Therefore, the responses of these AA women are relevant only to their prescribed characteristics and findings may not be meaningful to other pregnant groups of AA women. Additionally, the convenience sampling, limits generalizability even to the specified population, as information was only obtained from those who responded to the flyer. The sample included 60 participants who identified as both a woman and African American. These participants ranged in age from 18-30 years of age with the average participant completing high school and possibly some college. All participants were WIC eligible, primiparous and denied any of the exclusion criteria that were identified as possibly contributing to the decision around the breastfeeding behavior. The criteria noted here, obviously lends itself to a specific demographic to which these findings can be generalized. In future studies there is a need to obtain data from a larger, more geographically diverse sample. Additionally, these limitations may also suggest that the results may not be uniform to other groups outside of the studied Southern California area. Due to the homogeneity of the demographic data, limitations in the ability to draw general conclusions may exist in this study.

The alpha for the IIFAS had minimal acceptable reliability. It is surmised this scale may not be culturally appropriate for this population, as currently written. The minimally acceptable reliability may have impacted the results of this study.

Implications for future research

We advocate for future intervention research targeting the self-efficacy. Another recommendation may include the examination of a more in-depth historical and socio-cultural approach to unveil additional underlying factors influencing breastfeeding practices with AA women. This may be pertinent as likely, no single intervention can sufficiently address the multiple impediments to the breastfeeding behavior, facing AA women. Additionally, a qualitative approach to better understand the infant feeding decision process with AA women may provide insights not noted with this quantitative work. It may also serve well to include AA women outside of the child-bearing age, as these women may be influential in the infant feeding decisions of current pregnant/early parenting mothers, as noted with the described social support network with this study.

A similar study, using these variables such as attitudes and norms, but targeting which members of the social support network are influential, may also be beneficial. Most often, the significant other was noted as a member of the social support network and was also most often described as male and the father of the baby. Being that this member of the social support network may be most likely to influence the breastfeeding behavior, a study to garner insight on their personal attitudes and norms around the breastfeeding behavior would be merited and compliment this work.

Likewise, a study focused on the same variables of attitudes, norms, perceived self-efficacy and external variables of community resources and social support network with a focus on the prediction of intention for formula feeding may also be valuable, as it will be just as imperative to understand these variables in relation to formula feeding intention.

With results of studies such as those previously mentioned, a tailored intervention study would be warranted to address a multi-targeted approach to link the well-known extensive health benefits of breastfeeding to the behavior and close the gap on the existing disparity. This study contributes to the growing body of knowledge about infant feeding by adding the unique variables impacting AA women around the intention to perform the behavior so early intervention my occur. Understanding the attitudes, norms, and perceived self-efficacy of this population with the overarching external variables that play a role, must be taken into consideration as we develop supportive interventions and re-design our health care systems to address such racial and ethnic disparities, like we are seeing with the breastfeeding behavior. The identification of both the use of remote/Internet options and the specific support persons of the network, noted to be influential, are also unique findings that will be important implications. Using this knowledge will be pertinent as we continue to develop and revise systems of care and educate/prepare health care providers to support AA women as they move through the continuum of the infant feeding process. Lastly, leveraging AA women as essential and imperative partners in health behavior, such as breastfeeding, is vital to move towards health equity.

References

1. Spencer, B., Wambach, K. & Domain, E. (2014). African American women's Breastfeeding experiences: Cultural, personal, and political voices. *Qualitative Health Research*, 31(1), 1-14. doi: 10.1177/1049732314554097

2. Armstrong, J. & Reilly, J.J. (2004). Breastfeeding and lowering the risk of childhood obesity. *Lancet*, 359(9322), 2003-2004. doi: 10.1016/S0140-6736(02)08837-2

3. Horta, B.L., Bahl, R., Martines, J.C. & Victoria, C.G. (2007). Evidence of the long-term effects of breastfeeding: Systematic reviews and Meta-analysis. WHO, Geneva.

4. Hauck, F.R., Moore, C.M., Herman, S.M., Donovan, M., Kalelkar, M., Christoffel, K.K., Hoffman, H.J., & Rowley, D. (2002). The contribution of prone sleeping position to the racial disparity in sudden infant death syndrome: The Chicago Infant Mortality Study. *Pediatrics*, 110(4), 772-780. doi: https://doi.org/10.1542/peds.110.4.772

5. Vennemann, M.M., Bajanowski, R., Brinkmann, B., Jorch, G., Yucesan, K., Sauerland, C. & Mitchell, E.A. (2009). Does breastfeeding reduce the risk of sudden infant Death syndrome? *Pediatrics*, 123(3), e406-410. doi: 10.1542/peds2008-2145

6. Bunik, M., Clark, L., Zimmer, L., Jimenez, L., O'Connor, M.E., Crane, L.A., Kempe,

A. (2006). Early infant feeding decisions in low-income Latinas. *Breastfeeding Medicine*, 1(4), 225-235. doi: 10.1089/bfm.2006.1.225

7. Chantry, C.J., Dewey, K.G., Peerson, J.M., Wagner, E.A., Nommsen-Rivers, L.A. (2014). In-hospital formula use increased early breastfeeding cessation among first-time mothers intending to exclusively breastfeed. *Journal of Pediatrics*, 164(6), 1339-1345. Doi: 10.1016/j.jpeds.2013.12.035

