Improving Intent to Exclusively Breastfeed in Low-Income Women Receiving Care at a Free Clinic in Northern Virginia

Nana A. Tetteh, BSN, MSN, MSGH, FNP-BC

Dumfries, Virginia

MSN, University of Virginia 2019

MSGH, George Mason University 2015

BSN, George Mason University 2001

ADN, Northern Virginia Community College 2000

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Kathryn B. Reid, Ph.D., RN, FNP-C

Signature of Chair

Emily Drake, Ph.D., RN, FAAN

Signature of Member

Ivora Hinton, Ph.D

Signature of Member

Abstract

Background: Disparities in breastfeeding exclusivity, duration, and initiation have been found among minority and low-income women. Latina mothers have high breastfeeding initiation rates, but supplement with formula, usually at Day Two of life. Culturally appropriate breastfeeding education provided during the prenatal period can help to increase breastfeeding intent, initiation, duration, and exclusivity.

Purpose: This project implemented a culturally appropriate prenatal breastfeeding curriculum in a free clinic setting, and evaluated the impact on intent to initiate and exclusively breastfeed.

Methods: A pre- and post-education intervention, and curriculum evaluation, were used to determine if there was a difference or change in attitude towards breastfeeding exclusivity, duration, and initiation.

Findings/Results: Thirty-six pregnant women participated in the Ready, Set, Baby (RSB) breastfeeding education program. Two women did not meet the criteria for age. Thirty-four women aged 18-39 met the criteria and completed consent forms, with the assistance of a Spanish interpreter. Twenty-three completed the pre/post Infant Feeding Intention scale (IFI). There was high approval for the RSB breastfeeding curriculum. The data showed no change in the intention to exclusively breastfeed.

Implications/Discussion: Breastfeeding education provided in the free clinic setting is very important to the promotion, protection, and support of exclusive breastfeeding. The “Ready, Set, Baby” breastfeeding education class provided to low-income and minority women during prenatal visits can be sustainable in the free clinic setting. The materials are culturally appropriate and cost-effective.

Keywords: Exclusive Breastfeeding, Breastfeeding, Low-income women, Pre-natal, Breastfeeding Education, Breastfeeding Intent.

Dedication

My sincere gratitude and appreciation to all of my advisors and professors at the University of Virginia School of Nursing. I thank all for your guidance and encouragement throughout the entire three years at this prestigious university. I have been truly inspired, and have rekindled my love for the nursing profession, and for this, I thank you all.

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Section I: Introduction

The World Health Organization (WHO) recommends exclusive breastfeeding from birth up to six months of age, followed by the introduction of complementary foods and continuation of breastfeeding up to two years of age ("2018 Baby-Friendly Hospital Initiative (BFHI) Revised Implementation Guidance | La Leche League International," n.d.). The American Academy of Pediatrics also recommends exclusive breastfeeding up to six months of age and then introducing solid foods, in addition to breastmilk, up to 12 months of age, or more as the mother desires. Breastfeeding provides both infants and mothers unmatched health benefits (CDC, 2019). It is considered the gold standard in infant nutrition. Infants who are breastfed have a reduced risk of asthma; allergies; Type 2 diabetes; obesity; sudden infant death syndrome (SIDS); respiratory diseases; and ear infections (CDC, 2019). Breastfeeding also has substantial benefits for mothers ("2018 Baby-Friendly Hospital Initiative (BFHI) Revised Implementation Guidance | La Leche League International," n.d.). Breastfeeding can help lower a mother's chances of high blood pressure, Type 2 diabetes, and breast and ovarian cancers (*Search the Data | Healthy People 2020*, n.d.); *WHO | The World Health Organization's infant feeding recommendation*, n.d.). The 2018 CDC Breastfeeding Report Card shows that, of the babies born in 2015, 83.2% started out breastfeeding. That is four out of every five births. Almost half, 46.9%, were exclusively breastfeeding at three months, and only 35.9% were still breastfeeding at 12 months (CDC, 2019). Despite the increase in breastfeeding rates in the U.S. and the benefits of exclusive breastfeeding, many mothers choose not to breastfeed at all or supplement breastmilk with formula. According to the CDC, 60% of women discontinue breastfeeding sooner than planned due to a lack of support for breastfeeding mothers. Despite the great strides in the overall health of the U.S population, as

evidenced by the 2018 Healthy People 2020 Report Card, racial and ethnic disparities are prevalent, and minority women continue to have considerably lower breastfeeding rates than white women (Jones, Power, Queenan, & Schulkin, 2015). Minority women report more barriers to breastfeeding than their Caucasian counterparts ("CDC Releases 2018 Breastfeeding Report Card | CDC Online Newsroom | CDC," n.d.; Jones et al., 2015). African American women continue to have the lowest breastfeeding initiation rates, at 60%; continuation to six months, at 28%; and to 12 months, at 13% (Jones et al.,2015). According to Jones et al., despite having higher breastfeeding rates than Caucasian and African American women, Latina women commonly supplement with formula as early as two days of life for the infant and are more likely to introduce early solid foods at four months of age. Latina women also have higher rates of restrictive maternal feeding practices and lower exclusive breastfeeding. Given this, Latina and other minority women are not meeting the Healthy People 2020 goals (Jones et al., 2015).

Why is breastfeeding so important? If 90% of U.S. families complied with medical recommendations to breastfeed exclusively for six months, the United States would save $13.6 billion a year, and prevent over 911 deaths, nearly all of which would be infants (Bartick & Reinhold, 2010). This is an astonishing number of saved healthcare dollars, considering the current debate regarding the rising costs of American healthcare. According to the literature, many low-income clinics, WIC, and hospitals that operate in underserved areas are continuously searching for avenues that are based on evidence to improve or increase exclusive breastfeeding rates in minority populations (Lewkowitz et al., 2018). Some of the many barriers these women face include lack of support from their partners and family or having to return to work soon after giving birth, without opportunities to pump/express breastmilk for babies while at work (Jones et al., 2015).

In Northern Virginia, a free clinic run by volunteer doctors, nurses, physical therapists, and a nutritionist has observed the need for prenatal care. This clinic extended its services to provide prenatal care for low-income families in the region and now serves over 4,000 low-income patients. The clinic is supported by healthcare contributions from local health systems; a local lab for additional patient services; consultative services by another health system; and a healthcare institution to set up an ethics committee for the clinic soon. Many women who seek care at the free clinic are low-income Latinas, many of whom have breastfed in the past but reported having to discontinue or supplement due to the multiple barriers they face.

Theoretical Framework

The theory of planned behavior (TPB) will be used to predict breastfeeding intention and intensity. The TPB attempts to explain why people make choices by using three constructs. The first construct is the attitude towards the act or behavior, which is the belief that a certain behavior or act makes a positive or negative contribution to one's life (Mutuli & Walingo, n.d.; Zhang et al., 2018). This construct is the evaluation of ideas, events, objects, or people. The second construct is the subjective norm. This involves everything around the individual, such as one’s social network and how that network perceives the act or behavior. The social network includes family, cultural norms, and group beliefs. This construct looks at how others view the behavior. The third construct is perceived behavioral control. This is the perception of how simple or difficult the behavior is to perform, or the belief as to the amount of control an individual has over the environment (Mutuli & Walingo, n.d.; Zhang et al., 2018).

When breastfeeding education is provided to women at the free clinic during their prenatal period, they will have the opportunity to evaluate the idea of exclusively breastfeeding their infant for six months, and determine how simple or difficult it will be for them to perform

this behavior. This will be done by recognizing barriers that may affect the decision to EBF and work to alleviate those barriers to help the mother to more readily adopt the behavior, in addition to seeking the views of significant others and support persons;

at the same time, it is important to keep in mind that cultural influences may bar EBF in this population.

Latinx Culture and Breastfeeding

Latina women have the highest breastfeeding initiation rates of any ethnic group in the U.S., but are more likely to start early formula supplementation (Barcelona de Mendoza et al., 2016; Gill, Sara L., n.d.; Hohl et al., 2016; Wambach et al., 2016). An article by Hohl et al. demonstrated that Latinas are aware of the benefits of breastfeeding, and most have grown up in families where exclusive breastfeeding was practiced. Hohl et al. showed that Latina women in the U.S. felt that breastfeeding might be socially offensive, and thus felt shy about doing so, especially in public; other reasons cited were difficulty pumping milk at work, or having physiological difficulties with breastfeeding (Hohl et al., 2016).

A study conducted by Barcalona de Mendoza et al. found that acculturation influenced the decision to exclusively breastfeed, and affected the intent to combination breastfeed.

It is important to stress to mothers that breastmilk is superior to formula, and provide education and support to these mothers to encourage exclusive breastfeeding.

Ready, Set, Baby Breastfeeding Counseling Program

Ready, Set, Baby (RSB) is a curriculum developed for counseling and educating women on breastfeeding benefits and management, including education on optimal maternity care practices. The classes can be conducted one-on-one, or in a group setting. The RSB is not meant to replace current breastfeeding education but can be used to enhance current breastfeeding

education and curricula (Parry et al., 2019). Much of its content was compiled by students enrolled in the 2010-2011 Carolina Global Breastfeeding Institute, Mary Rose Tully Training Initiative (Parry et al., 2019). The initial curriculum was in Spanish and English; it is now available in Arabic, English, French, and Spanish (Parry et al., 2019).

Purpose of the Project

The purpose of this project is to implement a standard breastfeeding education curriculum at a free clinic where low-income mothers seek prenatal care and to determine if the Ready, Set, Baby breastfeeding counseling, and education program will be feasible for the free clinic setting in Northern Virginia. Secondly to determine if the breastfeeding education provided during the prenatal period will influence the decision of women to exclusively breastfeed. This project was implemented to answer the question;

In low-income women who receive prenatal care at a free clinic, how does formal breastfeeding education provided during prenatal visits, compared to informal or standard care during the prenatal period, impact a mother's decision to exclusively breastfeed her baby after delivery?

Section II: Review of Literature

Lower exclusive breastfeeding disparities have been found among low-income women than among those of middle to higher income (Lewkowitz et al., 2018). African American women have the lowest breastfeeding initiation rates of any group (Hatari et al., 2018). Latina women have high breastfeeding initiation rates but are more likely to begin to supplement with formula around the second day of the infant's life (Hohl et al., 2016; Whaley et al., 2017). Low-income women face many barriers that affect their decisions to exclusively breastfeed their

babies (McCoy et al., 2017). The cited barriers to breastfeeding among low-income women include having to return to work sooner than their counterparts of higher socioeconomic status; not having a place to pump at work; lack of family support at home; the perception of breastfeeding as painful; and a lack of education on the benefits of breastfeeding (McCoy et al., 2017; Lewkowitz et al., 2018; Parry et al., 2018).

The literature examined various interventions related to breastfeeding education. These interventions included peer counseling; incentive-based interventions; provider prompts; technology education or mHealth; and combination interventions, such as video and peer counseling via phone or home visit. Several interventions occurred during the prenatal period, but most of the studies were conducted during the postpartum period, shortly after delivery. The interventions conducted during the prenatal period and continued into the post-partum phase were the most successful. The least successful was the incentive programs, where participants were given stipends or extra food/groceries if they exclusively breastfed. The most notable limitation in the literature was the participants' self-reported breastfeeding practices, which carried the potential for social desirability bias.

Search Strategy

Articles that described or investigated any aspect of exclusive breastfeeding in low-income women were considered. The search was wide and included interventions that were implemented not only in the United States but also globally. Article selection focused on technology, nursing, and behavioral management. All levels of evidence were included. A comprehensive set of four electronic databases were searched (CINAHL, MEDLINE, PubMed, and PsycINFO). The search strategy was formulated with the assistance of a research librarian, Dan Wilson, to ensure the widest and most comprehensive search. The years of article publication were not restricted, and

all articles with abstracts in English were reviewed. Search terms included *breastfeeding, low income,* and *prenatal.*

Gray literature searches used Google Scholar for articles and practice guidelines published by national bodies such as the WHO, CDC, and the United Nations International Children's Emergency Fund (UNICEF). A research librarian was not consulted for the gray literature search phase. The search was set to find literature that described barriers to exclusive breastfeeding among low-income mothers.

Selection of Articles

Completion of the search resulted in all returned results, added to the reference manager Zotero, recommended by the research librarian. The search strategy resulted in 1,638 articles in English. After these articles were screened for duplicates, a reduction to 630 relevant articles was reached. A title review resulted in a further reduction to 219 relevant articles. A further abstract review of articles was conducted, which resulted in 25 articles on studies conducted in the United States and Canada. Next, a full article review was conducted, and 12 relevant articles whose studies were conducted in the US or Canada from 2014 to the present were retained. Figure 2 depicts a Prisma flow chart regarding the selection of articles.

Next, the 12 articles were read in full. They presented a variety of interventions to improve breastfeeding initiation and exclusivity. Four articles utilized technology, such as text messaging, video education, and telephone peer counseling. One study looked at co-parenting, and how the partner can affect an increase in breastfeeding rates; one study related to primary care provider implementation of direct breastfeeding education; two studies implemented peer counselors who provided support over the phone or visited the new mother at home. Other studies involved prenatal education; breastfeeding surveys to assess knowledge; focus groups; and behavioral education.

Baby-Friendly Hospital Initiative - The gray literature review retrieved relevant articles. One article addressed the baby-friendly hospital initiative, with revised implementation guidance. This article addressed new guidelines by WHO and UNICEF to assist facilities in implementing breastfeeding interventions beneficial to the patient populations served by the various facilities. The article also touched on the importance of providing new mothers evidence-based information on feeding, free from commercial bias.

Infant-feeding Practices in Low-Income Women - Lewkowitz et al. studied the infant-feeding practices of low-income women, to ascertain how breastfeeding interventions increase exclusive breastfeeding. Of the 149 women included in the study, from 175 approached, 86.6% started breastfeeding on Day 2 after delivery31.5% breastfed immediately after delivery and throughout; 34.2% breastfed and supplemented with formula; and another 34.2% fed with formula alone. The study determined that women who used both breastfeeding and formula were more likely to agree to be educated on neonatal behavior and on-demand access to breastfeeding. It was proposed that such services would lead them to exclusively breastfeed. This indicated that more appropriate and effective breastfeeding interventions should be directed at low-income women, to effectively increase exclusive breastfeeding. Table 1 (Appendix) illustrates the review of literature as related to interventions employed to improve exclusive breastfeeding rates.

Technology- Four identified articles utilized technology or eHealth interventions in the studies. Health technology, or eHealth, is the use of texting, social media, and videos in disseminating information to at-risk communities. The four articles utilized peer counseling via telephone (Reeder et al., 2014); eHealth (Abass-Dick et al., 2018); video education (Kellems et al., 2016); and text message intervention (Harari et al., 2017). Of the four interventions, the LATCH Pilot Study (text messaging) was the most successful and attained the most satisfaction

from participants. What made this study so attractive was its immediate response; when mothers had questions, they simply texted their peer counselors (PC) and received a timely response. There were reports that responses to questions and concerns came at inopportune times, which was noted as a limitation to the study. Reeder et al., in the Telephone Peer Counseling study, found an increase in non-exclusive breastfeeding rates among Latina mothers, but not among African American or Caucasian mothers. There was an overall modest increase in exclusive breastfeeding, also limited to Latinas. Abass-Dick et al. examined the inclusion of indigenous women in Canada in formulating an eHealth breastfeeding education relevant to the community. In this participatory study, a focus group was formed from members of the community, to voice what they perceived as relevant information regarding breastfeeding, which should be made available to them on websites, conveniently accessed, and used by the community to improve breastfeeding. This intervention provided eHealth resources in a variety of formats, including text, video games, quizzes, and links to additional resources on the internet. It seemed to be well-received by new mothers and deemed successful; this success seems due to the mothers and healthcare providers who provide breastfeeding support forming part of the development of the intervention. Thus, the participants had “buy-in”, and were fully committed to and invested in developing this website, which was beneficial to the indigenous mothers of Canada. The study by Kellams et al., on the impact of video education during the prenatal period and during a hospital stay for low-income populations, was not successful. Kellems et al. concluded that educational breastfeeding videos alone are ineffective in improving the in-hospital breastfeeding practices of low-income women. The video study by Kellams et al. was found to be the least successful intervention among the four studies employing some type of eHealth. Overall, the implementation of eHealth in intervention to improve all aspects of breastfeeding was widely

accepted by participants in all four studies. They found that it was convenient to call, or text, a PC when breastfeeding issues arose.

