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## Breastfeeding Education and Support for Marginalized Women to Increase Exclusive Breastfeeding Rates

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BREASTFEEDING EDUCATION AND SUPPORT FOR MARGINALIZED WOMEN TO  
INCREASE EXCLUSIVE BREASTFEEDING RATES

A MASTER'S PROJECT  
SUBMITTED TO THE GRADUATE FACULTY  
OF THE GRADUATE SCHOOL  
BETHEL UNIVERSITY

BY  
KELSEA RUSH  
LEAH VOGEL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF SCIENCE IN NURSING

MAY 2021  
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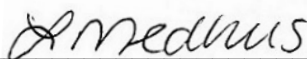
Breastfeeding Education and Support for Marginalized Women to Increase Exclusive Breastfeeding Rates

Kelsea Rush  
Leah Vogel

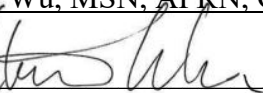
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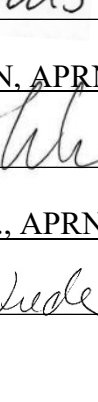
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## Abstract

**Background/Purpose:** Marginalized women have significantly lower rates of breastfeeding initiation and duration and also experience significant health disparities when compared to non-marginalized populations. Breastfeeding has positive health benefits to both mother and child and could help to reduce these disparities. The purpose of this critical appraisal of the literature was to determine the effects of additional breastfeeding education and support on breastfeeding among marginalized groups of women.

**Theoretical Framework:** Ramona Mercer's Maternal Role Attainment Theory was used as a framework for the literature review by following the four stages of attainment; anticipatory, formal, informal, and personal.

**Methods:** Twenty relevant, scholarly articles were chosen and critically analyzed using the Johns Hopkins Research Evidence Appraisal Tool. Following the critical analysis, a literature synthesis was completed.

**Results/Findings:** Four themes emerged emphasizing breastfeeding education methods and impact of that education for marginalized women. Seven studies showed that breastfeeding education and support increased initiation rates but had insignificant effects on breastfeeding duration and exclusivity, six studies compared breastfeeding initiation and duration rates for women receiving group prenatal education and support, seven studies showed breastfeeding education increased efficacy and intention to breastfeed, and lastly five studies showed limited prenatal breastfeeding education had no statistical significance for breastfeeding initiation or duration.

**Implications for Research and Practice:** Studies show that prenatal breastfeeding education and support increases breastfeeding initiation. Midwives who work with marginalized women

should utilize this research to provide culturally sensitive support interventions to encourage women to exclusively breastfeed for an extended duration of time. These providers should also work to develop policies; guide research; and identify opportunities, gaps, and solutions to increase breastfeeding outcomes and impact health for marginalized women and their infants. They should also improve their understanding of the social determinants of health to provide quality breastfeeding care to women, including those from underserved populations, which is one of the Hallmarks of Midwifery (ACNM, 2020). Midwives' close relationship with patients and breadth of knowledge can be influential in all aspects of women's maternity care.

**Keywords:** breastfeeding, breastfeeding education, minority, breastfeeding support, underserved, immigrant, marginalized, breastfeeding initiation, exclusive breastfeeding, low income

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## Chapter One: Introduction

Research demonstrates significant health disparities among marginalized populations; despite the fact that exclusive breastfeeding provides substantial health benefits for mother and baby, rates continue to lag behind for the same marginalized groups (Jones et al., 2015). Midwives may be in a unique position to influence these rates by offering education and support. Exclusive breastfeeding rates remain low in the U.S., despite goals set by the World Health Organization (WHO) and Healthy People 2030 (WHO, 2020). According to the Centers for Disease Control (2018), 83% of infants in the United States were breastfed initially and 58% were breastfed at six months of age. These statistics do not reflect that marginalized women, specifically African American women, have the lowest rates of breastfeeding initiation (60%) and duration (28%) (Jones et al., 2015).

Marginalized women have lower rates of exclusive breastfeeding, both when their children are born and at six months of age (Jones et al., 2015). This paper provides a critical review of the literature to identify the effects of breastfeeding education and support on the rates of exclusive breastfeeding initiation and duration for marginalized women. For the purpose of this paper, the term marginalized encompasses those who are most at risk for poor health outcomes due to social determinants of health (SDH) (Baah et al., 2019). The World Health Organization (WHO, 2020) identifies SDH as the non-medical factors that influence overall health, including the “conditions with which people are born, grow, work, live, and age, and that shape daily life.” SDH may be impacted by race, gender, class, sexual orientation, and socioeconomic status (Baah et al., 2019). These SDH shape the quality-of-care people receive and are responsible for the health disparities we see among marginalized women.



Researchers attribute lack of breastfeeding initiation and duration for these groups to several factors, including lack of support and acceptance, literacy barriers, work interference, lack of access, lack of education opportunities, and lifestyle choices (Jones et. al., 2015). Another important factor to consider is the historical challenges faced by African American women, including the results of slavery, wet-nursing, and other historically negative reproductive health experiences that continue to impact Black women in the United States today (Johnson et al., 2015). Interventions aimed at increasing exclusive breastfeeding rates using prenatal education have the potential to increase exclusive breastfeeding rates, specifically for underserved populations of women.

### **Statement of Purpose**

The purpose of this paper is to examine and evaluate scholarly literature on the use of multiple forms of breastfeeding education and support to determine its effectiveness at increasing the rates of breastfeeding initiation and exclusivity in populations of marginalized women. This review focuses on the type of education, the duration of the education, the providers of the education, and the reported quantitative and qualitative outcomes of this education. Identifying and exploring the effectiveness of prenatal breastfeeding education will help to determine ways in which prenatal breastfeeding education can be incorporated into the standard of care for marginalized women during their antepartum period. Components of Romona Mercer's Maternal Role Attainment Theory will be applied and explored in relation to the effects of prenatal breastfeeding education on marginalized women and their ability and desire to initiate and exclusively breastfeed their infants (Petiprin, 2016). This theory was developed to guide healthcare interventions for marginalized mothers by following four stages to attainment, which include anticipatory, formal, informal and personal.

## Evidence Demonstrating Need

The benefits of breastfeeding have been heavily researched, and that research points to positive outcomes for both mothers and infants when they have active support to begin and sustain appropriate breastfeeding practices (WHO, 2020). Benefits of breastfeeding for mothers include reduced risk of ovarian and breast cancers, reduced incidence of diabetes, and reduced postpartum depression (WHO, 2017). Benefits for infants include providing healthy probiotic bacteria that help establish newborns' immune systems, as well as decreased incidences of obesity, asthma, ear infections, diarrhea, and SIDS compared to formula-fed infants (Robinson et al., 2018). The WHO recommends that all infants be exclusively breastfed for the first six months of their lives with continued breastfeeding to the age of two alongside appropriate solid foods (Wong et al., 2015).

Breastfeeding benefits may have an even greater impact on marginalized women who suffer from adverse health outcomes from health disparities like obesity, hypertension, hyperlipidemia, diabetes, unplanned pregnancy, and cardiovascular disease compared to non-marginalized women (Jones et al., 2015). Research has shown that lactation is associated with medical benefits, such as improved glucose tolerance and insulin sensitivity, long-term cardioprotective effects, and a reduction of risk for several types of cancer (Perez-Escamilla & Segura-Perez, 2020). By increasing breastfeeding initiation and duration, these women could benefit from reduced rates of morbidity from these conditions, as well as decrease the incidence of unwanted and closely spaced pregnancies.

Statistics from a national immunization survey show that 75% of women initiate breastfeeding; however, that statistic is skewed by significant social and cultural disparities (American Academy of Pediatrics [AAP], 2012). For example, the initiation rate for low-income

women enrolled in the Women, Infant, Children nutrition program (WIC) was 67.5%, a nearly 10 % decrease from the national average. However, the initiation rate is higher for higher-income Hispanic and Latina women at 80.6% compared to 58.1% for non-Hispanic higher-income Black women and only 37% for low-income non-Hispanic Black women. Age-related barriers also exist for mothers younger than 20, initiating at a rate of 59.7% compared to women over 30 who initiated at a rate of 79.3%. The lowest rates of initiation were shown to be low-income, non-Hispanic, Black women at only 30% (AAP, 2012).

Mothers who stop breastfeeding early have reported a lack of antenatal breastfeeding education as one of the primary factors for early breastfeeding cessation (Wang et al., 2014). Research has shown that women from the following backgrounds have significantly lower rates of exclusive breastfeeding initiation and duration: teenage pregnancy, low-income, African American, unmarried, uneducated, participants of government assistance programs, prenatal obesity, and unplanned pregnancies (Jones et al., 2015). Black women are more than two times less likely to breastfeed than white women and only 59% of Black women initiate breastfeeding (Kellams et al., 2018). In addition, only 38.9% of low-income women initiate breastfeeding in the hospital compared to 66.1% of women from middle- and high- income groups (Hatamleh, 2012).

A large body of women's health advocates, including the Academy of Breastfeeding Medicine, the American Academy of Pediatrics, the Association of Women's Health Obstetrics and Neonatal Nurses, and the American College of Obstetricians and Gynecologists, highly recommend that all women are counseled and educated during the prenatal period on the benefits of breastfeeding and encouraged to breastfeed (Kellams et al., 2018). Research has found that

despite these recommendations, the number of women who actually receive prenatal education is low, even as low 29% in one study of marginalized women (Kellams et al., 2018).

### **Significance to Nurse-Midwifery**

The word midwife dates back to the 1300s and literally means *with woman* (Ament, 2007). This unique position allows midwives to encompass all aspects of care along the entire life spectrum of a woman. The American College of Nurse Midwives (ACNM) developed guidelines for core competencies that each midwife is expected to follow. As evidenced by the *Hallmarks of Midwifery* (2020), midwives are expected to promote healthy habits, prevent disease, and provide health education for all patients. Literature confirms this and shows that nurse-midwives are more attentive and provide more thorough education to women than other providers, including breastfeeding education and promotion (Wallenborn & Masho, 2018). Maternal self-efficacy is a modifiable factor found to influence breastfeeding duration and success that midwives have the ability to directly influence as highlighted by the midwifery hallmark of advocacy for informed choice, decision making, and the right to self-determination (Hatamleh, 2012).

ACNM (2020) promotes breastfeeding as the optimal method for infant feeding in their breastfeeding position statement, which elaborates on the many benefits of breastfeeding for both mother and infant. They outline research that supports breastfeeding benefits for the mother, including a reduction in postpartum blood loss, reduced rates of cancer, and enhanced maternal-infant bonding. Additionally, exclusive breastfeeding for the first six months benefits the infant by providing complete nutrition for growth and development including providing specific immunologic factors not available in prepared formulas that reduce disease and illness (ACNM, 2016). Breastfeeding has also been shown to reduce the risk of obesity, asthma, celiac disease,

inflammatory bowel disease, and types I and II childhood diabetes. ACNM (2016) attests that improved breastfeeding rates promoted by midwives could annually prevent as many as 20,000 maternal breast cancer deaths and 823,000 early childhood deaths globally.

Research clearly reveals that midwives have come to value breastfeeding education and support as an integral part of their practice (Swerts et al., 2016). One study found women whose births were attended by midwives were more likely to exclusively breastfeed beyond six months compared to mothers whose births were attended by obstetricians (Wallenborn & Masho, 2018). Midwives have the privilege to ensure that breastfeeding education is promoted early in pregnancy and to build trusting relationships for the benefit of women. This allows them to walk with women through their pregnancy and breastfeeding journeys and to advocate for best practices.

### **Theoretical Framework**

Ramona Mercer began her nursing career in 1950 and continued her education with a doctorate degree in maternity nursing in 1973 (Alligood & Marriner-Tomey, 2010). Mercer focused much of her research on the behavioral needs of breastfeeding mothers. She developed the Maternal Role Attainment Theory, an interactional and developmental process that changes with time as a mother becomes attached to her infant, acquires competence in the caretaking tasks involved in that role, and expresses pleasure and gratification in the role (Alligood & Marriner-Tomey, 2010). All nursing theories are different, but they have the commonality of using research to improve practice and nursing outcomes (Husmillo, 2013). The Maternal Role Attainment Theory could improve breastfeeding outcomes for marginalized mothers in the United States by focusing research on the factors that can be influential to marginalized mothers. The Maternal Role Attainment Theory follows four stages to attainment: anticipatory, formal,

informal, and personal (Petiprin, 2016). The premise of Mercer's (2004) theory is founded on the belief that the role of a mother is individualized to that particular woman and is influenced by many factors (Husmillo, 2013). For marginalized women, the care provider must consider many factors including language barriers, past trauma, past experiences, lack of trust in the healthcare system, support structures, personality traits, social stress, self-concept, and beliefs on breastfeeding and modesty. These factors should be considered in literature reviews and should guide research.

Mercer (2004) states that during the anticipatory period, a time of psychological preparation for the delivery and motherhood, a mother focuses on the pregnancy. The formal stage evolves from birth to about six months as the new mother bonds with her infant and its uniqueness and begins caretaking tasks based on her existing understandings, experts' behaviors, and advice (Mercer, 2004). In some cases, women consider the "experts" to be family members who are not giving best-practice or evidence-based advice. Expert providers must develop trusting relationships to have an impact during this stage. In a study by Almanza et al. (2019), midwives cited increased visit times and emotionally safe environments as factors that help to address current gaps in care. One way to provide racially concordant care is to include family members into the care space to give voice to the patient and aid in developing trusting relationships between providers, patients, and families. Other considerations may include perception of the birth experience, early separation, health status of the infant, and role strain (Mercer, 2004). The third period, informal, finds the new mom comfortable with her abilities and beginning to make decisions for herself and her infant (Mercer, 2004). This is where all of the hard work pays off and the new mother can see the benefits of exclusive breastfeeding including weight gain, brain development, health status of the infant, and a sense of accomplishment for

meeting her goals. In the personal stage, the new mother feels a sense of accomplishment as she accepts her performance. In this final stage, caregivers could now recognize this mother as a peer expert for her friends and family who might also be experiencing first pregnancies. She may also carry on her experience to consecutive children.

## **Summary**

Midwives can directly influence the documented breastfeeding disparities faced by marginalized women. The potential for midwifery care to improve breastfeeding disparities by identifying research in literature that addresses the effects of breastfeeding support and its impact on initiation, exclusivity, and duration should be addressed. Review of the existing research is necessary to identify methods of prenatal breastfeeding education that have been proven to be successful in order to develop new best-practice standards. Marginalized women are disproportionately impacted by adverse health outcomes, which have the potential to be reduced by increasing breastfeeding rates.

With best practice established, midwives have the proper education and training to make a positive impact, so marginalized mothers have positive associations and are willing to breastfeed, have breastfeeding self-efficacy and fewer incidences of breastfeeding problems and early cessation (Abuidhail et al., 2019). The following chapters address methods used to evaluate scholarly literature that considers the practice question: How can additional breastfeeding education and support help to increase the initiation, exclusivity, and duration of breastfeeding among marginalized women? The paper provides a synthesis of this literature, including a description of interventions and methods found to be effective, as well as an assessment of the strengths and limitations of the studies and recommendations for best breastfeeding practices.

## **Chapter II: Methods**

The goal of this research was to identify how prenatal breastfeeding education helps to increase the initiation, exclusivity, and duration of breastfeeding among marginalized women. Methods used to identify and evaluate scholarly literature of breastfeeding education and support to determine its impact on breastfeeding initiation, exclusivity, and duration for marginalized women will be discussed in this chapter.

### **Search Strategies**

This searches were conducted in August, 2020, for articles published between the years 2004 and 2020 using the following databases: Cumulative Index to Nursing and Allied Health Literature [CINAHL], Google Scholar, PubMed, and Cochrane Database of Systematic Reviews. Keywords used in the database searches included the following in various combinations: “breastfeeding,” “breastfeeding education,” “minority,” “breastfeeding support,” “underserved,” “immigrant,” “marginalized,” “breastfeeding initiation,” “exclusive breastfeeding,” and “low income.” These database searches guided study identification, and additional studies were procured through an ancestry search of studies meeting inclusion criteria as well as studies cited in systematic reviews that were also identified in the database searches. The studies were evaluated by purpose, setting, sample size, results, conclusions, and recommendations, and then they were evaluated in relation to the proposed research question. Study findings were identified and directly related to the four stages of Mercer’s Role Attainment Theory.

### **Criteria for Inclusion and Exclusion**

Inclusion criteria for the literature review matrix required that articles were published between 2004 and 2020, were original research, or secondary analysis of original research, and that their aim was focused on exclusive breastfeeding rates in marginalized populations of



women. No restrictions were placed on research design, format of education, or type of support. Focus was placed on education provided in the antepartum period, but research conducted during the intrapartum and postpartum period was included as well.

Exclusion criteria for the literature review matrix included studies that did not specify population type or include marginalized populations in the research. Studies that were determined to be poor quality based on insufficient sample size for study design, inconclusive studies, and inconsistent results, were also excluded. Finally, studies that were not written or translated in English or were not available in full-text article form were not included.