8. Nommsen-Rivers, L., Chantry, C., Cohen, R. & Dewey, G. (2010). Comfort with the idea of formula feeding helps explain ethnic disparity in breastfeeding intentions among expectant first-time mothers. *Breastfeeding Medicine*, 5(1), 25-33. doi: 10.1089/bfm.2009.0052

9. Khalessi, A., Reich, S.M. (2013). A month of breastfeeding associate with greater adherence to pediatric nutrition guidelines. *Journal of Reproductive and Infant Psychology*, 31(3), 299-308. doi: 10.1080/02646838.2013.784898

10. Chapman, D. (2010). Exploring breastfeeding ambivalence among low-income, Minority women. *Journal of Human Lactation*, 26(1), 82-83. doi: 10.1177/0890334409355773

11. Corbett, K.S. (2000). Explaining infant feeding style of low-income Black women. *Journal of Pediatric Nursing*, 15(2), 73-81.

https://doi.org/10.1053/jn.2000.5445

12. Gross, T.T., Powell, R., Anderson, A.K., Hall, J., Davis, M. & Hilyard, K. (2015). WIC peer counselors' perceptions of breastfeeding in African American women with lower incomes. *Journal of Human Lactation*, 31(1), 99-110. doi: 10.1177/0890334414561061

13. Kaufman, L., Deenadayalan, S. & Karpti, A. (2010). Breastfeeding ambivalence Among low-income African American and Puerto Rican women in North and Central Brooklyn. *Maternal and Child Health Journal*, 14(5), 696-704. doi: 10.1007/s10995-009-0499-5

14. Azjen, I. (2012). Handbook of theories of social psychology: The theory of Planned behavior (Vol, 1). New York, NY: Lawrence Erlbaum Associates.

15. Lewallen, L.P. & Street, D.J. (2010). Initiating and sustaining breastfeeding in African American women. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 39(6), 667-674. doi: 10.1111/j.1552-6909.2010.01196.x

16. Cottrell, B.H. & Detman, L.A. (2013). Breastfeeding concerns and experiences of African American MOTHERS. *MCN: The American Journal of Maternal Child Nursing*, 38(5), 297-304. doi: 10.1097/NMC.0b013e31829a5606

17. Cricco-Lizza, R. (2005). The milk of human kindness: Environmental and human

interactions in a WIC clinic that influence infant-feeding decisions of black women. *Qualitative Health Research*, 15(4), 525-538. https://doi.org/10.1177/1049732304273030

18. Fischer, T.P. & Olson, B.H. (2014). A qualitative study to understand cultural Factors affecting a mother's decision to breast or formula feed. *Journal of Human Lactation*, 30(2), 209-216. doi: 10.1177/0890334413508338

19. McLanahan, S., Haskins, R., Garfinkel, I., Mincy, R. & Donahue, E. (2010). Strengthening fragile families: The future of children. Retrieved in Brookings Institute Policy Brief retrieved from http://www.brookings.edu

20. Whitson, M.L., Martinez, A., Ayala, C. & Kaufman, J.S. (2011). Predictors of parenting and infant outcomes for impoverished adolescent parents. *Journal of Family Social Work*, 14(4), 284-297. doi: 10.1080/10522158.2011.587173

21. Wright, K.B., King, S. & Rosenberg, J. (2014). Functions of social support and self-Verification in association with loneliness, depression, and stress. *Journal of Health Communication*, 19(1), 82-99. https://doi.org/10.1080/10810730.2013.798385

22. Barr, A., Simons, R., Gordon Simmons, L., Gibbons, F. & Gerrard, M. (2013). Teen motherhood in and pregnancy prototypes: The role of social context in changing young African American mothers' risk images and contraceptive expectations.

Journal of Youth and Adolescence, 42(12), 1884-1897. doi: 1007/s10964-013-9912-x

23. Jefferson, U.T., Reed, A., & Rabbitte, M. (2021). African American mothers' decision to discontinue breastfeeding and switch to formula. *Western Journal of Nursing Research*. https://doi.org/10.1177/01939459211041164

24. Cricco-Lizza, R. (2006). Black non-Hispanic mothers' perceptions about the promotion of infant-feeding methods by nurses and physicians. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 35(2), 173-180. doi: 10.1111/j.1552-6909.2006.00033.x

25. Scariati, P.D., Grummer-Strawn, L.M. & Beck Fein, S. (1997). A longitudinal analysis of infant morbidity and the extent of breastfeeding in the United States. *Pediatrics*, 99(6), 1-5. doi: 10.1542/peds.99.6.e5

26. Dieterich, C.M., Felice, J.P., O'Sullivan, E. & Rasmussen, K.M. (2013). Breastfeeding and health outcomes for the mother-infant dyad. *Pediatric Clinics of North America*, 60, 31-48. doi: 10.1016/j.pcl.2012.09.010

27. United States Department of Health and Human Services, Centers for Disease Control And Prevention. (2014). Breastfeeding Report Card retrieved from https://www.cdc.gov/breastfeeding/pdf/2014breastfeedingreportcard.pdf