Peer Counselors - McCoy et al. and Srinvas et al. employed peer counselors. Peer counselors are women in the community who have breastfed or are currently breastfeeding and are trained to give relevant education to other local women who desire to breastfeed their babies (McCoy et al., 2018; Srinvas et al., 2015). In one study, the intervention group was composed of women who accepted PC's during the prenatal period; the control group did not receive PC assistance (McCoy et al.). The problem with the study was that women who did not receive a PC for breastfeeding assistance eventually requested aid in breastfeeding when they encountered problems or difficulties, which led to potential study bias. Srinvas et al. sought to examine how PC's improved breastfeeding initiation, exclusivity, and duration. The authors also explained women's attitudes towards breastfeeding and concluded that participants with positive attitudes were more successful than those with negative attitudes. The study by Srinvas et al. also found that women with PC's had higher self-efficacy and became more confident in their breastfeeding practices.

Both studies concluded that there was no difference between the intervention group and the control group when PC's were implemented. However, women's attitudes correlated with positive or negative breastfeeding outcomes.

Primary Care Prompts - Bonuck et al. looked at two trials concurrently, where each study investigated primary care providers in conjunction with Lactation Consultants (LC's) and Electronically Prompted Guidance (EP). The first trial was the Provider Approaches to Improved Rates of Infant Nutrition and Growth Study (PAIRINGS). This study was conducted at Obstetrics and gynecology offices, and had two aspects:

1. Usual care
2. Pre/post-natal visits with lactation consultants (LC's) and electronically prompted guidance (EP) from prenatal care providers (Bonuck et al., 2014).

The Best Infant Nutrition for Good Outcomes (BINGO) study had four aspects:

1. Usual care
2. LC alone
3. EP alone
4. LC+EP

In the BINGO trial, there was a significant increase in breastfeeding intensity in the LC+EP study group; in the PAIRINGS trial intervention, breastfeeding rates exceeded usual care (Bonuck et al., 2014). In both trials, the breastfeeding intervention groups increased breastfeeding. Rates doubled at three months. and participants sustained breastfeeding to six months (Bonuck et al., 2014). The two trials saw a three- to four-fold increase in exclusive breastfeeding rates (Bonuck et al., 2014). These results are evidence of the involvement of primary care providers in providing breastfeeding education to patients, in conjunction with lactation consultants. Patients tend to trust their healthcare providers and are more inclined to heed the advice of the doctor managing their care.

Education and Behavioral Interventions - Education and behavioral interventions have also been explored to determine if behavior towards breastfeeding can impact breastfeeding initiation, duration, and exclusivity. However, the primary aim of these was to determine if education and behavioral interventions could reduce postpartum depression. Their secondary purpose was to determine how education and behavioral education affected breastfeeding rates. The results on the effects of education and behavior were not reported in this study but instead reported elsewhere (Howell et al., 2014). In the Howell et al. intervention, 540 Black and

Hispanic women were randomly assigned to two groups. The intervention group received education related to postpartum care, and a two-step behavioral education intervention was studied to determine if educational interventions affected breastfeeding duration (Howell et al., 2014). The intervention group, which received an education, showed an increase in breastfeeding in low-income women (Howell et al., 2014). Education interventions help improve or change behaviors in breastfeeding, in low-income populations.

Co-Parenting - Another study that looked promising, but has not been well-explored, is Abass-Dick et al., 2015, which studied the effect of co-parenting concerning breastfeeding education intervention. Abass-Dick et al. included fathers in both prenatal and postpartum breastfeeding education. The intervention group included the fathers in breastfeeding education, and the control group received standard prenatal/postpartum care instructions (Abass-Dick et al., 2015). The study found a 9% increase at 12 weeks postpartum (Abass-Dick et al., 2015) in breastfeeding in the intervention group, versus the control group (Abass-Dick et al., 2015). Another finding was that the fathers in the intervention group had increased self-efficacy and confidence in their knowledge of breastfeeding, and were able to aid their partners during feedings. That assistance was greatly welcomed and encouraged by mothers, increasing breastfeeding duration, and exclusivity (Abass-Dick et al., 2015). This study found the co-parenting intervention to be promising; it should be further explored as an additional tool to improve breastfeeding rates.

Incentive-Based Intervention - Another study, by Washio et al., 2017, was an incentive-based intervention for Puerto Rican mothers in the Women Infant and Children's Program (WIC). The control group received the usual WIC benefits; the intervention group received, in addition to the usual WIC benefits, $20 at the first month's visit, and $10 at subsequent visits

(Washio et al., 2017). Members of the intervention group could receive a maximum of $270.00 by the end of the six-month intervention period (Washio et al., 2017). To receive the money, participants at each monthly visit must have demonstrated breastfeeding behaviors at each WIC appointment (Washio et al., 2017). This was, unfortunately, one of the least effective interventions. The study showed that 72% of the incentive group, and 89% of the control group, started formula supplementation by one month postpartum (Washio et al., 2017). No one in the control group exclusively breastfed (Washio et al., 2017). This incentive-based intervention approach, even though it temporarily increased the number of breastfeeding mothers, did not increase exclusivity and duration (Washio et al., 2017).

Combined Interventions - Ready, Set, Baby is a prenatal breastfeeding education and counseling trial study (Parry et al., 2019). Parry et al. set out to test a formal breastfeeding curriculum for pregnant women during the prenatal phase of pregnancy (Parry et al., 2019). The Ready, Set, Baby curriculum was based on Step Three of the Baby-Friendly Hospital Initiative; 10 Steps to Successful Breastfeeding (La Leche League International, 2018). Step Three states; "Inform all pregnant women about the benefits and management of breastfeeding". In the Ready, Set, Baby study, 416 pregnant women across seven sites in the U.S. and Puerto Rico participated in the breastfeeding education curriculum, and completed pre- and post-intervention questionnaires. The paired t-test, Wilcoxon signed-rank tests, and McNemar's test were the statistical analyses of the results. There was a great improvement in the participants' knowledge about breastfeeding, Infant Feeding Intentions Scale Scores, and baby-friendly recommended maternity care practices. Simultaneously, there was a decline in the participants' comfort with the idea of formula-feeding. The education materials were positively accepted by the participants (Parry et al., 2019). The authors noted that there is no standardized curriculum regarding

breastfeeding, and discuss the need for a standard, evidence-based breastfeeding education curriculum (Parry et al., 2019).

Discussion

Community-based interventions employed in different parts of the world during pregnancy and/or the pre- and postnatal periods, on an individual or group basis, through health facilities, using professional education/counseling, peer counseling, or e-health, have reported increased levels of early initiation of breastfeeding, as well as exclusive breastfeeding (EBF) (Bonuck et al., 2014; Howell et al., 2014; Reeder et al., 2014).

A systematic review of 52 studies from 21 countries revealed that all forms of extra support, including both laypeople and professionals analyzed together, showed an increase in the duration of 'any breastfeeding', as well as the duration of EBF. However, the most effective support is provided in person, and repeatedly, at regularly scheduled visits (Howell et al., 2014) (1).

This review examined the different approaches used in various interventions to improve exclusive breastfeeding, initiation, and duration in low-income women. Examining eHealth, social media, videos, and text message interventions yielded contrasting results (Abbass-Dick et al., 2015; Kellams et al., 2016; Srinivas et al., 2015). The LATCH intervention, for example, found that texting interventions were useful, and helped in meeting breastfeeding goals. It also made provision for mothers to seek further information at any time (Harari et al., 2018) Peer counseling in WIC facilities provides face-to-face, telephone, or even home visits to breastfeeding mothers enrolled in the program (Abbass-Dick et al., 2018; McCoy et al., 2018). The downside to peer counseling is that the counselor must be someone the mother trusts and to whom she can relate. In other words, the Peer Counselor must be able to be a positive influence on the family she is assigned, to be successful in encouraging exclusive breastfeeding. The three most successful

breastfeeding interventions yielding positive outcomes include the study by Parry et al. that looked at developing a standardized breastfeeding curriculum during the prenatal phase. Breastfeeding education is provided according to the "10 steps of successful breastfeeding" by the World Health Organization and UNICEF. Parry et al. recognized that there is no standardized, evidence-based, formal breastfeeding curriculum, and addressed the need for more studies in developing one.

Next, Bonuck et al. published two separate trials that studied how primary care providers in prenatal and postnatal settings can influence positive breastfeeding outcomes. This study showed that utilizing electronic prompts can ensure that primary care providers talk to their patients about breastfeeding, and the reinforcement of education provided by the lactation consultant helped in improving breastfeeding rates in low-income women. Lastly, co-parent education in first-time parents involves presenting breastfeeding education simultaneously. This trial demonstrated that new mothers can gain increased support for breastfeeding if their partners or spouses receive the same breastfeeding education (Abbass-Dick et al., 2015; Lewkowitz et al., 2018). With both the baby's parents educated, mothers can receive a great deal of support for exclusive breastfeeding and duration.

The trial study that was the least effective or showed no difference between the groups was incentive intervention. Providing WIC participants with money at each appointment made no difference. Granted, more people initiated breastfeeding in the intervention group, but both the control and intervention groups were supplementing with formula at one month postpartum (Harari et al., 2018; Washio et al., 2017). This is an indication that education interventions can improve breastfeeding initiation, exclusivity, and duration.

In summary, this literature review examined studies that employed different interventions in the quest to improve breastfeeding in low-income women. A total of 12 studies were reviewed;

nine random controlled trials, two qualitative studies, and one cross-sectional study. In reviewing these studies, it became clear that a standardized educational curriculum for breastfeeding during prenatal to the postpartum period is needed.

Organizations like WHO, the CDC, and UNICEF, agree that human breastmilk is the optimal nutrition for infants (Keitt et al., 2018; Parry et al., 2019).

Women who receive adequate breastfeeding education and support during the prenatal to the postpartum period tend to feel empowered, with a sense of self-efficacy towards breastfeeding. By including their intimate partners, women feel more supported and confident in breastfeeding, which leads to the desire to exclusively breastfeed for at least six months, as recommended by WHO, the CDC, and UNICEF (CDC, 2019; *UNICEF*, 2011; *WHO | The World Health Organization's Infant Feeding Recommendation*, n.d.).

This study seeks to find ways to improve breastfeeding rates among low-income women receiving prenatal services at a free clinic in Northern, Virginia. This literature review also strives to better understand the barriers low-income women face, which form their decision to breastfeed and find ways to remove or reduce those barriers. Lastly, this review of the literature will be used to identify a breastfeeding education program that can be clinically implemented and will be beneficial to the patients. By implementing an educational intervention tailored to the unique needs of this population, to reduce the number of new mothers who choose to formula-feed or supplement with formula, breastfeeding initiation, exclusivity, and duration can continue to increase in the minority population.

Literature Gaps

One gap noted in this literature review is that there is no consistent standard of care in breastfeeding education during the prenatal period. Early intervention is important to provide

necessary breastfeeding education so that mothers have the information they need to make an informed decision about their feeding practices, beginning in the second trimester of pregnancy through the perinatal period.

Nursing Practice Implications

Nurses are in a unique position to identify patients' needs, implement patient education, and ensure that they receive the necessary and appropriate resources to help them overcome barriers that may hinder them in beneficial health practices.

For instance, low-income women are less likely to exclusively breastfeed their infants due to multiple barriers (Barcelona de Mendoza et al., 2016; Hohl et al., 2016). Compared to women of higher socioeconomic status, the low-income mother faces many barriers, such as having to return to work sooner; lacking the support of the family; the absence of a designated place at work to express breastmilk; and cultural beliefs surrounding breastfeeding. Each plays a role in the feeding practices a woman chooses for her baby (Srinivas et al., 2015). It is the nurse who can identify these barriers, provide education based on evidence, and seek appropriate resources needed to help patients overcome these barriers and challenging situations, which may cause them to abandon breastfeeding. As one example, a first-time mother who must return to work may feel that to continue exclusive breastfeeding will be too difficult (McCoy et al., 2018).

The nurse can assist in providing resources, such as a peer counselor to coach this new mother and encourage her to continue (Srinivas et al., 2015). The nurse can provide the new mother with resources to guide her in asking her employer to provide time and a private area to express milk for her baby (Parry et al., 2019). Finally, nurses can provide quality, cost-effective care for their patients, at the same time ensuring their safety.

Section III: Methods

Setting

This project was conducted in a church-affiliated free clinic in Northern Virginia. The clinic recently extended its services to provide prenatal care for low-income families. The clinic serves over 4,000 low-income patients and is supported by healthcare contributions from local health systems, a local lab for additional patient services, and consultative services by another health system.

Patients who visit this clinic are predominately Spanish-speaking, with limited command of the English language. Approximately 70% of the clinic's staff are volunteers, and day-to-day patient interactions rely heavily on these volunteer medical staff and volunteer Spanish interpreters. For this project, the team consisted of the DNP student acting as the team leader, Spanish interpreters, a lactation consultant, and the clinic supervisor.

Participants

The project sample consisted of 34 women who received prenatal care at the free clinic during pregnancy. Of the 34 pregnant women who participated in the breastfeeding education class, 23 completed the pre/post-survey.

The majority of the women who participated in the project identified English as a second language; most were literate in Spanish. Many of the women had completed high school (Table 2). Twenty-five of the women were multiparous, and nine described this pregnancy as their first. All the women who had given birth had breastfed in the past, and all of the women stated they planned to breastfeed. Inclusion criteria were confirmed uncomplicated pregnancy; age 18 and

above; ability to give consent and primary language English or Spanish, or able to speak English or Spanish fluently.

Exclusion Criteria include: under age 18; high-risk pregnancy; inability to give consent; non-English or non-Spanish speaking.

A total of 36 women attended breastfeeding classes; two women did not meet the criteria for age, so they were not included in the study, but they were permitted to attend the class and receive the Ready, Set, Baby booklet. Another woman did not complete any of the questionnaires but completed the class evaluation form.

Educational Intervention

Ready, Set, Baby is a prenatal breastfeeding counseling curriculum aimed at a target audience of pregnant women at any stage of pregnancy. The curriculum consists of a 24-page patient booklet; corresponding educator flip chart; screen projection of a PDF version of the flip chart (for group classes); and a two-part online orientation for educators (*tinyurl.com/ReadySetBaby*).

Providers, registered dietitians, nurses, lactation consultants, and other staff such as medical office assistants, certified nursing assistants, doulas, childbirth educators, and trained volunteers are all eligible to use the Ready, Set, Baby curriculum to provide breastfeeding education classes in prenatal and postnatal settings. The guidelines for use of the Ready, Set, Baby breastfeeding education curriculum indicate it can be provided in an individual or group class setting. The class time can range from 30 to 60 minutes, according to the needs of the mother(s).

Topics covered in the Ready, Set, Baby breastfeeding education curriculum are the importance of breastfeeding; the importance of exclusive breastfeeding; non-pharmacologic pain relief methods for labor; the importance of early skin-to-skin contact; early initiation of breastfeeding; rooming-in on a 24-hour basis; feeding on demand or baby-led feeding; frequent feeding to help assure optimal milk production; effective positioning and latching; exclusive breastfeeding for the first six months; the importance of continued breastfeeding after six months; and risks of supplements while breastfeeding for the first six months (Parry et al., 2019). The topics mentioned are presented in a colorful, easy-to-read booklet that the mothers keep and refer to as needed (Parry et al., 2019).

Project Design

This project is a pre/post education design. The education intervention sought to increase the intent to exclusively breastfeed in women who receive prenatal care at a suburban free clinic setting. The women participated in a total of seven breastfeeding education classes, utilizing the Ready, Set, Baby breastfeeding education program. This project was implemented to develop theory; identify problems with current breastfeeding education interventions; justify current breastfeeding education programs; make judgments, and explore various breastfeeding education curriculums.

An educational pre-test/post-test design was used for this project, to answer the question: *"How does breastfeeding education provided during prenatal visits impact a mother's intention to exclusively breastfeed her baby?"* A demographic survey was used to describe the characteristics of the population at the free clinic. The breastfeeding intention scale was given before and after the breastfeeding education, and a program evaluation was given to assess the Ready, Set, Baby breastfeeding curriculum.

Ethical Considerations

This project was reviewed and approved by the IRB board at the University of Virginia. Once approval was granted, participants were recruited to take part in this project during their prenatal clinic visits. Participants were asked if they would like to participate in the project. The project coordinator obtained consent from those who agreed to participate. Spanish interpreters were utilized during the consent process and the completion of questionnaires.

