

Prenatal Educational Strategies to Increase the Duration of Breastfeeding: An Integrative Review

A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

Kayla Caryl Carter

Liberty University

June, 2023

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Abstract

Although breastfeeding is the best source of nutrition for infants, many women in the United States of America do not breastfeed their infants. Infants should be breastfed for the first 6 months of life. Not only does this benefit the baby, but the mother as well. While prenatal education has been linked with improvements in breastfeeding rates, little research has been completed on which educational strategies are most effective. The purpose of this integrative review is to determine effective prenatal educational strategies for increasing the duration of breastfeeding. The strategies reviewed were single methods, multiple methods, and education with continued support. While both multiple methods of education and education with continued support are effective strategies for increasing the duration of breastfeeding, a combination of these two strategies produces the greatest results.

Keywords: breastfeeding, duration of breastfeeding, prenatal breastfeeding education, educational strategies, single methods, multiple methods, continued support

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Prenatal Educational Strategies to Increase the Duration of Breastfeeding: An Integrative Review

The American Academy of Pediatrics (Meek & Noble, 2022), Centers for Disease Control and Prevention (CDC, n.d.-b), and World Health Organization (WHO, n.d.) all recommend that infants be exclusively breastfed for the first 6 months of their life. Breast milk provides infants with the best source of nutrition (CDC, n.d.-b). Not only is breast milk specifically designed to meet the nutritional needs of an infant, but breastfeeding also has many health benefits for both mother and baby. Breast milk provides passive immunity to infants as well as decreases their risk of developing the following conditions: asthma, obesity, type 1 and type 2 diabetes, severe lower respiratory disease, otitis media, sudden infant death syndrome, gastrointestinal infections, and necrotizing enterocolitis. Mothers who breastfeed have decreased rates of postpartum bleeding, breast cancer, ovarian cancer, high blood pressure, and type 2 diabetes. Additionally, breastfeeding accelerates the uterus's return to its normal size and promotes maternal weight loss as well as infant bonding (Casanova et al., 2019).

Despite the many benefits of and recommendations for breastfeeding, many infants are not breastfed. Globally, only 1 out of 3 infants are exclusively breastfed through 6 months of age (WHO, n.d.). In 2019 in the United States, 55.8% of infants were breastfed at 6 months old, while only 24.9% were exclusively breastfed (CDC, n.d.-a). Every 10 years, the National Center for Health Statistics (n.d.) publishes public health goals for the United States in its Healthy People Initiative. One goal of the Healthy People 2020 initiative was to increase the percentage of babies being breastfed at 6 months old from a baseline of 43.5% to 60.9%. Unfortunately, this goal has yet to be met (Healthy People, 2022). The new Healthy People 2030 initiative also has a goal to increase the percentage of babies being exclusively breastfed at 6 months old from a

baseline of 24.9% to 42.4% (CDC, n.d.-a). It is important to note that the Healthy People 2020 goal focused on increasing the percentage of infants who are ever breastfed. This means that while infants receive breastmilk, they may also receive other sources of nutrition. In contrast, the Healthy People 2030 goal focuses on improving the rates of infants who receive exclusively breastmilk as their only source of nutrition. It is important that strategies are developed to improve breastfeeding duration.

Background

Education in the prenatal period has been proven to be a beneficial intervention for expecting mothers. Multiple studies have shown that women who receive prenatal breastfeeding education have a higher rate of intentions to breastfeed, significant increases in knowledge and attitudes pertaining to breastfeeding, and higher rates of satisfaction with breastfeeding (Huang et al., 2019; Manlongat, 2017; Parry et al., 2019). These women are also less likely to experience nipple damage and more likely to use correct latching techniques and breastfeeding postures (Gao et al., 2022).

Perhaps the most beneficial outcome of prenatal breastfeeding education is the positive effect on the duration of time a woman breastfeeds. Those who receive formal breastfeeding education prior to the birth of their baby are more likely to still breastfeed their infants at 6 months of age (Rosen et al., 2008). This is a highly important finding in light of the known benefits and low rates of breastfeeding in the United States. While research has proven that prenatal breastfeeding education is effective at increasing the length of time a woman breastfeeds, there is little information regarding what type of education is the most beneficial.

Defining Concepts and Variables

Current educational methods include single methods, multiple methods, and education with continued support. A single method of education is defined as the delivery of any one approach to prenatal breastfeeding education. Examples of single methods include educational videos, written handouts, online classes, and in-person classes. Multiple methods of education can be defined as the delivery of any combination of the single methods listed above. An example of multiple methods of education is an in-person class combined with a written handout. Lastly, education with continued support is defined as any method of education combined with access to a breastfeeding expert throughout the neonatal period and beyond. An example of education with continued support would be an in-person class with written handouts and a weekly telephone call from a trained lactation expert to mothers once their infant is born. This approach allows mothers the opportunity to receive assistance when common breastfeeding difficulties arise.