28. Eyer, D.E. (1994). Mother-infant bonding. *Human Nature*, 5(1), 69-94. doi:

https://doi.org/10.1007/BF02692192

29. United States Department of Health and Human Services, Centers for Disease Control And Prevention. (2014). Infant health: Data and statistics. Retrieved from https://www.cdc.gov/reproductivehealth/data_stats/index.htm

30. National Center for Health Statistics. (2013). Birth data. Retrieved from https://www.cdc.gov/reproductivehealth/data_stats/index.htm

31. Healthy People 2020. (2010). Maternal and family health priority overview of breastfeeding. Retrieved from www.healthypeople.gov/2020/topic/maternal-infant-and-child-health/objectives

32. Office of Disease Prevention and Health Promotion, Healthy People 2020. (2011). Maternal, infant and child health. Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and child-health/objectives

33. Glanz, K., Rimer, B.K. & Viswanath, K. (2008). Health behavior and health education: Theory, research, and practice (4th Ed.). San Francisco, CA: Jossey-Bass.

34. Evans, N., Yu-Lin, H., & Sheu, J-J. (2021). Path model validation of breastfeeding intention among pregnant women. *Journal of Obstetrical, Gynecological & Neonatal Nursing*, 50(2), 167-180. doi.org/10.1016/j.jogn.2020.10.007

35. Alexander, A., O'Riordan, M.A., Furman, L. (2010). Do breastfeeding intentions of pregnant inner-city teens and adult women differ? *Breastfeeding Medicine*, 5(6), 289-296. doi: 10.1089/bfm.2009.0083

36. Pollard, D. (2011). Impact of a feeding log on breastfeeding duration and exclusivity. *Maternal and Child Health Journal*, 15(3), 395-400. doi: 10.1007/s10995-010-0583-x

37. Taylor, J., Risica, P., Geller, L., Kirtania, U. & Cabral, H. (2006). Duration of breastfeeding among first-time mothers in the United States: Results of a national survey. *Acta Paediatrica*, 95(8), 980-984. doi: 10.1080/08035250600750064

38. Hinson, T. D., Skinner, A. C., Lich, K. H., & Spatz, D. L. (2018). Factors that influence breastfeeding initiation among African American women. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *47*(3), 290-300. doi: 10.1016/j.jogn.2018.02.007

39. Beauregard, J. L., Hamner, H. C., Chen, J., Avila-Rodriguez, W., Elam-Evans, L. D., & Perrine, C. G. (2019). Racial Disparities in breastfeeding initiation and duration among US infants born in 2015. *Morbidity and Mortality Weekly Report*, *68*(34), 745. doi: http://dx.doi.org/10.15585/mmwr.mm6834a3

40. Lutenbacher, M., Karp, S. M., & Moore, E. R. (2016). Reflections of Black Women Who Choose to Breastfeed: Influences, Challenges and Supports. Maternal Child Health Journal, 20, 231-239. doi: 10.1007/s10995-015-1822-y

41. Lee, C-Y & Goldstein, S.E. (2016). Loneliness, stress, and social support in young adulthood: Does the source of support matter? *Journal of Youth and Adolescence*, 45, 568-580. doi: 10.1007/s10964-015-0395-9

42. Johnson, A., Kirk, R., Rosenblum, K. L., & Muzik, M. (2015). Enhancing breastfeeding rates among African American women: A systematic review of current psychosocial interventions. *Breastfeeding Medicine, 10*(1), 45-62. doi: 10.1089/bfm.2014.0023

43. Hinson, T. D., Skinner, A. C., Lich, K. H., & Spatz, D. L. (2018). Factors that influence breastfeeding initiation among African American women. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *47*(3), 290-300. doi: 10.1016/j.jogn.2018.02.007

44. Campbell, L.A., Wan, J., Speck, P.M., Hartig, M.T. (2014). Women, Infant and Children (WIC) Peer counselor contact with first time breastfeeding mothers. *Public Health Nursing*, 31(1), 3-9. doi: 10.1111/phn.12055

45. DeVane-Johnson, S., Giscombe, C. W., Williams II, R., Fogel, C., & Thoyre, S. (2018). A qualitative study of social, cultural, and historical influences on African American women's infant-feeding practices. *The Journal of Perinatal Education*, *27*(2), 71-85. doi: 10.1891/1058-1243.27.2.71

46. Henshaw, E.J., Fried, R., Siskind, E., Newhouse, L., Cooper, M. (2015). Breastfeeding self-efficacy, mood, and breastfeeding outcomes among primiparous women. *Journal of Human Lactation*, 31(3), 511-518. doi:

10.1177/0890334415579654

47. Kim, J. H., Fiese, B. H., & Donovan, S. M. (2017). Breastfeeding is Natural but Not the Cultural Norm: A Mixed-Methods Study of First-Time Breastfeeding, African American Mothers Participating in WIC. *Journal of Nutrition Education and Behavior*, 49(7), S151-S161. doi: 10.1016/j.jneb.2017.04.003

48. Jones, K. M., Power, M. L., Queenan, J. T., & Schulkin, J. (2015). Racial and ethnic disparities in breastfeeding. *Breastfeeding medicine: the official journal of the Academy of Breastfeeding Medicine*, *10*(4), 186–196. doi: 10.1089/bfm.2014.0152