Protection of Human Subjects

There is a need to protect the health information of those who participate and provide a safe environment for individuals who may not feel safe attending breastfeeding classes. This is especially so for those who are undocumented. The need to protect participants was addressed by de-identifying participants and conducting classes during pre-natal clinic days, to avoid having participants come to the clinic an additional day. This avoided potential harm to participants, in that they need not seek extra transportation to the clinic or fear potential arrest.

Consent Process

Consent forms were provided to the participants, in both English and Spanish. A Spanish interpreter was available to assist with translation and completing surveys. Participants were de-identified and assigned a three-digit serial number that was recorded on all material, both within and outside of the packet. The participants were fully informed of the purpose, risks, and their right to refuse to participate in the project. Participants were allowed to ask questions regarding the study. They were provided with the contact information of the project lead investigator, who handled and secured all questionnaires, surveys, and relevant data by de-identifying the data and providing secure storage for collected participant information.

Because this project is an education intervention, no adverse effect on the participants was anticipated. The DNP student and other team members always ensured participant confidentiality, and participants' health information was always protected.

The study participants were pregnant women aged 18 and older. Many of the participants were Latinas who received prenatal care at the free clinic. A major concern of the team was that some of the women might be undocumented individuals. This presented a potential risk, in that they might experience stress in coming to the clinic, fearing police arrest. Also, many participants, due to their immigration status, do not drive and had to seek transportation from family and friends. This is an extra form of stress for participants. Therefore, the team strove to present classes at the clinic during pre-scheduled prenatal care visits.

Recruitment

Recruitment took place on-site, on prenatal clinic days, from October 2019 to December 2019. Pregnant women were asked if they wished to participate in the study, and those who expressed interest in the breastfeeding class were vetted to determine if they met the criteria. Also, clinic staff informed potential participants about the class when scheduling prenatal visits, and these women also received texted reminders of upcoming breastfeeding classes.

Each participant was assessed to ensure they met the appropriate inclusion criteria. Those who did receive a breastfeeding education packet, which consisted of a folder that contained the consent form; demographic questionnaire; and a breastfeeding intention scale pre-education questionnaire, in the first pocket. The Ready, Set, Baby breastfeeding education booklet in Spanish or English; breastfeeding intention scale post-education, and class evaluation form could be found in the second pocket of the folder. Assistance in filling out the forms was provided by a Spanish interpreter; this took five to ten minutes to complete. Those who did not

meet the criteria were welcome to participate in the class but received only the Ready, Set, Baby booklet, and class evaluation form. Posters were displayed, highlighting the benefits of breastfeeding, in the classroom, to reinforce the benefits of exclusive breastfeeding.

Intervention and Data Collection

A series of meetings were held with the team. The team consisted of the DNP student as the project lead; the site manager; a registered nurse who is also an IBCLC and fluent in the Spanish language; and two Spanish interpreters. The team met to develop surveys and familiarize themselves with the Ready, Set, Baby breastfeeding education materials. After coordinating with the medical provider for the prenatal care clinic, to establish on which days pre-natal care would be provided on-site, flyers containing information about the project in English and Spanish were displayed in exam rooms and were also distributed by the nutritionist.

The team determined to conduct the classes during pre-natal clinic days to reduce the burden on participants having to make additional transportation arrangements. The team also wanted to create a family-friendly atmosphere, where support persons, spouses, partners, and young children were welcome and encouraged to attend the classes. This was helpful because mothers did not have to find childcare on class days.

From October to December, educational programming was conducted. A total of seven classes took place. A pilot class was held in the first week of October. This pilot allowed for identifying certain areas that could be improved for this project. The pilot breastfeeding education class recruited five people. During the pilot class, only one person filled out a packet. Based on how she filled it out, appropriate changes were made to improve and streamline the process, while ensuring that needed information was obtained. One improvement made after the

pilot study was the inclusion of surveys in Spanish, as well as English. This helped save time in the completion of the surveys because many of the participants were literate in Spanish and could fill out the surveys with minimal assistance from the interpreter. Additional classes were held throughout October and November, and the final class met in December. Final data collection took place during the last class, and the raffle drawing for a car seat was conducted.

Pregnant mothers were eligible to receive a free RSB educational session when they first presented to the clinic for prenatal care but had to meet the inclusion criteria to take part in the study. The RSB breastfeeding classes were held on prenatal clinic days, in the clinic's classroom.

The breastfeeding education group session lasted 45 to 60 minutes, and several participants were accompanied by their mothers, mothers-in-law, and/or young children. Pregnant women both with and without appointments were welcome to attend; there were few occasions on which the team provided a one-on-one breastfeeding education class.

At least one Spanish interpreter was available for all classes. Some classes, due to a size of 10 or more, required a second Spanish interpreter to assist with the completion of the surveys. To encourage attendance, team members suggested holding a raffle, for which the prize would be presented at the last breastfeeding class. Each time a participant attended the class, they were eligible to place their name in the raffle pool before the start.

Each class member received a study packet, which was a two- pocket folder that contained an informed consent form, demographic survey, and the Infant Feeding Intention Scale survey, marked Pre-Education across the top of the page. These documents were placed in the left-hand folder pocket. In the right-hand folder, pocket was the Ready, Set, Baby booklet, Infant Feeding Intentions Scale survey marked Post-Education across the top, and a class evaluation form (Appendix C). Each folder and its contents were assigned a three-digit number: 001, 002,

003, and so forth. Everyone who met the inclusion criteria received a packet and was assisted by a Spanish interpreter in signing the informed consent and completing the demographic and pre-education surveys. Once the consent and surveys were completed, participants were directed to place their names in the raffle pool. This process took approximately 10 minutes.

After the class was completed, the women were instructed to fill out the Infant Feeding Intention Scale marked Post-Education, and the class evaluation form, and received assistance from the Spanish interpreter in completing these. Once the forms were completed, participants were instructed to return their folders to the instructor and to keep the Ready, Set, Baby booklets. The participants were asked to bring their booklets with them any time they attended class, to match the assigned number to the folder for those that were not completed.

The group sessions were conducted as an informal conversation that utilized the RSB curriculum but also allowed the women to express their knowledge, views, and concerns about breastfeeding. The RSB materials were then used to acknowledge the views held by the participants, and to provide Evidence-Based information about breastfeeding.

Measures /Instrument/Tools

Demographic data collected for this project included age; race; ethnicity; the level of education; and breastfeeding history, as described in Tables 2 and 3.

The Infant Feeding Intentions Tool and the class evaluation were used to measure intention to exclusively breastfeed, attitude to breastfeeding, and response to the RSB breastfeeding education program (Nommsen-Rivers et al., 2010; Parry et al., 2019). The final measures for this project will comprise knowledge of the benefits of breastfeeding, the intent to exclusively breastfeed, and response to the RSB. An additional measure will be breastfeeding confidence. Participants filled out a pre-intervention questionnaire that comprised initial baseline information such as

demographics, prior or current infant-feeding practices, and knowledge of and perception of breastfeeding. After the educational intervention, the post-intervention questionnaire was administered to assess for breastfeeding attitude, intention to exclusively breastfeed, confidence in breastfeeding, and response to RSB (Table 4). Questionnaires were administered via paper and pencil and manually entered into the SPSS program.

Statistical Analysis

Descriptive statistics were used to illustrate the participants' characteristics (Table 2) and the suitability of the Ready, Set, Baby breastfeeding education curriculum. Variables for the descriptive statistics were age, race, and education level (Table 2). Other variables assessed were breastfeeding history such as, "Have you ever breastfed?"," If so, for how long did you breastfeed?" and "Do you plan to exclusively breastfeed?" (Table 3).

A program evaluation survey was administered to assess the acceptability and suitability of the RSB curriculum. This evaluation was a Likert scale (Appendix C).

The Infant Feeding Intention Scale (Table 4) is a five-question assessment tool that measures the mother's plan to breastfeed or formula feed, and if at one month, three months, or six months the mother plans to breastfeed her baby without introducing either formula or any type of milk. The scale is scored from 0-16, where a score of zero indicates that the mother is least likely to exclusively breastfeed, and a score of 16 indicates the greatest likelihood the mother will exclusively breastfeed her child (see Table 4 for complete illustrations of the Infant Feeding Intention Score items). Table 5 depicts responses to the Ready, Set, Baby class evaluation.

Collected data were entered into the SPSS 26 Statistical Program. Non-parametric analyses were conducted due to the small sample size. The Pearson Correlation was an additional analysis.

Section IV: Results and Discussion

Results

Twenty-three of thirty-four pregnant women completed the pre- and post-Infant Feeding Scale questionnaires. The mean age of participants at the time of implementing the RSB breastfeeding education curriculum was 27.29 years. The sample was 95.7% Hispanic, and 4.3% identified as other. Their education levels differed; 52.2% had attained a high school degree, 30.4% had no high school degree, and 17.7% had earned a college undergraduate degree or higher. Primiparous women made up 39.1% of the cohort, and multiparous women comprised 60.99%. All the multiparous women answered yes to the question "Have you breastfed any of your children"? All 23 women selected yes to the item regarding the intention to breastfeed, which was a yes or no choice question.

Ready, Set, Baby Breastfeeding Education Evaluation

Table 5 describes the results of the Ready, Set, Baby, Breastfeeding Education evaluation by the participants. For Item 1, "Class offered useful information", the Mean was 5.00 (SD = 0.00). For Item 2, "Visual aids increased my understanding of the class content", the Mean was 4.95 (SD =.22). For Item 3, "Increased my confidence level with exclusive breastfeeding", the Mean was 4.95 (SD =.22). For Item 4, "My expectations were met", the Mean was 4.90 (SD = .30). For Item 5, "I would recommend this class to others", the Mean was 5.00 (SD = 0.00),

and for Item 6, “The Ready, Set, Baby booklet was helpful”, the reported Mean score was 4.95 (SD = 0.22).

Breastfeeding Intention, Exclusivity, and Duration

The mean score and standard deviation (SD) of the Infant Feeding Intentions (IFI) survey pre-education were 11.35 (SD = 4.32), and the IFI survey post-education was 11.11 (SD = 4.97). The results of the Wilcoxon signed ranks test showed no significant change in the intention to breastfeed and breastfeeding exclusivity (Z =0.00, p =1.00).

The Wilcoxon Signed Ranks Test was used to analyze breastfeeding intention, exclusivity, and duration (Table 6). Each item on the Infant Feeding Intention scale was assessed to determine any differences in the pre- and post-breastfeeding education scores. Both means and medians are reported in the tables. Overall, there was no significant change in the pre- and post-infant feeding intention scale items completed by the 23 participants (Table 6). For the item “I am planning only to formula feed my baby (will not breastfeed at all)”, the mean was .17 (SD = 1.61) and the median was 0.00. The results were not statistically significant (Z = -0.051, p = .61).

For the item “I am planning to breastfeed my baby or at least try”, the mean was 0.30 (SD = 1.02) and the median was 0.00. The results were not statistically significant (Z = -1.34, p = .18).

For the item “When my baby is one month old, I will be breastfeeding without using any formula or other milk”, the mean was -0.22 (SD = .99) and the median was 0.00. The results were not statistically significant (Z = -0.96, p = .34).

For the item “When my baby is three months old, I will be breastfeeding without using any formula or other milk”, the mean was -0.09 (SD = 1.12) and the median was 0.00. The results were not statistically significant (Z = -0.17, p = .86).

For the item, “When my baby is six months old, I will be breastfeeding without using any formula or other milk”, the mean was 0.04 (SD = 1.43) and the median was 0.00. The results were not statistically significant (Z = -0.21, p = .83).

Counts of Individual Responses to Infant Feeding Intention Survey

The frequencies of the responses were assessed for each item of the Infant Feeding Intention Survey. The McNemar test was conducted and can be viewed in Table 7. The following results were recorded. For the item "I am planning to only formula feed my baby (will not breastfeed at all)", before the education, 13 participants (57%) disagreed with the item and 10 (43%) agreed.

Twelve of the 13 participants (92%) who disagreed with the item before the education continued to disagree post-education, but one participant (8%) agreed. Seven of the 10 participants (70%) who agreed with the item pre-education continued to agree, but three participants (30%) changed their answers to disagree with the item post-education. Therefore, 15 of the 23 participants (65%) disagreed with the statement post-education, which is an overall increase of 8%. Although the McNemar test is not significant (p =.625, McNemar test), the change is in the preferred direction.

For the item "I am planning to breastfeed my baby or at least try", before the education, 20 participants (87%) agreed with the item. Only three participants (13%) disagreed. All 20 participants (100%) who agreed with the item before the education continued to agree post-education. Two of the three participants (67%) who disagreed with the item pre-education changed their answer to agree post-education, but one (33%) did not. Therefore, 22 of the 23 participants (96%) agreed with the statement post-education, which is an overall increase of 9%. Although the McNemar test is not significant (p =.500, McNemar test), the change is in the preferred direction.

For the item "When my baby is one month old, I will be breastfeeding without using any formula or other milk", before the education, 16 participants (70%) agreed with the item and seven (30%) disagreed. Fourteen of the 16 participants (88%) who agreed with the item before the education continued to agree post-education, but two participants (12%) disagreed. All seven participants (100%) who disagreed with the item pre-education continued to disagree post-education. Therefore, 14 of the 23 participants (61%) agreed with the statement post-education, which is an overall decrease of 9%. The McNemar test is not significant (p =.500, McNemar test), and the change is not in the preferred direction.

For the item "When my baby is three months old, I will be breastfeeding my baby without using any formula or other milk", before the education, 15 participants (65%) agreed with the item and eight (35%) disagreed. Thirteen of the 15 participants (87%) who agreed with the item pre-education continued to agree post-education, but two participants (13%) disagreed. Seven of the eight participants (87.5%) who disagreed with the item before the education continue to disagree, but one participant (12.5%) changed her answer to agree with the item post-education. Therefore, 14 of the 23 participants (61%) agreed with the statement post-education, which is an overall decrease of 4%. The McNemar test is not significant (p = 1.00, McNemar test), and the change is not in the preferred direction.

For the item "When my baby is six months old, I will be breastfeeding without any formula or other milk", before the education, 12 participants (52%) agreed with the item, and 11 (48%) disagreed. Ten of the 12 participants (83%) agreed with the item before the education continued to agree post-education, but two participants (17%) disagreed. Eight of 11 (73%) participants who disagreed with the item pre-education continue to disagree, but three of the 11 participants (27%) changed their score to agree with the item post-education. Therefore, 13 of

the 23 participants (57%) agreed with the statement post-education, which is an overall increase of 5%. Although the McNamara test is not significant (p = 1.00, McNamara test), the change is in the preferred direction.

Primary Outcome Scores Between High School Education and No High School Education.

The Mann-Whitney U exact test was used to analyze the results of Primary Outcome Scores between High School Education and No High School Education. There was no significant difference among women without a high school degree, that is, high school non-completers, compared to high school graduates, those with a high school degree or greater (Table 8).

For the item, “I am planning only to formula feed my baby (will not breastfeed at all)”, the mean difference in the pre- and post-test scores was 0.38 (SD = 1.54) and the median was 0.00. For the high school graduates. The mean was -0.27 (SD = 1.80) and the median was 0.00. For the high school non-completers. The results were not statistically significant (U = 60.50, p =.77).

For the item “I am planning to breastfeed my baby or at least try”, the mean difference in the pre- and post-test scores was 0.25 (SD = 1.00) and the median was 0.00 for the high school graduates. The mean was 0.429 (SD = 1.13) and the median was 0.00 for the high school non-completers. The results were not statistically significant (U = 52.00, p = .82).

For the item “When my baby is one month old, I will be breastfeeding without using any formula or other milk”, the mean difference in pre- and post-test was -0.313 (SD =1.19) and the median was 0.00 for the high school graduates. The mean was 0.00 (SD = 0.00) and the median was 0.00 for the high school non-completers. The results were not statistically significant (U = 52.50, p = .82).

For the item “When my baby is three months old, I will be breastfeeding without using any formula or other milk”, the mean difference in the pre-and post-test scores was -0.06 (SD = 1.34) and the median was 0.00 for the high school graduates. The mean was -0.14 (SD = 0.38) and the median was 0.00 for the high school non-completers. The results were not statistically significant (U = 68.00, p-value = .45).

For the item, “When my baby is six months old, I will be breastfeeding without using any formula or other milk”, the mean difference in the pre-and post-test scores was 0.19 (SD = 1.64) and the median was 0.00 for the high school graduates. The mean was =0.29 (SD = 0.76) and the median was 0.00 for the high school non-completers. The results were not statistically significant (U = 66, p-value =.54).