### **Summary of Selected Studies**

The abstracts of 73 articles that met the inclusion requirements were screened in their full text to determine the degree of relevance to the proposed question. After meticulous review, 20 research articles were selected that met both the inclusion and exclusion criteria. A total of includes 14 randomized control trial studies, three quasi-experimental trials, one longitudinal survey study, one quality improvement project, and one qualitative analysis of a randomized control trial. The three studies that used qualitative analysis of randomized controlled trials were included to provide depth and relevance to the assigned nursing theory. Literature from both within and outside of the United States was included in this review.

### **Evaluation Criteria**

The selected articles were evaluated for strength and quality using the The Johns Hopkins Research Evidence Appraisal Tool (Dearholt & Dang, 2012). The articles chosen were assigned levels of evidence from I to III based on the appraisal tool. Randomized controlled trials (RCTs), explanatory mixed method design studies, and systematic reviews of RCTs are designated level I (Dearholt & Dang, 2012). Level II studies include quasi-experimental,

explanatory mixed methods including only quantitative and systematic review of combination RCTs and quasi-experimental studies (Dearholt & Dang, 2012). Finally, nonexperimental studies, systematic reviews of RCTs, quasi-experimental and nonexperimental studies with or without meta-analysis, and qualitative studies are considered level III (Dearholt & Dang, 2012).

Following the determination of evidence level, each article was critically evaluated and assigned a corresponding quality level based on the above-mentioned appraisal tool with ratings of poor, good, and high quality (Dearholt & Dang, 2012). The quality of research was determined based on several factors. These factors include consistency and generalizability of results, ability to encompass the greater population into the results, adequacy of sample size, ease of comparison to other studies, adequate study control, and inclusion of consistent recommendations based on scientific evidence (Dearholt & Dang, 2012).

After assigning levels and determining the quality of the 20 selected articles, an adequate variety of research was obtained. Level I data obtained included four high quality studies and ten good quality studies. Two level II studies were evaluated that were determined to be of high quality and two of good quality. Several level III studies were evaluated and two good quality studies that fit the inclusion criteria were selected. Each research article was related directly to the chosen theory and each level article was determined to be directly related to the proposed research question.

### **Summary**

A literature search was conducted to find relevant articles through use of Google and Bethel University Library search engines. The Johns Hopkins Research Evidence Appraisal Tool was used to determine the level and quality of the chosen research (Dearholt & Dang, 2012).

The 20 chosen articles underwent scrutiny based on the decided upon inclusion and exclusion criteria. The chosen articles were placed into a matrix for review and analyzed to determine whether breastfeeding education and support helps to increase the exclusive breastfeeding rates found in marginalized women based on current research.

## **Chapter III: Literature Review and Analysis**

### **Synthesis of Matrix**

The selected articles were placed into a matrix format to categorize the research and identify themes surrounding the proposed research question. Each study was individually analyzed for level and quality of evidence using the Johns Hopkins Research Evidence Appraisal Tool (Dearholt & Dang, 2012). Data included in the matrix consists of study design, purpose, sample size and setting, results, strength and limitations, conclusion and author recommendations, and summary for the current clinical practice question for each article. The level and quality of research was assigned for each study. The matrix is organized alphabetically starting with level I evidence and progressing to level III evidence. Chapter three contains a synthesis of the purpose, design and pertinent findings of each of these studies as related to the proposed research question.

### **Synthesis of Major Findings**

The implementation of breastfeeding education and increased support for marginalized women and its influence on exclusive breastfeeding (EBF) rates in the postpartum period was evaluated. Several different methods of education and support were identified in the 20 scholarly articles appraised for this review. Four themes emerged emphasizing breastfeeding education methods and impact of that education for marginalized women. Seven studies showed that breastfeeding education and support increased initiation rates but had insignificant effects on breastfeeding duration and exclusivity, six studies compared breastfeeding initiation and duration rates for women receiving group prenatal education and support, seven studies showed breastfeeding education increased efficacy and intention to breastfeed, and lastly five studies showed limited prenatal breastfeeding education had no statistical significance for breastfeeding

initiation or duration. The synthesis of major findings will address initiation versus duration, group breastfeeding education and support, self-efficacy and intention, and limited breastfeeding education.

### **Initiation Versus Duration**

Marginalized women have decreased rates of breastfeeding initiation, duration and exclusivity compared with other groups (Jones et al., 2015). Seven studies of marginalized women during the peripartum period showed that breastfeeding education and support increased initiation rates but did not impact rates of breastfeeding duration and exclusivity. Farr et al. (2019) conducted a longitudinal survey study of 243 predominantly African American women in a low-income setting. The education included interventional web-based applications, positive messaging interventions, and additional breastfeeding resources. Participants who completed required breastfeeding education were divided into two groups. One group of 132 participants received “champion” intervention, which consisted of utilization of free commercially available web applications to identify a supportive breastfeeding champion. The other group of 111 participants received positive messaging information, which provided breastfeeding education in a question and answer format. Thirty-two of 40 participants (80.03%) in the champion group intended to breastfeed and were successful. Thirty-nine of 86 participants (45.3%) in the champion group who did not intend to breastfeed successfully breastfed ( $p < 0.0001$  for change). In the positive messaging group, 30/36 (83.3%) participants who intended to breastfeed were successful and 36/67 (53.7%) participants who had not intended to breastfeed did so ( $p < 0.0001$  for change). In this study, data revealed that initiation rates were positively impacted through increased education, even among women who never intended to breastfeed. However, exclusive breastfeeding was not increased by further education.

Pugh et al. (2010) evaluated the impact of a breastfeeding support team for low-income mothers in two urban hospitals in Baltimore, Maryland, through a randomized controlled community-based trial. The intervention group (IG) (n=168) received hospital visits by a breastfeeding support team, home visits, and 24/7 pager access. The control group (CG) (n=160) received standard care. Breastfeeding initiation rates for the IG were 66.7% compared to 56.9% of the CG (p=0.05). Duration rates beyond 24-weeks postpartum were 29.2% for the IG and 28.1% for the CG (p=0.46). This study demonstrated a statistically significant improvement in breastfeeding initiation rates in the IG, however duration rates were statistically insignificant (p=ns).

Chapman et al. (2004) conducted a randomized prospective controlled trial at an urban hospital that served a large population of low-income Latina mothers to determine the influence of breastfeeding education utilizing peer counseling service (n=90). The breastfeeding education services included one prenatal home visit, daily perinatal visits, three postpartum home visits, and accessible telephone contact. The CG (n=75) received routine breastfeeding education offered by the hospital and clinic (Chapman et al., 2004). Initiation rates were significantly higher in the peer support group (91% vs 77.3%), however duration rates were not statistically significant (RR, 0.94; 95% CI 0.79-1.11) (Chapman et al., 2004). This study demonstrated that peer counseling positively impacted breastfeeding initiation rates but was statistically insignificant for duration in a low-income Latino population.

A randomized clinical trial conducted by Lutenbacher et al. (2018) compared two different interventions between groups of low-income Hispanic women in an urban area. The CG (n=86) received minimal education via educational materials about maternal and infant health and development. The IG (n=90) received both the minimal education in addition to the Maternal

Infant Health Outreach Worker (MIHOW) model education. The MIHOW goal is to improve maternal health and child development through education and support which is achieved with monthly home visits and periodic group gatherings beginning at 26 weeks and lasting until six months postpartum. The results showed 79.1% (n=68 of 86) of women in the CG reported never initiating exclusive breastfeeding compared to the IG at 55.6% (n=50 of 90) ( $p<0.001$ ). The difference between the groups in duration of exclusive breastfeeding was 1.4 weeks longer in the IG, which was not found to be statistically significant (Lutenbacher et al., 2018). This study reflected the positive impact of MIHOW on exclusive initiation of breastfeeding but lack of significant effect on duration.

Sandy et al. (2010) also conducted a randomized controlled trial study among Latina immigrants to explore the impact of a prenatal education model for improving breastfeeding rates. This trial was conducted through an existing primary prevention home visitation program that the participants and their family were enrolled in. The CG (n=101) received one or two visits in the prenatal period where family needs were discussed with no follow up visits from the social worker. In addition to the regular home care visits, the IG (n=137) received additional visits, written materials, and specific breastfeeding education about previous experiences, mechanics of breastfeeding, and discussion of the benefits and challenges of breastfeeding (Sandy et al., 2010). Exclusive breastfeeding initiation rates were significantly positively linked to the prenatal intervention exposure with 32% (n=44 of 137) of IG mothers that self-reported exclusive breastfeeding initiation, whereas 20% (n=20 of 101) of CG participants (1.92; 95% CI 1.05-3.52) (Sandy et al., 2010). No impact on exclusivity duration was observed in this study.

Petrova et al. (2009) studied the impact of a breastfeeding support team for low-income marginalized women in an inner-city population. Participants were divided into two groups in a

randomized controlled trial, with a CG (n=52) and IG (n=52). The CG received traditional care. The IG received routine care and additional breastfeeding education from an international board-certified lactation consultant (IBCLC) during their pregnancy and postpartum in two to four-week intervals. The results showed that 45.6% of the IG and 28.9% of the CG initiated exclusive breastfeeding ( $p < 0.05$ ). The duration rates of exclusive breastfeeding for the IG and CG then fell to 13.9% and 10.5% ( $p > 0.05$ ), respectively, which was not considered to be statistically significant.

In the final article of this theme, Ochala et al. (2012), conducted a cluster randomized controlled trial in a low-resource urban setting. Participants were divided into three groups, with two IGs and one CG. The three groups were divided as follows: CG (n=89), home-based intensive counselling group (HBICG) (n=89) and facility-based semi-intensive counselling group (FBSICG) (n=87). The HBICG received seven counselling sessions at home by trained peers, one prenatally and six in the postpartum period. The FBSICG received one counselling session prenatally. The CG received no counselling. Exclusive breastfeeding initiation rates were significantly higher in the FBSICG group (84.3%) and HBICG group (87.0%) compared to CG (72.0%). HBICG participants were three and a half times more likely to continue exclusive breastfeeding (ARR= 3.40; 95% CI 1.34, 8.80;  $P=0.010$ ) than those in the CG. Mothers from the FBSICG were one and a half times more likely to EBF (ARR=1.46; 95% CI 0.40, 4.33;  $P=0.494$ ) than those in the CG but the difference was not statistically significant.

### **Group Education and Support**

Several studies have demonstrated the positive benefit of group prenatal care when compared with individual care (Madeira et al., 2019). Group health programs focused on culturally appropriate prenatal care for refugee or immigrant populations may improve



breastfeeding knowledge and health outcomes for marginalized groups (Madeira et al., 2019). The theme, group education and support, incorporates research studies that specifically compared group breastfeeding education to individual breastfeeding education. Group breastfeeding is a model developed to mimic group prenatal education, which has been shown to enhance care satisfaction for traditionally underserved women (Madeira et al., 2019). The statistical findings of these research studies on breastfeeding outcomes for marginalized women are highlighted below.

A randomized controlled trial by Kronborg et al. (2012) studied the impact of an antenatal group-based prenatal training program in a large urban population. Participants were divided into an IG (n=603) and CG (n=590). The IG received three educational group sessions of eight participants led by a nurse-midwife, with one session specifically addressing breastfeeding education. The CG received standard prenatal care. The study found no difference in duration of breastfeeding, self-efficacy score, or breastfeeding problems for either group. The study did find that the women who participated in the training program reported a higher level of self-confidence, which is discussed in future themes addressed in this review. There was no difference between the IG and CG regarding the duration of any breastfeeding.

Ickovics et al. (2012) also conducted a randomized controlled trial using group prenatal care to determine its effects on birth, neonatal, and reproductive health outcomes among adolescent women in an urban low-income setting. Breastfeeding education and support were included, and breastfeeding rates were evaluated in the postpartum period. The CG group (n=623) attended traditional prenatal visits with their healthcare providers and were offered the opportunity to attend postpartum follow-up sessions. The IG (n=310) attended group prenatal care, grouped with eight to 12 women of the same gestational age, and attended 10 sessions of

120 minutes each throughout their pregnancy. They were also offered postpartum sessions for further education and support (Ickovics et al., 2012). It was found that the women in the IG attended one postpartum session,  $n=509$  (84%), or greater than one postpartum follow up session  $n=449$  (72.1%) compared to the women in the CG of  $n=545$  (87.5%), who attended one session or greater than one session  $n= 452$  (74.1%). While 88% of the IG desired to initiate breastfeeding compared to 87.2% in the CG, there was not a statistically significant difference in initiation rates. The IG showed a 1.03% higher breastfeeding initiation rate in the postpartum period, which was not statistically significant.

In a small quality improvement project set in a low-resource health clinic, Medeira et al. (2019) observed how outcomes of bi-weekly group education sessions for 17 Somali immigrant and refugee women improved breastfeeding knowledge. The women attended bi-weekly sessions that covered a variety of topics including breastfeeding. The participants self-reported knowledge of breastfeeding knowledge was  $p=0.4$  after group education sessions. Ninety-three percent of the participants stated they preferred group prenatal care for improving self-efficacy (Medeira et al., 2019).

In a single-blind, randomized controlled trial, Tseng et al. (2020) evaluated the effect of an integrative group-based breastfeeding education program, based on the self-efficacy theory, for first time mothers. This trial took place in a prenatal clinic in a teaching hospital. The CG ( $n=43$ ) received no additional education aside from standard prenatal care at a baby-friendly facility. The IG ( $n=50$ ) completed a three-week group-based integrated breastfeeding education program (IBEP). Each session covered different aspects of breastfeeding education and benefits using role playing techniques and Bandura's theory of self-efficacy (Tseng et al., 2020). Rates of exclusive and nonexclusive breastfeeding were compared between the two groups and it was

noted that the IG had higher rates ( $p < 0.02$ , IG: 98% to CG:86%) of exclusive breastfeeding at all time points but only the six-month time point was significantly different at  $p < 0.05$ . Additionally, the mothers in the IG were two times as likely to exclusively breastfeed (OR=2.82, 95% CI=1.0-8.1,  $p=0.05$ ).

Adolescent mothers ( $n=201$ ) were included in an RCT conducted by Wambach et al. (2011) that used education and counseling intervention provided by an IBCLC/peer counselor team. Their aim was to determine the effect on breastfeeding initiation and duration. Participants were randomly assigned to either an experimental group ( $n=77$ ), an attention CG ( $n=60$ ), or a usual care group ( $n=64$ ). The experimental group received education provided by an IBCLC and a trained peer counselor with prenatal, in-hospital, and postpartum support. The attention CG paralleled the experimental group, but also included two prenatal group classes. The usual care received standard prenatal and postpartum care. Sixty-nine percent of participants initiated breastfeeding, the experimental group (79%), attention control (66%), and usual care (63%) (the chi-square test= $p < 0.03$  indicated a significant difference). For duration, the median breastfeeding duration was 177 days for the experimental group, 42 days for the attention control, and 61 days for the usual care. The IG effect remained significant statistically ( $p=.015$ ). In terms of exclusive breastfeeding rates, 64% of the participants who breastfed did so exclusively. The experimental group had an exclusive breastfeeding rate of 65%, the attention CG had a rate of 68%, and the usual care group had a rate of 60%, which was not statistically significant (Wambach et al.,2011).

The final group-based education study was conducted by M'Liria et al. (2020) in a low-resource rural community of African women. This randomized controlled trial evaluated the effectiveness of mother-to-mother support group (MTMSG) on exclusive breastfeeding rates.

Researchers divided the 249 participants into three groups, which included a CG (n=79) the mother-to-mother support and education group (MES) (n=82), and the mother-to-mother support and education group that included income-generating activities (MESIGA) (n=88). The CG received no breastfeeding education. The MES received breastfeeding education and support during seven monthly meetings by trained breastfeeding support educators. The MESIGA group received the same as the MES group with additional income-generated activities from the support educators. The results were mothers from the MESIGA group exclusively initiated breastfeeding at a higher rate compared to the CG [RR=1.94; CL (1.8-2.73);  $p<0.001$ ]. Breastfeeding exclusivity was higher for the MES group [RR=1.07 CI (0.96-1.18);  $p=0.232$ ] but the difference was not statistically significant. Mothers in IG were two times more likely to breastfeed exclusively compared to those in the CG [RR=2.42;CL 1.36-4.28; ( $p=0.004$ )] and [RR= 1.89;CI 1.02-3.49; ( $p=0.033$ )]. There was no statistical significance difference between the duration of exclusive breastfeeding rates between the IGs at six months postpartum. Median duration of breastfeeding in the CG was 0.7 months compared to the MES group at 2.8 months ( $p,0.001$ ) and the MESIGA at 3.4 months ( $p,0.001$ ). The cross-sectional EBF rate at six months was significantly higher in the IGs; MES at 46% and MESIGA at 58.9% compared to CG at 24% (M'Liria et al., 2020).

### **Self-Efficacy and Intention**

Research indicates that one modifiable factor that could improve breastfeeding duration is improved breastfeeding self-efficacy. Self-efficacy and breastfeeding intention were a common theme observed in this literature review. Additionally, breastfeeding intention has been shown as a predictor of breastfeeding success in research studies (Parry et al., 2018).