49. McCarter, D. & Gore, R. (2012). Social support improves breastfeeding self-efficacy in a sample of Black women. *Clinical Lactation*, 3(3), 114-117. doi: 10.1891/215805312807022923

50. Robinson, K.M. & VandeVusse, L. (2011). African American women's infant feeding choices: Prenatal breastfeeding self-efficacy and narratives from a Black feminist perspective. The Journal of Perinatal and Neonatal Nursing, 25(4), 320-329. doi: 10.1097/JPN.0b013e31821072fb

51. Centers for Disease Control and Prevention. (2020). Breastfeeding and special circumstances. Retrieved from https://www.cdc.gov/breastfeeding/breastfeeding-special-circumstances/index.html

52. Polit, D.F. & Hungler, B.P. (1999). Nursing research: Principles and methods. Lippincott Williams and Wilkins: Philadelphia, PA.

53. Hertzog, M.A. (2008). Considerations in determining sample size for pilot studies. Research in Nursing & Health, 31(2), 180-191. doi: 10.1002/nur.20247

54. Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469-480. doi.org:10.1037/0003-066x.55.5.469

55. Lackey, N.R. & Wingate, A.L. (1998). Advanced design in nursing research. Sage Publications: Washington D.C.

56. Kieser, M. & Wassmer, G. (1996). On the use of the upper confidence limit for the Variance from a pilot sample for sample size determination. *Biometrical Journal*, 38(8), 941-949. doi: 10.1002/bimj.4710380806

57. Bryant, F.B. & Yarnold, P.R. (1995). Principal-components analysis and exploratory And confirmatory factor analysis. Washington, D.C.: American Psychological Association.

58. Dauphin, C., Clark, N., Cadzow, R., Saad-Harfouche, F., Rodriguez, E., Glaser, K., ... & Erwin, D. (2020). #BlackBreastsMatter: Process evaluation of recruitment and engagement of pregnant African American women for a social media intervention study to increase breastfeeding. *Journal of medical Internet research, 22*(8), e16239. doi: 10.2196/16239

59. Arigo, D., Dagoto, S., Carter-Harris, L., Lillie, S.E. & Nebeker, C. (2018). Using social media for health research: Methodological and ethical considerations for

recruitment and intervention delivery. *Sage Journals, 4*. doi: 10.1177/2055207618771757

60. Hays, L., McSweeney, J., Mitchell, A., Bricker, C., Green, A. & Landes, R. (2020). Recruitment issues in emerging adult populations: Focus on adult congenital heart disease. *Nursing Reports*, 10, 135-145. doi: 10.3390/nursrep/10020017

61. Gelinas, L., Pierce, R., Winkler, S., Cohen, G., Lynch, H. & Bierer, B. (2017). Using social media as a research recruitment tool: Ethical issues and recommendations. The American Journal of Bioethics, 17(3), 3-14. doi: 10.1080/15265161.2016.1276644

62. Groth, S.W. (2010). Honorarium or coercion: Use of incentives for participants in clinical research. *Journal of the New York State Nurses Association*, 41(1), 11-22. doi: 10.2196/26548

63. Halpern, S.D., Karlawich, J.H., Casarett, D., Berlin, J.A. & Asch, D.A. (2004). Empirical assessment of whether moderate payments are undue or unjust inducements for participation in clinical trials. *Archives of Internal Medicine*, 164(7), 801-803. doi: 10.1001/archinte.164.7.801

64. Russell, M.L., Moralejo, D.G. & Burgess, E.D. (2000). Paying research subjects: Participants' perspectives. Journal of Medical Ethics, 26(2), 126-130. doi: 10.1136/jme.26.2126

65. De La Mora, A., Russell, D.W., Dungy, C.I., Losch, M. & Dusdieker, L. (1999). The Iowa infant feeding attitude scale: Analysis of reliability and validity. *Journal of*

Applied Social Psychology, 29(11), 2362-2380. doi: 10.1111/j.1559-1816.1999.tb00115.x

66. Dennis, C.L. (2003). The breastfeeding self-efficacy scale: Psychometric assessment of the short form. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 32(6), 734-744. doi: 10.1177/0884217503258459

67. Dennis, C-L., Heaman, M., & Mossman, M. (2011). Psychometric testing of the breastfeeding self-efficacy scale- short form among adolescents. The Journal of Adolescent Health, 49(3), 265-271. doi: 10.1016/j.jadohealth.2010.12.015

68. Taylor, J., Risica, P., Geller, L., Kirtania, U. & Cabral, H. (2006). Duration of breastfeeding among first-time mothers in the United States: Results of a national survey. *Acta Paediatrica*, 95(8), 980-984. doi:10.1080/0803525060075006

69. Nanishi, K., Green, J., Taguri, M & Jimba, M. (2015). Determining a cut-off point for scores of the Breastfeeding Self-Efficacy scale- Short Form: Secondary data analysis of and intervention study in Japan. PLOS One, 10(6), e0129698. doi: 10.1371/journal.pone.0129698

70. MacCallum, R.C., Zhang, S., Preacher, K.J., & Rucker, D.D. 2002. On the practice of dichotomization of quantitative variables. Psychological Methods, 7(1): 19-40. doi: 10.1037/1082-989x.7.1.19

71. DeCoster, J., Iselin, A-M.R., & Gallucci, M. 2009. A conceptual and empirical examination of justifications for dichotomization. Psychological Methods, 14(4): 349-366. doi: 10.1037/a0016956

Appendices

Social Media Flyer

Facebook Recruitment:

Limit of 50 characters for the headline and 63,000 characters for the body text.