. **Primary Outcome Scores of Breastfeeding Experience and Never Breastfed**

The results of Primary Outcome Scores of Breastfeeding Experience and Never Breastfed are presented in Table 9. There was no significant difference among women who had breastfeeding experience and women who had never breastfeed.

For the item “I am planning only to formula feed my baby (will not breastfeed at all)”, the mean difference in the pre- and post-test scores was 0.07 (SD = 1.77) and the median was 0.00 for the women who had breastfeeding experience. The mean was 0.33 (SD = 1.41) and the median was 0.00 for the women who had never breastfed. The results were not statistically significant (U = 61.00, p =.93).

For the item “I am planning to breastfeed my baby or at least try”, the mean difference in the pre- and post-test scores was 0.21 (SD = 0.80) and the median was 0.00 for the women who had breastfeeding experience. The mean was 0.44 (SD = 1.33) and the median was 0.00 for the

women who had never breastfed. The results were not statistically significant (U = 66.00, p =.88).

For the item, “When my baby is one month old, I will be breastfeeding without using any formula or other milk”, the mean difference in the pre-and post-test scores was -0.14 (SD = 1.17) and the median was 0.00 for the women who had breastfeeding experience. The mean was -0.33(SD = 0.71) and the median was 0.00 for the women who had never breastfed. The results were not statistically significant (U = 47.50, p =.34).

For the item “When my baby is three months old, I will be breastfeeding without using any formula or other milk”, the mean difference in the pre- and post-test scores was -0.29 (SD = 1.14) and the median was 0.00 for the women who had breastfeeding experience. The mean was 0.22 (SD = 1.09) and the median was 0.00 for the women who had never breastfed. The results were not statistically significant (U = 79.50, p =.31).

For the item, “When my baby is six months old, I will be breastfeeding without using any formula or other milk”, the mean difference in the pre- and post-test scores was 0.14 (SD = 1.66) and the median was 0.00 for the women who had breastfeeding experience. The mean was 0.33 (SD = 1.00) and the median was 0.00 for the women who had never breastfed. The results were not statistically significant (U = 73.00, p =.56).

Age and How Long Breastfed with the Difference Scores

There was no significant correlation found in breastfeeding exclusivity related to the age of the mother and her history of breastfeeding duration in the past (Table 10). However, the correlation coefficient r=.413, p=.06, showed an increase in values from baseline but was not significant for one month. The participants whose difference scores were positive for one month were among the oldest (30 and 36 years old), and the participants whose difference scores were

negative for one month were among the youngest (20 and 23 years old). Another age-related note is that the participant who said, "Will, not breast and formula feed due to health problems, and takes medications", was 39 years old.

The duration of past breastfeeding in months showed some increase in the positive direction but, was not significant for the three months difference scores, r=-423, p=.056. The positive difference scores were only among those who had breastfed the least in the past (one month), and the largest negative difference score was calculated for the participants who had breastfed the longest in the past (36 months).

The duration of past breastfeeding in months was significantly related to the difference score for six months, r=-.433, p=.05. The respondents whose difference scores were increased were among those who had breastfed the least in the past (zero and one month), and the highest negative difference score was calculated for the participant who had breastfed the longest in the past (36 months).

Discussion

Project Findings

Hispanic women have a higher breastfeeding initiation rate than any other group but are more likely to supplement with formula by Day Two of an infant's life (Barcelona de Mendoza et al., 2016; Chapman & Pérez-Escamilla, 2013). This project seeks to address the question, "How does breastfeeding education provided during prenatal visits impact a mother's intention to exclusively breastfeed her baby?"

Thirty-six women initially participated in the Ready, Set, Baby breastfeeding education classes conducted at the free clinic. Two participants did not meet the age criteria for this project but received breastfeeding education. Thirty-four women met the inclusion criteria for the project

and signed informed consent. The participants took part in seven breastfeeding education classes utilizing the Ready, Set, Baby breastfeeding education program. The scheduled classes were held from October 7, 2019, to December 5, 2019. Most of the classes were conducted in a group setting. On two occasions, the class was conducted one-on-one. Those who participated in the class received a Ready, Set, Baby booklet in the participants' preferred languages. The instructor utilized the instructor's guide and the Spanish interpreter used the Spanish version of the instructor's guide. The group sessions were lively, and there was high participation from the participants who attended the classes. Many of them expressed their views related to exclusive breastfeeding and were aware of the benefits of breastfeeding.

The RSB class evaluation yielded positive results, with high approval ratings by the participants. High approval for the RSB was also evident in the participants' comments. They wrote comments such as "Great Class", and "I learned a lot". One participant commented on how she had learned that colostrum is extremely beneficial to the baby during the first days of life. One participant, despite learning about the benefits of exclusive breastfeeding, commented that she felt the need to supplement due to her health issues and prescribed medications. Other participants had concerns about being able to express or pump breastmilk at their workplace. Overall, the class evaluation yielded high scores, and the participants were pleased with the class.

Despite statistical significance was not reached regarding the intent to exclusively breastfeed, all who participated in this project intended to breastfeed their babies. This was noted in the demographic survey Item Four, Intention to Breastfeed – Yes or No. All 23 participants answered yes.

Table 6 illustrates breastfeeding intention, exclusivity, and duration at 1) pre-breastfeeding education and at 2) post-breastfeeding education. The data analysis found no change in intent to exclusively breastfeed. To Item One, "I am planning to formula feed my baby (I will not breastfeed at all), 12 women answered "very much disagree" which is a score of 4 at pre-education; at post-education, 14 women answered, "very much disagree". There was an addition of two participants who changed their minds for Item One at post-education. On the whole, however, there were no statistically significant changes in the breastfeeding intention, exclusivity, and duration of this group of women.

The frequencies in counts of individual responses to the Infant Feeding Intention Survey depicted in Table 7 shows subtle movement in the desired direction. The change in planning to use formula exclusively was not statistically significant, but it was in the preferred direction. Three participants changed their answers away from using formula exclusively, but they were offset by one person who changed her mind to "not breastfeed at all", post-education. While most participants do not plan to use formula exclusively, 35 percent of the participants said that they would not breastfeed at all, post-education. However, all but one person planned to breastfeed or at least try.

Most of the participants said that they planned to breastfeed exclusively at one month postpartum. However, one person who planned to breastfeed exclusively before education changed her answer away from breastfeeding without formula, post-education. None of the participants who disagreed with breastfeeding without any formula at one-month changed their minds post-education. That is, all of the participants who planned to use formula at one-month pre-education, continued to plan to supplement with formula at one-month post-education.

Therefore, results for this item were not statistically significant, and the only change was not in the preferred direction.

Most of the participants planned to breastfeed exclusively at three months. Only one of the eight participants, who planned to supplement with formula at three-month pre-education, changed her mind to breastfeed exclusively. However, this result was offset by the two participants, who agreed to breastfeed exclusively at three months, changing their answers away from breastfeeding without formula post-education. Thus, not only were the results not statistically significant, the overall change was not in the preferred direction.

Most of the participants planned to breastfeed exclusively at six months. Two participants, who agreed to breastfeed without formula at six months, changed their answers away from breastfeeding exclusively post-education. While most of the participants who disagreed with breastfeeding without any formula at six months did not change their minds post-education, three of the participants did change to planning to breastfeed exclusively post-education. Thus, while the results were not statistically significant, the overall change was in the preferred direction.

The Primary Outcome Scores Between High School Education and No High School Education (Table 8), showed no statistically significant difference between the change in the pre-education and post-education for the levels of education. The difference scores were zero for all items pre- and post-education. This indicates that the education level of these participants did not influence their decision whether to exclusively breastfeed or not. Table 9 depicts the *Primary Outcome Scores of Breastfeeding Experience and Never breastfed.* Here the team looked to determine if a mother who breastfed in the past compared to a mother who has never breastfed

influenced their decision the exclusively breastfeed their babies. No statistically significant difference was found between the change in the pre- and post-education scores for these groups.

The Pearson correlation analyses, illustrated in Table 10. The results found that age was not significantly related to any of the change scores.

Some of the barriers to breastfeeding exclusivity that was discussed during the breastfeeding class sessions were the concern of many mothers of returning to work and not be able to express milk due to the nature of their jobs. Not all worksites have places that are conducive for mothers to express milk for their infants while at work. Another barrier is a few of the mothers expressed that they are on medication for chronic conditions and would not feel comfortable exclusively breastfeeding their infants while having to take medication regularly. These concerns are valid, and more education and support are needed to educate and provide the correct information concerning workplace laws regarding employers' responsibility in supporting their employees in ensuring appropriate accommodations for working mothers to express milk at work for their babies.

Strengths and Weaknesses of Design

The strengths of the project design are that it seeks to provide education related to the benefits of breastfeeding to low-income women who seek prenatal care at the free clinic. This intervention will help pregnant mothers make an informed choice of infant feeding practice. It is anticipated that the continuation of breastfeeding education during prenatal visits will in time help to increase intent to exclusively breastfeed, increase confidence in exclusive breastfeeding, and increase discomfort with formula supplementation. The women who participated in this intervention, anticipate delivery at a nearby hospital, where breastfeeding education will

continue; which will reinforce breastfeeding education received during the prenatal period. This intervention mainly looks at a mother's intent to exclusively breastfeed after receiving breastfeeding education classes and to assess the acceptability and feasibility of the RSB breastfeeding education curriculum at the free clinic which was achieved with this project.

The responses to the surveys are self-reported, with no way to determine whether the participant will exclusively breastfeed unless the participant is followed at the postpartum stage the birth of her child, which will not be possible at this time due to the time limitations of the intervention. Some participants may engage in social desirability bias and it may be difficult to decern their true intentions in this short period.

Included in the limitations of this project is the language barrier, the team relied heavily on Spanish interpreters to translate the class material. This resulted in a long time in filling out materials and a longer time for presenting the breastfeeding education class. Also, the post-education Infant Feeding Intention scale was completed after the class. This was decided by the group to avoid losing people to follow-up.

The time frame allotted to implementing this project was also seen as a major limitation. Due to the limited time of this study it is difficult to know for sure if mothers are breastfeeding or for how long and if they are supplementing or not. However, if there were to be more time breastfeeding intent, exclusivity, and duration can be closely scrutinized. The small sample size was also identified as a limitation in this project. Future studies may benefit from a larger sample size in this population to further learn about their infant feeding practices and institute breastfeeding education programs that will stress breastfeeding exclusivity and duration positively and beneficially.

Products of the Scholarly Practice Project

A complete, comprehensive report will be provided to the University of Virginia School of Nursing towards the fulfillment of the requirements for the degree of Doctor of Nursing Practice. The findings of this project will be presented to the free clinic management. Education materials, such as posters, links to downloadable education materials will be provided to the clinic so that it will possess a standard breastfeeding education curriculum. This will ensure that pregnant women who seek care at the free clinic will continue to receive education regarding the benefits of exclusive breastfeeding to mothers and babies. Also, a copy of this project will be provided to the developers of the Ready, Set, Baby breastfeeding education curriculum, and Nommsen-Rivers et. al., developers of the Infant Feeding Intention Scale.

Conclusion

This project justifies the need to further explore ways to improve breastfeeding education during prenatal care visits, with a focus on breastfeeding exclusivity and duration in the population described. It is also important to utilize education during the prenatal period and continue into the postnatal period to help boost mothers' confidence in exclusive breastfeeding while at the same time decreasing the comfort of formula supplementation (Parry et al., 2019). This project is situated in the context of the Doctor of Nursing Practice (DNP) essentials VI, VII, and VIII. The findings illustrated in this project is evidence that this is an area where the DNP prepared practitioner can utilize acquired skills as related to the eight DNP essentials with a primary focus on essentials VI through VIII. The Advanced Prepared practitioner is in a unique position to assess, analyze, develop a plan, implement, and conduct evaluations that can help improve health outcomes in a given population.

Section V: Manuscript for Clinical Lactation Journal

Title Page

Improving Intent to Exclusively Breastfeed in Low-Income Women Receiving Care at a Free Clinic in Northern Virginia

Author: Nana A. Tetteh, FNP-BC, MSGH, BSN.
The University of Virginia. DNP Student
17598 Summer Duck Dr. Dumfries, VA 22026
nat8bm@virginia.edu

Kathryn B. Reid, Ph.D., RN, FNP-C, University of Virginia

Emily Drake, Ph.D., RN, FAAN, University of Virginia

Ivora D. Hinton, Ph.D., University of Virginia

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Abstract

Background: Disparities in breastfeeding exclusivity, duration, and initiation have been found among minority and low-income women. Latina mothers have high breastfeeding initiation rates, but supplement with formula, usually at Day Two of life. Culturally appropriate breastfeeding education provided during the prenatal period can help to increase breastfeeding intent, initiation, duration, and exclusivity.

Purpose: This project implemented a culturally appropriate prenatal breastfeeding curriculum in a free clinic setting, and evaluated the impact on intent to initiate and exclusively breastfeed.

Methods: A pre- and post-education intervention, and curriculum evaluation, were used to determine if there was a difference or change in attitude towards breastfeeding exclusivity, duration, and initiation.

Findings/Results: Thirty-six pregnant women participated in the Ready, Set, Baby (RSB) breastfeeding education program. Two women did not meet the criteria for age. Thirty-four women aged 18-39 met the criteria and completed consent forms, with the assistance of a Spanish interpreter. Twenty-three completed the pre/post Infant Feeding Intention scale (IFI). There was high approval for the RSB breastfeeding curriculum. The data showed no change in the intention to exclusively breastfeed.

Implications/Discussion: Breastfeeding education provided in the free clinic setting is very important to the promotion, protection, and support of exclusive breastfeeding. The “Ready, Set, Baby” breastfeeding education class provided to low-income and minority women during prenatal visits can be sustainable in the free clinic setting. The materials are culturally appropriate and cost-effective.

Keywords: Exclusive Breastfeeding, Breastfeeding, Low-income women, Pre-natal, Breastfeeding Education, Breastfeeding Intent.

Text

Introduction

The World Health Organization (WHO) recommends exclusive breastfeeding from birth up to six months of age, followed by the introduction of complementary foods and the continuation of breastfeeding up to two years of age (CDC, 2019). The American Academy of Pediatrics also recommends exclusive breastfeeding up to six months of age and then introducing solid foods, in addition to breastmilk, up to 12 months of age, or more as the mother desire(CDC, 2019)Breastfeeding provides both infants and mothers unmatched health benefits (CDC, 2019). It is considered the gold standard in infant nutrition(CDC, 2019) Infants who have breastfed have a reduced risk of asthma; allergies; Type 2 diabetes; obesity; sudden infant death syndrome (SIDS); respiratory diseases; and ear infections. Breastfeeding also has substantial benefits for mothers (CDC, 2019; *Search the Data | Healthy People 2020*, n.d.; *WHO | The World Health Organization's Infant Feeding Recommendation*, n.d.). Breastfeeding can help lower a mother's chances of high blood pressure, Type 2 diabetes, and breast and ovarian cancers (*Search the Data | Healthy People 2020*, n.d.; *WHO | The World Health Organization's Infant Feeding Recommendation*, n.d.). The 2018 CDC Breastfeeding Report Card shows that, of the babies born in 2015, 83.2% started out breastfeeding. That is four out of every five births. Almost half, 46.9%, were exclusively breastfeeding at three months, and only 35.9% were still breastfeeding at 12 months (CDC, 2019). Despite the increase in breastfeeding rates in the U.S., and the benefits of exclusive breastfeeding, many mothers choose not to breastfeed at all or supplement breastmilk with formula (*Search the Data | Healthy People 2020*, n.d.)According to the CDC, 60% of women discontinue breastfeeding sooner than planned due to a lack of support for breastfeeding mothers. Despite the great strides in the overall health of the U.S population, as

evidenced by the 2018 Healthy People 2020 Report Card, racial and ethnic disparities are prevalent, and minority women continue to have considerably lower breastfeeding rates than white women (Jones et al., 2015) Minority women report more barriers to breastfeeding than their Caucasian counterparts (CDC, 2019; Jones et al., 2015). African American women continue to have the lowest breastfeeding initiation rates, at 60%; continuation to six months, at 28%; and to 12 months, at 13% (Jones et al., 2015). According to Jones et al., despite having higher breastfeeding rates than Caucasian and African American women, Latina women commonly supplement with formula as early as two days of life for the infant, and are more likely to introduce early solid foods at four months of age. Latina women also have higher rates of restrictive maternal feeding practices and lower exclusive breastfeeding. Because of this, Latina and other minority women are not meeting the Healthy People 2020 goals (Jones et al., 2015)

Why is breastfeeding so important? If 90% of U.S. families complied with medical recommendations to breastfeed exclusively for six months, the United States would save $13.6 billion a year, and prevent over 911 deaths, nearly all of which would be infants(Bartick & Reinhold, 2010) This is an astonishing number of saved healthcare dollars, considering the current debate regarding the rising costs of American healthcare. According to the literature, many low-income clinics, WIC, and hospitals that operate in underserved areas are continuously searching for avenues that are based on evidence to improve or increase exclusive breastfeeding rates in minority populations(Lewkowitz et al., 2018) Some of the many barriers these women face include lack of support from their partners and family, or having to return to work soon after giving birth, without opportunities to pump/express breastmilk for babies while at work(Jones et al., 2015).