Rationale for Conducting the Review

Breastfeeding is known to be the best source of nutrients for infants for the first 6 months of life (CDC, n.d.-b). Despite the many benefits to both mother and baby alike, 65.2% of infants in the United States are not breastfed through 6 months of age (CDC, n.d.-a). Prenatal breastfeeding education is one strategy to improve this rate and lengthen the duration a woman breastfeeds. While there is much evidence that points to the benefits of prenatal education, little research has been conducted regarding the most effective educational methods. Once the most effective strategy has been identified, educational techniques can be refined to reflect this evidence. Ultimately, there should be an improvement in the rates of breastfed infants at 6 months old.

Purpose and Clinical Question

The purpose of this integrative review is to seek information regarding effective educational strategies to increase the duration of breastfeeding. Strategies that were assessed include single methods of education, multiple methods of education, and education with continued support. Evidence revealing if strategies were successful in increasing the duration of breastfeeding was evaluated. Ultimately, this integrative review sought to answer the following question: What are effective educational strategies for pregnant women to increase the duration of breastfeeding?

Formulate Inclusion and Exclusion Criteria

The Jerry Falwell Library database was used to locate articles for this integrative review. Articles written in English were included in the study if the following criteria were met: published between 2004 and 2022, the study population was pregnant women, education was delivered in the prenatal period, and the duration of breastfeeding was included as a measure of effectiveness. Randomized controlled trials, cohort studies, systematic reviews, meta-analyses, and retrospective cohort studies were all included. Studies that only measured improvements in intent to breastfeed, initiation of breastfeeding, latching techniques, or nipple damage were not included. Studies were not excluded based on the mother's age, parity, or prior breastfeeding experience.

Conceptual Framework (Whittemore and Knafl)

Whittemore and Knafl's (2005) updated methodology for integrative reviews was used as the conceptual framework for this study. This framework differentiates the integrative review from other types of research studies by allowing both experimental and nonexperimental research to be included. Whittemore and Knafl have developed a series of steps to ensure that the

integrative review meets the same standards as other types of research studies. Each of the five stages must be completed to ensure the highest quality of evidence is attained. The stages are as follows: problem identification, literature search, data evaluation, data analysis, and presentation. Section One of this document discusses the problem identification stage, while Section Two discusses the literature search. Sections Three and Four discuss data evaluation, analysis, and presentation.

Section Two: Comprehensive and Systematic Search

Search Strategy

The Jerry Falwell Library database was used to search for articles related to the topic of effective breastfeeding educational strategies. The search terms *prenatal breastfeeding education* AND *duration of breastfeeding* were utilized. The original search only included articles published within the past 5 years. This search resulted in over 5,000 articles. After the articles were evaluated using the inclusion and exclusion criteria, 9 articles were determined to meet the criteria. A second search was performed to include more articles in the review. This search used the same search terms but included articles published between 2004 and 2022. This resulted in a total of 9,000 articles with an additional 10 meeting inclusion and exclusion criteria. This yielded a grand total of 19 articles to be included in the study.

Critical Appraisal

A total of 19 articles published between 2004 and 2022 were included in this integrative review. Articles were analyzed for the effect of prenatal breastfeeding education on the duration of breastfeeding. Articles that did not include this information were not included in the study. Initially, 9 articles were placed into the literature matrix, and 10 additional articles were added several weeks later. Articles were critiqued through an assessment of the study purpose, sample,

methods, study results, limitations, and Melnyk's level of evidence. A total of six studies were graded at Level 1, nine studies at Level 2, one study at Level 3, one study at Level 4, and three studies at Level 5. The literature matrix can be found in Appendix A.

PRISMA

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) is a guideline used to ensure information found in systematic reviews and meta-analyses is presented in the most clear and precise manner (Liberati et al., 2009). PRISMA consists of a 27-item checklist and a four-phase flow diagram. This tool was beneficial as it provided a visual representation of the article search process (see Appendix B).

The Collected Data

Articles were placed in the literature matrix when research was compiled for this review. Throughout this process, newly discovered articles were compared to those currently in the matrix. Only the original article was retained if an article matched another but was published in a different journal. The final matrix consisted of 19 original articles published between 2004 and 2022 and can be found in Appendix A.

Synthesis

Evidence reveals that prenatal breastfeeding education effectively increases the duration of time a mother breastfeeds her infant. Several methods are currently utilized to provide breastfeeding education. They are as follows: single methods of education, multiple methods of education, and education with continued support. Results from this integrative review point to the superiority of multiple methods of education and education combined with continued support over single methods of education (Artieta-Pinedo et al., 2013; Chan et al., 2016; Chen et al., 2012).

Summary

While breastfeeding is known to be the most beneficial source of infant nutrition and has many health benefits for mothers, many women in the United States do not breastfeed their infants for the recommended 6 months (CDC, n.d.-b). To summarize, prenatal breastfeeding education is effective at increasing the duration of time a mother breastfeeds. However, not all educational methods provide a statistically significant impact on the duration of breastfeeding. Each article critiqued measured the impact of prenatal breastfeeding education on the duration of breastfeeding. Articles were assigned a level of evidence based on Melnyk's framework and analyzed to determine if information was appropriate to use as evidence to support a practice change. Results of the study will be discussed in greater detail throughout the remaining sections.