Study on Breastfeeding

I am a doctoral student studying breastfeeding and have worked many years in maternal-child health and community health. I am working on a research study titled Intention to Breastfeed: Breastfeeding Attitudes of African American, Low-Income, New Mothers, IRB#724-18-EP. BreastfeedLA/Orange County Breastfeeding Coalition has allowed me to tell you about the study here. You may be able to be in the research study if you are a woman who is African American, eligible for WIC, in your last trimester of pregnancy, age 18-30 and a first-time mother. You will be asked to take about 45 minutes of your time to answer some questions about breastfeeding at a convenient location. This information may help health care providers understand your ideas about breastfeeding. Want to know more? Text privately here 949-836-9554.

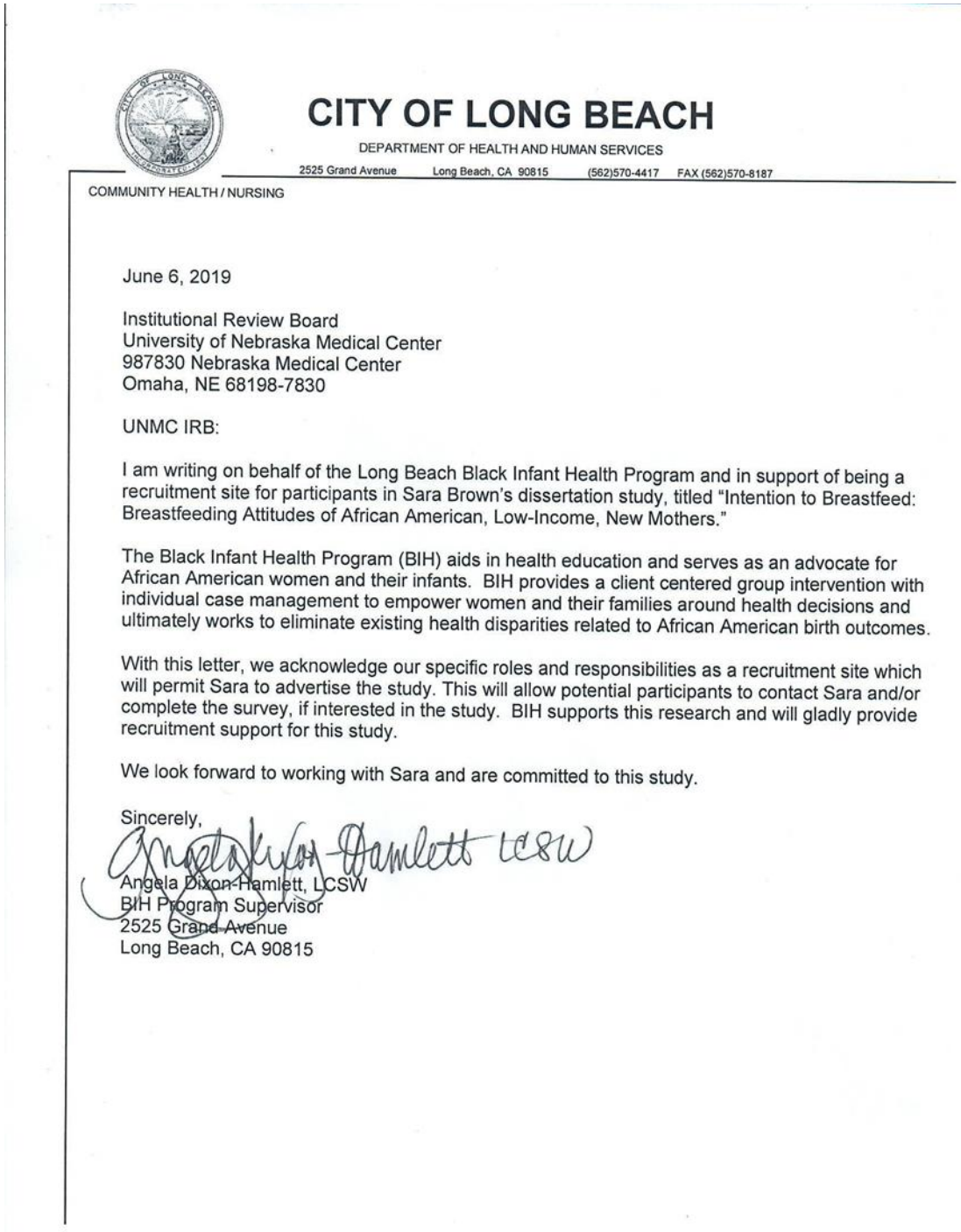
Script for Follow-Up:

PI: Hello, this is Sara Brown, a doctoral student and I have received your name and phone number as someone who may be interested in my research study on breastfeeding. (Review criteria with potential participant here):

For this study, we want you to share similar experiences with other women, so I will ask you some questions. All participants must a) be women who are in their last trimester of pregnancy; b) be 18-30 years of age; c) see themselves as African American; d) live at for below the U.S. poverty guideline (determined by WIC eligibility); e) be a first-time mother. You will not be able to be a part of this research study if you a) have a condition where breastfeeding is not recommended, or you need to take a medication that is not recommended with breastfeeding. Additionally, infant related conditions (known during pregnancy) that may affect breastfeeding or play a role in how you feed your child, will also not allow you to be a part of the study. Has your doctor or midwife talked to you about anything like this? What questions do you have for me?