In Northern Virginia, a free clinic run by volunteer doctors, nurses, physical therapists, and a nutritionist has observed the need for prenatal care. This clinic extended its services to provide

prenatal care for low-income families in the region and now serves over 4,000 low-income patients. The clinic is supported by healthcare contributions from local health systems; a local lab for additional patient services; consultative services by another health system; and a healthcare institution to set up an ethics committee for the clinic soon. Many women who seek care at the free clinic are low-income Latinas, many of whom have breastfed in the past but reported having to discontinue or supplement due to the multiple barriers they face.

The purpose of this project is to increase exclusive breastfeeding rates in low-income pregnant women who seek prenatal care at a free clinic in Northern Virginia, by providing breastfeeding education. During the prenatal period, mothers will learn the benefits of breastfeeding and make an informed decision, hopefully, to exclusively breastfeed their babies. Also, they will learn about breastfeeding resources to assist with their goals, to exclusively breastfeed their infants six months or more as recommended by the American Academy of Pediatrics (AAP). There is unanimous agreement among many professional bodies that exclusive breastfeeding prevents serious disease in infants as well as mothers, and at the same time saves enormous healthcare costs (CDC, 2019; *Search the Data | Healthy People 2020*, n.d.; *WHO | The World Health Organization's Infant Feeding Recommendation*, n.d.) This project sought to improve and enhance current prenatal education by adding breastfeeding education.

Methods

The purpose of this project is to determine if breastfeeding education provided during the prenatal period will influence the decision of women to exclusively breastfeed.

Secondly, to determine if the Ready, Set, Baby breastfeeding counseling and education program will be feasible for the free clinic setting in Northern Virginia.

Setting

This pre/post education intervention project was conducted in a church-affiliated free clinic in Northern Virginia. The clinic recently extended its services to provide prenatal care for low-income families.

Participants

The project sample consisted of 34 women who received prenatal care at the free clinic during pregnancy. Of the 34 pregnant women who participated in the breastfeeding education class, 23 completed the pre/post-survey.

The majority of the women who participated in the project identified English as a second language; most were literate in Spanish. Many of the women had completed high school (Table 2). Twenty-five of the women were multiparous, and nine described this pregnancy as their first. All the women who had given birth had breastfed in the past, and all of the women stated they planned to breastfeed. Inclusion criteria were confirmed uncomplicated pregnancy; age 18 and above; ability to give consent and primary language English or Spanish, or able to speak English or Spanish fluently.

Exclusion Criteria include: under age 18; high-risk pregnancy; inability to give consent; non-English or non-Spanish speaking.

A total of 36 women attended breastfeeding classes; two women did not meet the criteria for age, so they were not included in the study, but they were permitted to attend the class and receive the Ready, Set, Baby booklet. Another woman did not complete any of the questionnaires but completed the class evaluation form.

Educational Intervention

Ready, Set, Baby is a prenatal breastfeeding counseling curriculum aimed at a target audience of pregnant women at any stage of pregnancy. The curriculum consists of a 24-page patient booklet; corresponding educator flip chart; screen projection of a PDF version of the flip chart (for group classes); and a two-part online orientation for educators (*tinyurl.com/ReadySetBaby*)(Parry et al., 2019).

Providers, registered dietitians, nurses, lactation consultants, and other staff such as medical office assistants, certified nursing assistants, doulas, childbirth educators, and trained volunteers are all eligible to use the Ready, Set, Baby curriculum to provide breastfeeding education classes in prenatal and postnatal settings. The guidelines for use of the Ready, Set, Baby breastfeeding education curriculum indicate it can be provided in an individual or group class setting (Parry et al., 2019). The class time can range from 30 to 60 minutes, according to the needs of the mother(s).

Topics covered in the Ready, Set, Baby breastfeeding education curriculum are the importance of breastfeeding; the importance of exclusive breastfeeding; non-pharmacologic pain relief methods for labor; the importance of early skin-to-skin contact; early initiation of breastfeeding; rooming-in on a 24-hour basis; feeding on demand or baby-led feeding; frequent feeding to help assure optimal milk production; effective positioning and latching; exclusive

breastfeeding for the first six months; the importance of continued breastfeeding after six months; and risks of supplements while breastfeeding for the first six months(Parry et al., 2019) The topics mentioned are presented in a colorful, easy-to-read booklet which the mothers keep and refer to as needed(Parry et al., 2019)

Project Design

An educational pre-test/post-test design was used for this project, to answer the question: *"How does breastfeeding education provided during prenatal visits impact a mother's intention to exclusively breastfeed her baby?"* A demographic survey was used to describe the characteristics of the population at the free clinic. The education intervention sought to increase the intent to exclusively breastfeed in women who receive prenatal care at a suburban free clinic setting.

Ethical Considerations

This project was reviewed and approved by the IRB board at the University of Virginia. Once approval was granted, participants were recruited to take part in this project during their prenatal clinic visits. Participants were asked if they would like to participate in the project. The project coordinator obtained consent from those who agreed to participate. Spanish interpreters were utilized during the consent process and the completion of questionnaires.

Consent Process

Consent forms were provided to the participants, in both English and Spanish. A Spanish interpreter was available to assist with translation and completing surveys. Participants were de-identified and assigned a three-digit serial number that was recorded on all material, both within and outside of the packet. The participants were fully informed of the purpose, risks, and their

right to refuse to participate in the project. Participants were allowed to ask questions regarding the study and were free to opt-out at any time during the study.

Recruitment

Recruitment took place on-site, on prenatal clinic days, from October 2019 to December 2019. Pregnant women were asked if they wished to participate in the study, and those who expressed interest in the breastfeeding class were vetted to determine if they met the criteria.

Also, clinic staff informed potential participants about the class when scheduling prenatal visits, and these women also received texted reminders of upcoming breastfeeding classes.

Women who did not meet inclusion criteria were permitted to attend the classes but no personal data was collected. Women who met inclusion criteria received a breastfeeding education packet, which consisted of a folder that contained the consent form; demographic questionnaire; and a breastfeeding intention scale pre-education questionnaire, in the first pocket. The Ready, Set, Baby breastfeeding education booklet in Spanish or English; breastfeeding intention scale post-education, and class evaluation form could be found in the second pocket of the folder. Assistance in filling out the forms was provided by a Spanish interpreter; this took five to ten minutes to complete. Table 3 illustrates the Infant feeding Intention scale (IFI) (Nommsen-Rivers et al., 2010).

Intervention and Data Collection

A series of meetings were held with the team. The team consisted of the DNP student as the project lead; the site manager; a registered nurse who is also an IBCLC and fluent in the Spanish language; and two Spanish interpreters.

The team determined to conduct the classes during pre-natal clinic days to reduce the burden on participants having to make additional transportation arrangements. Family members were welcome to attend breastfeeding classes. This was helpful because mothers did not have to find childcare on class days.

From October to December, educational programming was conducted. A total of seven classes took place. A pilot class was held in the first week of October. This pilot allowed for identifying certain areas that could be improved for this project. Additional classes were held throughout October and November, and the final class met in December. Final data collection took place during the last class.

The breastfeeding education group session lasted 45 to 60 minutes, and several participants were accompanied by their mothers, mothers-in-law, and/or young children. Pregnant women both with and without appointments were welcome to attend; there were few occasions on which the team provided a one-on-one breastfeeding education class.

At least one Spanish interpreter was available for all classes. Some classes, due to a size of 10 or more, required a second Spanish interpreter to assist with the completion of the surveys. Each class member received a study packet, which was a two- pocket folder that contained an informed consent form, demographic survey, and the Infant Feeding Intention Scale survey, marked Pre-Education across the top of the page. These documents were placed in the left-hand folder pocket. In the right-hand folder, pocket was the Ready, Set, Baby booklet, Infant Feeding

Intentions Scale survey marked Post-Education across the top and a class evaluation form. Each folder and its contents were de-identified. Everyone who met the inclusion criteria received a packet and was assisted by a Spanish interpreter in signing the informed consent and completing the demographic and pre-education surveys. This process took approximately 10 minutes.

After the class was completed, the women were instructed to fill out the Infant Feeding Intention Scale marked Post-Education, and the class evaluation form, and received assistance from the Spanish interpreter in completing these. Once the forms were completed, participants were instructed to return their folders to the instructor and to keep the Ready, Set, Baby booklets. The women were asked to bring their booklets with them any time they attended class, to match the assigned number to the folder for those that were not completed.

The group sessions were conducted as an informal conversation that utilized the RSB curriculum but also allowed the women to express their knowledge, views, and concerns about breastfeeding. The RSB materials were then used to acknowledge the views held by the participants, and to provide evidence-based information about breastfeeding.

Measures /Instrument/Tools

Demographic data collected for this project included age; race; ethnicity; the level of education; and breastfeeding history, as described in Tables 1 and 2.

The Infant Feeding Intentions Tool and the class evaluation were used to measure intention to exclusively breastfeed, attitude to breastfeeding, and response to the RSB breastfeeding education program(Nommsen-Rivers & Dewey, 2009; Parry et al., 2019) The final measures for this project will comprise knowledge of the benefits of breastfeeding, the intent to exclusively breastfeed, and response to the RSB. An additional measure will be breastfeeding confidence. Participants filled out a pre-intervention questionnaire that comprised initial baseline information

such as demographics, prior or current infant-feeding practices, and knowledge of and perception of breastfeeding. After the educational intervention, the post-intervention questionnaire was administered to assess for breastfeeding attitude, intention to exclusively breastfeed, confidence in breastfeeding, and response to RSB (Table3). Questionnaires were administered via paper and pencil and manually entered into the SPSS program.

Statistical Analysis

Descriptive statistics were used to illustrate the participants' characteristics (Table 1) and the suitability of the Ready, Set, Baby breastfeeding education curriculum. Variables for the descriptive statistics were age, race, and education level (Table 1). Other variables assessed were breastfeeding history such as, "Have you ever breastfed?"," If so, for how long did you breastfeed?" and "Do you plan to exclusively breastfeed?" (Table 2).

A program evaluation survey was administered to assess the acceptability and suitability of the RSB curriculum. Table 4 depicts responses to the Ready, Set, Baby class evaluation.

The Infant Feeding Intention Scale shown in table 3 is a five-question assessment tool that measures the mother's plan to breastfeed or formula feed, and if at one month, three months, or six months the mother plans to breastfeed her baby without introducing either formula or any type of milk (Nommsen-Rivers et al., 2010; Parry et al., 2019) The scale is scored from 0-16, where a score of zero indicates that the mother is least likely to exclusively breastfeed, and a score of 16 indicates the greatest likelihood the mother will exclusively breastfeed her child.[8]

Collected data were entered into the SPSS 26 Statistical Program. The analyses used to analyze the project outcomes were descriptive; frequencies; Wilcoxon Signed – Rank Test; Mann-Whitney-U test; Pearson Correlation; and McNemar test.

Results

Twenty-three of thirty-four pregnant women completed the pre- and post-Infant Feeding Scale questionnaires. The mean age of participants at the time of implementing the RSB breastfeeding education curriculum was 27.29 years. The sample was 95.7% Hispanic, and 4.3% identified as other. Their education levels differed; 52.2% had attained a high school degree, 30.4% had no high school degree, and 17.7% had earned a college undergraduate degree or higher. Primiparous women made up 39.1% of the cohort, and multiparous women comprised 60.99%. All the multiparous women answered yes to the question "Have you breastfed any of your children"? All 23 women selected yes to the item regarding the intention to breastfeed, which was a yes or no choice question.

Ready, Set, Baby Breastfeeding Education Evaluation

Table 4 describes the results of the Ready, Set, Baby, Breastfeeding Education evaluation by the participants. For Item 1, "Class offered useful information", the Mean was 5.00 (SD = 0.00). For Item 2, "Visual aids increased my understanding of the class content", the Mean was 4.95 (SD =.22). For Item 3, "Increased my confidence level with exclusive breastfeeding", the Mean was 4.95 (SD =.22). For Item 4, "My expectations were met", the Mean was 4.90 (SD = .30). For Item 5, "I would recommend this class to others", the Mean was 5.00 (SD = 0.00), and for Item 6, "The Ready, Set, Baby booklet was helpful", the reported Mean score was 4.95 (SD = 0.22).

Breastfeeding Intention, Exclusivity, and Duration

The mean score and standard deviation (SD) of the Infant Feeding Intentions (IFI) survey pre-education were 11.35 (SD = 4.32), and the IFI survey post-education was 11.11 (SD = 4.97). The results of the Wilcoxon signed ranks test showed no significant change in the intention to breastfeed and breastfeeding exclusivity (Z =0.00, p =1.00).

The Wilcoxon Signed Ranks Test was used to analyze breastfeeding intention, exclusivity, and duration (Table 5). Each item on the Infant Feeding Intention scale was assessed to determine any differences in the pre- and post-breastfeeding education scores. Both means and medians are reported in the tables. Overall, there was no significant change in the pre- and post-infant feeding intention scale items completed by the 23 participants (Table 5). For the item "I am planning only to formula feed my baby (will not breastfeed at all)", the mean was .17 (SD = 1.61) and the median 0.00 was. The results were not statistically significant (Z = -0.051, p = .61).

For the item "I am planning to breastfeed my baby or at least try", the mean was 0.30 (SD = 1.02) and the median was 0.00. The results were not statistically significant (Z = -1.34, p = .18).

For the item "When my baby is one month old, I will be breastfeeding without using any formula or other milk", the mean was -0.22 (SD = .99) and the median was 0.00. The results were not statistically significant (Z = -0.96, p = .34).

For the item "When my baby is three months old, I will be breastfeeding without using any formula or other milk", the mean was -0.09 (SD = 1.12) and the median was 0.00. The results were not statistically significant (Z = -0.17, p = .86).

For the item, “When my baby is six months old, I will be breastfeeding without using any formula or other milk”, the mean was 0.04 (SD = 1.43) and the median was 0.00. The results were not statistically significant (Z = -0.21, p = .83).

Counts of Individual Responses to Infant Feeding Intention Survey

The frequencies of the responses were assessed for each item of the Infant Feeding Intention Survey. The McNemar test was conducted and can be viewed in Table 6. The following results were recorded. For the item “I am planning to only formula feed my baby (will not breastfeed at all)”, before the education, 13 participants (57%) disagreed with the item and 10 (43%) agreed. Twelve of the 13 participants (92%) who disagreed with the item before the education continued to disagree post-education, but one participant (8%) agreed. Seven of the 10 participants (70%) who agreed with the item pre-education continued to agree, but three participants (30%) changed their answers to disagree with the item post-education. Therefore, 15 of the 23 participants (65%) disagreed with the statement post-education, which is an overall increase of 8%. Although the McNemar test is not significant (p =.625, McNemar test), the change is in the preferred direction.

For the item “I am planning to breastfeed my baby or at least try”, before the education, 20 participants (87%) agreed with the item. Only three participants (13%) disagreed. All 20 participants (100%) who agreed with the item before the education continued to agree post-education. Two of the three participants (67%) who disagreed with the item pre-education changed their answer to agree post-education, but one (33%) did not. Therefore, 22 of the 23 participants (96%) agreed with the statement post-education, which is an overall increase of 9%. Although the McNemar test is not significant (p =.500, McNemar test), the change is in the preferred direction.

For the item “When my baby is one month old, I will be breastfeeding without using any formula or other milk”, before the education, 16 participants (70%) agreed with the item and seven (30%) disagreed. Fourteen of the 16 participants (88%) who agreed with the item before the education continued to agree post-education, but two participants (12%) disagreed. All seven participants (100%) who disagreed with the item pre-education continued to disagree post-education. Therefore, 14 of the 23 participants (61%) agreed with the statement post-education, which is an overall decrease of 9%. The McNemar test is not significant (p =.500, McNemar test), and the change is not in the preferred direction.