In a quasi-experimental research project conducted by Friesen et al. (2015), a total of 35 pregnant women in a low-income setting were given an average of 3.8 visits via video conference, telephone, or in-person post-delivery care, as well as in person IBCLC visits. The results showed that incorporation of video technology into routine care improved maternal access to breastfeeding education and support with 100% of the participants reporting decreased anxiety and increased confidence surrounding breastfeeding (Friesen et al., 2015).

A small quasi-experimental study conducted by Hatamleh (2012) measured the effect of a breastfeeding self-efficacy intervention program on breastfeeding initiation and duration. Participants (n=15) in the CG received no extra prenatal education. Women in the experimental group (n=17) received an additional two-hours of breastfeeding education prior to their prenatal appointments. The results were measured by a breastfeeding self-efficacy score (BSES) with a range of 33 to 165, with the higher score representing the most breastfeeding self-efficacy. The experimental group showed a significantly higher BSES score at two and six weeks postpartum than the CG. The difference for the experimental group between the first and last assessment was significantly higher the last time from 108.3 to 143.7, which was statistically significant (Hatamleh, 2012).

Parry et al. (2019) conducted a statistical analysis with a quasi-experimental design to evaluate the use of the Ready-Set Baby (RSB) curriculum, which counsels women about breastfeeding benefits and management. Low-income women in diverse clinical settings (n=375) participated in the RSB course and provided pre- and post-intervention questionnaires to measure breastfeeding intention and success. Education highlighted the benefits of skin-to-skin care (89% pre-intervention knowledge to 99.1% post-intervention knowledge,  $p < 0.001$ ), rooming in, recognizing infant cues, milk supply, breastfeeding benefits, and risk of supplementation. Results

showed that RSB was associated with significant knowledge improvement and breastfeeding intention ( $p < 0.001$ ). The median infant feeding intention (IFI) score was 14 before training and 15.5 after training ( $p < 0.001$ ).

Abuidhail et al. (2019) conducted a prospective randomized controlled trial to determine if a web-based breastfeeding education program could improve breastfeeding self-efficacy, knowledge, and attitudes regarding breastfeeding for an underserved population of women ( $n = 112$ ). The experimental group (EG) ( $n = 56$ ) received access to a web-based breastfeeding education program. The CG ( $n = 56$ ) received no access. The mothers in the EG reported self-efficacy increase from 63.4% ( $n = 36$ ) to 80.4% ( $n = 45$ ) post-intervention. No change was noted in the CG. Similarly, breastfeeding attitudes and knowledge of the EG increased by a score of 89.3% ( $n = 50$ ) pre-intervention to 96.4% ( $n = 50$ ) post-intervention.

A randomized control trial by Andaya et al. (2012) examined women's perceptions and reported effects of current routine care-based breastfeeding interventions with use of the Best Infant Nutrition for Good Outcomes (BINGO). Participants were randomly assigned to one of four treatment groups. The treatment groups consisted of the following four groups: participants whose prenatal care providers were given electronic prompts to discuss breastfeeding during routine visits (EP); participants given pre- and post-partum Lactation Consultant support (LC); participants who received both EP plus LC (EP+LC); or participants who received standard care (C). Almost half of the participants, 44%, intended to exclusively breastfeed for at least one month and 55% planned to breastfeed and supplement. The EP IG reported increased breastfeeding support and increased breastfeeding knowledge. The LC group reported increased breastfeeding knowledge on the benefits and mechanisms of breastfeeding. The EP+LC group

were able to recall breastfeeding benefits most readily and reported increased knowledge (Anadya et al., 2012).

In the single-blind, randomized controlled trial, Tseng et al. (2020) noted in an earlier theme, researchers evaluated the effect of the integrative group-based breastfeeding education program based on the self-efficacy theory for first time mothers. They noted that IBEP improved self-efficacy scores in the IG lasting up to six months postpartum. The BSES scores significantly improved for the IG compared to the CG. The mean difference (7.3) in self efficacy scores from 36-weeks' gestation to three months postpartum was statistically significant ( $p < 0.001$ ).

As discussed in a previous theme, the RCT by Kronborg et al. (2012) studied the impact of an antenatal group-based prenatal program and found that the women who participated in the training program reported a higher level of self-confidence ( $p = 0.05$ ). At six weeks after birth they self-reported self-sufficiently to obtain knowledge about breastfeeding ( $p = 0.02$ ).

Supplemental analysis in the IG revealed that women with sufficient knowledge breastfed significantly longer than women without sufficient knowledge (HR=0.74 CI: 0.59-0.97). This type of association was not found in the reference group (HR=1.12 CI:0.89-1.41).

### **Limited Breastfeeding Education**

Breastfeeding exclusivity and duration remains an ongoing challenge despite adequate knowledge of the benefits of both. Researchers have sought to find ways to increase breastfeeding success, especially for marginalized women, but often research is not compelling to support interventions (Wong et. al., 2014). In this theme we discuss how limited education, with one-time or infrequent interventions does not improve breastfeeding outcomes.

Kellems et al. (2018) conducted a randomized controlled trial on the effects of prenatal video education for low-income women. The study consisted of an intervention and a CG

(n=522). The IG (n=263) received a single one-time viewing of a breastfeeding video at a prenatal appointment. The CG (n=259) received standard prenatal care. Duration of breastfeeding, any or exclusive, was the same in both groups at both initiation and duration. Women in both groups stopped breastfeeding at the same rate. The unadjusted hazard ratios (HR) and 95% CIs were as follows: HR=1.00 (CI: 0.81-1.24) for any breastfeeding and HR=0.93 (CI: 0.76-1.14) for exclusive breastfeeding (Kellam et al., 2018). Additionally, exclusivity rates in the hospital did not differ between groups (p=.87).

Wong et al. (2014) evaluated the effect of professional one-to-one breastfeeding support and education in an underserved group of women in Hong Kong. Using a randomized control trial, participants were divided into an intervention and CG. The IG (n=233) was provided with a one-time, one-on-one breastfeeding education and support session with handouts provided afterwards. The CG (n=236) received standardized antenatal care. The results showed that the women in the IG were no more likely to exclusively breastfeed than the CG at six weeks postpartum (37.8% compared with 36.4%, P=.77, 95% CI-0.08 to 0.11), or anytime thereafter. Both groups had declining exclusive breastfeeding rates at three months postpartum (37.8% and 36.4% respectively) and six months postpartum (14.6% and 12.7% respectively) (Wong et al., 2014).

In the prospective randomized-controlled trial study noted in earlier themes by Abuidhail et al. (2019), researchers gave participants access to a web-based breastfeeding education program to determine if it could improve breastfeeding self-efficacy, knowledge, and attitudes regarding breastfeeding for an underserved population of women (n=112). The participants accessed the materials independently. This format showed that many (n=17, 30.4%) of the participants did not read the web-based materials. Two additional studies previously discussed,



Krongborg et al. (2012) and Sandy et al. (2009), showed limited prenatal education intervention had statistically insignificant impact on breastfeeding initiation and exclusivity rates.

### **Critique of Strengths and Weaknesses**

The strengths of this research review are the in-depth analyses of breastfeeding education implementation to increase breastfeeding initiation, duration, and exclusivity for marginalized women. The majority of the studies utilized in this review were randomized control trials of good to high quality, which mitigated the risk of researcher and participant bias. The themes identified in this review were consistent throughout the numerous studies included. The individual studies were evaluated to focus on the population of marginalized women, which was defined as women most at risk for poor health outcomes due to the social determinants of health. Besides identifying types of prenatal education to improve breastfeeding rates, many studies identified breastfeeding self-efficacy and intention as valuable components for breastfeeding success for marginalized women. Several studies identified key themes with similar results, which makes the findings of this review reliable

The limitations of this review include a wide range of dates, with one article dating to 2004. Several of the studies had small sample sizes. The nature of the research review required the results to be self-reported, which could be skewed by participants' desires to please researchers or subjective data. The small number of research studies surrounding marginalized women and breastfeeding limited search criteria. In many of the studies, quantitative analysis did not support initial research goals.

### **Summary**

Several themes were addressed and attributed to research studies. These themes included initiation versus duration for group education and support, self-efficacy and initiation, and

limited breastfeeding education. In many of the reviews, prenatal education programs were positively associated with increased breastfeeding initiation, yet duration was not impacted by these interventions. The RCTs by Pugh et al. (2010), Chapman et al. (2004), Lutetnbacher et al. (2018), Sandy et al. (2010), Petrova et al. (2009), and Ochala et al. (2012) all showed a statistically significant increase in initiation of breastfeeding in the IG but lacked statistically significant analysis to support an increase in breastfeeding exclusivity and duration. Similarly, the longitudinal study by Farr et al. (2019), showed higher initiation rates, but not duration with education interventions. These studies showed that breastfeeding initiation is impacted by education interventions but has little statistically significant data to support an increase in breastfeeding duration.

The group prenatal education and support theme had mixed results and showed that the education could potentially have a positive impact on breastfeeding exclusivity and duration or have no impact. The quality of research included five RCTs and one quality improvement project. The results from M'liria (2020), Tseng (2020), and Madera (2019) demonstrated the format of group breastfeeding education they utilized positively impacted breastfeeding initiation, self-efficacy, and exclusivity rates. Conversely, the group education formats employed by Wambach et al. (2011), Ickovics et al. (2012), and Kronborg et al. (2012) showed no statistically significant difference for breastfeeding initiation and exclusivity. The duration may or may not have been impacted by group prenatal education.

Research analyzed to support the theme of self-efficacy and intention to breastfeed was found to unanimously support the positive impact of breastfeeding education. Two quasi-experimental studies conducted by Friesen et al. (2015) and Parry et al. (2019), showed a decrease in anxiety and increase in confidence, knowledge, and intention following intervention

education methods. One quasi-experimental study by Hatamleh et al. (2012) showed an increase in self-efficacy with breastfeeding education interventions. Abuidhail et al. (2019), Andaya et al. (2012), Tseng et al. (2020), and Kronborg et al. (2012) all conducted RCTs whose interventions showed increased self-efficacy and knowledge following breastfeeding interventions and education.

Randomized control trials by Kellems et al. (2018), Wong et al. (2014), Abuidhail et al. (2019), Kromborg et al. (2012), and Sandy et al. (2009) that included limited breastfeeding education and support showed no significant difference in exclusivity or duration. Additionally, Kellems et al. (2018) showed the same duration between the intervention and CGs. This indicated that limited education or one-time interventions had little effect on breastfeeding initiation, duration, or self-efficacy for marginalized women.

Chapter four will include a literature synthesis of trends and gaps found within the literature, consider this literature's implications for nurse-midwifery practice, examine recommendations, and suggest directions for future research studies. The chapter will integrate the Maternal Role-Attainment theory regarding breastfeeding education and support for marginalized women.

## **Chapter IV: Discussion, Implications and Conclusions**

The purpose of this review was to identify the effects of breastfeeding education and support on exclusive breastfeeding rates for marginalized women. Twenty relevant, scholarly articles were chosen and critically analyzed using the Johns Hopkins Research Evidence Appraisal Tool. Following the critical analysis, a literature synthesis was completed. Chapter four examines implications for nurse-midwifery practice, limitations to existing literature, and recommendations for future research that were all identified. This chapter will include the integration of Mercer's Maternal Role-Attainment Theory as it relates to breastfeeding education to guide nurse-midwives as they care for vulnerable women throughout pregnancy and lactation.

### **Literature Synthesis**

Breastfeeding benefits and low initiation rates for marginalized women guided the research topic question: "Does prenatal breastfeeding education have an impact on the rates of exclusive breastfeeding initiation and duration for marginalized women?" Exclusive breastfeeding for at least six months is recommended by all governing medical maternal and child health organizations, including the American Academy of Pediatrics (AAP), ACOG, and ACNM. Each of these organizations have position statements that support the benefits of breastfeeding for both mother and infant. However, research shows that exclusive breastfeeding initiation, duration, and exclusivity rates are significantly lower than recommendations, specifically for marginalized women. A framework of themes was identified in the literature, including initiation versus duration, group education and support, self-efficacy and initiation, and limited breastfeeding education. Furthermore, trends and gaps were identified within those themes.

## **Trends and Gaps in the Literature**

### ***Initiation versus Duration***

Available literature supports the positive impact on prenatal education and support for breastfeeding initiation. There are multiple studies that have hypothesized the importance of breastfeeding education to change breastfeeding initiation and duration. The impact of breastfeeding education on duration is inconclusive in the literature. Research by Chapman et al. (2004), Farr et al. (2015), Lutenbacher et al. (2018), Ochala et al. (2012), Petrova et al. (2019), Pugh et al. (2010), and Sandy et al. (2010) showed that comprehensive breastfeeding education increased breastfeeding initiation for marginalized women, however it had no significant impact on the duration. Studies that used verbal and hands-on education had a greater impact on breastfeeding initiation rates (Chapman et al., 2004; Lutenbacher et al., 2018; Ochala et al., 2012; Pugh et al., 2010; Sandy et al., 2010). Studies of Latina women showed they frequently initiated breastfeeding but not exclusively (Chapman et al., 2004; Lutenbacher et al., 2018; Sandy et al., 2010). Web-based education could be useful for marginalized women, however it requires technology and self-motivation compared to traditional education methods (Farr et al., 2019). Studies showed that prenatal and postpartum home visits to low income mothers from a breastfeeding support team showed increased breastfeeding initiation but not duration (Chapman et al., 2004; Lutenbacher et al., 2018; Ochala et al., 2012; Pugh et al., 2010; Sandy et al., 2010). Interventions with comprehensive home and clinic support had impact for women who may have inadequate support systems at home. This intervention could be done in urban settings with high concentrations of marginalized women. Home-based and intensive education programs work to increase breastfeeding initiation rates by giving one-on-one support in a familiar environment

and make breastfeeding a priority. They remove the barriers of transportation, gaps in care, and missed visits.

Breastfeeding initiation and duration are both measurable and modifiable factors of the breastfeeding journey. Because of this, randomized control trials can easily identify the influence of education on these factors. The many benefits of breastfeeding are well researched and while multiple studies targeted a specific ethnic group, research is lacking for African American and immigrant women (Farr et al., 2019). This is significant due to the disparities between Black women and all other ethnic populations for breastfeeding recommendations compared to practice (Chapman & Perez-Escamilla, 2012). Access and language barriers may limit participation from Black women. The studies on initiation and duration ranged from initial sample sizes of 104 (Petrova et al., 2019) to 328 (Farr et al., 2019). These final sample sizes were always smaller at the conclusion of the research due to difficulty tracking participants or participant attrition. This was a persistent challenge in studies of marginalized women who lacked reliable transportation, suffered from housing insecurity, and lacked support (Parry et al., 2019). Also, much of the research showed that intensive breastfeeding home-based support was effective, yet did not illustrate the cost-effectiveness or feasibility of this type of support (Chapman et al., 2004; Lutenbacher et al., 2018; Ochala et al., 2012; Pugh et al., 2010; Sandy et al., 2010). Self-reported data could be skewed due to desires to please and misunderstanding of the questions.

### ***Group Education and Support***

Group education and support has guided education principles and formats in the healthcare environment for many years. Breastfeeding group-based education can be incorporated with group-based prenatal care, a concept that was introduced in the late 1990s (Thielen, 2012). This format of breastfeeding education may work well for marginalized women

who live in urban areas with large populations of women who they can easily relate to. A variety of studies focused on determining whether group education and support was effective in improving breastfeeding rates. The studies found that though education in a group format could improve self-efficacy, there was little influence on breastfeeding rates (Ickovics et al.; Kronborg et al., 2012; Madeira et al., 2019; M’Liria et al., 2020; Tseng et al., 2020; Wambach et al., 2011). This style of education was well adapted for large and small sample sizes with sizes ranging from n=17 (Madeira et al., 2019) to n=1193 (Kronborg et al., 2012), which could lend itself to greater inclusivity. The number of group sessions varied in each study. The studies with more sessions showed marginally improved rates of breastfeeding (Ickovics et al., 2012; Kronborg et al., 2012; Madeira et al., 2019; Tseng et al., 2020). The smaller sample sizes of n=17 (Madeira et al., 2019) and n=103 (Tseng et al., 2020) allowed for more sessions, which showed positive impact on breastfeeding rates and self-efficacy. This could be associated with repetitive exposure, increased support, and emphasis on the benefits of breastfeeding that was facilitated by multiple group sessions.

There was a gap in the literature about group education due to the recent introduction of prenatal group education. Timing of the education, including antepartum and postpartum groups, could affect the outcomes of the intervention, but the articles did not study this difference. Only one study included postpartum support in the group format (Wambach et al., 2011). Participation was varied in each study and attrition rate increased due to limited follow-through by participants.