PI: You are invited to be part of the research study if you are interested. There is no physical risk to you or your baby, but there is a chance for a loss of confidentiality. This study may provide information that may be helpful for health care providers in the future. It would be a one-time meeting to answer some questions at a place of your choosing. The study will not cost you anything and you will be compensated for participating. If you agree, we can decide on a date/time that works for you. Otherwise, if you want to think about it, I can call back in two days to see if you have any more questions I can help answer.

Letter of Support



CITY OF LONG BEACH

DEPARTMENT OF HEALTH AND HUMAN SERVICES

2525 Grand Avenue Long Beach, CA 90815 (562)570-4417 FAX (562)570-8187

COMMUNITY HEALTH / NURSING

June 6, 2019

Institutional Review Board
University of Nebraska Medical Center
987830 Nebraska Medical Center
Omaha, NE 68198-7830

UNMC IRB:

I am writing on behalf of the Long Beach Black Infant Health Program and in support of being a recruitment site for participants in Sara Brown's dissertation study, titled "Intention to Breastfeed: Breastfeeding Attitudes of African American, Low-Income, New Mothers."

The Black Infant Health Program (BIH) aids in health education and serves as an advocate for African American women and their infants. BIH provides a client centered group intervention with individual case management to empower women and their families around health decisions and ultimately works to eliminate existing health disparities related to African American birth outcomes.

With this letter, we acknowledge our specific roles and responsibilities as a recruitment site which will permit Sara to advertise the study. This will allow potential participants to contact Sara and/or complete the survey, if interested in the study. BIH supports this research and will gladly provide recruitment support for this study.

We look forward to working with Sara and are committed to this study.

Sincerely,

Angela Dixon-Hamlett LCSW

Angela Dixon-Hamlett, LCSW
BIH Program Supervisor
2525 Grand Avenue
Long Beach, CA 90815

Consent

University of Nebraska Medical Center

ADULT CONSENT - SOCIAL SCIENCE AND BEHAVIORAL
Adult Consent Form

Title of this Research Study
Intention to Breastfeed: Breastfeeding Attitudes of African American, Low-Income, New Mothers

Invitation
You are invited to take part in this research study. You have a copy of the following, which is meant to help you decide whether or not to take part. If you have any questions, please ask.

- Informed consent form
- "What Do I need to Know Before Being in a Research Study?"
- The Rights of Research Subjects

Why are you being asked to be in this research study?
You are being asked to be in this study because you are in your last month of your first pregnancy, you will be a first-time mother, you identify as African American and are 18-30 years of age.

What is the reason for doing this research study?
You are being asked to be in this study so that we can better understand breastfeeding beliefs and plans among African American, low-income, new mothers.

What will be done during this research study?
We will meet one time and ask you to answer a series of questions about breastfeeding beliefs and plans as well as people or community resources that will help you. There will be several questions about yourself such as your age, education and available support persons. The required time for participation is approximately 45 minutes, if you decide to participate.

What are the possible risks of being in this research study?
There is little to no likelihood of any physical risk if you decide to participate. There is a small chance you might be embarrassed when answering some questions about breastfeeding. There is also a small risk for loss of confidentiality if you participate in the study. Many things will be done to decrease these risks. You may choose to not answer any questions. Answers will not be connected with names or other identifying information.

IRB Approval

University of Nebraska Medical Center

NEBRASKA'S HEALTH SCIENCE CENTER

Office of Regulatory Affairs (ORA)
Institutional Review Board (IRB)

November 13, 2018

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IRB # 724-18-EP

TITLE OF PROTOCOL: Intention to Breastfeed: Breastfeeding Attitudes of African American, Low-Income, New Mothers

DATE OF EXPEDITED REVIEW: October 31, 2018

DATE OF FINAL APPROVAL AND RELEASE: November 13, 2018

VALID UNTIL: October 31, 2019

CLASSIFICATION OF RISK: Minimal

SUBPART B CATEGORY OF REVIEW: 45 CFR 46.204

EXPEDITED CATEGORY OF REVIEW: 45 CFR 46.110; 21 CFR 56.110, Category 7

The IRB has completed its review of the above-titled research protocol. The IRB has determined you are in compliance with HHS Regulations (45 CFR 46), applicable FDA Regulations (21 CFR 50, 56) and the Organization's HRPP policies. Furthermore, the IRB is satisfied you have provided adequate safeguards for protecting the rights and welfare of the subjects to be involved in this study. This letter constitutes official notification of final approval and release of your project by the IRB. You are authorized to implement this study as of the above date of final approval. The following items were reviewed and approved by the IRB:

- Full Proposal (added: 08/05/2018)
- Full Proposal (added: 08/27/2018)
- Full Proposal (added: 10/05/2018)
- Facebook Recruitment (added: 11/12/2018)
- Letter of Support OCBC
- Breastfeed LA Letter of Support
- Survey Instruments
- Adult Consent Form IRB Version 1

Please be advised that only the IRB approved and stamped consent form can be used to make copies to enroll subjects. Also, at the time of consent all subjects must be given a copy of *The Rights of Research Subjects* and "What Do I Need to Know" forms.