For the item “When my baby is three months old, I will be breastfeeding my baby without using any formula or other milk”, before the education, 15 participants (65%) agreed with the item and eight (35%) disagreed. Thirteen of the 15 participants (87%) who agreed with the item pre-education continued to agree post-education, but two participants (13%) disagreed. Seven of the eight participants (87.5%) who disagreed with the item before the education continue to disagree, but one participant (12.5%) changed her answer to agree with the item post-education. Therefore, 14 of the 23 participants (61%) agreed with the statement post-education, which is an overall decrease of 4%. The McNemar test is not significant (p = 1.00, McNemar test), and the change is not in the preferred direction.

For the item “When my baby is six months old, I will be breastfeeding without any formula or other milk”, before the education, 12 participants (52%) agreed with the item, and 11 (48%) disagreed. Ten of the 12 participants (83%) agreed with the item before the education continued to agree post-education, but two participants (17%) disagreed. Eight of 11 (73%) participants who disagreed with the item pre-education continue to disagree, but three of the 11 participants (27%) changed their score to agree with the item post-education. Therefore, 13 of

the 23 participants (57%) agreed with the statement post-education, which is an overall increase of 5%. Although the McNamara test is not significant (p = 1.00, McNamara test), the change is in the preferred direction.

Discussion

Hispanic women have a higher breastfeeding initiation rate than any other group, but are more likely to supplement with formula by Day Two of an infant's life(Barcelona de Mendoza et al., 2016; Chapman & Pérez-Escamilla, 2013). This project sought to address the question, "How does breastfeeding education provided during prenatal visits impact a mothers intention to exclusively breastfeed her baby?"

Thirty-six women initially participated in the Ready, Set, Baby breastfeeding education classes conducted at the free clinic. Two participants did not meet the age criteria for this project but received breastfeeding education. Thirty-four women met the inclusion criteria for the project and signed informed consent. The participants took part in seven breastfeeding education classes utilizing the Ready, Set, Baby breastfeeding education program. The scheduled classes were held from October 7, 2019, to December 5, 2019. Most of the classes were conducted in a group setting. Those who participated in the class received a Ready, Set, Baby booklet in the participants' preferred languages. The group sessions were lively, and there was high participation from the participants who attended the classes. Many of them expressed their views related to exclusive breastfeeding and were aware of the benefits of breastfeeding.

The RSB class evaluation yielded positive results, with high approval ratings by the participants. High approval for the RSB was also evident in the participants' comments. They wrote comments such as "Great Class", and "I learned a lot". One participant commented on

how she had learned that colostrum is extremely beneficial to the baby during the first days of life. Despite statistical significance was not reached regarding the intent to exclusively breastfeed, all who participated in this project intended to breastfeed their babies. This was noted in the demographic survey Item Four, Intention to Breastfeed – Yes or No. All 23 participants answered yes.

Table 5 illustrates breastfeeding intention, exclusivity, and duration at time; 1) pre-breastfeeding education and at time; 2) post-breastfeeding education. The data analysis found no change in intent to exclusively breastfeed. To Item One, "I am planning to formula feed my baby (I will not breastfeed at all), 12 women answered "very much disagree" which is a score of 4 at pre-education; at post-education, 14 women answered, "very much disagree". There was an addition of two participants who changed their minds for Item One at post-education. On the whole, however, there were no statistically significant changes in the breastfeeding intention, exclusivity, and duration of this group of women.

The frequencies in counts of individual responses to the Infant Feeding Intention Survey depicted in Table 6 shows subtle movement in the desired direction. The change in planning to use formula exclusively was not statistically significant, but it was in the preferred direction. Three participants changed their answers away from using formula exclusively, but they were offset by one person who changed her mind to "not breastfeed at all", post-education. While most participants do not plan to use formula exclusively, 35 percent of the participants said that they would not breastfeed at all, post-education. However, all but one person planned to breastfeed or at least try.

Most of the participants said that they planned to breastfeed exclusively at one month postpartum. However, one person who planned to breastfeed exclusively before education

changed her answer away from breastfeeding without formula, post-education. None of the participants who disagreed with breastfeeding without any formula at one-month changed their minds post-education. That is, all of the participants who planned to use formula at one-month pre-education, continued to plan to supplement with formula at one-month post-education. Therefore, results for this item were not statistically significant, and the only change was not in the preferred direction.

Most of the participants planned to breastfeed exclusively at three months. Only one of the eight participants, who planned to supplement with formula at three-month pre-education, changed her mind to breastfeed exclusively. However, this result was offset by the two participants, who agreed to breastfeed exclusively at three months, changing their answers away from breastfeeding without formula post-education. Thus, not only were the results not statistically significant, the overall change was not in the preferred direction.

Most of the participants planned to breastfeed exclusively at six months. Two participants, who agreed to breastfeed without formula at six months, changed their answers away from breastfeeding exclusively post-education. While most of the participants who disagreed with breastfeeding without any formula at six months did not change their minds post-education, three of the participants did change to planning to breastfeed exclusively post-education. Thus, while the results were not statistically significant, the overall change was in the preferred direction.

Some of the barriers to breastfeeding exclusivity that was discussed during the breastfeeding class sessions were the concern of many mothers of returning to work and not be able to express milk due to the nature of their jobs. Not all worksites have places that are conducive for mothers to express milk for their infants while at work. Another barrier is a few of

the mothers expressed that they are on medication for chronic conditions and would not feel comfortable exclusively breastfeeding their infants while having to take medication regularly. These concerns are valid, and more education and support are needed to educate and provide the correct information concerning workplace laws regarding employers' responsibility in supporting their employees in ensuring appropriate accommodations for working mothers to express milk at work for their babies.

Strengths and Limitation

The strengths of the project design are that it seeks to provide education related to the benefits of breastfeeding to low-income women who seek prenatal care at the free clinic. This intervention will help pregnant mothers make an informed choice of infant feeding practice. It is anticipated that the continuation of breastfeeding education during prenatal visits will in time help to increase intent to exclusively breastfeed, increase confidence in exclusive breastfeeding, and increase discomfort with formula supplementation. The women who participated in this intervention, anticipate delivery at a nearby hospital, where breastfeeding education will continue; which will reinforce breastfeeding education received during the prenatal period. This intervention mainly looks at a mother's intent to exclusively breastfeed after receiving breastfeeding education classes and to assess the acceptability and feasibility of the RSB breastfeeding education curriculum at the free clinic which was achieved with this project.

The responses to the surveys are self-reported, with no way to determine whether the participant will exclusively breastfeed unless the participant is followed at the postpartum stage the birth of her child, which will not be possible at this time due to the time limitations of the intervention. Some participants may engage in social desirability bias and it may be difficult to decern their true intentions in this short period.

Included in the limitations of this project is the language barrier, the team relied heavily on Spanish interpreters to translate the class material. This resulted in a long time in filling out materials and a longer time for presenting the breastfeeding education class. Also, the post-education Infant Feeding Intention scale was completed after the class. This was decided by the group to avoid losing people to follow-up.

The time frame allotted to implementing this project was also seen as a major limitation. Due to the limited time of this study it is difficult to know for sure if mothers are breastfeeding or for how long and if they are supplementing or not. However, if there were to be more time breastfeeding intent, exclusivity, and duration can be closely scrutinized. The small sample size was also identified as a limitation in this project. Future studies may benefit from a larger sample size in this population to further learn about their infant feeding practices and institute breastfeeding education programs that will stress breastfeeding exclusivity and duration positively and beneficially.

Conclusion

This project justifies the need to further explore ways to improve breastfeeding education during prenatal care visits, with a focus on breastfeeding exclusivity and duration in the population described. It is also important to utilize education during the prenatal period and continue into the postnatal period to help boost mothers' confidence in exclusive breastfeeding while at the same time decreasing the comfort of formula supplementation(Parry et al., 2019). This project is an example of how advanced practice nurses can implement breastfeeding programs in the pre-natal clinic setting.

Funding and Conflict of Interest

There was no funding obtained for the implementation of this project. Additionally, the researcher has no conflicts of interest other than a passion for providing new mothers evidenced-based infant feeding information.

Author Guidelines for Journal of Clinical Lactation

Clinical Lactation is a peer-reviewed journal summarizing recent advances in clinical care in the field of human lactation and is the official journal of the United States Lactation Consultant Association. The journal aims to advance clinical practice for lactation specialists who work in a variety of settings: hospital, private practice, WIC, and mother–to–mother–support organizations. The articles being solicited for Clinical Lactation are concise, readable reports that summarize issues related to clinical care, treatment innovations, and applications. All articles should contain specific implications and suggestions for clinical practice. Suitable topics for submission include, but are not restricted to:

Treatment innovation

Treatment dilemmas

Case presentations

Implementation of specific programs

Outcomes of policies or programs

Papers should be consistent with the current evidence base (if applicable) and should constitute a substantive contribution to the professional literature on clinical lactation. All articles can be hyperlinked to videos, websites, PowerPoint slides, or other ancillary sources of information.

Types of Contributions

Articles on Clinical Practice. These articles include process and program descriptions, clinical audit and outcome studies, and the presentation and description of original clinical practice ideas. These articles should generally not exceed 2,000 words (approximately 8 pages of

double–spaced text), not including references, and should be written in a readable, user– friendly style.

Brief Reports of Research Findings. Brief reports of research findings are concise reports of new research. These articles are limited to 2,000 words, not including references and must have direct clinical relevance. These reports can be hyperlinked to other documents or websites with additional information. Brief Literature Reviews. Brief literature reviews are concise articles on a highly specific topic related to clinical practice, ending with applications for practice. These manuscripts are also limited to 2,000 words (8 pages of double–spaced text).

Case Reports. Case reports offer clinicians a forum to share an interesting case, with the implications for broader clinical practice. These reports will typically range from 3–5 manuscript pages (750–1250 words).

Letters to the Editor. Letters and responses pertaining to articles published in Clinical Lactation or on issues relevant to the field, brief and to the point, should be prepared in the same style as other manuscripts (250–300 words).

Manuscripts and Other Requirements

1. Authors should submit their manuscript and supporting files (tables, figures) using Editorial Manager at www.editorialmanager.com/clinlact.

2. Place authors' names, positions, titles, place of employment, mailing addresses, and email addresses on the cover page so that the manuscripts may be reviewed anonymously, and ensure that the manuscript uploaded to the Editorial Manager site is blind.

3. Manuscripts should be professionally prepared in accordance with the Publication Manual of the American Psychological Association, 6th edition.

4. An abstract of approximately 125 words should be included.

5. Authors should also supply a list of four to six keywords, not appearing in the title, which will be used for indexing. Terms from the medical subject headings (MeSH) list of Index Medicus should be used, if at all possible.

6. Double-space everything, including references, quotations, tables, and figures.

7. Leave generous margins (at least one inch all around) on each page.

8. Type should not exceed 18 characters per inch.

9. Avoid footnotes whenever possible.

10. Quotations of 300 words or more from one source require written permission from the copyright holder for reproduction. Adaptation of tables and figures also requires reproduction approval from the copyrighted source. It is the author's responsibility to secure such permission, and a copy of the publisher's written permission must be provided to the publisher immediately upon acceptance of the manuscript for publication.

11. All figures must be submitted in camera-ready form. TIFF should be 300 ppi, EPS at 800 ppi.

Note: Authors bear full responsibility for the accuracy of references, quotations, tables, and figures. Upon acceptance of the article, authors are expected to fill out the copyright agreement form and mail it to the publisher at mlarkin@springerpub.com.

References

Abbass-Dick, J., Brolly, M., Huizinga, J., Newport, A., Xie, F., George, S., & Sterken, E. (2018). Designing an eHealth Breastfeeding Resource With Indigenous Families Using a Participatory Design. *Journal of Transcultural Nursing*, *29*(5), 480–488. https://doi.org/10.1177/1043659617731818

Abbass-Dick, J., Stern, S. B., Nelson, L. E., Watson, W., & Dennis, C.-L. (2015). Coparenting breastfeeding support and exclusive breastfeeding: A randomized controlled trial. *Pediatrics*, *135*(1), 102–110. https://doi.org/10.1542/peds.2014-1416

Barcelona de Mendoza, V., Harville, E., Theall, K., Buekens, P., & Chasan-Taber, L. (2016). Acculturation and Intention to Breastfeed Among a Population of Predominantly Puerto Rican Women. *Birth (Berkeley, Calif.)*, *43*(1), 78–85. https://doi.org/10.1111/birt.12199

Bartick, M., & Reinhold, A. (2010). The burden of suboptimal breastfeeding in the United States: A pediatric cost analysis. *Pediatrics*, *125*(5), e1048-1056. https://doi.org/10.1542/peds.2009-1616

Bonuck, K., Stuebe, A., Barnett, J., Labbok, M. H., Fletcher, J., & Bernstein, P. S. (2014). Effect of primary care intervention on breastfeeding duration and intensity. *American Journal of Public Health*, *104 Suppl 1*, S119-27. https://doi.org/10.2105/AJPH.2013.301360

CDC. (2019, December 31). *2018 Breastfeeding Report Card*. Centers for Disease Control and Prevention. https://www.cdc.gov/breastfeeding/data/reportcard.htm

Chapman, D. J., & Pérez-Escamilla, R. (2013). Acculturative type is associated with breastfeeding duration among low-income Latinas. *Maternal & Child Nutrition*, *9*(2), 188–198. https://doi.org/10.1111/j.1740-8709.2011.00344.x

Gill, Sara L. (n.d.). Breastfeeding by Hispanic Women Gill, Sara L. Journal of Obstetric, Gynecologic & Neonatal Nursing, Volume 38, Issue 2, 244—252. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *38*(2), 244–252.

Harari, N., Rosenthal, M. S., Bozzi, V., Goeschel, L., Jayewickreme, T., Onyebeke, C., Griswold, M., & Perez-Escamilla, R. (2018). Feasibility and acceptability of a text message intervention used as an adjunct tool by WIC breastfeeding peer counsellors: The LATCH pilot. *Maternal & Child Nutrition*, *14*(1), e12488. https://doi.org/10.1111/mcn.12488

Hohl, S., Thompson, B., Escareño, M., & Duggan, C. (2016). Cultural Norms in Conflict: Breastfeeding Among Hispanic Immigrants in Rural Washington State. *Maternal and Child Health Journal*, *20*(7), 1549–1557. https://doi.org/10.1007/s10995-016-1954-8

Howell, E. A., Bodnar-Deren, S., Balbierz, A., Parides, M., & Bickell, N. (2014). An intervention to extend breastfeeding among black and Latina mothers after delivery. *American Journal of Obstetrics and Gynecology*, *210*(3), 239.e1-5. https://doi.org/10.1016/j.ajog.2013.11.028

Jones, K. M., Power, M. L., Queenan, J. T., & Schulkin, J. (2015). Racial and Ethnic Disparities in Breastfeeding. *Breastfeeding Medicine*, *10*(4), 186–196. https://doi.org/10.1089/bfm.2014.0152

Keitt, S. H., Reis-Reilly, H., Fuller-Sankofa, N., & Carr, M. (2018). Breastfeeding in the Community: Sharing Stories on Implementations That Work. *Journal of Human Lactation*, *34*(2), 285–303. https://doi.org/10.1177/0890334418757957

Kellams, A. L., Gurka, K. K., Hornsby, P. P., Drake, E., Riffon, M., Gellerson, D., Gulati, G., & Coleman, V. (2016). The Impact of a Prenatal Education Video on Rates of Breastfeeding Initiation and Exclusivity during the Newborn Hospital Stay in a Low-income

Population. *Journal of Human Lactation*, *32*(1), 152–159. https://doi.org/10.1177/0890334415599402

Lewkowitz, A. K., Raghuraman, N., López, J. D., Macones, G. A., & Cahill, A. G. (2018). Infant Feeding Practices and Perceived Optimal Breastfeeding Interventions among Low-Income Women Delivering at a Baby-Friendly Hospital. *American Journal of Perinatology*. https://doi.org/10.1055/s-0038-1676485

McCoy, M. B., Geppert, J., Dech, L., & Richardson, M. (2018). Associations between peer counseling and breastfeeding initiation and duration: An analysis of minnesota participants in the special supplemental nutrition program for women, infants, and children (WIC). *Maternal and Child Health Journal*, *22*(1), 71–81. https://doi.org/10.1007/s10995-017-2356-2

McMillan, B., Conner, M., Green, J., Dyson, L., Renfrew, M., & Woolridge, M. (2009). Using an extended theory of planned behaviour to inform interventions aimed at increasing breastfeeding uptake in primiparas experiencing material deprivation. *British Journal of Health Psychology*, *14*(2), 379–403. https://doi.org/10.1348/135910708X336112

Mutuli, L. A., & Walingo, M. K. (n.d.). *Applicability of Theory of Planned Behavior in understanding Breastfeeding Intention of Postpartum Women*. 9.