Section Three: Data Analysis and Synthesis

Thematic Analysis

Articles were analyzed for information regarding the effectiveness of breastfeeding education methods. An increase in the duration of breastfeeding was used to measure the effectiveness of each educational method. Through the analysis of all 19 articles, three themes emerged. These themes represent the following three methods of breastfeeding education: single methods, multiple methods, and education with continued support. The effectiveness of each method will be discussed below.

Single Methods of Education

No matter the manner of delivery of information, eight articles concluded that there are more effective methods to increase the duration of breastfeeding than single methods of education. Artieta-Pinedo et al. (2013) listed a Lamaze class as a single method of education. Initially, there was an increased rate of breastfeeding 1 month postpartum in mothers who

attended this class. However, after 1 month, this single method of education was ineffective at increasing the duration of breastfeeding.

Both Forster et al. (2004) and White (2020) compared single methods of education with the standard of care. The standard of care in the Forster et al. (2004) study allowed women to utilize any of the following resources: breastfeeding classes, community breastfeeding groups, videos or education given while in the hospital after delivery, lactation consultation, 24-hour access to telephone support, and a home visit by a midwife. The standard of care in the White (2020) study only provided women with basic information regarding breastfeeding. However, both studies concluded that single methods of education are less effective than the standard of care.

Olenick (2010) studied the effects of group prenatal education classes as a single method and discovered no significant difference in the duration of breastfeeding in women who attended this class compared with those who did not. Lumbiganon et al. (2016) again discovered that breastfeeding educational strategies that utilize a single method of education do not result in a statistically significant increase in the duration of breastfeeding. Lastly, Wouk et al. (2017) compared the single methods of prenatal clinic-based or hospital-based breastfeeding education and concluded that education alone is not an effective strategy for increasing breastfeeding duration.

While multiple studies have proven that single methods of education are not effective in increasing the duration of breastfeeding, Griffin et al. (2022) and Wong et al. (2015) found that no single method of education is more effective than another. Griffin et al. (2022) studied video-based and written educational materials, while Wong et al. (2015) compared group versus individual breastfeeding education. No statistically significant difference was found in the

duration of breastfeeding between the groups in either study. Additionally, Patnode et al. (2016) investigated variations in the delivery of education including professional support vs. peer support, number of sessions, and face-to-face vs. telephone support and did not find any one variation to be more effective than another.

Multiple Methods of Education

Six articles in this review concluded that utilizing multiple methods of education is an effective strategy to increase the duration of breastfeeding. Jacobson (2018) and Lumbiganon et al. (2016) conducted Cochrane reviews to determine effective breastfeeding education strategies. These studies found that strategies employing multiple methods of education are associated with higher rates of exclusive breastfeeding at 3 and 6 months of age compared with single methods of education. Chen et al. (2012) found that women who attended classes utilizing multiple methods of education, such as lectures, support groups, and media, were found to breastfeed their infants for more than 2 months longer than those who attended classes that utilized single methods of education.

Noel-Weiss et al. (2006) studied the effects of a workshop that utilized dolls, videos, and discussions as methods of education. Women who attended this workshop were more likely to exclusively breastfeed and less likely to wean at both 4 and 8 weeks postpartum compared to those who received the standard care. The standard of care in this study was defined by the mother and included prenatal visits as well as classes chosen by the mother. Rosen et al. (2008) discovered that a multiple methods approach that included video demonstration and group teaching resulted in significantly increased breastfeeding rates at 6 months postpartum compared to no education or support.

Lastly, Wood et al. (2016) studied the effects of breastfeeding interventions spanning single methods, multiple methods, and education with continued support. This study found strategies that employ multiple methods of education are more effective at increasing the duration of breastfeeding than those that employ single methods. However, utilizing multiple methods of education alone was not as effective a strategy as coupling education with continued support.

Education with Continued Support

Nine articles in this review revealed that education with continued support is an effective strategy to increase the duration of breastfeeding. Gill et al. (2007) compared women who received standard breastfeeding education to those who received prenatal breastfeeding education plus continued support by telephone after delivery. Women who received education plus continued support were two times more likely to breastfeed through 6 months postpartum and half as likely to quit breastfeeding as compared to those who did not receive continued support. Huang et al. (2019) compared individualized education with continued support against routine care. The continued support consisted of a monthly telephone call for 4 months after the delivery of the baby. Researchers found that individual ongoing education and support increased the rates of exclusive breastfeeding at 4 months of age. Harris-Luna and Badr (2018) studied the effects of continued telephone support apart from prenatal breastfeeding education. They found that those who received support had higher rates of exclusive breastfeeding than those who did not.

Patnode et al. (2016) also agreed that education with continued support is associated with a longer duration of breastfeeding than standard care. Rosen et al. (2008) implemented one-on-one teaching and weekly meetings postpartum and discovered that education with continued

support significantly increases breastfeeding rates at 6 months postpartum as compared to no education or support. However, this study also found that the use of multiple methods of education is an effective strategy, and there was no statistically significant difference in the rate of breastfeeding between the two groups.