### ***Self-Efficacy and Intention***

Breastfeeding self-efficacy is defined as a woman’s confidence in her ability to breastfeed her child and the knowledge about benefits of breastfeeding. It has been linked to

positive breastfeeding outcomes, including initiation and duration for diverse populations (Otsuka et al., 2014). Breastfeeding education was positively associated with increased breastfeeding self-efficacy in multiple studies (Abuidhail et al., 2019; Andaya et al., 2012; Friesen et al., 2015; Hatamelah, 2012; Kronborg et al., 2012; Parry et al., 2019; Tseng et al., 2020). The format, sample size and number of education sessions varied in all studies with similar self-efficacy results. Intention to breastfeed was also positively impacted through use of prenatal breastfeeding education and support, likely due to increased knowledge of the benefits and long-term health impacts on both mother and child (Andaya et al., 2015; Friesen et al., 2015; Parry et al., 2019). The literature showed that breastfeeding education and support positively impacted self-efficacy and intention to breastfeed for a diverse group of marginalized women. Breastfeeding education and support positively impacted self-efficacy and intention to breastfeed for a diverse group of marginalized women. These findings are significant because it is well established that self-efficacy and knowledge is linked to positive breastfeeding outcomes. Unfortunately, no data was collected to track if self-efficacy impacted breastfeeding initiation and duration goals. Although all of these studies measured self-efficacy and intention, very few used standardized tools such as the BSES and IFI that could be utilized on a larger scale to allow for easy comparison between studies.

### ***Limited Breastfeeding Education***

Researchers often sought to prove that any amount of breastfeeding education would increase breastfeeding rates. The intervention format utilized in multiple studies with one- or two-time breastfeeding education interventions did not increase breastfeeding rates (Abuidhail et al., 2019; Kellems et al., 2018; Kronborg et al., 2012; Sandy et al., 2009; and Wong et al., 2014). The studies of a one- or two-time intervention used different formats, including both face-to-face



and independent learning models but showed similar results. These findings demonstrate that for marginalized populations, more extensive breastfeeding education provides greater benefit for breastfeeding success. These small-scale research studies had limited resources to provide extensive breastfeeding education interventions to marginalized women with lack of access. There were multiple formats of breastfeeding education provided to marginalized women in the research studies including one-on-one IBCLC education sessions with handouts, breastfeeding video education, and a web-based program (Abuidhail et al., 2019; Kellems et al., 2018; Kronborg et al., 2012; Sandy et al., 2009; and Wong et al., 2014). Multiple studies using the same format of breastfeeding education intervention could provide more useful data to address the education format that could be most useful in educating marginalized women.

### **Implications for Midwifery Practice**

Midwives are in a unique position to walk with women throughout their pregnancy and breastfeeding journeys. Studies show that prenatal breastfeeding education and support increases breastfeeding initiation. Midwives who work with marginalized women should utilize this research to provide culturally sensitive support interventions to encourage women to exclusively breastfeed for an extended duration of time. These providers should also work to develop policies; guide research; and identify opportunities, gaps, and solutions to increase breastfeeding outcomes and impact health for marginalized women and their infants. They should also improve their understanding of the social determinants of health to provide quality breastfeeding care to women, including those from underserved populations, which is one of the Hallmarks of Midwifery (ACNM, 2020). Midwives' close relationship with patients and breadth of knowledge can be influential in all aspects of women's maternity care.

The ACNM (2018) recognizes the important role of breastfeeding for both mothers and infants and aims to support initiatives that are designed to inform and educate patients and the public. This organization includes health education marketing efforts, including social media, that normalize breastfeeding to guide practitioners and inform the public. The need for evidence-based support and counseling for breastfeeding within healthcare systems is emphasized. These midwives advocate for increased research to identify care gaps related to cultural, social, economic, and physiologic factors. They also support international and domestic programs to improve breastfeeding rates and adopt policy and legislation that support, protect, and promote breastfeeding (ACNM, 2018).

Research on the best approach to increase breastfeeding rates for marginalized women is unclear. Midwives must advocate for further research to identify the needs of the vulnerable women in their care, while also conducting research. Midwives understand that breastfeeding is a combination of learned and instinctive behaviors, and they have the ability to affect the choices new mothers make to breastfeed their babies (ACNM, 2018).

Although research is unclear on the best method of education, the data demonstrates that increased breastfeeding education in the prenatal period leads to increased breastfeeding rates. Therefore, it is important for midwives to incorporate breastfeeding education and discussion in routine visits. It is important to assess anatomy, identify risk factors, answer questions, and dispel misinformation early in pregnancy. Through collaboration with IBCLCs, RNs, public health providers, peer-counselors, and pediatricians, midwives have the ability to positively impact breastfeeding education and rates

### **Recommendations for Future Research**

Further research is needed to determine the efficacy of breastfeeding interventions to increase breastfeeding rates for marginalized women. Several suggestions were made to strengthen the quality of research available. Healthy People 2030, ACNM, and ACOG all address the need for a program of research to assess programs and recommendations to increase breastfeeding rates. ACNM (2016) advocates for research to identify social, cultural, and economic barriers that cause marginalized women to have lower breastfeeding rates compared to non-marginalized women.

Current research is heavily centered on third trimester interventions and more research is needed centering on earlier breastfeeding education and intervention to guide practice recommendations (Kellems et al., 2018). Research is necessary to determine if timing of breastfeeding education affects the efficacy of the intervention. One study showed women make feeding decisions early in pregnancy or even prior to pregnancy, which could guide research to improve the timing of midwife-led breastfeeding education (Kellems et al., 2018).

Cultural norms and background can influence the best learning modality for individual patients. Current studies did not often analyze outcomes in light of race or ethnicity. A prospective study of geographically and racially diverse patients would help guide breastfeeding interventions that would help improve initiation and duration in marginalized women (Oniwon et al., 2016). Development of comprehensive learning assessment tools to determine learning styles could benefit midwives' diverse patient populations.

Further research is needed to help identify some of the more promising interventions that will influence breastfeeding rates, including research on peer counselor services and how to tailor those services to meet the needs of marginalized women. Prenatal classes and the group prenatal care model show promising results to improve breastfeeding initiation, but more

research is needed to evaluate the impact of postpartum services on duration and exclusivity (Chapman et al., 2012). Additionally, research is needed to determine the cost-effectiveness of peer counseling services and optimal timing and intensity. Determining specific combinations of prenatal, perinatal, and postnatal peer-counseling services is also needed (Chapman et al., 2004).

More research is needed to determine the disconnect between interventions that improve breastfeeding self-efficacy and knowledge but are not sufficient to increase breastfeeding practice after birth (Kronborg et al., 2011). Interventions could include antenatal education to increase self-efficacy coupled with postpartum breastfeeding support to address unexpected breastfeeding difficulties for women with low support. Multiple research studies prove that self-efficacy and knowledge are successful in improving outcomes, but this has not been shown to be true in regard to increasing breastfeeding initiation and duration rates for marginalized women.

The research available largely includes smaller sample sizes, however larger sample sizes would provide more comprehensive results to determine the most effective education and support on breastfeeding for marginalized women. This additional research is essential to improve the health disparities marginalized women have faced historically and continue to impact health outcomes today.

### **Integration of the Maternal Role Attainment Theory**

The Maternal Role Attainment Theory was developed by Ramona Mercer to provide health interventions for nontraditional mothers to develop a strong maternal identity. Strong maternal identity can assist mothers in having the self-confidence to initiate and continue breastfeeding. The process used in this theory can help develop mother-infant attachment and bonding. The Maternal Role Attainment Theory follows four stages to attainment: anticipatory, formal, informal, and personal (Petiprin, 2016). Breastfeeding education and support can be

directly applied to each of these four stages to increase exclusive breastfeeding rates among marginalized women.

The anticipatory stage to attainment is the social and psychological adjustment a mother makes in her breastfeeding journey (Mercer, 2004). During this stage, breastfeeding education could assist mothers in developing their breastfeeding goals, feeding desires, and dreams. An example of this was used in an RCT by Abuidhail et al. (2019); they used prenatal breastfeeding education to enhance knowledge, attitude, and self-efficacy and impact breastfeeding goals.

The next stage is the formal stage where new mothers assume the roles and responsibilities of motherhood. In this stage, midwives can guide the mother's behaviors and provide guidance and advice (Mercer, 2004). This was demonstrated in an RCT by Pugh et al. (2019) that included hospital visits by a breastfeeding support team to provide advice and education to new mothers. Mothers in the intervention group showed increased breastfeeding rates for up to six weeks.

The informal stage follows the formal stage. During this stage, a new mother gains confidence and is able to meet her goals of breastfeeding duration by developing her own methods that may be more culturally appropriate or comfortable. Madeira et al. (2019) studied Somali women in a low-resource clinic providing culturally appropriate care to improve care satisfaction, increase knowledge, and reduce stress in the postpartum period.

The personal stage is the final stage of motherhood. Mothers find confidence and competence in their role. Peer counselors are the best demonstration of this stage. Midwives can utilize peer counselors, who have the experience of moving through these stages, to help mothers navigate the anticipatory and formal stages. Chapman et al. (2004) used peer counseling to increase breastfeeding initiation through one-on-one personal support for marginalized mothers.

Utilizing these four stages, marginalized women could have better breastfeeding initiation, duration, and exclusivity rates due to the multiple touchpoints of learning. The Maternal Role Attainment Theory challenges midwives to provide appropriate and culturally competent care for women during each of these stages. Midwives are fortunate to develop relationships with women and witness the transformations occur. They must also recognize that marginalized women may be challenged by language barriers, past trauma, experiences, lack of trust in the healthcare system, support structures, social stress, self-concept, beliefs on breastfeeding, or modesty. These barriers can cause women to stall at certain stages in the Maternal Role Attainment process. Utilizing best-practice research, nursing theories, and continuing to advocate for future research is vital for continued breastfeeding advances.

### **Conclusion**

The pertinent findings of this critical literature review included identification of the following themes regarding breastfeeding education and support for marginalized women: initiation versus duration, group education and support, self-efficacy and intention, and limited breastfeeding education. Each of these themes addresses breastfeeding education interventions to improve initiation, duration, and exclusivity. Twenty scholarly articles were chosen and reviewed using the Johns Hopkins Research Evidence Appraisal Tool with evidence identifying the effect of different types of breastfeeding education and support for marginalized groups of women. Prenatal education and support given on a regular basis shows increased initiation rates but lacks in influence on exclusivity and duration. Group education and support formats have been utilized for marginalized women but show varying results regarding a positive impact for initiation, exclusivity, and duration. Breastfeeding education and support has been shown to have a positive impact on self-efficacy and intention to breastfeed. The studies using a one- or two-

time intervention showed insignificant impact on breastfeeding rates. The research for this topic is currently limited and several areas for further research have been identified.

The close relationship developed between nurse-midwives and their patients allows for frequent opportunities to have a positive impact on a woman's breastfeeding journey. Nurse-midwives utilization of evidenced based knowledge, adherence to the ACNM position statement on breastfeeding, and familiarity with Mercer's Maternal Role Attainment Theory will guide quality care interventions for marginalized women in their care.

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## Appendix 1 – Literature Review Matrix

Source: Abuidhail, J., Mrayan, L., & Jaradat, D. (2019). Evaluating effects of prenatal web-based breastfeeding education for pregnant mothers in their third trimester of pregnancy: Prospective randomized control trial. <i>Midwifery</i> , 69(1), 143-149. <a href="https://doi.org/10.1016/j.midw.2018.11.015">https://doi.org/10.1016/j.midw.2018.11.015</a>			
Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> The study purpose was to measure the effectiveness of prenatal web-based breastfeeding education on enhancing knowledge, attitude, and self-efficacy of breastfeeding after giving birth.</p> <p><b>Sample/Setting:</b> Participants were 112 pregnant mothers between 29-36 weeks gestation and who were recruited from one antenatal clinic in the Northern Region of Jordan: Irbid Governorate (population: 177,158). Criteria included <math>\geq 18</math>, a non-complicated pregnancy and daily internet use/access.</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality of evidence:</b> Good</p>	<p>A prospective RCT design was used. Data collection instruments were the infant feeding knowledge and attitudes (IIFAS) and Breastfeeding Self-Efficacy Scale (BSES). These were used to measure self-efficacy, knowledge and attitudes regarding breastfeeding. The IIFAS scale measures mothers' attitudes and knowledge and scores are divided into three categories of positive to breastfeeding (70-85), neutral to breastfeeding (49-69) and positive to formula feeding (17-48). The BSES assess mothers' self-efficacy and goes from 14-70, with 70 being the highest breastfeeding efficacy.</p> <p>A trained research assistant obtained consent and gave all mothers a pretest, then gave the experiment group access to web-based information and no access in the control group. Two weeks after due dates, participants were contacted by phone to complete a post-intervention assessment. The data was analyzed using an ANCOVA test to determine differences in the intervention and control group.</p>	<p>Participants of the experimental group were at moderate level of BSES in pre- and post-intervention with increasing the number of mothers in the same level post intervention. Participants were at a neutral level of IIFAS in both groups generally, they were neither positive to breastfeeding nor to bottle feeding. Participants of the experimental group who were neutral in the pre-intervention were n=50, 89.3% and in post intervention were n=54, 96.4%. Participants in the control group who were neutral in the pre-intervention were n=51, 91.1% and post intervention n=55, 98.2%. There was no significant difference between the experimental and control groups on post- intervention scores on BSES and IIFAS. The results showed that n=17, 30.4% did not read the knowledge in the website, but still described their knowledge as "good".</p> <p><b>Conclusion:</b> There were no differences between intervention and control groups, web-based breastfeeding education programs may contribute to improving breastfeeding self-efficacy, knowledge and attitude. Further research is needed.</p>	<p><b>Strengths:</b> Ethical approval was conducted by the Institutional Review Board and Ministry of Health and the Hashemite University. The study was the first trial to use new teaching methodologies as internet and website offerings. The study showed that Hodinian mothers do not read a lot, but watch videos and images more than reading information.</p> <p><b>Limitations:</b> The sample size was limited to one region in Jordan and a private clinic. The interviews were conducted by phone and not face-to-face. 30.4% of participants did not read the materials, but rather looked at graphics and watched videos.. The sample size was small.</p>
<p><b>Author Recommendations:</b> Inclusion prenatal web-based breastfeeding education in antenatal clinics at MCHC centers of Ministry of Health. Further research is needed to replicate this study in other Jordanian health settings.</p>			
<p><b>Summary for current clinical practice question:</b> Further research is needed to determine the effectiveness of web-based education. Mothers were more interested in the graphics and videos than reading the data. Breastfeeding improves intellectual, neurological, psychomotor and social development as well as protects against disease and neonatal complications. Teaching is considered a cornerstone in enhancing breastfeeding success, however traditional methods are not effective enough.</p>			

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To evaluate the difference in breastfeeding initiation and length of exclusive breastfeeding found among women given prenatal peer counseling versus those who only received the standard prenatal education regarding breastfeeding.</p> <p><b>Sample/Setting:</b>  <b>Sample:</b> Participants were recruited between July 27, 2000 and August 8 2002 by a bilingual, bicultural research assistant three days a week at the hospital. The sample size resulted in the use of 165 women, 90 were placed in the intervention group and 75 were in the control group.</p> <p><b>Setting:</b> Hartford Hospital which had recently obtained a certification from the World Health Organization as being a baby-friendly hospital. This hospital prenatal clinic serves a low-income, predominantly Latina population.</p> <p><b>Level of evidence: Level I</b>  <b>Quality: Good</b></p>	<p>This was a randomized, prospective, controlled trial where participants were recruited prenatally and randomly assigned to receive either routine breastfeeding education or routine breastfeeding education plus peer counseling. Women were recruited with the criteria of being at least 18 years old, considering breastfeeding their infants, residents of the greater Hartford area, available for telephone follow up, low income, at no more than 26 weeks' gestation, and not yet enrolled in the peer counseling program. The control group, which consisted of 75 women, received the routine breastfeeding education offered by the Hartford Hospital which consisted of individualized breastfeeding information offered in response to subject's questions and written breastfeeding materials from the prenatal clinic. They also received hands-on- assistance and education from the maternity ward nurses following delivery. The intervention group, which consisted of 90 women, received all of the services of the control group, plus prenatal, perinatal, and postnatal peer counselor services. This required at least 1 prenatal home visit in which the peer counselor reviews the benefits of breastfeeding, screens for inverted nipples, provides written materials, discusses common breastfeeding myths, reviews positioning, and provides anticipatory guidance. Following delivery, these women received daily visits from the peer counselors as well.</p> <p><b>Instruments/Tools:</b> Data collection was completed through interviews with the participants in the language of their choice that took place monthly via telephone at least until they stopped breastfeeding and for a maximum of 6 months. This interview assesses if the patient had begun breastfeeding and whether they were still breastfeeding.</p>	<p>The proportion not initiating breastfeeding was significantly lower in the intervention group than among the controls. The probability of stopping breastfeeding also tended to be lower in the intervention group at both 1 month and 3 months. At 6 months postpartum, the impact of peer counseling on the incidence of any breastfeeding was not apparent.</p> <p><b>Conclusion:</b> The findings demonstrated that, in the United States, peer counselors can significantly improve breastfeeding initiation rates and have an impact on breastfeeding rates at 1- and 3-months postpartum. Research has shown that peer counseling can positively impact breastfeeding outcomes in a low-income, predominantly Latina population through use of well-trained peer counselors that work under the supervision of an IBCLC</p>	<p><b>Strengths:</b> RCT, Sample representation of the population. The results of this study were said to coincide with the results of previous peer counseling studies conducted in both developed and developing countries. The findings may also be a conservative reflection of the impact of breastfeeding peer counseling since most of the participants received or were eligible to receive free formula from the WIC program and still opted to breastfeeding following use of a peer counselor.</p> <p><b>Limitations:</b> Reported limitations include that the study was not double blind although several efforts were made to minimize bias. There also occurred a time during the study where the program was understaffed by peer counselors-the authors believe that had they been staffed adequately there may have been a larger improvement in breastfeeding rates seen at the conclusion of the study. Another limitation is the location chose in the study because it was a baby-friendly hospital environment, and authors believe that larger differences may be observed in a setting that is less supportive of breastfeeding</p>
<p><b>Author Recommendations:</b> The authors acknowledge that this research was time and resource consuming and would require more effort to replicate. It is the recommendations of the authors that facilities interesting increasing the breastfeeding initiation and exclusive breastfeeding rates found among low-income populations establish the use of well-trained peer counselors that work under the supervision of an IBCLC. The authors recommend that if this study is replicated it should be done so in a facility that does not promote breastfeeding as a baseline, such as the one the previous study was conducted in, the better determine the effectiveness of peer counselors in relation to breastfeeding initiation and sustainability.</p>			
<p><b>Summary Application for Current Clinical Practice Question:</b> This research is geared towards low-income populations which was mostly Latina in this study. This can be applied with use of research in low-income, underserved populations. This article does apply to the current research question as it shows that in the United States, peer counselors can significantly improve breastfeeding initiation rates as well as postpartum rates at 1 and 3 months. This knowledge can be added to research completed regarding other forms of prenatal breastfeeding education that have been shown to affect the rates of exclusive breastfeeding for the better or worse.</p>			