Nommsen-Rivers, L. A., Cohen, R. J., Chantry, C. J., & Dewey, K. G. (2010). The Infant Feeding Intentions scale demonstrates construct validity and comparability in quantifying maternal breastfeeding intentions across multiple ethnic groups. *Maternal & Child Nutrition*, *6*(3), 220–227. https://doi.org/10.1111/j.1740-8709.2009.00213.x

Nommsen-Rivers, L. A., & Dewey, K. G. (2009). Development and Validation of the Infant Feeding Intentions Scale. *Maternal and Child Health Journal*, *13*(3), 334–342. https://doi.org/10.1007/s10995-008-0356-y

Parry, K. C., Tully, K. P., Hopper, L. N., Schildkamp, P. E., & Labbok, M. H. (2019). Evaluation of Ready, Set, BABY: A prenatal breastfeeding education and counseling approach. *Birth*, *46*(1), 113–120. https://doi.org/10.1111/birt.12393

Reeder, J. A., Joyce, T., Sibley, K., Arnold, D., & Altindag, O. (2014). Telephone peer counseling of breastfeeding among WIC participants: A randomized controlled trial. *Pediatrics*, *134*(3), e700-9. https://doi.org/10.1542/peds.2013-4146

Search the Data | Healthy People 2020. (n.d.). Retrieved February 20, 2020, from https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=4865;

Srinivas, G. L., Benson, M., Worley, S., & Schulte, E. (2015). A clinic-based breastfeeding peer counselor intervention in an urban, low-income population: Interaction with breastfeeding attitude. *Journal of Human Lactation*, *31*(1), 120–128. https://doi.org/10.1177/0890334414548860

UNICEF: Lack Of Optimal Breast Feeding In Developing Countries. (2011, August 6). Asian Scientist Magazine | Science, Technology and Medical News Updates from Asia. https://www.asianscientist.com/2011/08/health/unicef-breast-feeding-china-india-mortality-rate/

Wambach, K., Domian, E. W., Page-Goertz, S., Wurtz, H., & Hoffman, K. (2016). Exclusive Breastfeeding Experiences among Mexican American Women. *Journal of Human Lactation : Official Journal of International Lactation Consultant Association*, *32*(1), 103–111. https://doi.org/10.1177/0890334415599400

Washio, Y., Humphreys, M., Colchado, E., Sierra-Ortiz, M., Zhang, Z., Collins, B. N., Kilby, L. M., Chapman, D. J., Higgins, S. T., & Kirby, K. C. (2017). Incentive-based Intervention to Maintain Breastfeeding Among Low-income Puerto Rican Mothers. *Pediatrics*, *139*(3). https://doi.org/10.1542/peds.2016-3119

WHO | The World Health Organization's infant feeding recommendation. (n.d.). WHO. Retrieved June 17, 2019, from https://www.who.int/nutrition/topics/infantfeeding_recommendation/en/

Zhang, Z., Zhu, Y., Zhang, L., & Wan, H. (2018). What factors influence exclusive breastfeeding based on the theory of planned behaviour. *Midwifery*, *62*, 177–182. https://doi.org/10.1016/j.midw.2018.04.006

Tables and Figures

Table 1

Review of the literature

Author Year	Intervention	Design	Sample	Results
(Howell et al., 2014)	Behav. ED vs REG. ED	RCT	BLK. & Latina mothers ages 18 -48 Mean age 28.	Int. grp mean bf- 12 wks. Con.grp 6.5wks.
(Reeder et al., 2014)	Tel. PC	RCT	Women presenting for new clinic visit	Inc.non-exclusive BF. Mod. In EBF
(Bonuck et al., 2014)	Tel. PC	RCT	Eng/Sp.preg.women 1st& 2nd trimester/single preg	Inc.BF. No sig gains in EBF>in SPS women
(Abbass-Dick et al., 2015)	Co-parenting BFS	RCT	Primiparous/ 2 days PP.>18yrs. Eng/Sp/FT birth Preg. >28wk. gest >18 years	Improv. In BF exclusivity Inc. + attitude about BF
(Srinivas et al., 2015)	PN counseling	RCT	Preg. >28wk. gest >18 years	Inc. + attitude about BF
(Kellams et al., 2016)	PN Video ED -	RCT	24-41 wks. Gest. WIC.	No difference b/n the grp
(Washio et al., 2017)	Inc vs no Inc to BF	Randomized 2-arm.	Hispanic. Able to speak En/Sp.	No sig. infant wt. inc.
(McCoy et al., 2018)	PC	Retrospective analysis ob.	Infants enrolled MA. WIC program	Inc. in BF in comm. With hi BF rates. No imp. In comm with low BF rates.
(Abbass-Dick et al., 2018)	Focus group. To determine culturally appro. eHealth BF intervention.	Participatory	Indigenous comm. Members in Canada	Cult. eHealth int. dev. w/+ outcomes.
(Lewkowitz et al., 2018)	Determine BF prac. In low income women	Cross sec. Study	Low-income mothers delivered 6-9 mo. prior+ are BF	BFI/ form/

Table 1 Continued

Review of the literature

Author Year	Intervention	Design	Sample	Results
(Harari et al., 2018)	Test feasibility/acceptability of LATCH program	RCT	18-30 wks int. to BF/WIC/unl.txt/Eng/SP/5th gr. Reading level.	Int. grp reported mtg. BF goals.
(Parry et al., 2019)	Test acceptability of educ./counseling program	Pre/post survey	18-44 yrs. preg. Women. Eng/SP. Speaking	Inc. in IFI/comfort w/formula decreased

Note. General notes: EBF=exclusive breastfeeding=breastfeeding; inc=increase; WIC= women, infant, Children; BFI- breastfeeding intention; IFI = infant feeding intention; imp = improvement; cult. = culture; Eng. English; SP: Spanish; gr. Grade; edu = education; dev.= develop; appro. =appropriate; PN = prenatal; EDU = education; BLK = Black.

Table 2
Characteristics of Class Participants

Variable	Breastfeeding Class Participants (n = 23)
Age, mean (SD), years	27.29 (6.63)
Race, n (%)	
Hispanic	22 (95.7)
Other	1 (4.3)
Education Level, n (%)	
High School	12 (52.2)
No High School	7 (30.4)
College or Higher	4 (17.7)

Table 3

Breastfeeding Data of Participants Enrolled Subjects (n = 23)

Variable	**N (%)**
Have you ever breastfed?	
Yes	14 (60.9)
No	9 (39.1)
How long did you breastfeed for? (In Months)	
0	9 (39.1)
1-12	5 (21.7)
13- 24	5 (21.7)
25- 48	2 (8.7)
Do you plan to breastfeed?	
Yes	23 (100)

Table 4

Infant Feeding Intention Scale

	Very Much Agree	Some What Agree	Unsure	Some What Disagree	Very Much Disagree
1. I am planning to only formula feed my baby (I will not breastfeed at all)	0	1	2	3	4
2. I am planning to at least give breastfeeding a try	4	3	2	1	0
3. When my baby is 1 month old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0
4. When my baby is 3 months old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0
5. When my baby is 6 months old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0

Numbers within the grid represent the point value for each response. Total Score = (mean of items 1+2) + (Sum of Items 3, 4, 5). Thus, the total score ranges from 0 (Very strong intention not to breastfeed at all) to 16 (Very strong intention to breastfeed exclusively throughout the first 6 months).
(Nommsen-Rivers & Dewey, 2009)

Table 5

Ready, Set, Baby Breastfeeding Class Evaluation Scores

Item #	Evaluation Question	N	Minimum Score	Percentages (%)	Maximum Score	Percentage (%)	Mean (SD)
1.	Class offered useful information	21	5	100	5	100	5.00 (.000)
2.	Visual aids increased my understanding of the class content	21	4	4.8	5	95.2	4.95 (.218)
3.	Increased my confidence level	21	4	4.8	5	95.2	4.95 (.218)
4.	Met my expectations were met	21	4	9.5	5	90.5	4.90 (.301)
5.	I would recommend this class to others	21	5	100	5	100	5.00 (.000)
6.	The Ready, Set, Baby booklet was helpful	21	4	4.8	5	95.2	4.95 (.218)

Table 6

Breastfeeding Intention, Exclusivity, Duration

		Pre-Education		Post-Education		Differences			
Feeding Intentions	N	M (SD)	Mdn (IQR)	M (SD)	Mdn (IQR)	M (SD)	Mdn (IQR)	z	p-value
I am planning to only formula feed my baby (will not breastfeed at all)	23	2.48, (1.78)	4.00 (4.00)	2.65, (1.82)	4.00 (4.00)	.17, (1.61)	0.00 (0.00)	-0.51	.61
I am planning to breastfeed my baby or at least try	23	3.61, (1.08)	4.00 (0.00)	3.91, (.42)	4.00 (0.00)	.30, (1.02)	0.00 (0.00)	-1.34	.18
When my baby is one-month old I will be breastfeeding without using any formula or other milk	23	3.00, (1.38)	4.00 (2.00)	2.78, (1.59)	4.00 (2.00)	-.22, (0.99)	0.00 (0.00)	-0.96	.34
When my baby is three months old, I will be breastfeeding my baby without using any formula or other milk	23	2.83, (1.44)	3.00 (2.00)	2.74, (1.57)	4.00 (2.00)	-.09, (1.12)	0.00 (0.00)	-0.17	.86
When my baby is six-months old I will be breastfeeding without any formula or other milk	23	2.48, (1.56)	3.00 (2.00)	2.52, (1.56)	3.00 (2.00)	.04, (1.43)	0.00 (0.00)	-0.21	.83

M = mean; SD = standard deviation; Mdn = median; IQR = interquartile range. P-value < .05 Wilcoxon signed ranks test

Table 7

Frequency Table of Counts of Individual Responses to Infant Feeding Intention Survey

Feeding Intentions		Pre response N (%)	Post agrees N (%)	Post disagree N (%)	Preferred answer N (%)	Percent outcome diff	*p*-value
I am planning to only formula feed my baby (will not breastfeed at all)	Agreed Disagreed	10 (43%) 13 (57%)	3 (30%) 12 (92%)	7 (70%) 1 (8%)	15 (65%)	-8%	.625
I am planning to breastfeed my baby or at least try	Agreed Disagreed	20 (87%) 3 (13%)	20 (100%) 2 (67%)	0 (0%) 1 (33%)	22 (96%)	+2%	.500
When my baby is one- month old I will be breastfeeding without using any formula or other milk	Agreed Disagreed	16 (70%) 7 (30%)	14 (88%) 0 (0%)	2 (12%) 7 (100%)	14 (61%)	-9%	.500
When my baby is three months old, I will be breastfeeding my baby without using any formula or other milk	Agreed Disagreed	15 (65%) 8 (35%)	13 (87%) 7 (88%)	2 (13%) 1 (12%)	14 (61%)	-4%	1.00
When my baby is six-months old I will be breastfeeding without any formula or other milk	Agreed Disagreed	12 (52%) 11 (48%)	10 (83%) 8 (73%)	2 (17%) 3 (27%)	13 (57%)	+5%	

Pre response = count of pre-education survey responses. Post agree = count of participant agreement post-education. Post disagree = count of participant disagreement post-education. Preferred change = total count of change to the preferred answer post-education. Percent outcome diff = the difference in the percent of preferred answers from pre-education to post-education. P-value < .05 McNemar test.

Table 8

Results of Primary Outcome Scores between High School Education and No High School Education.

Variables	High School Education (N=16) Difference Mean (SD)	Median (IQR)	No High School Education (N=7) Difference Mean (SD)	Median (IQR)	*p*-value
I am planning to only formula feed my baby (will not breastfeed at all)	.375 (1.54)	0 (0.00)	-.286 (1.80)	0 (0.00)	.769
I am planning to breastfeed my baby or at least try	.250 (1.00)	0 (0.00)	.429 (1.13)	0 (0.00)	.820
When my baby is one- month old I will be breastfeeding without using any formula or other milk	-.313 (1.19)	0 (0.00)	.000 (.000)	0 (0.00)	.820
When my baby is three months old, I will be breastfeeding my baby without using any formula or other milk	-.063 (1.34)	0 (0.75)	-.143 (.378)	0 (0.00)	.452
When my baby is six-months old I will be breastfeeding without any formula or other milk	.188 (1.64)	0 (0.00)	-.286(.756)	0 (0.00)	.535

High School Education = high school graduate or above; No High School Education = did not graduate from high school. Difference = post-test scores – pre-test scores. P < .05 Mann-Whitney U Exact test

Table 9

Results of Primary Outcome Scores of Breastfeeding Experience and Never Breastfed

Variable	Breastfeeding Experience (N=14) Difference		Never Breastfed (N= 9) Difference		
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	*p*-value
I am planning to only formula feed my baby (will not breastfeed at all)	.071 (1.77)	0.00 (0.25)	.333 (1.41)	0.00 (0.00)	.926
I am planning to breastfeed my baby or at least try	.214 (.802)	0.00 (0.00)	.444 (1.33)	0.00 (0.00)	.877
When my baby is one- month old I will be breastfeeding without using any formula or other milk	-.143 (1.17)	0.00 (0.00)	-.333 (.707)	0.00 (0.50)	.336
When my baby is three months old, I will be breastfeeding my baby without using any formula or other milk	-.286 (1.14)	0.00 (0.00)	.222 (1.09)	0.00 (1.00)	.305
When my baby is six-months old I will be breastfeeding without any formula or other milk	-.143 (1.66)	0.00 (0.00)	.333 (1.00)	0.00 (1.00)	.557

Breastfeeding Experience = any past breastfeeding experiences; Never Breastfed= No past breastfeeding experience. Difference = post-test scores – pre-test scores. P < .05 Mann-Whitney U Exact test

Table 10

Age and How long breastfed with the difference scores.