In contrast, Wood et al. (2016) found that education using multiple methods alone was not as effective a strategy as education with continued support. On the other hand, Chan et al. (2016), Mizrak et al. (2017), and Wouk et al. (2017) all agreed that a strategy that combines multiple methods of education with continued support is most effective at increasing the duration of breastfeeding. Chan et al. (2016) used a projector, DVDs, dolls, and discussions as strategies for education and provided continued support through a 30–60-minute telephone counseling call at 2 weeks postpartum to evaluate the mother's emotional and psychological well-being as well as breastfeeding status. Mothers who received multiple methods of education as well as continued support had higher rates of breastfeeding at 2, 4, and 8 weeks, as well as 6 months postpartum. However, these differences did not reach statistical significance.

Mizrak et al. (2017) used slides, models, examples from breastfeeding studies, videos, and demonstration as methods of education. For continued support, counseling by telephone, clinic appointments, or home visits were provided for women at 1, 4, and 8 weeks postpartum. It was determined that women who received multiple methods of education with continued support had significantly higher rates of breastfeeding at 8 weeks postpartum as compared with those who received standard care. Wouk et al. (2017) found that the most effective interventions spanned both the prenatal and postnatal periods with intensive group sessions, home visits, and individual sessions. Education that includes informational materials and interpersonal support,

such as home visits, telephone support, and novel web-based formats, has been shown to increase breastfeeding initiation, duration, and exclusivity.

Synthesis

Throughout the investigative process, three major themes related to educational strategies emerged. These themes are as follows: single methods of education, multiple methods of education, and education with continued support. Single methods of education included the following interventions: written education, video-based education, workshops, counseling with a partner, peer counseling, lactation consultant counseling, provider-based education, group classes, individual classes, prenatal clinic-based education, and hospital-based education. Each article concluded that no matter the intervention, single methods of education are not effective at increasing the duration of breastfeeding, and any one method of education is not more effective than another.

Multiple methods of education included the following combinations:

- classes with support groups and media usage;
- discussions, written handouts, and education from a lactation consultant;
- breastfeeding booklets, videos, and education from a lactation consultant;
- monthly breastfeeding education sessions and weekly cell phone messages;
- workshops using dolls, videos, and discussions;
- video demonstrations and group teaching;
- videos and written pamphlets;
- web-based education with group messaging boards for peer support; and
- education from a lactation consultant, videos, and a booklet.

Each article concluded that utilizing multiple methods of education is an effective strategy to increase the duration of breastfeeding. While this strategy is superior to single methods of education, it may not be the most effective strategy.

Education with continued support strategies included the following interventions:

- group discussions, computer-based education, DVD and projector-based education, and dolls with continued telephone support;
- discussions, practice with dolls and breast models, and meetings with certified lactation consultants with continued telephone calls and home visits as needed;
- slides, models case studies, videos, and demonstrations with prescheduled breastfeeding appointments postpartum and telephone calls as needed;
- group sessions, individual sessions, informational materials with home visits, telephone support, and web-based support;
- face-to-face individualized education based off quiz scores with monthly post-partum telephone calls;
- one-on-one teaching by a certified lactation consultant with weekly meetings post-partum; and
- training manuals with post-partum home visits or office visits.

Each article concluded that utilizing education with continued support is an effective strategy to increase the duration of breastfeeding. In fact, three articles in the review pointed to the superiority of this strategy over utilizing multiple methods without providing continued support.

Ethical Considerations

This project was submitted to the Liberty University Institutional Review Board (IRB). Because this study is an integrative review that did not require the participation of human

subjects, the IRB approved the project as exempt. This information was relayed in an email, which has been archived (see Appendix C). Before examining the research for this project, the researcher obtained Collaborative Institutional Training Initiative (CITI) certification. This training covered basic information on biomedical and health sciences research. A copy of this certification can be found in Appendix D.

Timeline

This integrative review was completed over the course of four semesters. A timeline was developed to ensure the project's completion in a timely manner. Each step of the integrative review process is outlined below:

- Launched development of integrative review: October 24, 2022
- Decided on topic for integrative review: November 1, 2022
- Completed CITI training: December 11, 2022
- Completed Sections One and Two: December 16, 2022
- Completed first defense: February 10, 2023
- Gained IRB approval: February 14, 2023
- Completed Section Three: April 20, 2023
- Completed Section Four: May 11, 2023
- Final draft sent to editor: May 24, 2023
- Final draft sent and submitted to project chair: June 6, 2023
- Final defense: June 26, 2023
- End of academic term: August 18, 2023

Section Four: Discussion

Summary of Evidence

Upon analyzing the literature for this integrative review, the researcher made several discoveries. While prenatal breastfeeding education has been shown to be effective at increasing the duration of breastfeeding, little information has been disseminated regarding which type of education is most effective. Single methods of education have been proven to be the least effective strategy and are no more successful than the standard of care. Additionally, when various types of single-method strategies were compared against each other, no single method was found to be more effective than the other.