**Source:** Ickovics, J., Earnshaw, V., Lewis, J., Kershaw, T., Magriples, U., Stasko, E., Rising, S., Cassells, A., Cunningham, S., Bernstein, P., & Tobin, J. (2016). Cluster randomized controlled trial of group prenatal care: Perinatal outcomes among adolescents in New York City health centers. *American Journal of Public Health, 106*(2), 359-365. <https://doi.org/10.2105/AJPH.2015.302960>

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> Compare evidence-based model of group prenatal care to traditional prenatal care and its effect on birth, neonatal, and reproductive health outcomes for pregnant adolescent women.</p> <p><b>Sample/Setting:</b></p> <p><b>Setting:</b> 14 health care centers in New York city</p> <p><b>Sample:</b> 1148 pregnant women that ranged from age 14 to 21 years old who were less than 24 weeks gestation at the start of the trial. Participation of 1233 noted for 80% rate. 38% in the intervention group were Black women vs 27% of white women. 310 women for intervention group, 623 women for control group</p> <p><b>Level of evidence: I</b></p> <p><b>Quality of evidence: Good</b></p>	<p>Multi-site cluster randomized controlled trial conducted within 14 healthcare centers in New York city between the years 2008 and 20012. The control group attended traditional prenatal care visits with their healthcare provider. The intervention group attended group prenatal care- Centering pregnancy Plus group prenatal care. Women were grouped with others of the same gestational age. Sessions included 8 to 12 women. There were 10 sessions that lasted 120 minutes that followed ACOG guidelines.20 hours of these sessions included focus on postpartum period including breastfeeding.</p> <p>Structured interviews were completed with each participant at 4 separate times, once during the second trimester, once during the third trimester and at six and twelve weeks postpartum.</p> <p>Outcomes were assessed via medical records and surveys</p> <p>Multilevel mixed models to control for interdependence owing to site clustering were employed for analysis</p> <p>Optimal design for multilevel and longitudinal research was used to calculate the sample size</p>	<p>This study addressed a wide range of issues surrounding young pregnancy, labor and delivery, and postpartum period. Included in this was an analysis of breastfeeding rates found among these women in the postpartum period. Women in the intervention group that attended one postpartum session n=509 (83.4%) and greater than one postpartum follow up sessions n=449 (72.1%) versus women from the control group attending one session 545 (87.5%) or greater than one postpartum visit n=452 (74.1%). Of those women in the interventional group 88.8% intended to initiate breastfeeding vs 87.2% in the control group. In the postpartum period the interventional group showed 1.03% higher breastfeeding initiation rate following delivery then those in the control group.</p> <p><b>Conclusion:</b> The use of Centering Pregnancy Plus group prenatal care increased the occurrence of favorable birth, neonatal and reproductive outcomes. Breastfeeding initiation rates were increased in the group that received group prenatal care.</p>	<p><b>Strengths:</b> Large sample size with good participation in prenatal care, surveys, and postpartum follow up care. Broad time range of data collection. Good representative patients, diverse ambulatory clinical practice setting, comparison of conditions model and evidence of multiple outcomes.</p> <p><b>Limitations:</b> slight lack of statistical analysis in the follow up period. No identification of mechanisms of effect. Lack of focus on cost of implementation.</p>

**Author Recommendations:** Group prenatal care seems to improve quality outcomes for adolescent moms and their babies. Future research should aim to replicate the effects of group prenatal care on maternal and child outcomes. The mechanisms of effect should be included in subsequent studies. Cost and cost-effectiveness should be evaluated in subsequent studies as well.

**Summary for current clinical practice question:** This study included a small focus on breastfeeding initiation and showed that group prenatal care helps to increase that rate found in adolescent women. The rate of exclusivity of breastfeeding was not addressed should be included in following research revolving around group prenatal care in order to determine the effectiveness. This might be a beneficial method of encouraging both breastfeeding initiation and exclusivity among marginalized populations.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To determine the impact of a low-cost prenatal education video on the hospital rates of breastfeeding initiation and exclusivity in a low-income population.</p> <p><b>Sample/Setting:</b> Sample: Women of 24 to 41 wks gestation who were WIC eligible were eligible to participate. 1580 women amongst the two medical sites, 816 were invited to participate, and 522 were enrolled Setting: University of Virginia Health System &amp; The Virginia Commonwealth University Health System and 4 participating clinic sites.</p> <p><b>Level of evidence: I</b></p> <p><b>Quality of evidence: Good</b></p>	<p>Randomized controlled intervention trial amongst pregnant women in their third trimester. One group was shown an educational video on prenatal nutrition and exercise, the other group was shown an education video on breastfeeding.</p> <p>The videos were shown to the women using a laptop and headphones in the lobby of the clinic prior to their regular scheduled prenatal appointment.</p> <p>Multivariable analyses were used to determine breastfeeding initiation rates and exclusivity during hospital stay among the two different groups.</p> <p>A computer-generated block randomization sequence using random block sizes, stratified by prenatal clinic, was used to extract data from the subject's medical charts through blinded research assistance.</p> <p>Mantel-Haenszel chi-square tests and Friedman tests or simple linear regression controlling for the variable site were utilized to test for differences between the intervention and control groups as well as the primary outcomes and other hospital procedures related to breastfeeding.</p>	<p>70% of the women in each group-initiated breastfeeding in the hospital. Exposure to interventional breastfeeding video did not affect breastfeeding initiation rates or duration during the hospital stay. Exclusivity rates during the hospital stay did not differ between groups (P= .87).</p> <p><b>Conclusion:</b> The findings suggest that one breastfeeding educational video viewed in the prenatal clinic by low-income women during their third trimester of pregnancy is not enough to influence the initiation and exclusivity of breastfeeding during the hospital stay. It is likely that small, frequent bursts of breastfeeding education throughout prenatal care may be more effective and more research should be conducted surrounding that theory.</p>	<p><b>Strengths:</b> Data was abstracted from medical records by research assistants who were blinded to the participant's group assignment. The videos used were easy to implement for staff in the prenatal clinic setting to manage for their patients.</p> <p><b>Limitations:</b> Study was limited to English-speaking mothers who qualified for WIC. One-third of the women eligible did not enroll, having a 64% participation rate.</p>
<p><b>Author Recommendations:</b> It is suggested that there was no difference between the groups regarding breastfeeding initiation and exclusivity were seen due to the small amount of education provided to the sample group. The lack of impact of the video may relate to the timing and/or mode of the intervention and/or to the lack of other support mechanisms for participants. The timing of viewing the video likely had an effect of its impact as it was shown in the third trimester. The author believes a greater impact would be achieved with an increase in education, delivered throughout the women's entire pregnancy, perhaps even prior to conception, in short bursts as opposed to the somewhat long videos used during this trial.</p>			
<p><b>Summary for current clinical practice question:</b> This study provides data on the lack of effect shown when low-income women are shown one, 25 minutes, education video on breastfeeding during her third trimester of pregnancy. This can be used to place emphasis on research surrounding increased prenatal education and the effects that may have on initiation and exclusive breastfeeding rates. Providers should search new and different methods of education that coincide with prenatal appointments and are adaptable to the patient's learning style.</p>			

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To determine the effect of an antenatal training program on knowledge, self-efficacy, and problems related to breastfeeding and its effect on breastfeeding exclusivity and duration.</p> <p><b>Sample/Setting:</b></p> <p><b>Sample:</b> A total of 1193 nulliparous women- 603 were in the intervention group, 590 in the reference group.</p> <p><b>Setting:</b> Aarhus Midwifery Clinic in an urban area of Denmark-large clinic connected to a Danish University Hospital</p> <p><b>Level of evidence: I</b></p> <p><b>Quality of evidence: High</b></p>	<p>A randomized controlled trial. Nulliparous women were recruited before 21 weeks 6 days of gestation. The intervention group was provided with a structured antenatal program that was attended during the 30 and 35th weeks of pregnancy. This consisted of three modules that each 3 hours in length. One of these sessions focused on infant care and breastfeeding. They were taught about components of importance for successful breast-feeding establishment, prepared for conceivable breast-feeding problems, and showed a film about breastfeeding. The women's partners were involved with the education. The reference group was given the standard care during the antenatal period. Data collection and measurement was done through self-reported questionnaires sent to the women's email or addresses. Analysis was completed according to the intention to treat principle. The primary outcomes looked at were duration of full and any breastfeeding. Data was collected at 6 weeks postpartum and again at 1 year postpartum.</p>	<p>No difference was found between groups according to duration of breastfeeding, self-efficacy score, or breast-feeding problems, but the women that participated in the training program reported a higher level of confidence (<math>p=0.05</math>) and 6 weeks after birth they reported being able to obtain sufficient knowledge about breastfeeding (<math>p=0.02</math>). Supplemental analysis in the intervention group revealed that women with sufficient knowledge breast fed significantly longer than women without sufficient knowledge (HR=0.74 CI: 0.59-0.97). This type of association was not found in the reference group (HR=1.12 CI:0.89-1.41).</p> <p>One year after birth there was no difference in the two groups regarding the duration of full breast feeding or any breastfeeding.</p> <p><b>Conclusion:</b> The intervention did not lead to a statistically significant improvement of the duration or breastfeeding and no difference was seen between groups in relation to self-efficacy or breastfeeding problems. It did, however, find that the antenatal training course increased the number of women who experienced having sufficient knowledge about breastfeeding 6 weeks after birth which resulted in prolonged self-reported duration of any breastfeeding in the intervention group. Therefore, this antenatal program increased the confidence of women regarding breastfeeding in pregnancy and provided them with more sufficient knowledge about breastfeeding after birth</p>	<p><b>Strengths:</b> High compliance rate for women and their partners in the intervention group and high rate of women in the reference group seeking this antepartum education which shows that it is an attractive health promotion program which creates great opportunities for further development. Large sample size and good design for the study.</p> <p><b>Limitations:</b> amount of breastfeeding education was determined to be inadequate for expected results in this study. The results may have been varied due to the questions asked of the participants including being asked if the problems were the reason for having experienced difficulties but not about the prevalence of early problems. Additional studies should be done on multiparous women for more in depth studies and results.</p>
<p><b>Author Recommendations:</b> That antenatal training may be an important low-technology health promotion tool that can be provided at a low cost in most settings. They believe that it should be followed by postnatal breastfeeding support as the antenatal program was not sufficient enough to help to increase the duration of breastfeeding or reduce breastfeeding problems.</p>			
<p><b>Summary for current clinical practice question:</b> This study suggests that antenatal training can increase the confidence of breastfeeding in pregnancy and provide women with sufficient knowledge about breastfeeding following the birth. It can be used as an example of the antepartum education that can be provided to help encourage women to learn more about breastfeeding prior to delivery. The focus on the increased knowledge can be used in the development of a more robust antenatal educational program in aims of helping to increase exclusivity outcomes. The amount of education was not substantial enough to have a statistically significant difference between the two groups.</p>			

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> Through an RCT, researchers tested the efficacy of the Maternal Infant Health Outreach Worker (MIHOW) program on maternal and infant health outcomes for Hispanic mothers. model in a sample of Hispanic women in Tennessee, researchers hypothesized maternal and infant outcomes would be better in women assigned to MIHOW than women assigned to the minimal education intervention (MEI) group (receipt of educational materials). practices, and infant stimulation in the home. No statistically significant differences were noted in the number of prenatal visits.</p> <p><b>Sample/Setting:</b> A total of 188 Hispanic women from Tennessee were enrolled and randomly assigned (MEI = 94; MIHOW = 94), with 178 women completing the study (MEI = 87; MIHOW = 91). The average maternal age at enrollment was 29.6 years (SD = 6.5). Most women reported a Mexican heritage (66.9%), less than a high school education (80.6%), never marrying (56.7%), and annual incomes less than \$15,000 (96.6%). Both study groups had similar sociodemographic and scores for standardized measures used to assess outcomes.</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality of evidence:</b> Good</p>	<p>Pregnant women eligible for MIHOW services began the study at &lt; 26 weeks gestation and were tracked through 6 months postpartum. They were recruited through flyers at locations of high-volume Hispanic customers like clinics, markets, apartment complexes and word of mouth. Participants gave written consent. Participants received a \$25 gift card. Group assignments were computer generated. All study staff completed extensive training of 40 hours. Data collectors interviewed at enrollment, 35-weeks pregnant, 2 weeks, 2 months, and six months postpartum. Each data collection took approximately 1 hour and were read aloud to participants.</p> <p>The information was available in English and Spanish. The sample size was sufficient to detect common Cohen’s d effect size of 0.46.</p> <p>Primary outcomes were measured using the Breastfeeding self-efficacy scale-short form that measured a mother’s confidence and ability to breastfeed her baby.</p>	<p><b>Conclusion:</b> Primary outcomes showed a positive and statistically significant (<math>p &lt; 0.01</math>) effect from MIHOW on the rates of initiation and breastfeeding exclusivity. 79% (n=68/86) of women in the MEI group reported never breastfeeding exclusively while 55.6% (n= 50/90) of the MIHOW model reported never breastfeeding exclusively. The difference in length of exclusive breastfeeding duration was a median of 1.4 weeks with 25% of the MIHOW group exclusively breastfeeding for at least 6 weeks. At 6 months, women in the MIHOW group did report more breastfeeding exclusivity and breastfeeding self-efficacy was higher in the intervention group at all postpartum time points.</p> <p>The study found no differences between the groups for non-exclusive breastfeeding rates at 6 months postpartum or duration of breastfeeding. 84% of women in the study initiated breastfeeding whether in the MEI or MIHOW group and that number remained unchanged at all intervention points.</p>	<p><b>Strengths:</b> The RTC format limited the potential for bias in this study. The retention rate of participants was high compared to other home-visit studies. Data collectors spoke Spanish like many of the participants.</p> <p><b>Limitations:</b> There was no control group in this study because not all participants received a standard packet of printed educational materials. The length of the study was only until 6 months postpartum.</p>

**Author Recommendations:** Understanding the complexity of providing quality medical care to both majority and minority families is necessary for developing appropriate policy and providing care. The MIHOW should be considered when planning home visitation services for immigrant and underserved families. It is cost-effective, but additional longitudinal studies are needed to understand the sustained impact on breastfeeding.