Correlations		Age	How long breastfed in months	Formula only, no Breastfeed	Will try to Breastfeed	Will breastfeed no formula at 1 month	Will breastfeed no formula at 3 months	Will breastfeed no formula at 6 months
Age	Pearson Correlation	1	.373	-.092	.042	.413	-.009	.050
	Sig. (2-tailed)		.105	.692	.855	.063	.970	.831
	N	21	20	21	21	21	21	21
How long breastfed in months	Pearson Correlation	.373	1	-.251	-.157	-.336	-.423	-.433*
	Sig. (2-tailed)	.105		.272	.498	.137	.056	.050
	N	20	21	21	21	21	21	21

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

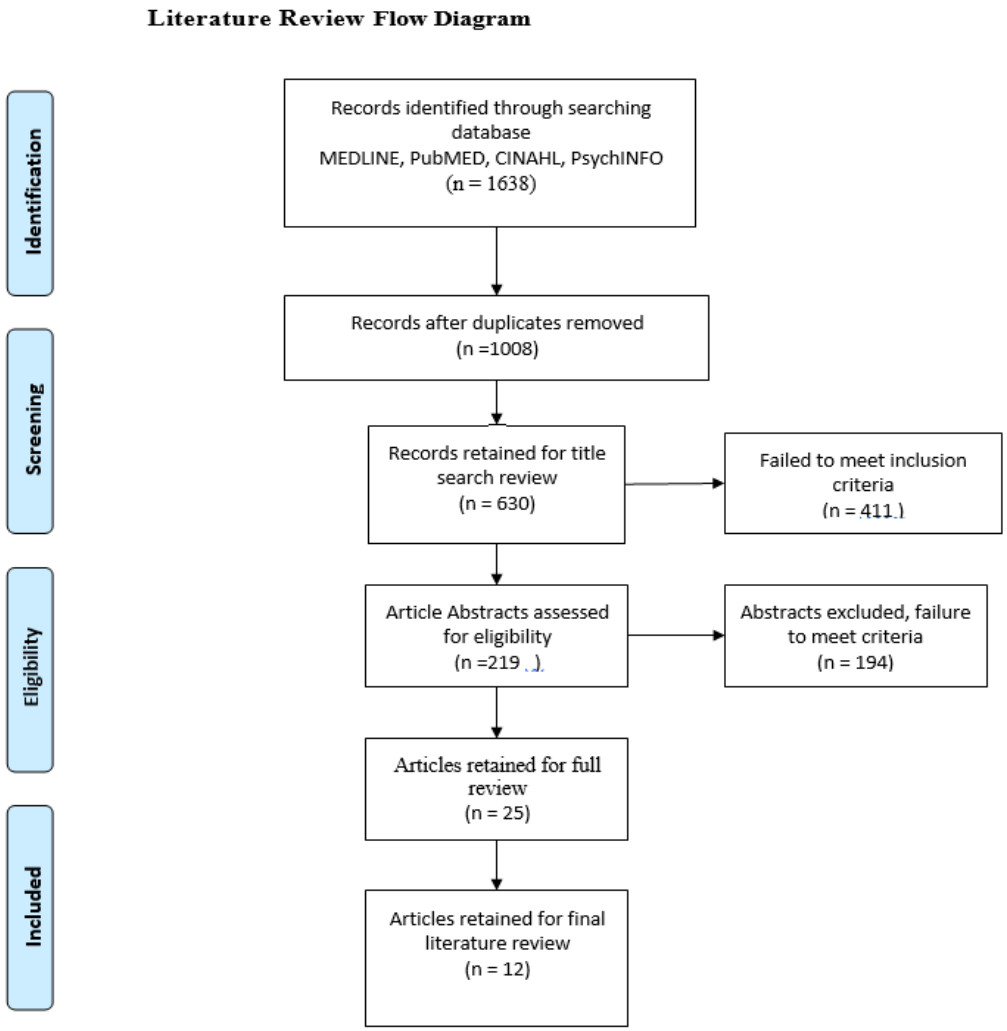

Figure 1 Literature Review Flow Chart

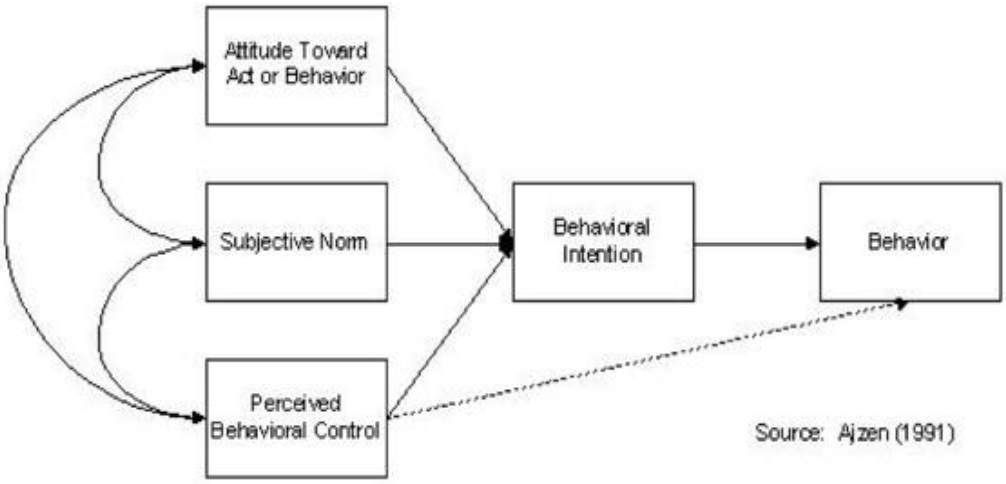

Figure 2. Theory of Planned Behavior, Ajzen, 2011

(Mutuli & Walingo, n.d.),(McMillan et al., 2009)

APPENDIX A

Consent Form

Permission to Conduct Study

UVA IRB Approval Certificate

Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study.

This study is being conducted by Nana A. Tetteh, FNP-BC, MS Global Health, BSN. (This study and its procedures have been approved by the Institutional Review Board at University of Virginia).

I am conducting this study to;

1. Determine if breastfeeding education during the prenatal period will increase the mother's intent to exclusively breastfeed.

2. Determine if the Ready, Set, Baby, breastfeeding education program will be feasible for the free clinic.

At the end of this study, your feedback will be used to improve prenatal breastfeeding education at the free clinic and help increase exclusive breastfeeding among mothers who seek care at the free clinic.

Consent Form Key Information:

- Participate in a 30 min to 1-hour Breastfeeding Education class
- Take a pre and post breastfeeding education survey, demographic survey, breastfeeding history survey and breastfeeding education evaluation.
- No information collected will connect your identity with your responses.

Purpose of the research study:

The purpose of the study is to gain information on your intent to breastfeed and your view of the Breastfeeding class.

What you will do in the study:

1. The procedure will include your response to a questionnaire that will ask you questions about breastfeeding before receiving breastfeeding education and after.

2. Complete a Breastfeeding class survey.

Risks:

There are no known risks or discomforts associated with the questionnaires. Participation will take approximately 30min to 1 hour.

Benefits: Although this study may not benefit you directly, it will provide information that might enable healthcare professionals to identify areas where breastfeeding support is strong or weak. The information gained from this study may help in planning and designing future breastfeeding educational programs.

You will not be paid or compensated for participating in this study.

The researcher for this study will not receive any compensation.

Confidentiality: All questionnaires will be assigned a number, and no one person's name will be associated with any specific questionnaire. Your Identity will not be revealed while the study is being conducted, or when the study is reported or published. Questionnaires will be collected by Nana A. Tetteh, kept confidential, and stored in a secure place. Data collected from the study will be shared with Nana A. Tetteh's advisor at the University of Virginia, and in publications, reports, and presentations of this study.

Confidentiality cannot be guaranteed: Group Instruction

Because of the nature of the group breastfeeding education classes, I cannot guarantee your information you volunteer in the group class setting, will be confidential and it may be possible that others will know what you have reported as you participate in group discussions.

Voluntary Participation: Your participation in the study is completely voluntary. You are free to terminate your participation at any time during the study. Your treatment or services you receive at the clinic will not be affected by your participation in the study.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study:

If you want to withdraw from the study, Tell the interviewer that you wish to withdraw or anytime during the group breastfeeding class you wish to withdraw, please inform the researcher and leave the room. There is no penalty for withdrawing. Any data collected before withdrawal will be included in the study.

Using data beyond this study:

Once the project is completed the results will be handed over to the free clinic administrators. Also, the findings will be shared with the developers of Ready, Set, Baby, and the developer of the Infant feeding Intention tool.

The findings of this project will be presented at the University of Virginia School of Nursing as a Capstone project toward satisfying the DNP degree.

The researcher would like to make the information collected in this study available to other researchers after the study is completed. The researcher will remove any identifying information (such as your name, contact information, etc.) connected to the information you

provide. The researcher will share all the information collected in this study (not just your file) with other researchers for future research studies, including but not limited to breastfeeding knowledge or other studies related to breastfeeding. Researchers of future studies will not ask your permission for each new study. The other researchers will not have access to your name and other information that could potentially identify you nor will they attempt to identify you.

The data you provide in this study will be retained securely by the researcher for (insert number) years and then destroyed.

If you have questions about the study, contact:

Nana A. Tetteh

School of Nursing, 225 Jeanette Lancaster Way

The University of Virginia, Charlottesville, VA 22903.

Telephone: (434) 924-0141 or Cell (571) 215-3044

Email address: nat8bm@virginia.edu

Dr. Kathryn Reid, Faculty Advisor

School of Nursing, 225 Jeanette Lancaster Way

The University of Virginia, Charlottesville, VA 22903.

Telephone: (434) 924-0115

Email address: kjb@virginia.edu

To obtain more information about the study, ask questions about the research procedures, express concerns about your participation, or report illness, injury, or other problems, please contact:

Tonya R. Moon, Ph.D.

Chair, Institutional Review Board for the Social and Behavioral Sciences

One Morton Dr. Suite 500

University of Virginia, P.O. Box 800392

Charlottesville, VA 22908-0392

Telephone: (434) 924-5999

Email: irbsbshelp@virginia.edu

Website: www.virginia.edu/vpr/irb/sbs

Website for Research Participants: http://www.virginia.edu/vpr/participants/

Agreement:

I agree to participate in the research study described above.

Signature: _____ Date: _____

You will receive a copy of this form for your records.

CATHOLIC CHARITIES
DIOCESE OF ARLINGTON

[redacted]

July 3, 2019

Institutional Review Board for Social and Behavioral Health
(IRB-SBS)
One Morton Drive
Suite 500
P.O. Box 800392
Charlottesville, VA 22908

To Whom It May Concern:

This letter is to confirm that Nana A. Tetteh, a student of the University of Virginia in Charlottesville, VA, has permission to conduct a quality improvement intervention in the form of breastfeeding education to prenatal patients at the Mother of Mercy Free Medical Clinic. The purpose of this intervention is to provide breastfeeding education to prenatal patients, which will benefit to our patient population.

Thank you,

Alexandra Luevano, BSN, RN, CCM
Clinic Director

Institutional Review Board for Social & Behavioral Sciences
University of Virginia

Office of the Vice President for Research

Human Research Protection Program

Institutional Review Board for the Social and Behavioral Sciences

IRB-SBS Chair: Moon, Tonya

IRB-SBS Director: Blackwood, Bronwyn

Protocol Number (2859) Approval Certificate

The UVA IRB-SBS reviewed "Increasing Intent to Exclusively Breastfeed in Low-Income Women" and determined that the protocol met the qualifications for approval as described in 45 CFR 46.

Principal Investigator: Tetteh, Nana

Faculty Sponsor: Reid, Kathryn

Protocol Number: 2859

Protocol Title: Increasing Intent to Exclusively Breastfeed in Low-Income Women

Is this research funded? No

Review category: Expedited Review

7. Research on individual or group characteristics or behavior or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Review Type:

Modifications: No
Continuation: No
Unexpected Adverse Events: No

Approval Date: 2019-09-12

As indicated in the Principal Investigator, Faculty Sponsor, and Department Chair Assurances as part of the IRB requirements for approval, the PI has ultimate responsibility for the conduct of the study, the ethical performance of the project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the IRB-SBS.

The PI and research team will comply with all UVA policies and procedures, as well as with all applicable Federal, State, and local laws regarding the protection of human subjects in research, including, but not limited to, the following:

1. That no participants will be recruited or data accessed under the protocol until the Investigator has received this approval certificate.
2. That no participants will be recruited or entered under the protocol until all researchers for the project including the Faculty Sponsor have completed their human investigation research ethics educational requirement (CITI training is required every 4 years for UVA researchers). The PI ensures that all personnel performing the project are qualified, appropriately trained, and will adhere to the provisions of the approved protocol.
3. That any modifications of the protocol or consent form will not be implemented without prior written approval from the IRB-SBS Chair or designee except when necessary to eliminate immediate hazards to the participants.
4. That any deviation from the protocol and/or consent form that is serious, unexpected and related to the study or a death occurring during the study will be reported promptly to the SBS Review Board in writing.
5. That all protocol forms for continuations of this protocol will be completed and returned within the time limit stated on the renewal notification letter.
6. That all participants will be recruited and consented as stated in the protocol approved or exempted by the IRB-SBS board. If written consent is required, all participants will be consented by signing a copy of the consent form unless this requirement is waived by the board.
7. That the IRB-SBS office will be notified within 30 days of a change in the Principal Investigator for the study.
8. That the IRB-SBS office will be notified when the active study is complete.
9. The SBS Review Board reserves the right to suspend and/or terminate this study at any time if, in its opinion, (1) the risks of further research are prohibitive, or (2) the above agreement is breached.

Date this Protocol Approval Certificate was generated: 2019-09-24

Appendix B

Study Materials

Demographics

Subject Identification Number

AGE

Education background

1.High School
2. No High school Diploma
3. College or More

Intention to Breastfeed
1.Yes
2.No

Have you breastfed any of your children?
1.Yes
2.No
If yes, how long did you breastfeed for?

Race
1.White, non-Hispanic
2.African American
3.Asian
4.Hispanic

Infant Feeding Intention Scale – Pre- Breastfeeding Education

Instructions read to subject: I am going to read to you some statements about feeding your baby. Please choose the answer that most closely matches your opinion, considering both your feeding plans and the likelihood that you will carry out those plans					
	Very much agree	**Some what agree**	**Unsure**	**Some what disagree**	**Very much disagree**
1. I am planning to only formula feed my baby (I will not breastfeed at all)	0	1	2	3	4
2. I am planning to at least give breastfeeding a try	4	3	2	1	0
3. When my baby is 1 month old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0
4. When my baby is 3 months old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0
5. When my baby is 6 months old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0

1. Numbers within the grid represent the point value for each response. Total score = (mean of items 1 + 2) + (sum of items 3, 4, 5). Thus, total score ranges from 0 (very strong intention to not breastfeed at all) to 16 (very strong intention to breastfeed exclusively throughout the first 6 months)

Developed by Laurie A. Nommsen-Rivers, Ph.D., RD, IBCLClaurie.nommsen-rivers@cchmc.org Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Infant Feeding Intention Scale – Post Breastfeeding Education

Instructions read to subject: I am going to read to you some statements about feeding your baby. Please choose the answer that most closely matches your opinion, considering both your feeding plans and the likelihood that you will carry out those plans					
	Very much agree	**Somewhat agree**	**Unsure**	**Somewhat disagree**	**Very much disagree**
1. I am planning to only formula feed my baby (I will not breastfeed at all)	0	1	2	3	4
2. I am planning to at least give breastfeeding a try	4	3	2	1	0
3. When my baby is 1 month old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0
4. When my baby is 3 months old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0
5. When my baby is 6 months old, I will be breastfeeding without using any formula or other milk	4	3	2	1	0

1. Numbers within grid represent the point value for each response. Total score = (mean of items 1 + 2) + (sum of items 3, 4, 5). Thus, total score ranges from 0 (very strong intention to not breastfeed at all) to 16 (very strong intention to breastfeed exclusively throughout the first 6 months)

Developed by Laurie A. Nommsen-Rivers, Ph.D., RD, IBCLClaurie.nommsen-rivers@cchmc.org Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Breastfeeding Education Evaluation

5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1= strongly disagree

	5	4	3	2	1
Ready, Set, Baby Breastfeeding Class					
The class offered useful Information					
The visual aids increased my understanding of the class content.					
The class increased my confidence level					
The class met my expectations					
I would recommend this class to others					
The Ready, Set, Baby booklet was helpful					
Instructor Evaluation					
The instructor was prepared and organized Teaching style was effective					
Teaching Aids were useful					
The instructor responded clearly to questions					
Class Environment					
Room temperature was comfortable					
Class location was convenient					
Comments:					


ue ha escuchado acerca de la alimentación infantil?
Entérese de la realidad!
Ready... Set... BABY
La fórmula y la leche materna no son lo mismo.
La leche materna es un alimento vivo que cambia constantemente dándole al bebé todo lo que necesita para crecer sano. Hay elementos vivos específicos que no se pueden duplicar y muchos solo pueden ser elaborados por usted.
No hay ventajas de crecimiento o de salud al dar fórmula.
Dar fórmula lleva más tiempo y esfuerzo para preparar que dar pecho.
Los biberones funcionan muy diferente que los pechos.
Empezar a dar fórmula va a bajar su producción de leche.
What have you heard about infant formula?
Find out the facts!
What have you heard about breastfeeding?
Find out the facts!
What have you heard about breastfeeding?
Find out the facts!
Most women breastfeed.

Appendix C

Definition of Terms

Definition of Terms

Baby-Friendly Hospital Initiative (BFHI)

The baby-friendly hospital initiative is a global effort to promote, protect, and support breastfeeding (Babyfriendlyusa.org).

Breastfeeding

Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development (WHO, 2019) (UNICEF, 2011).

Breastfeeding Education (BE)

Increase breastfeeding knowledge and skills of mothers in breastfeeding practices, to help mothers learn that breastfeeding is normal and healthy, and help them develop positive breastfeeding attitudes (CDC, 2019).

Breastfeeding knowledge

The extent of comprehension about the nourishment of an infant through breastfeeding (Rea et al.,1999)

Exclusive Breastfeeding

Exclusive breastfeeding is the feeding of an infant with breast milk only, for the first six months of life (UNICEF, 2011). WHO definition: “Exclusive breastfeeding is defined as no other food or drink, not even water, except breastmilk (including expressed breastmilk, or breastmilk from a “wet nurse”), for 6 months of life, but allows infants to receive drops or medications as needed (WHO, 2019).

Predominant Breastfeeding

The infant's main source of nourishment is breast milk, but the infant occasionally receives formula, ritual fluids, or additional nourishment to breastmilk (WHO, 2019).