Both multiple methods of education and education with continued support are effective strategies for increasing the duration of breastfeeding. Both strategies are more effective than the use of single methods of education. However, several articles point to the superiority of combining these strategies by employing multiple methods of education in the prenatal period with providing continued support in the postnatal period.

Implications for Practice/Future Work

Information gathered from this integrative review has revealed inconsistencies in the standard of care for breastfeeding education. The standard of care was defined differently in each study. Additionally, the standard of care is not the most effective breastfeeding education strategy. In order to generate practice change to increase the number of infants breastfed through 6 months of age, consistent, standardized prenatal and postnatal care should be updated and implemented nationwide. This updated standard of care should include the utilization of multiple methods of prenatal breastfeeding education combined with postnatal continued support. While many articles in this study point to the superiority of multiple methods of education, there has yet

to be a consensus on which combination of methods is best. This topic should be further researched before a consistent national standard of care is implemented.

Limitations

Throughout the investigative process, several limitations to the study were discovered. The initial search through the Jerry Falwell Library database produced only 9 relevant articles published within the past 5 years. Because more articles were needed to conduct a thorough investigation, another search was completed with a broader date range for articles published within the past 18 years. Although this search increased the yield of relevant articles, many articles in this integrative review were not recently published, as there has been little research in the field of prenatal breastfeeding education in recent years.

Additionally, some articles did not consider uncontrollable factors that could prevent successful breastfeeding. For example, a woman may have received the highest quality prenatal breastfeeding education, but if her body is not able to produce enough milk to sustain the baby, then the education would not affect the success of breastfeeding. Women in this situation should be removed from the study, as these circumstances would negatively influence the measurement of the effect of prenatal breastfeeding education.

Dissemination

The results of this integrative review will be shared to bring about practice change and increase the rate of infants who are breastfed through 6 months of age. Because of the importance of breastfeeding and the low rate of breastfeeding through 6 months of age, information gathered from this integrative review will be disseminated to those who work directly with pregnant women in obstetrics and gynecology clinics. Obstetrics and gynecology clinics can then use this information to partner with nurse educators and lactation consultants to

offer prenatal breastfeeding education and continued support to their patients. This integrative review will be published in Scholars Crossing, Liberty University's institutional repository for dissertations. Information will also be presented at Liberty University through a defense of this paper.

Summary

Because breastfeeding is the best source of nutrition for infants and offers many health benefits to mothers as well, it is important that infants are breastfed for the first 6 months of their life. Unfortunately, this is not the case for many infants in the United States and around the world. The results of this integrative review reveal that of the three prenatal education strategies, single methods, multiple methods, and education with continued support, the latter two are the most effective. However, the best results are seen when these two methods are combined. These findings will assist in the development of a consistent national standard of care for breastfeeding education. Ultimately, this practice change will increase the proportion of infants being breastfed through 6 months of age and improve the overall health of the country.

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Noel-Weiss, Rupp, A., Cragg, B., Bassett, V., & Woodend, A. K. (2006). Randomized controlled trial to determine effects of prenatal breastfeeding workshop on maternal breastfeeding self-efficacy and breastfeeding duration. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 35(5), 616–624. <https://doi.org/10.1111/j.1552-6909.2006.00077.x>

Olenick, P. L. (2010). The effect of structured group prenatal education on breastfeeding confidence, duration, and exclusivity to 12 weeks post-partum. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 39(1), 104–105. https://doi.org/10.1111/j.1552-6909.2010.01127_3.x

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., . . . Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, Article 71. <https://doi.org/10.1136/bmj.n71>

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

Patnode, C. D., Henninger, M. L., Senger, C. A., Perdue, L. A., & Whitlock, E. P. (2016).

Primary care interventions to support breastfeeding: Updated systematic review for the U.S. Preventive Services Task Force (Report No. 15-05218-EF-1). U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality.

<https://www.ncbi.nlm.nih.gov/books/NBK396073/>

Rosen, I. M., Krueger, M. V., Carney, L. M., & Graham, J. A. (2008). Prenatal breastfeeding education and breastfeeding outcomes. *MCN, the American Journal of Maternal Child Nursing*, 33(5), 315–319. <https://doi.org/10.1097/01.NMC.0000334900.22215.ec>

White, S. (2020). Does breastfeeding education provided by health care professionals at the time of prenatal office visits significantly improve breastfeeding rates or duration? *Evidence-Based Practice*, 23(9), 42–43. <https://doi.org/10.1097/EBP.0000000000000792>

Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing*, 52(5), 546–553. <https://doi.org/10.1111/j.1365-2648.2005.03621.x>

Wong, K. L., Tarrant, M., & Lok, K. Y. W. (2015). Group versus individual professional antenatal breastfeeding education for extending breastfeeding duration and exclusivity: A systematic review. *Journal of Human Lactation*, 31(3), 354–366. <https://doi.org/10.1177/0890334415583294>