**Summary for current clinical practice question:** Women who received MIHOW exclusively breastfed their infants longer and had higher rates of exclusive breastfeeding in this sample of Hispanic mothers and their infants. MIHOW is a viable option for providing culturally sensitive services to immigrant and underserved families though provided no statistical significance for non-exclusive breastfeeding initiation or duration.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> Evaluate the effectiveness of a Mother to mother support group (MTMSG) on the exclusive breastfeeding (EBF) rates among otherwise unsupported Kenyan women in a low socio-economic rural setting</p> <p><b>Sample/Setting:</b>  <b>Sample:</b> Total sample size of 249 pregnant women in their third trimester from 33 to 37 weeks. Groups were allocated on a ratio of 1:1:1 with two treatment groups and one control                      Control Group (CG)                      first intervention group with just Mother-to-mother support and education (MES) and second intervention group with mother-to-mother support and education as well as income generating activities (MESIGA)                      Total participants:                      CG:79                      MES-82                      MESIGA-88</p> <p><b>Setting:</b>                      Three different healthcare centers in Igembe South Sub-County in Meru County, Kenya</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality of evidence:</b> High</p>	<p>Cluster randomized controlled trial. A three study group method was utilized. The control group received no breastfeeding education. The first treatment group received breastfeeding education and support during seven monthly meetings by trained breastfeeding peer educators. Second treatment group received breastfeeding education and support at the same frequency as the first group with the addition of income generating activities facilitated by the research team.</p> <p>Sample size was derived using formula by Kesey and Fleiss. Randomization was computer generated on a 1:1:1 ratio using Microsoft excel software. MTMSGs facilitators were randomly picked and trained by the principal investigator and breastfeeding educator. Blinding design was used for analysis</p> <p>Data was collected via personal interview and analyzed using SPSS version 17.0 and SAS 9.3 software packages. Kruskal-Wallis and Chi-square tests were used to analyze differences between means of continuous data with non-normal distribution.</p>	<p>At one month postpartum, mothers from the MESIGA group exclusively breastfed at a higher rate compared to the CG [{RR=1.94; CL (1.8-2.73); p&lt;0.001}]. Infants from that group were also more likely to EBF at that time than those from the MES group [RR=1.07 CI (0.96-1.18); p+0.232] but the difference was not statistically significant.</p> <p>Mothers in intervention groups were two times more likely to exclusively breastfeed at 5 months postpartum compared to those in the control group. [RR=2.42;CL 1.36-4.28; (p+0.004) and [RR= 1.89;CI 1.02-3.49; (p+0.033)]. There was no statistical significance difference between the exclusive breastfeeding rates between the two intervention groups at 6 months postpartum. Median duration of breastfeeding in the control group was 0.7 months compared to the first intervention group at 2.8 months (p,0.001) and the second intervention group at 3.4 months (p,0.001). The cross-sectional EBF rate at 6 months was significantly higher in the intervention groups; MES at 46% and MESIGA at 58.9% compared to CG at 24%.</p> <p><b>Conclusion:</b>                      MTMSG is an effective strategy to promote and encourage exclusive breastfeeding rates found in low-socioeconomic rural settings. There was no significant difference between women who received only the MTMSG compared to those that also had IGA.</p>	<p><b>Strengths:</b> Provided closer and more frequency contact with participants than like studies conducted previously. Good participation rates with a moderate study size.</p> <p><b>Limitations:</b> No clear guidelines were used for referral to the program so word of mouth method was used to gain participants. Members of MTMSG with medical problems that would affect breastfeeding were referred to another health facility and no data was collected on treatments.</p>
<p><b>Author Recommendations:</b> This study strongly suggests that EBF rates can be increased with use of MTMG and that there is a need to find new ways to increase support to mothers in any setting. Further MTMG studies should be carried out in different socioeconomic environments to determine their feasibility and impact under different contexts.</p>			
<p><b>Summary for current clinical practice question:</b> Findings provide scientific evidence for the implementations and strengthening of community-based strategies for increasing exclusive breastfeeding rates in a certain population. It suggests that there is not a significant statistical difference in increased rates of EBF when these women are offered opportunities for financial gain as well as increased education and support.</p>			

**Source:** Ochola, S., Labadarios, D., & Nduati, R. (2012). Impact of counselling on exclusive breast-feeding practices in a poor urban setting in Kenya: A randomized controlled trial. *Public Health Nutrition*, 16(10), 1732-1740. <https://doi.org/10.1017/S1368980012004405>

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> Assess the effect of facility-based semi-intensive and home-based intensive counselling on exclusive breast-feeding (EBF) rates in a low-resource urban setting.</p> <p><b>Sample/Setting:</b>  <b>Sample:</b> A total of 265 HIV-negative women who were between 34 and 36 weeks pregnant completed the study.            CG:n 89            HBICG: n 89            FBSICG:n 87</p> <p><b>Setting:</b>            Nine different villages in the Kibera slum, Nairobi Kenya.</p> <p><b>Level of evidence:</b>            Level I</p> <p><b>Quality of evidence:</b>            High</p>	<p>Cluster randomized controlled trial            Three groups: Control group (CG), home-based intensive counselling group (HBICG) and facility-based semi-intensive counselling group (FBSICG)            HBICG received seven counselling sessions at home by trained peers, one prenatally and six in the postpartum period.            FBSICG received one counselling session prenatally.            CG received no counselling.</p> <p>Breastfeeding counsellors were three females with a minimum of secondary level education that resided in the area. Education included benefits of breastfeeding, with emphasis on EBF, preparation for breast-feedings, initiation and management of common breast-feeding problems, and intro to complementary foods.</p> <p>Data was collected monthly via interview and was on infant feeding practices in the postpartum period</p> <p>Statistical analysis was done using STATISTICA version 8 and SPSS version 15.0. The prevalence rates of EBF were assessed by Kaplan-Meier survival analysis at 1, 3, and 6 months postpartum.            Significance level was set at P &lt;0.05</p>	<p><b>EBF at one month:</b> significantly higher rates found in the FBSICG group (84.3% and HBICG group (87.0%) compared to CG (72.0%).</p> <p><b>EBF at three months:</b> Significant reduction in EBF in all three groups with FBSICG (47.2%) HBICG (61.4%) and CG (36.8%). Women from the HBICG were 2 times more likely to practice EBF at this time than those in the CG, no difference noted between the CG and the FBSICG.</p> <p><b>EBF at six months:</b> EBF in CG was 3.2%, FBSICG group was 6.9% and HBICG group was 15.6%.            HBICG participants were three and a half times more likely to EBF (ARR= 3.40; 95% CI 1.34, 8.80; P=0.010) than those in the CG. Mothers from the FBSICG were one and a half times more likely to EBF (ARR=1.46; 95% CI 0.40, 4.33; P=0.494) than those in the CG but the difference was not statistically significant.</p> <p>Mean duration of EBF in CG was 1.4 months, FBSICG was 1.8 months and HBICG was 2.4 months.</p> <p><b>Conclusion:</b>            A statistically significant increase in exclusive breastfeeding at 1, 3, and 6 months was found in the group of women that received the HBICG. No difference was noted in the FBSICG and CG and the overall duration of EBF was lower than in the HBICG for both groups. Increased rates of EBF can be achieved with regular contact with mothers and increased education prior to delivery in low-income settings.</p>	<p><b>Strengths:</b> at home based counselling targeted previous knowledge of mother's and reinforced further breastfeeding education to shift mindset. Adequate participation with good sample size. Results align with similar studies conducted around home-based counseling and education.</p> <p><b>Limitations:</b> lack of referral agencies for mother's that had breastfeeding issues were available. Higher number of interviews conducted in the HBICG group compared with the FBSICG and CG group.</p>

**Author Recommendations:** Further interventions such as referral systems between health facilities and the community based counsellors should be implemented and studied for effect on EBF. More information needs to be obtained on the feasibility and cost-effectiveness of the sustainability of community-based interventions such as this one and how to promote EBF in underserved and remote communities.

**Summary for current clinical practice question:** Increased rates of exclusive breastfeeding for 1, 3, and 6 months postpartum can be found in groups of women from low-income areas that received prenatal at home based counselling and education. Hospital based intervention also has an effect on EBF although the increase is not statistically significant. This research helps to reinforce prenatal education's influence on EBF rates and offers a specific model of support and education that is effective.

**Source:** Petrova, A., Ayers, C., Stechna, S., Gerling, J., & Mehta, R. (2009). Effectiveness of exclusive breastfeeding promotion in low-income mothers: A randomized controlled study. *Breastfeeding medicine*, 4(1), 63-69. <https://doi.org/10.1089/bfm.2008.0126>.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p>The purpose of this study was to assess whether breastfeeding rates were higher at 6, 12, and 24 weeks postpartum among urban low-income mothers when a breastfeeding support team (BST) was provided.</p> <p><b>Sample/Setting:</b> A total of 328 breastfeeding mothers were eligible and consented to participate in this study from a maternal and pediatric ambulatory care center in inner-city New Jersey. Participants were predominantly young (mean, 23 years), of African American or African descent, (87.2%) and single (79.6%). There was approximately equal distribution between primiparity (50.6%) and multiparity and the majority delivered vaginally (73.5%). Most (73.5%) had at least a high school education. At baseline, 64.4% described themselves as employed and 67.7% identified themselves as having no breastfeeding experience.</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality of evidence:</b> Good</p>	<p>WIC-qualified pregnant women in the third trimester of a were recruited for this study, Researchers collected demographic details about participants and surveyed maternal knowledge, attitude, and belief regarding breastfeeding during the first prenatal survey and 3 months postpartum. Pregnant women were assigned to either a control or intervention group through computer-generation. Women in the control group received no training other than what was routine education and support. The Intervention group received care in addition to what was routine, that included breastfeeding education during their pregnancy and postpartum. The LC did one-on-one support and ed sessions at 2-4 week intervals pre-delivery and postpartum follow up. Analysis focused on survey results for the following areas: plan to breastfeed, discussed with husband/boyfriend, discussed with mother, breastfeeding is difficult to accomplish, health benefits for babies, thinking all mothers can breastfeed, maternal health benefits, colostrum knowledge, knowing how often breastfeeding would occur in the first month. Exclusive breastfeeding was then tracked at 1 week, 1 month, 2 months, and 3 months</p>	<p><b>Conclusion:</b></p> <p>The majority of mothers initiated breastfeeding in both the control and intervention group (77.8% intervention and 63.2 control) and practiced for the first three months, though not exclusively. For exclusive breastfeeding, the intervention group was (45.6% to 28.9% and 13.9% to 10.5% at checkpoints). The difference between assessment checkpoints is not significant and none of the variables used in the logistic regression models was independently associated with the rate of exclusive breastfeeding.</p>	<p><b>Strengths:</b> Data was consistent with similar RTCs which demonstrated results were beneficial but not statistically significant for this population.</p> <p><b>Limitations:</b> Low sample size. Incomplete hospital-centered intervention protocol may reduce the effectiveness of the program.</p>
<p><b>Author Recommendations:</b> This study demonstrated that breastfeeding initiation rates in low-income mothers can be increased by an intensive community nurse peer counselor intervention. However, education of low-income Hispanic women about breastfeeding benefits would not change their perceived biases.</p>			
<p><b>Summary for current clinical practice question:</b> Perceived biases of low-income Hispanic women may impact breastfeeding success and exclusivity. More research is needed to determine methods to better support these women.</p>			

**Source:** Pugh, L. C., Serwint, J. R., Frick, K. D., Nanda, J. P., Sharps, P. W., Spatz, D. L., & Milligan, R. A. (2010). A randomized controlled community-based trial to improve breastfeeding rates among urban low-income mothers. *Academic Pediatrics*, 10(1), 14–20. <https://doi.org/10.1016/j.acap.2009.07.005>

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To evaluate whether providing a breastfeeding support team (BST) results in higher breastfeeding rates at 6, 12, and 24 weeks postpartum among urban low-income mothers.</p> <p><b>Sample/Setting:</b> <i>Participants:</i> Breastfeeding mothers of full-term infants who were eligible for Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (n=328) were randomized to intervention (n=168) or usual care group (n=160); 87% were African American, 80% single, and 51% primi-parous. They were recruited from two urban hospitals in Baltimore and Maryland and were limited to English-speaking only participants.</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality:</b> Good</p>	<p>A randomized controlled trial with mother-infant dyads recruited from two urban hospitals in Baltimore and Maryland. Only English-speaking participants. At 24-weeks, the intervention group received hospital visits by a breastfeeding support team (BST), home visits, telephone support, and 24-hour pager access. The non-intervention group received standard care. The outcome measure of breastfeeding was measured by self-report at 6, 12, and 24 weeks postpartum. This study uniquely incorporated the BST and critical and unique elements of the BST were that the community nurse and peer counselor worked as a team. They were accessible to the mother and infant continuously (twenty-four hours, seven days a week) to assist mothers with problems and increase rates based on several research studies that report lack of support to breastfeeding cessation.</p>	<p>Compared to the usual care group, more women reported breastfeeding in the intervention at 6 weeks postpartum, 66.7 % vs. 56.9 %. The difference in rates at 12 weeks postpartum, 49.4 % to 40.6 %, and 24 weeks postpartum, 29.2 % versus 28.1 %, were not statistically significant.</p> <p><b>Conclusion:</b> The intervention group was more likely to be breastfeeding at six weeks postpartum compared with the usual care group.</p>	<p><b>Strengths:</b> Authors conducted an extensive literature review. They implemented a BST, community nurse and peer counselor based on those reviews. The study protocol was approved by the Institutional Review Board of the university/hospital and the community hospital. A data safety and monitoring board was formed and met semi-annually. The data safety and monitoring board evaluated adverse events and found none attributable to the intervention. Researchers conducted an extensive literature review. The study added to what is known about support and education in the form of community nurses and peer counselors both of which have been studied individually as a strategy to increase breastfeeding specifically for low-income mothers</p> <p><b>Limitations:</b> This study had several limitations. The population was English-speaking only women from two urban hospitals in Baltimore, Maryland. The tracking methodology could have been improved because the sample groups were difficult to track with self-reporting and those that didn't respond were marked as not breastfeeding, which could have skewed data. The control group data was collected by the BST and it was not a blind study for them. This may have biased the results. The sample size was based on a difference at 12 weeks postpartum, and may not have been an adequate sample to show a difference beyond that time period. The difference in rates at 12 weeks postpartum, 49.4 % to 40.6 %, and 24 weeks postpartum, 29.2 % versus 28.1 %, were not statistically significant The BST may have buffered the low support reported by mothers.</p>

**Author Recommendations:** The author recommends that to increase breastfeeding, health care resources should be focused on promotion of early breastfeeding support for low-income mothers. They cite that creative strategies like implementation of a BST and creative strategies for ways to sustain breastfeeding, possibly such as ambulatory clinic support, need to be evaluated. They allude to the fact that low-income mothers may lack support and, in the study, the BST filled a niche as a support person for these moms and could have positively influenced rates that way.

**Summary for current clinical practice question:** The researchers' findings demonstrate the effort it takes to effectively promote breastfeeding in low-income mother's lives and how increasing breastfeeding success can promote long-term health impacts for infants of low-income mothers and could provide a valuable tool for public health providers and hospitals to increase breastfeeding rates. More research to evaluate cost-effective strategies to implement programs like this are important to increase breastfeeding rates for these vulnerable populations.



Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> The purpose of this study was to evaluate the effectiveness of prenatal health intervention to increase the breastfeeding rates in an urban, low-income, predominantly Dominican immigrant sample.</p> <p><b>Sample/Setting:</b> Participants were 238 families who enrolled prenatally in Best Beginnings, a primary prevention home visitation program and resided in 1 of 2 census tracts in Washington Heights, an impoverished, predominantly Latino immigrant neighborhood in New York City. The mean age was 26 years old, 88% were born outside of the U.S., and 87% identified themselves as Dominican ethnicity. 36% were proficient English speakers.</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality of evidence:</b> Good</p>	<p>Randomized controlled trial study design. Potential Best Beginnings participants were approached by family assessment workers (FSWs) in community prenatal clinics. Families were eligible if they were pregnant or with an infant less than 3 months and reported psychosocial risk factors for caregiving difficulties on 2 screening instruments administered by FSWs.</p> <p>Participants were then assigned to a program group or a control group. Consent was obtained. Both groups received services, but the program group had enhancements to promote breastfeeding including: exploration of a mother’s previous experience, if any, with feeding an infant; explanation of the mechanics of breastfeeding using charts and written materials; provision of pamphlets, manuals, and handouts about breastfeeding; and verbal discussion of the benefits and challenges of breastfeeding.</p> <p>After the infant’s birth, the FSW typically made a visit to the newborn’s mother in the hospital. During this visit, the FSW assisted program group mothers with any problems initiating breastfeeding. After hospital discharge, FSWs continued to offer program group mothers information and support in the home on a weekly basis and make appropriate referrals. The control group received materials but no follow-through or verbal instruction on materials.</p> <p>Initial self-administered questionnaire completed by participants regarding their background data. Follow-up breastfeeding data was collected through telephone interviews at 6 weeks, 3 months, and 6 months or until the infant was weaned. These outcomes were collected by a blinded research assistant.</p>	<p>Exposure to the intervention did not affect the mother report of any breastfeeding (ABF) during the first week postpartum, but it did affect the mother report of exclusive breastfeeding (EBF). 32% (44/137) of the program mothers reported EBF during the first week postpartum compared to 20% (20/101) of mothers in the control group (odds ratio 1.92; 95% confidence interval 1.05-3.52).</p> <p><b>Conclusion:</b> The results of this RCT show that culturally competent prenatal interventions can increase EBF for the first week. Maternal reporting of ABF was not significantly associated with exposure to the prenatal education in this study. The participants had an overall ABF of 82.4% for this study. Outcomes were statistically significant to positively associate with a measure of household income.</p>	<p><b>Strengths:</b> The RTC format limited the potential for bias in this study. Reporting was done in face-to-face information gathering by trained assessment workers.</p> <p><b>Limitations:</b> Small sample size, lack of double blinding in the present study is a methodological limitation. The study did not use Labbok and Krasovec guidelines for exclusive breastfeeding. Additionally, some women’s self-reports may have been at the influences of pleasing the FSW.</p>
<p><b>Author Recommendations:</b> The negatively associated maternal acculturation level showed that both first generation and recent immigrants could benefit from culturally competent recommendations</p>			
<p><b>Summary for current clinical practice question:</b> The many beneficial health effects of breastfeeding for children and mothers is well known and increasing the %age of mothers who breastfeed their infants is a national public health priority in the United States.</p>			