The IRB wishes to remind you that the principal investigator (PI) is ultimately responsible for ensuring that this research is conducted in full compliance with the protocol, applicable Federal Regulations, and Organizational policies.

Finally, under the provisions of this institution's Federal Wide Assurance (FWA00002939), the PI is directly responsible for submitting to the IRB any proposed change in the research or the consent form. In addition, any adverse events, unanticipated problems involving risk to the subject or others, noncompliance, and complaints must be promptly reported to the IRB in accordance with HRPP policies.

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Nurse Code of Ethics

American Nurses Association Code of Ethics

· The nurse provides services with respect for human dignity and the uniqueness of the client, unrestricted by considerations of social or economic status, personal attributes, or the nature of health problems.

· The nurse safeguards the client's right to privacy by judiciously protecting information of a confidential nature.

· The nurse acts to safeguard the client and the public when health care and safety are affected by the incompetent, unethical or illegal practice of any person.

· The nurse assumes responsibility and accountability for individual nursing judgments and actions.

· The nurse maintains competence in nursing.

· The nurse exercises informed judgment and uses individual competence and qualifications as criteria in seeking consultation, accepting responsibilities, and delegating nursing activities to others.

· The nurse participates in activities that contribute to the ongoing development of the profession's body of knowledge.

· The nurse participates in the profession's efforts to implement and improve standards of nursing.

· The nurse participates in the profession's effort to establish and maintain conditions of employment conducive to high quality nursing care.

· The nurse participates in the profession's effort to protect the public from misinformation and misrepresentation and to maintain the integrity of nursing.

· The nurse collaborates with members of the health professions and other citizens in promoting community and national efforts to meet the health needs of the public.

Demographic Profile and Instruments

Demographic Profile

These demographic questions are designed to help us determine other factors that may influence your answers, interests and opinions regarding your infant feeding decision. Collecting this demographic information will enable us to compare subgroups and to recognize other influences may impact the infant feeding decision.

Demographic Survey Questionnaire

Subject ID# ☐☐☐☐

Study ID# ☐☐

Date ☐☐ ☐☐ ☐☐
M M D D Y Y

Age ☐☐☐

Education

Q. Education: What is the highest degree or level of school you have completed? *If currently enrolled, highest degree received.*

Education
How many years of school have you completed? Please fill in the circle to the left of the number of years of school.

O	1 Grade School	O	10
O	2	O	11
O	3	O	12
O	4	O	13 College
O	5	O	14
O	6	O	15
O	7	O	16
O	8	O	17 + (post College/other)
O	9 High School		

Household Composition

Q. Household Composition: What is your current household status?

Marital Status (Choose One)
O Single, never married
O Single, never married, but in a partnership (live the majority of time in separate households)
O Single, never married, but in a partnership (live the majority of time in the same household)
O Married
O Widowed
O Divorced

Professional or Employment Status

Q. Professional or Employment Status: This includes the work you spend most of your time on. Are you currently…?

At the current time, what is your main job/type of work? Main means the work you spend the most time on, or you consider as your main job/work. Fill in the one circle that best describes your job/work. O Managerial/ professional work O Technical/ sales work O Administrative support work O Service work O Precision production/ craft/ repair work O Operator/ fabricator/ laborer work O Other (write-in):_____ O Not working	Managerial/professional work: like executive, administrator, analyst, purchasing manager, loan officer, engineer, registered nurse, physical therapist, counselor, teacher, lawyer, writer, artist Technical/Sales work: like laboratory technician, dental hygienist, license practical nurse, computer programmer, legal assistant, buyer, salesperson, real estate agent, cashier, travel agent, advertising agent Administrative support work: like clerical supervisor, computer operator, administrative assistant, secretary, accounts clerk, bookkeeper, mail carrier, dispatcher, customer service representative, insurance adjuster, bank teller, or teachers' aide Service work: like child care worker, housecleaner, police or firefighter including supervisors, guard, bartender, cook, food server, dental assistant, nursing aid, pharmacy aid, phlebotomist, janitor, hairdresser, personal care attendant Precision production/craft/repair work: like mechanic, electric equipment repairer, telephone installer, construction trade worker, earth driller, painter, plumber, supervisor of this work Operator/fabricator/laborer work: like machine operator, assembler, inspector, bus driver, warehouse worker, packer, fabricator, tester, laborer, farm worker, supervisor of this work

Community Resources

Q. What resources have you used during this pregnancy that related to information around infant feeding, select all that apply:

Community Resources
(Please check all that apply.)