Wood, N. K., Woods, N. F., Blackburn, S. T., & Sanders, E. A. (2016). Interventions that enhance breastfeeding initiation, duration, and exclusivity: A systematic review. *MCN, the American Journal of Maternal Child Nursing*, 41(5), 299–307. <https://doi.org/10.1097/NMC.0000000000000264>

World Health Organization. (n.d.). *Breastfeeding*. Retrieved June 1, 2022, from <https://www.who.int/health-topics/breastfeeding>

Wouk, K., Tully, K. P., & Lobbok, M. H. (2017). Systematic review of evidence for baby-friendly hospital initiative step 3: Prenatal breastfeeding education. *Journal of Human Lactation*, 33(1), 50–82. <https://doi.org/10.1177/0890334416679618>

Appendix A

Evidence Table

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
Artieta-Pinedo, I., Paz-Pascual, C., Grandes, G., Bacigalupe, A., Payo, J., & Montoya, I. (2013). Antenatal education and breastfeeding in a cohort of primiparas. <i>Journal of Advanced Nursing</i> , 69(7), 1607–1617. https://doi.org/10.1111/jan.12022	To determine the association between attending breastfeeding education classes (single method of education) and duration of breastfeeding	614 primipara women in Spain	A prospective cohort study.	There was an increased rate of breastfeeding at 3 months postpartum, but not at 6 or 12 months in those who attended the class.	Level 4: Case-control or cohort study	Women were shown one video during one of the eight classes; broad range of ages and education levels among participants	Yes, evidence is consistent with other findings.
Chan, M., Ip, W., & Choi, K. (2016). The effect of a self-efficacy-based educational	To determine the effectiveness of a self-efficacy-based breastfeeding	71 primigravid a women	Randomized control trial	Women who received multiple methods of education plus continued	Level 2: One or more randomized controlled trials	Mothers who attended the classes were already highly motivated to breastfeed;	Yes, evidence is consistent with other research findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
programme on maternal breast feeding self-efficacy, breast feeding duration and exclusive breast feeding rates: A longitudinal study. <i>Midwifery</i> , 36, 92–98. https://doi.org/10.1016/j.midw.2016.03.003	educational program on self-efficacy, duration, and exclusivity. Women in the intervention group received multiple methods of education (computer, projector, DVDs, dolls, discussion) and telephone support after the baby was born.			telephone support had higher rates of breastfeeding at 2, 4, 8 weeks, and 6 months post-partum, but these numbers did not reach statistical significance		small sample size	
Chen, P. G., Johnson, L. W., & Rosenthal, M. S. (2012). Sources of education about breastfeeding and breast pump use: What effect do they	To assess the relationship between sources of breastfeeding and breast pump education with duration of breastfeeding	2,5086 women over the age of 18 between 35-45 weeks gestation who participated	Results were evaluate from the Infant Feeding Practices Study II (IFPS II), a longitudinal mail survey of mothers from	Multiple methods of education (classes/support groups and media) are associated with longer durations of breastfeeding	Level 5: Systematic review of descriptive & qualitative studies	Education was not well defined in the survey. Selection bias may be possible for this survey.	Yes, information is consistent with other research findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
have on breastfeeding duration? An analysis of the Infant Feeding Practices Survey II. <i>Maternal and Child Health Journal</i> , 16(7), 1421–1430. https://doi.org/10.1007/s10995-011-0908-4		in the Infant Feeding Practices Survey	the seventh month of pregnancy through the infant's first birthday.	than single methods of education (physician/PA education session)			
Forster, D., McLachlan, H., Lumley, J., Beanland, C., Waldenstrom, U., & Amir, L. (2004). Two mid-pregnancy interventions to increase the initiation and duration of breastfeeding: A randomized controlled trial.	To determine the influence of mid-pregnancy breastfeeding education on breastfeeding initiation and duration of breastfeeding	981 primipara women in Australia	Randomized control trial	Single methods (breastfeeding classes) of education are not more effective than the standard of care	Level 2: One or more randomized controlled trials	Standards of care was initiated at a baby friendly hospital so women in the control group received more care than other hospitals	Yes, evidence is consistent with other research findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
<i>Birth</i> , 31(3), 176–182. https://doi.org/10.1111/j.0730-7659.2004.00302.x							
Gill, S. L., Reifsnider, E., & Lucke, J. F. (2007). Effects of support on the initiation and duration of breastfeeding. <i>Western Journal of Nursing Research</i> , 29(6), 708–723. https://doi.org/10.1177/0193945906297376	To increase the initiation and duration of breastfeeding among Hispanic women by using prenatal education and postpartum support.	188 pregnant women of Mexican descent	Randomized control trial	Women who received prenatal education plus continued support by telephone after delivery were two times more likely to breastfeed through 6 months postpartum and half as likely to quit breastfeeding	Level 2: One or more randomized controlled trials	Small sample size; only studied Hispanic women	Yes, information is consistent with other research findings
Griffin, L. B., Anderson, M. C., Has, P., & Lewkowitz, A. K. (2022). Pilot	To determine if video-based breastfeeding education is more effective	66 nulliparous women with term, singleton	Randomized controlled trial	No statistical significance in rates of breastfeeding between the	Level 2: One or more randomized controlled trials	Results of breastfeeding rates over time are still	Yes, evidence is consistent with other research findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
RCT of the feasibility and effectiveness of antepartum video breastfeeding education on breastfeeding rates. <i>American Journal of Obstetrics and Gynecology</i> , 226(1), S610. https://doi.org/10.1016/j.ajog.2021.11.1004	and feasible than written education materials	gestations who desire exclusive breastfeeding.		two groups. No single method of breastfeeding education is more effective than another.		being analyzed.	
Harris-Luna, M., & Badr, L. (2018). Pragmatic trial to evaluate the effect of a promotora telephone intervention on the duration of breastfeeding. <i>Journal of Obstetric</i> ,	To evaluate the effectiveness of telephone support to increase the duration of exclusive breastfeeding (EBF) in Hispanic women at 12 weeks postpartum.	61 women ages 18-45 years old who planned to breastfeed their infants	Randomized control trial	Those who received telephone support had higher rates of exclusive breastfeeding compared with those who did not	Level 2: One or more randomized controlled trials	Study only followed women through 12 weeks postpartum instead of the standard 6 months	Yes, evidence is still consistent with other research findings