**Source:** Tseng, J.-F., Chen, S.-R., Au, H.-K., Chipojola, R., Lee, G. T., Lee, P.-H., Shyu, M.-L., & Kuo, S.-Y. (2020). Effectiveness of an integrated breastfeeding education program to improve self-efficacy and exclusive breastfeeding rate: A single-blind, randomised controlled study. *International Journal of Nursing Studies*, 111, N.PAG. <https://doi.org/10.1016/j.ijnurstu.2020.103770>

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To develop a breastfeeding education program based on the self-efficacy theory, and evaluate the impact of intervention on 104 first-time moms. self-efficacy and attitudes.</p> <p><b>Sample/Setting:</b> n=104 (93 competed) mothers-to-be from a prenatal clinic connected to a large teaching hospital in Taipei, Taiwan. Participants were &gt;= 20 years of age, primipara with singleton pregnancy, willing to answer questions.</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality of evidence:</b> Good</p>	<p>Single-blind, randomised controlled trial</p> <p>Participants were placed into an intervention or control group by block-randomization. The intervention group received the breastfeeding program for 3-weeks and the control group received routine prenatal care.</p> <p>Data between groups were compared for scores on breastfeeding self-efficacy, infant feeding attitude, and breastfeeding practice, which were assessed using the Breastfeeding Self-Efficacy Scale-Short Form, the Iowa Infant Feeding Attitude Scale, and a structured questionnaire, respectively.</p> <p>Repeated data measurements were collected at baseline, 36-weeks' gestation, and postpartum at 1-week, and 1-, 3-, and 6-months.</p>	<p><b>Results:</b> Ninety-three mothers completed the study. Data were compared for the self-efficacy intervention group (n = 50) with the control group (n = 43). Baseline measures did not differ between groups. The intervention group had significantly higher breastfeeding self-efficacy at 36 weeks' gestation (mean difference (MD): 7.3, p &lt; .001), and postpartum at 1-week (p &lt; .001), 1-month (p &lt; .001) and 3-months (p &lt; .01) with MD: 6.7, 7.9, and 8.1, respectively; differences in scores from baseline were also significantly greater from 36 weeks' gestation to 3-months (MD from 9.1~9.9, p &lt; .001) and 6-months postpartum (MD: 7.0, p &lt; .05). Infant feeding attitude scores significantly improved from 36 weeks' gestation to 6-months postpartum for the intervention group (MD from 3.5~7.4, p &lt; .05). Rates for exclusive and predominant breastfeeding postpartum were significantly higher for the intervention group vs control (p &lt; .02) at 1-week (98% vs. 86%), 1-month (100% vs. 90.7%), and 3-months (94% vs. 76.7%). Odds ratio (OR) postpartum for exclusive and predominant breastfeeding was greater for the intervention group at 3-months (OR = 4.7, 95% Confidence interval (CI), 1.2 -18.6; p = .05) and for exclusive breastfeeding at 6-months (OR: 2.82, 95% CI 1.0-8.1; p = .05).</p> <p><b>Conclusion:</b> The breastfeeding education intervention improved breastfeeding self-efficacy, infant feeding attitudes, and exclusive breastfeeding rates. The breastfeeding education program could be effective for sustaining breastfeeding in new mothers.</p>	<p><b>Strengths:</b> The study matches findings from other research on breastfeeding self-efficacy in other locations. Mothers in the IBEP had higher scores for breastfeeding self-efficacy, infant feeding attitude, and breastfeeding outcomes at 1week and up to 6 months when compared with mothers receiving usual care. This study could encompass mindfulness training, which is useful in helping new mothers and their partners through this time.</p> <p><b>Limitations:</b> This was limited to a small area, which may generalize the results due to lack of a diverse population size. The attrition was 10.5%, because of factors of time or pregnancy complications. The sample size was adequate, but small. This didn't factor in the cultural practice from traditional Chinese practice of 'doing the month,' which is a 30-day regimen that limits nutrition, rest and visitors. This could have factored in on results. The information was also self-reported.</p>

**Author Recommendations:** More research is needed to evaluate the impact of the individual components of the program to determine whether the outcomes can be improved for more mothers. The IBEP should be offered in larger urban areas with larger sample sizes to encompass diverse populations.

**Summary for current clinical practice question:** The breastfeeding education intervention improved breastfeeding self-efficacy, infant feeding attitudes, and exclusive breastfeeding rates. The breastfeeding education program could be effective for increasing breastfeeding initiation and duration for marginalized women.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> The purpose of this research was to test the hypothesis that the interventions of education and counseling from a lactation consultant/peer-counselor team would increase breastfeeding initiation and duration for adolescent mothers compared to those in control conditions based on the theory of planned behaviour, adolescent decision-making theory, and developmental theories.</p> <p><b>Sample/Setting:</b> Four Midwestern U.S. prenatal clinics affiliated with three urban public and private teaching hospitals. Criteria for participation was: between the age of 15-18 years old, pregnant with their first child, planning to keep the newborn, able to speak and read English, and possession or access to a telephone. 588 participants were assessed with a final n=390. All were primiparous, 61% were African American, 75% from low-income families, single and living with their families.</p> <p><b>Level of evidence:</b> Level I</p> <p><b>Quality of evidence:</b> Good</p>	<p>The study used a prospective, non-blinded, three-group randomized controlled trial to test the effectiveness of a developmentally sensitive education and counseling intervention for breastfeeding to adolescent mothers. First researchers measured demographic characteristics, breastfeeding attitudes, subjective norms, perceived behavioral control, intentions, and knowledge at baseline in the second trimester and again in the third trimester. Postpartum data included infant feeding initiation in the hospital and breastfeeding duration at 3 and 6 weeks, and at 2, 3, 4, 5, and 6 months gathered via phone. Participants were randomly assigned to groups (experimental received education by an expert = 128, attention control = 128, usual care = 134, and categories of attrition up to the time of analysis of the primary outcome variable of breastfeeding initiation. 289 (92%) provided analyzable data for the outcome of breastfeeding initiation.</p> <p>Only breastfeeding participants were followed after hospital discharge. Sample sizes were: experimental = 77, attention control = 60, and usual care = 64, for a total of 201 (69.5% of those with analyzable data at birth. 30.5% did not initiate breastfeeding). The participants continued surveys until breastfeeding cessation or to final data collection at 6 months.</p>	<p><b>Conclusion:</b> Breastfeeding initiation: 69% of the total sample (n=289) initiated breastfeeding by hospital discharge. The experimental group: 79%, attention control: 66% and usual: 63%. the chi-square test=<math>p &lt; 0.03</math> indicated a significant difference. Breastfeeding duration: Median breastfeeding duration was experimental group: 177, attention control: 42 and usual: 61 days. The intervention group effect remained significant (<math>p = .015</math>) Exclusive Breastfeeding: 64% of total participants who initiated breastfeeding exclusively breastfed. The experimental (65%), attention control (68%) and usual group (60%) had no statistically significant differences in exclusive breastfeeding None of the variables that predicted breastfeeding initiation were significant predictors of exclusive breastfeeding. Formula was used across all groups and most began in the first week.</p>	<p><b>Strengths:</b> U.S.large-scale controlled trial for teenage mothers. Consistent findings to other studies. Rigorous theory-based design and standardized procedures in recruitment, data collection and intervention. Prenatal breastfeeding intention was the strongest predictor of breastfeeding initiation.</p> <p><b>Limitations:</b> Participant attrition and reliance of self-reports. There is a potential for recall bias. Financial incentives throughout the study may have influenced reporting on continued breastfeeding. Cost-effectiveness was not studied.</p>

**Author Recommendations:** The findings support a peer and professional intervention to promote breastfeeding initiation and maintenance by adolescent mothers. The experimental intervention with continued support for four weeks did significantly influence breastfeeding duration.

**Summary for current clinical practice question:** This study showed developmentally sensitive education and support interventions by a lactation consultant or peer counselor team can be an effective method of increasing breastfeeding initiation and duration for adolescent mothers

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To determine if exclusive breastfeeding rates and duration of breastfeeding can be increased with the use of professional one-to-one prenatal breastfeeding support and education.</p> <p><b>Sample/Setting:</b>  <b>Sample:</b> a total of 469 primiparous women who were receiving care at one of two different public hospitals. 233 were put in the intervention group and 236 were put in standard group</p> <p><b>Setting:</b> Two different public hospitals in Hong Kong- these locations were chosen based on geographic representativeness and high volume of eligible Hong Kong mothers who use public healthcare systems to receive free care.</p> <p><b>Level of evidence: Quality of evidence: High</b></p>	<p>Randomized controlled trial primiparous women. One group received standard antenatal care. The other group received one to one antenatal breastfeeding support and education session. The outcomes were measured using the prevalence of exclusive breastfeeding at 6 weeks postpartum. Secondary outcomes were measured using the prevalence of exclusive breastfeeding at 3 and 6 months postpartum as well as the overall duration of any and exclusive breastfeeding during the 6 months postpartum.</p> <p>Study participants were randomized to either the standard hospital antenatal care or given the standard care plus one one-to-one breastfeeding education and support session. The standard care consisted of routine maternal and delta health checks by clinic midwife or OB along with health education to promote healthy pregnancy. The one-to-one breastfeeding session was 20 to 30 minutes and based on the WHO guidelines for baby-friendly hospitals and evidence-based maternity care.</p> <p>Initial self-administered questionnaire completed by participants regarding their background data. Follow-up breastfeeding data was collected through telephone interviews at 6 weeks, 3 months, and 6 months or until the infant was weaned. These outcomes were collected by a blinded research assistant.</p>	<p>Exclusive breastfeeding rate for the intervention group was 37.8% at 6 weeks postpartum compared to 36.4% for the standard care group. No significant difference was found between the two groups in exclusive breastfeeding rates at 3 and 6 months.</p> <p>There was a noted 50% increase of exclusive breastfeeding rate at 6 weeks postpartum from this study as a whole.</p> <p><b>Conclusion:</b> This study showed that among first-time mothers who are planning to breastfeed, the addition of a one-time one-to-one professional antenatal education and support session had no significant effects on the rates of exclusive breastfeeding at 6 weeks, 3 months, and 6 months postpartum. It is noted that this setting was one that already had a somewhat high breastfeeding initiation rate.</p>	<p><b>Strengths:</b> Rigorously conducted with a high participation rate among eligible pregnant women. Full compliance with study intervention and complete follow-up. Educational intervention was developed from the World Health Organization Evidence Based recommendations. Intervention group was substantially larger than other studies using the same type of intervention. Standard definitions of breastfeeding were used to enable easier comparison to similar interventions.</p> <p><b>Limitations:</b> Generalizability may be limited to similar settings with high breastfeeding initiation rates. Recall bias could have occurred due to the use of maternal-self reporting. The level of postnatal breastfeeding support was not taken into consideration. Traditional cultural beliefs still influence postnatal recovery practices therefore the study population is unlikely to significantly affect the overall generalizability of the findings.</p>

**Author Recommendations:** Although their study does not support the effectiveness of brief, one-to-one antenatal education on improving breastfeeding rates, they feel that pregnant women still need information on the benefits of breastfeeding during the antenatal period. Further research may be helpful to improve the efficacy of prenatal breastfeeding education. More intensive and individually targeted antenatal education may have greater success on improving breastfeeding exclusivity and duration.

**Summary for current clinical practice question:** This study shows that in a minority setting where there are already high rates of exclusive breastfeeding initially, the addition of one 1:1 educational session on breastfeeding did not help to significantly increase the rates of exclusive breastfeeding and its duration. The rates for exclusive breastfeeding for the first 3 weeks were relatively high in the group that did receive the education. This study can be used to reinforce that the inclusion of more education may not drastically increase exclusive breastfeeding rates but can help encourage mothers nonetheless. This helps to determine that one session is not enough to increase these rates but could be considered a good start.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To determine the feasibility and possible effect of two iPad based breastfeeding interventions for pregnant minority women and the effects they have on exclusive breastfeeding intention, acceptability and satisfaction, and follow up rates of Exclusive breastfeeding postpartum.</p> <p><b>Sample/Setting:</b>  <b>Sample:</b> 243 publicly insured predominantly African American women. 132 who completed the champion education intervention and 111 who completed the positive messaging intervention.  <b>Setting:</b></p> <p><b>Level of evidence: II</b></p> <p><b>Quality of evidence: Good</b></p>	<p>Longitudinal survey study with follow up chart review. Participants who had completed clinically required breastfeeding education were eligible for the interventions and assigned to one of the two interventions by non-randomized block design that included the champion intervention and the positive messaging intervention.</p> <p>The champion intervention utilized a free commercially available app to identify a supportive breastfeeding champion.</p> <p>The positive messaging intervention was an app that offered breastfeeding information in a question-answer format.</p> <p>Medical records were reviewed postpartum for in-hospital feeding choice. Data was analyzed using %ages, frequency, chi-squared analyses and McNemar’s test.</p>	<p>32 of the 40 (80.03%) women using the champion app that intended to exclusively breastfeed (EBF) in the hospital did so. 39/86 (45.3%) that had no intended EBF did end up EBF in the hospital (<math>p &lt; 0.0001</math> for change). For the positive message app group, 30/36 (83.3%) who intended to EBF did so and 36/67 (53.7%) of those who did not intend to EBF ended up doing so (<math>p &lt; 0.0001</math> for change).</p> <p><b>Conclusion:</b> This pilot run of the two iPad based prenatal interventions designed to promote in hospital EBF among minority women showed that they are feasible and provided a statistically significant change in the proportion of women who intended to EBF prenatally and then chose to do so postpartum.</p>	<p><b>Strengths:</b> Demonstrates promising feasibility of new educational platform. Relatively low cost and accessible to underserved populations. Interventions only take 5 to 10 minutes to perform and can be administered easily by personnel with limited training. Aps were culturally inclusive and easy to follow by populations with low health literacy. The interactive nature of the aps were found to be appealing.</p> <p><b>Limitations:</b> short term study limited only to hospital stay. Non randomized. Relatively small sample size.</p>

**Recommendations:** The trial run of the iPad based applications proved to be a feasible way to increase hospital based EBF amongst minority women. It is recommended that additional controlled trials be held to determine the effectiveness of this approach for prenatal education.

**Summary for current clinical practice question:** This research demonstrates an effective method of prenatal education for an underserved population that proved statistically significant in improving the EBF rates found postpartum in the hospital setting. These applications can be expounded on and more lengthy research can be done that determines the duration of EBF found in correlation with the use of these applications in the antenatal period.

**Source:** Friesen, C. A., Hormuth, L. J., Petersen, D., & Babbitt, T. (2015). Using videoconferencing technology to provide breastfeeding support to low-income women: Connecting hospital-based lactation consultants with clients receiving care at a community health center. *Journal of Human Lactation*, 31(4), 595-599. <https://doi.org/10.1177/0890334415601088>

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To determine the effectiveness and benefits of a videoconference based technology that is used to educate and provide breastfeeding support to low income mothers both pre and post partum. 35 women were served with the TLPP for a total of 134 visits.</p> <p><b>Sample/Setting:</b></p> <p><b>Sample:</b> Women (35) who attended the chosen health center for prenatal care 84% between 20 to 34 years, 86% Black women 134 total visits</p> <p><b>Setting:</b> The TLPP connected IBCLCs from the Breastfeeding Center (BC) at Indiana University Health-Methodist Hospital in Indianapolis and connected with pregnant women who received their medical care at the Raphael Health Center in inner-city Indianapolis.</p> <p><b>Level of evidence: II</b></p> <p><b>Quality of evidence: Good</b></p>	<p>An original quasi-experimental research project with controlled trial. Involved development and implementation of the Tele-lactation Pilot Project (TLPP) that is a videoconferencing technology that can be used to provide breastfeeding education and support to low income women by a centrally located qualified International Board Certified Lactation Consultant (IBCLC)</p> <p>A video counseling station was established at the clinic and hospital that were equipped with a computer containing HIPAA-compliant software where women were encouraged to partake in pre and postpartum breastfeeding education and support sessions. Each participant had at least 1 prenatal and 1 postpartum TLPP visit. These were scheduled the same day as their standard appointments. Subjective data was collected from the women who participated via interviews regarding their thoughts on the TLPP and how it helped with their breastfeeding efficacy, implementation and duration.</p>	<p>Implementation of videoconferencing for education and support purposes have cost saving, time saving and increased access to care benefits for low-income women. 100% of participants reported decreased anxiety and increased confidence surrounding breastfeeding after having had video conferencing sessions</p> <p><b>Conclusion:</b> The implementation of videoconferencing technology is a relatively low cost, effective measure to expand access to medical services, support, and education that would not otherwise be available to a low-income population of women. It was shown that TLPP increased the ability to spread the resources and expertise of lactation consultants to off-site locations. It was also identified as a way for lactation specialists to develop a relationship, rapport, and trust with patients prior to delivery that could help to increase their efficacy and ability to exclusively breastfeed.</p>	<p><b>Strengths:</b> program was successful for the women involved, it was low cost and able to bring lactation resources to women who would otherwise not have them. It was provided during their regular scheduled appointments so the participation was strong.</p> <p><b>Limitations:</b> Small study size. Not randomized control trial. Long term effects were not included. More research is needed on the effects of videoconferencing education and support on breastfeeding compared to those who did not receive this support.</p>

**Author Recommendations:** Video Conferencing with a IBCLC is a cheap and effective way of reaching low-income women and helping to improve their self-efficacy, breastfeeding exclusivity and duration. This is a good resource for lactation consultants to use to increase their span regarding the population of women they provide with education. Further studies should be conducted using this method of education for a larger sample size in a randomized control fashion to obtain objective data that can be used for quality improvement.