- ☐ Healthcare provider/OBGYN/Midwife
- ☐ Community Health Center (Complete Care, Center for Community Health, etc.)
- ☐ Hospital based classes (Cedars-Siani, Good Samaritan, Dignity Health, etc.), if so which class(es)_____
- ☐ Private community classes (free or classes you paid for, etc.), if so which class(es)_____
- ☐ Internet or online/mobile resources, if so which sites/resources were most helpful_____
- ☐ Information from a family member/friend, if so whom_____
- ☐ Books, if so which were most helpful_____
- ☐ Other_____

Social Support Measure:

What people do you have that would help you to be able to breastfeed? For example, this person could do house work or help with other baby cares so you have time to breastfeed.

This person is or persons are? Check all that would help you.

_____My spouse/significant other/boyfriend

_____My Mother

_____My Grandmother

_____My girlfriend

_____The nurse at …_____

_____Other_____

Breastfeeding Self-Efficacy Scale – Short Form - Pregnancy

For each of the following statements, please choose the answer that best describes how confident you are in breastfeeding your new baby when he/she is born. Please mark your answer by circling the number that is closest to how you feel. There is no right or wrong answer.

1 = not at all confident

2 = not very confident

3 = sometimes confident

4 = confident

5 = very confident

	Not at all Confident				**Very Confident**
I will always be able to determine that my baby is getting enough milk	1	2	3	4	5
I will always be able to successfully cope with breastfeeding like I have with other challenging tasks	1	2	3	4	5
I will always be able to breastfeed my baby without using formula as a supplement	1	2	3	4	5
I will always be able to ensure that my baby is properly latched on for the whole feeding	1	2	3	4	5
I will always be able to manage the breastfeeding situation to my satisfaction	1	2	3	4	5
I will always be able to manage to breastfeed even if my baby is crying	1	2	3	4	5
I will always be able to keep wanting to breastfeed	1	2	3	4	5
I will always be able to comfortably breastfeed with my family members present	1	2	3	4	5
I will always be able to be satisfied with my breastfeeding experience	1	2	3	4	5
I will always be able to deal with the fact that breastfeeding can be time consuming	1	2	3	4	5
I will always be able to finish feeding my baby on one breast before switching to the other breast	1	2	3	4	5
I will always be able to continue to breastfeed my baby for every feeding	1	2	3	4	5
I will always be able to manage to keep up with my baby's breastfeeding demands	1	2	3	4	5
I will always be able to tell when my baby is finished breastfeeding	1	2	3	4	5

The Iowa Infant Feeding Attitude Scale

For each of the following statements, please indicate how much you agree or disagree by circling the number that most closely corresponds to your opinion (1= *strong disagreement* [SD], 2 = *disagreement* [D], 3 = *neutral* [N], 4 = *agreement* [A], 5 = *strong agreement* [SA]. You may choose any number from 1 to 5.

	SD	D	N	A	SA
*1. The nutritional benefits of breast milk last only until the baby is weaned from breastmilk.	1	2	3	4	5
*2. Formula-feeding is more convenient than breast-feeding.	1	2	3	4	5
3. Breast-feeding increased mother-infant bonding.	1	2	3	4	5
*4. Breast-milk is lacking in iron.	1	2	3	4	5
5. Formula-fed babies are more likely to be overfed than are breast-fed babies.	1	2	3	4	5
*6. Formula-feeding is the better choice if a mother plans to work outside the home.	1	2	3	4	5
7. Mothers who formula-feed miss one of the great joys of motherhood.	1	2	3	4	5
*8. Women should not breast-feed in public places such as restaurants.	1	2	3	4	5
9. Babies fed breastmilk are healthier than babies who are fed formula.	1	2	3	4	5
*10. Breast-fed babies are more likely to be overfed than formula-fed babies.	1	2	3	4	5
*11. Fathers feel left out if a mother breast-feeds.	1	2	3	4	5
12. Breast milk is the ideal food for babies.	1	2	3	4	5
13. Breast milk is more easily digested than formula.	1	2	3	4	5
*14. Formula is as healthy for an infant as breast milk.	1	2	3	4	5
15. Breast-feeding is more convenient than formula feeding.	1	2	3	4	5
16. Breast milk is less expensive than formula.	1	2	3	4	5
*17. A mother who occasionally drink alcohol should not Breast-feed her baby.	1	2	3	4	5

Note. Items marked with asterisks are reverse-scored and the scores for each item are then summed. Higher scores indicate more positive attitudes toward breast feeding.

Measure for Norms (IBM):

Most African American people in your community approve of the breastfeeding behavior?

-3	-2	-1	0	1	2	3
Strongly Disagree						Strongly Agree

Most African American people in your community disapprove of the breastfeeding behavior?

-3	-2	-1	0	1	2	3
Strongly Disagree						Strongly Agree

Most African American women in your community perform the (breastfeeding) behavior?

-3	-2	-1	0	1	2	3
Strongly Disagree						Strongly Agree

Are you motivated to do what most African American people in your community think you should do (regarding your infant feeding decision)?

-3	-2	-1	0	1	2	3
Strongly Disagree						Strongly Agree

***Intention Measure (BI):**

I intend to breastfeed:

-3	-2	-1	0	1	2	3
Very Unlikely						Very Likely