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
<i>Gynecological, and Neonatal Nursing</i> , 47(6), 738–748. https://doi.org/10.1016/j.jogn.2018.09.001							
Huang, P., Yao, J., Liu, X., & Luo, B. (2019). Individualized intervention to improve rates of exclusive breastfeeding: A randomised controlled trial. <i>Medicine</i> , 98(47), Article e17822. https://doi.org/10.1097/MD.00000000000017822	To determine if it is more effective to provide individualized education with continued support in comparison to routine care to improve the rates of exclusive breastfeeding.	352 pregnant women over the age of 18 at 34 or more weeks gestation	Randomized controlled trial	Individual ongoing education and support increases the rates of exclusive breastfeeding at 4 months of age	Level 2: One or more randomized controlled trials	Only followed infants until they reached 4 months of age. Focuses on exclusive breastfeeding rates as opposed to any breastfeeding rates.	Yes, this study does provide high-quality evidence and agrees with other studies listed in this literature matrix.
Jacobsen, N. (2018). Antenatal breastfeeding education and support:	To evaluate two Cochrane reviews on breastfeeding education and support to	Two Cochrane systematic literature reviews	A focused literature review using Cochrane database	No increase in duration of breastfeeding when using a single method for education.	Level 5: Systematic review of descriptive & qualitative studies	Search only evaluated 2 literature reviews	Yes, information agrees with previous study findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
Summary and analysis of 2 Cochrane publications. <i>The Journal of Perinatal & Neonatal Nursing</i> , 32(2), 144–152. https://doi.org/10.1097/JPN.0000000000000323	propose strategies and recommendations for future research			One study showed an increase in the duration of breastfeeding when using multiple methods of education.			
Lumbiganon, P., Martis, R., Laopaiboon, M., Festin, M. R., Ho, J. J., & Hakimi, M. (2016). Antenatal breastfeeding education for increasing breastfeeding duration. <i>Cochrane Database of Systematic Reviews</i> .	To determine the effectiveness of antenatal breastfeeding education on the initiation and duration of breastfeeding.	24 studies including 10,056 women	Cochrane review of randomized control trials and cluster-randomized control trials.	Multiple methods of education and education combined with continued support are associated with higher rates of exclusive breastfeeding at 3 and 6 months of age	Level 1: Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses	13 of the studies listed breastfeeding education as part of the standard of care. 22 of these studies were completed in high income countries and results may not be consistent in low-income countries.	Yes, information agrees with previous study findings

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
https://doi.org/10.1002/14651858.CD006425.pub4							
Mizrak, B., Ozerdogan, N., & Colak, E. (2017). The effect of antenatal education on breastfeeding self-efficacy: Primiparous women in Turkey. <i>International Journal of Caring Sciences</i> , 10(1), 503–510. http://www.internationaljournalofcaringsciences.org/docs/54_mizrak_original_10_1.pdf	To determine the effectiveness of antenatal breastfeeding education (using multiple methods of education with continued support) on breastfeeding self-efficacy and success	90 pregnant women from six family health centers in Eskisehir.	Randomized control trial	Women who received multiple methods of education with continued support had significantly higher rates of breastfeeding at 8 weeks postpartum than those in the control group	Level 2: One or more randomized controlled trials	Only followed participants through 8 weeks postpartum	Yes, information is consistent with other research finding.
Noel-Weiss, Rupp, A.,	To determine the effects of a	184 nulliparous	Randomized control trial	Women who were taught	Level 2: One or more	Women were already	Yes, information is