**Summary for current clinical practice question:** Video conferencing and telehealth can be looked at as affordable and effective ways to incorporate breastfeeding education in routine prenatal care in hopes of increasing the rate of exclusive breastfeeding found among low-income women or those with an initial low self-efficacy regarding their ability to breastfeed. Incorporation of an IBCLC into routine prenatal care and also have a positive effect on breastfeeding outcomes found in this population.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To increase the amount of research available to support the importance of breastfeeding education in supporting breastfeeding. This study aimed to determine if prenatal education would increase self-efficacy in women who had not previously breastfed a child longer than two weeks thus increasing the rate of exclusive breastfeeding found in the postpartum period up to six weeks postpartum. Another purpose of this study was to determine the relationship of self-confidence in the women to their ability to breastfeed following delivery.</p> <p><b>Sample/Setting:</b>  <b>Sample:</b> The targeted population included pregnant women who had not previously breastfed a child longer than two weeks, were between 28 and 38 weeks pregnant at the time of the enrollment. A sample size of 37 women were selected and complete data was collected from 15 women in the control group and 17 women in the experimental group.</p> <p><b>Setting:</b> The women selected received their prenatal care from either the Warren County Health Clinic or the Middletown Regional Hospital prenatal clinic which are both located in the same geographic area outside a large metropolitan area in Ohio and each serve predominantly low-income women.</p> <p><b>Level of evidence: Level II</b>  <b>Quality: High</b></p>	<p><b>Design:</b> this is a quasi-experimental study with repeated measures to test the effect of a breastfeeding self-efficacy intervention program (BSEIP) on breastfeeding self-efficacy and duration. It consisted of both an experimental and control group. The participants agreed to participate were asked to sign informed consent, complete the demographic prenatal form and complete the Breast-feeding Self-Efficacy Scale (BSES). Participants in the control group received no extra prenatal education aside from the standard in place at the time. Participants met 2 hours prior to their prenatal appointment to take part in the prenatal breastfeeding education and BSEIP. Nursing actions for the BSEIP included education, assessment, encouragement/support, referral, physical assistance, and availability. The participants were also asked to watch a 15-minute video about breastfeeding during the class which discussed normal physiological changes that occur during the postpartum period and received explanations of how to evaluate milk supply and interpret infant cue. This occurred twice prior to delivery and they were given written copies of the BSEIP education that discussed four steps of breastfeeding including positioning, offering the breast, effective sucking, and breaking suction after they were discharged from the hospital.</p> <p><b>Instruments/Tool</b>  Demographic data was collected using a tool developed for this study by the investigators. Subjects were asked to give information on income, education, number of children, marital status, race, employment, intention to breastfeed and pregnancy history. Breastfeeding self-efficacy was measured using the Breastfeeding Self-Efficacy Scale (BSES) which is a 33-item self-report instrument that assesses breastfeeding self-efficacy expectancies in new mothers. Each item was preceded by the phrase "I can always" and anchored with a 5-point Likert scale where 1= not at all confident and 5= very confident. Items are summed to produce an overall score ranging from 33 to 165 with higher scores indicating higher levels of breastfeeding self-efficacy Breastfeeding duration was measured as the number of days from the first to last breastfeeding through the final data collection at 6 weeks postpartum via follow up telephone calls to the participants.</p>	<p><b>Results:</b> As far as the demographic characteristics were concerned there was no statistically significant differences between the two groups  The mean BSES score was 108.33 for the control group and 108.52 for the experimental group initially. The experimental group showed a significantly higher BSES score at two and 6 weeks postpartum than the control group. The difference for the experimental group between the first and last assessment was significantly higher the last time from 108.3 to 143.7. Women in the experimental group demonstrated a significant increase in the breastfeeding duration predicated than the control group with all mothers of the experimental group last for at least 10 to 42 days postpartum with a rate of 43.81% compared to the national 6-week continuation rate of 32.2%.</p> <p><b>Conclusion:</b> The results of this study suggest that the BSEIP, which incorporated the four principles sources of information from the breast-feeding self-efficacy theory contributed to an increase in the mother's breastfeeding self-efficacy that was sustained over time, and increased breastfeeding duration. The mothers in the experimental group felt more confident in their ability to breastfeed than the mothers who did not receive the intervention program.</p>	<p><b>Strengths:</b> Quasi-experimental study with repeated measures. This study supports literature findings that prenatal education and postpartum support are important for the outcome of breastfeeding. The results are also consistent with the research which has documented the effects of follow up and support on breastfeeding outcomes and has found that nursing support during the first two weeks postpartum period can have the greatest positive effect on the breastfeeding outcome. The continuation rate of the study was above the national 6-week average following the prenatal intervention of the BSEIP. This is attributed to strong support provided to the women. Another strength includes finding the positive relationship between self-efficacy and health behavior maintenance.</p> <p><b>Limitations:</b> The use of a non-probability convenience sample did not reflect a diverse population, limiting the extent of generalizability of the findings to other breastfeeding mothers of different backgrounds. The sample size was also considered to be small. The possibility of the response bias was considered as participants completed questionnaires related to their caregiving abilities in relation to infant breastfeeding and that they may tend to give favorable responses so that they will be perceived as competent mothers.</p>

**Author Recommendations:** The author reports the idea that this study was successful in proving an increase in breastfeeding confidence and duration following prenatal intervention with the BSEIP but suggests that due to the small sample size it may not be feasible to provide this education one to one in a busy clinical setting. Therefore, if this study were to be recreated it should be done using a more streamline model available to a larger group of participants with a more diverse population of participants.

**Summary for current clinical practice question:** This shows statistically significant results and importance in women having self-efficacy prior to delivery in order to improve the quality and duration of breastfeeding postpartum. The BSEIP prenatal education format will be a good factor to include in my Capstone project as one of the types of prenatal breastfeeding education that has been shown to help increase the length of exclusive breastfeeding. It should be noted although that the duration of 6 week postpartum is not the current national standard of 6 months postpartum so that will need to be addressed through research as well. Overall this study can be included as it shows the direct effect of receiving prenatal breastfeeding education opposed to not receiving prenatal breastfeeding education.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b>                      Researchers used statistical analysis to assess the acceptability and effects of prenatal education curriculum, Ready, Set, BABY (RSB). They hypothesized that maternal participation in RSB would increase breastfeeding rates and mothers' knowledge of optimal maternity care practices.</p> <p><b>Sample/Setting:</b>                      Four hundred and sixteen expectant women greater than 18 years old at seven sites in San Juan, Puerto Rico; North Carolina and Louisiana. 46.4% Hispanic, 38% non-Hispanic white, 11.9% non-Hispanic Black, and 3.7% as other. Educational attainment of participants varied greatly. 71% were primiparas.</p> <p><b>Level of evidence:</b>                      Level II</p> <p><b>Quality of evidence:</b>                      High</p>	<p>Quasi-experimental design                      Healthcare workers who had downloaded RSB materials from the Carolina Global Breastfeeding Institute website were invited to participate in the study by a letter of invitation. Collaborators at seven facilities completed the agreement, a human subjects ethics training course, and then a two-part online educator training for thorough orientation to the RSB materials. The collaborators were mailed flipcharts, patient booklets and pre-and post-RSB numbered questionnaires in their preferred languages. Instructions to mail the questionnaires back to the researchers at no charge were also provided. The educator's roles varied included physician, PA, registered dietitian, nurse, and lactation professional.</p>	<p><b>Conclusion:</b>                      The findings indicate that the approach of using RSB in prenatal counseling group classes or individual sessions improves breastfeeding intentions. Future testing is needed to determine the effectiveness of the materials for impacting breastfeeding outcomes.</p> <p>88.1% of participants were satisfied with the timing of RSB in their pregnancy (No recommendation was made for which trimester of pregnancy). The median IFI score was 14.0 before training compared to 15.5 after training (The Infant Feeding Intentions (IFI) scale provides a quantitative measure of maternal breastfeeding intentions. IFI score ranges from 0 (no intention to breastfeed) to 16 (very strong intentions to fully breastfeed for 6 months). Comfort with formula feeding decreased. Risks of supplementing were identified significantly more often after RSB.</p>	<p><b>Strengths:</b> Pre- and post-study design, a diverse patient population, testing in multiple clinical settings, and determination of outcome measures prior to reporting.</p> <p><b>Limitations:</b>                      The changes observed in intentions may reflect social desirability bias, despite the anonymous format of collection. The study only evaluates intentions and not actually initiation or duration. The sample size is small and limited variability doesn't address socioeconomic status of participants that may impact marginalized women.</p>
<p><b>Author Recommendations:</b> Researchers found that RSB is a free program and virtually based that if implemented, could be an effective strategy to increase breastfeeding initiation and enable women to achieve their goals.</p>			
<p><b>Summary for current clinical practice question:</b> Ready, Set, Baby (RSB), a free virtual breastfeeding education curriculum could increase breastfeeding initiation and duration for marginalized women if implemented during their pregnancies. The program significantly decreased comfort with the idea of formula feeding and provided tools for women to successfully breastfeed their babies.</p>			



Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To examine women's perceptions and reported effects of routine, primary care-based interventions to increase breastfeeding.</p> <p><b>Sample/Setting:</b> N=67 of RCT participants from two medical centers in the Bronx, New York. Participants were English- or Spanish-speaking and &gt;= 18 years old with a median age of 29.7. Race/Ethnicity included 5.5% white/non-Hispanic, 29.9% Black/non-Hispanic, 57.9 Hispanic, 6.8% Asian/Pacific Islander/other. 67% were U.S.-born and 32.8% were non-U.S. born. 44.4% intended to BF exclusively, 7.7% formula only, and 45.2% both.</p> <p><b>Level of evidence:</b> Level III</p> <p><b>Quality of evidence:</b> Good</p>	<p>Interview of participants the Best Infant Nutrition for Good Outcomes (BINGO) trial, which randomized women into one of four treatment groups: (a) Prenatal Care Provider (PNC); (b) Lactation Consultant (LC); (c) PNC + LC, or; (d) Control. Thus, the separate and synergistic effects of the interventions will be tested, compared to a Control standard of care. BINGO is a RCT, single-center, single-blind, 2x2 factorial design trial of routine provider, primary care-based interventions to increase breastfeeding intensity for low-income multiethnic women. 20% of participants in the BINGO trial were flagged for exit interviews, which ranged from 8-12 minutes and were recorded and transcribed verbatim. Researchers conducted follow-up phone interviews at 1, 3, and 6 months. The participants were given a \$5 gift card. Researchers then formulated a code-matrix system to examine themes and tendencies.</p>	<p><b>Conclusion:</b> Follow-up interviews at 1, 3, and 6 months increased consciousness of feeding practices and in some cases reinforced the benefits of breastfeeding. The findings of the study showed the perceptions of low-income minority women and their desire to breastfeed, sociocultural and practical challenges. The perception of women in the study is the benefit of combined prenatal and postpartum provider and lactation consultant interventions in reinforcing breastfeeding intent and duration, especially for women with low support. The original RCT illustrated the difficulty of tracking low-income diverse women for research.</p>	<p><b>Strengths:</b> Participants provided frequent, strong and detailed statements about how the LCs facilitated breastfeeding initiation and duration. They determined the primary cause for weaning in this population</p> <p><b>Limitations:</b> Potential for recall and social desirability biases and the limited data from the EP interventions all limited this study. Participants were paid \$5.</p>

**Author Recommendations:** Providers tend to underestimate their influence upon infant feeding, which can be significant when adequately trained. EPs bolstered this influence by encouraging providers to offer concrete details about breastfeeding benefits as part of routine care

**Summary for current clinical practice question:** Women in treatment group (EP and/or LC) focused more on how interviews affected breastfeeding while the controls emphasized food intake, which suggest that feeding assessments in conjunction with provider-expressed support for breastfeeding may support and increase breastfeeding.

Purpose/Sample	Design(Method/Instruments)	Results	Strengths/Limitations
<p><b>Purpose:</b> To design and implement a group prenatal care for pregnant Somali women and determine if this helps to improve care satisfaction, increase knowledge, and reduce stress during pregnancy and the post-partum period.</p> <p><b>Sample/Setting:</b> Setting of a federally qualified health center in an urban Midwestern area which serves a large amount of East African immigrant and refugee women. Sample included women at more than 20 weeks gestation who were receiving prenatal care at the site. The participants were taken from a pool of 50 women who were offered group prenatal, of those 14 attended these sessions and provided survey responses. All women were Somali with the median number of pregnancies per women of 6 and the average age of 29.8years</p> <p><b>Strength: Level III</b></p> <p><b>Quality: Good</b></p>	<p>Quality improvement project- reviewed under mixed method appendix. The development of a group prenatal care (GPC) session specifically designed for Somali women that includes participation by interviewing three Somali women about what they would like to include in prenatal education. The consensus was to have the inclusion of stress management, individualized and personal care, an education focus. A new GPC was developed under those guidelines and named Hooyo which means mother in Somali. Women who were more than 20 weeks pregnant were invited to participate in 2-hour biweekly session. The first hour of each session was individualized with the women and a CNM to do a prenatal check, and also included time spent on integrative therapies such as yoga, massage, and aromatherapy. The second hour included group discussion facilitated by the Hooyo staff on pregnancy and newborn topics. The research was completed following</p> <p>Measure/Instruments Primary (Quantitative) Assessment included measurement of maternal anxiety/stress, knowledge of pregnancy and birth-related topics, care satisfaction, and care engagement. The perceived Stress Scale (PSS) was used to assess stress and anxiety levels as well as the generalized anxiety disorder 7-item and patient health questionnaire. Indicators for knowledge of pregnancy were assessed through an FQHC tool questionnaire. Satisfaction with prenatal care was measured with questions developed by the authors of the Likert-scale. Secondary (Qualitative) Interview guide for participants included open-ended questions related to project aim included perceived benefits of Hooyo, new knowledge gained, personal obstacles to attending or participating, and suggested program improvements. Pre Intervention surveys completed by women before the first Hooyo session and post intervention surveys given to women who had attended at least one full Hooyo session. Post-intervention interviews conducted as well either in person or over the phone by the care coordinator</p>	<p>From March to July 2017, Hooyo sessions were held bi-weekly with an average of four women attending each session. 17 women attended at least one session during this period with 14 women responding to the survey and interview process.</p> <p>Quantitative- Self- reported knowledge of safe exercise in pregnancy (p=.02), exclusive breastfeeding (p=.04), what happens in the hospital (p=.02) and stress management (p=.03) increase after participation in the GPC. Overall self-reported knowledge was significantly higher after Hooyo attendance (p,.001).</p> <p>Qualitative- Four major themes identified through interviews with participants of Hooyo including engagement in and awareness of personal health, new knowledge, stress reduction, and building community and wisdom sharing</p> <p><b>Conclusion:</b> Quantitative and qualitative results show that women had positive perceptions of the Hooyo GPC program and gained value from program content. Self-reported knowledge of common pregnancy, labor, and postpartum topics significantly increased in four topic areas including exclusive breastfeeding. Satisfaction of group prenatal care following Hooyo was 93%.</p>	<p><b>Strengths:</b> the ability to implement and evaluate an effective GPC program in a low resource setting that Somali women appeared to find satisfying, informative, and beneficial to their health. All women interviewed believe Hooyo was culturally appropriate and addressed their pregnancy needs. Success in adapting the Somali specific model was identified in this clinical setting. 93% satisfaction rate. Patient centered care and education for both patient and provider established trust and developed successful delivery method of prenatal education</p> <p><b>Limitations:</b> Limitations to this study included a single setting, small sample size, and irregular attendance by each participating woman. Also, knowledge on each topic was self-reported, allowing for bias in participant reporting. The variability of sessions attended by individual women made a sample-wide comparison of self-reported knowledge not feasible. A short evaluation period makes it difficult to draw conclusions on longer-term health outcomes such as breast-feeding rates.</p>
<p><b>Author Recommendations:</b> GPC programs could help to increase satisfaction and knowledge by groups of women when specialized to their cultural and education needs. Study on this should include a larger population for a longer duration of time. Participation in group should also be a requirement to be able to make accurate comparisons. Future research should include a cost-effectiveness analysis based on the results of a more comprehensive study. Future projects could consider the impact of lifestyle changes to women's overall health and wellbeing as well.</p>			
<p><b>Summary Application for Current Clinical Practice Question:</b> The information provided regarding the type of prenatal education, in this case a group setting, is helpful in answering my clinical question. This study showed a slight increase in knowledge of exclusive breastfeeding to be found among Somali women in the prenatal period that could be beneficial to increasing the rates of exclusive breastfeeding found postpartum. More research examples can be used in combination with this to determine if the increase in knowledge affects the rates of exclusive breastfeeding among underserved women. The addition of a group prenatal education program will also be helpful to identify different aspects for my clinical practice question.</p>			