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
Cragg, B., Bassett, V., & Woodend, A. K. (2006). Randomized controlled trial to determine effects of prenatal breastfeeding workshop on maternal breastfeeding self-efficacy and breastfeeding duration. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i> , 35(5), 616–624. https://doi.org/10.1111/j.1552-6909.2006.00077.x	prenatal breastfeeding workshop (multiple methods of education—dolls, videos, and discussions on maternal breastfeeding self-efficacy and breastfeeding duration compared to standard care (single method of education))	women expecting a single child, an uncomplicated birth, and planning to breastfeed.		using multiple methods of education (workshop) had a higher proportion of exclusive breastfeeding and a lower proportion of weaning as compared to those who received standard care (single method of education)	randomized controlled trials	committed to breastfeeding before the study; variations in different workshop offered.	consistent with other research findings.
Olenick, P. L. (2010). The	To determine if group prenatal	168 pregnant	Randomized controlled	There was no significant	Level 2: One or more	Study only followed	Yes, information is

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
effect of structured group prenatal education on breastfeeding confidence, duration, and exclusivity to 12 weeks postpartum. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i> , 39(1), 104–105. https://doi.org/10.1111/j.1552-6909.2010.01127_3.x	breastfeeding education classes (single method of education) is effective at increasing duration, exclusivity, and confidence with breastfeeding.	women with the majority being Hispanic, married, and below the poverty level	prospective trial.	difference in the duration of breastfeeding in women who attended the single method of education class.	randomized controlled trials	women through 12 weeks postpartum	consistent with other research findings.
Patnode, C. D., Henninger, M. L., Senger, C. A., Perdue, L. A., & Whitlock, E. P. (2016). <i>Primary care interventions to support breastfeeding</i> :	To determine the effects of interventions on initiation, duration, and exclusivity of breastfeeding.	52 studies (randomized, cluster randomized, and controlled trials) located from MEDLINE	Studies were excluded if they did not aim to study the effects of prenatal, perinatal, or postpartum interventions	Education with continued support is associated with longer duration of breastfeeding as compared with those	Level 1: Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic	Measurement techniques varied across studies	Yes, evidence from this study is consistent with previous research

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
<i>Updated systematic review for the U.S. Preventive Services Task Force</i> (Report No. 15-05218-EF-1). U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. https://www.ncbi.nlm.nih.gov/books/NBK396073/		, PubMed Publisher-Supplied, Cumulative Index for Nursing and Allied Health Literature, Cochrane Central Register of Controlled Trials, and PsycInfo.	in a primary care setting	receiving standard care. Professional support, peer support, education, number of sessions, face to face, or telephone support has not been found to be more effective than the other.	reviews or meta-analyses		
Rosen, I. M., Krueger, M. V., Carney, L. M., & Graham, J. A. (2008). Prenatal breastfeeding education and breastfeeding	To determine which type of breastfeeding education is best: a class that utilized video demonstration and group	194 women between the ages of 16 and 46 with infants between the ages of	Retrospective cohort design	Women who attended either the multiple methods of education class or the education class with	Level 3: Controlled trial (no randomization)	Unequal number of women in each group; does not take into account previous experience	Yes, information is consistent with other research findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
outcomes. <i>MCN, the American Journal of Maternal Child Nursing</i> , 33(5), 315–319. https://doi.org/10.1097/01.NMC.0000334900.22215.ec	teaching (multiple methods), a support group with one-on-one teaching and weekly meetins post-partum (education with continued support), or no prenatal education or support	6 and 20 months		continued support each had significantly increased breastfeeding rates at 6 months postpartum as compared to those who received no education or support. There was no statistical significance in the rate of breastfeeding between the two intervention groups.		with breastfeeding	
White, S. (2020). Does breastfeeding education provided by health care	To determine if prenatal breastfeeding education by healthcare providers is	15 randomized controlled trials and 4 cohort studies	Systematic review	Single methods of prenatal breastfeeding education was not more	Level 1: Systematic review & meta-analysis of randomized controlled	A meta-analysis was not possible because of broad range of	Yes, evidence is consistent with other research findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
professionals at the time of prenatal office visits significantly improve breastfeeding rates or duration? <i>Evidence-Based Practice</i> , 23(9), 42–43. https://doi.org/10.1097/EBP.0000000000000792	effective at increasing the exclusivity, rate, and duration of breastfeeding.			effective than the standard of care	trials; clinical guidelines based on systematic reviews or meta-analyses	results from the study	
Wong, K. L., Tarrant, M., & Lok, K. Y. W. (2015). Group versus individual professional antenatal breastfeeding education for extending breastfeeding duration and	To compare the effectiveness of group versus individual education on breastfeeding duration and exclusivity.	19 studies (RCTs, cluster RCTs, and quasi-experimental designs) regarding breastfeeding education in antenatal period	Articles reviewed and critiques following the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guideline	One is not more effective than the other. They both show an increase in the duration of breastfeeding in low-income, low-education, and minority groups.	Level 5: Systematic review of descriptive & qualitative studies	Some studies did not give a definition for breastfeeding, some did not take into account if the mother had experience breastfeeding.	Yes, information is consistent with previous findings

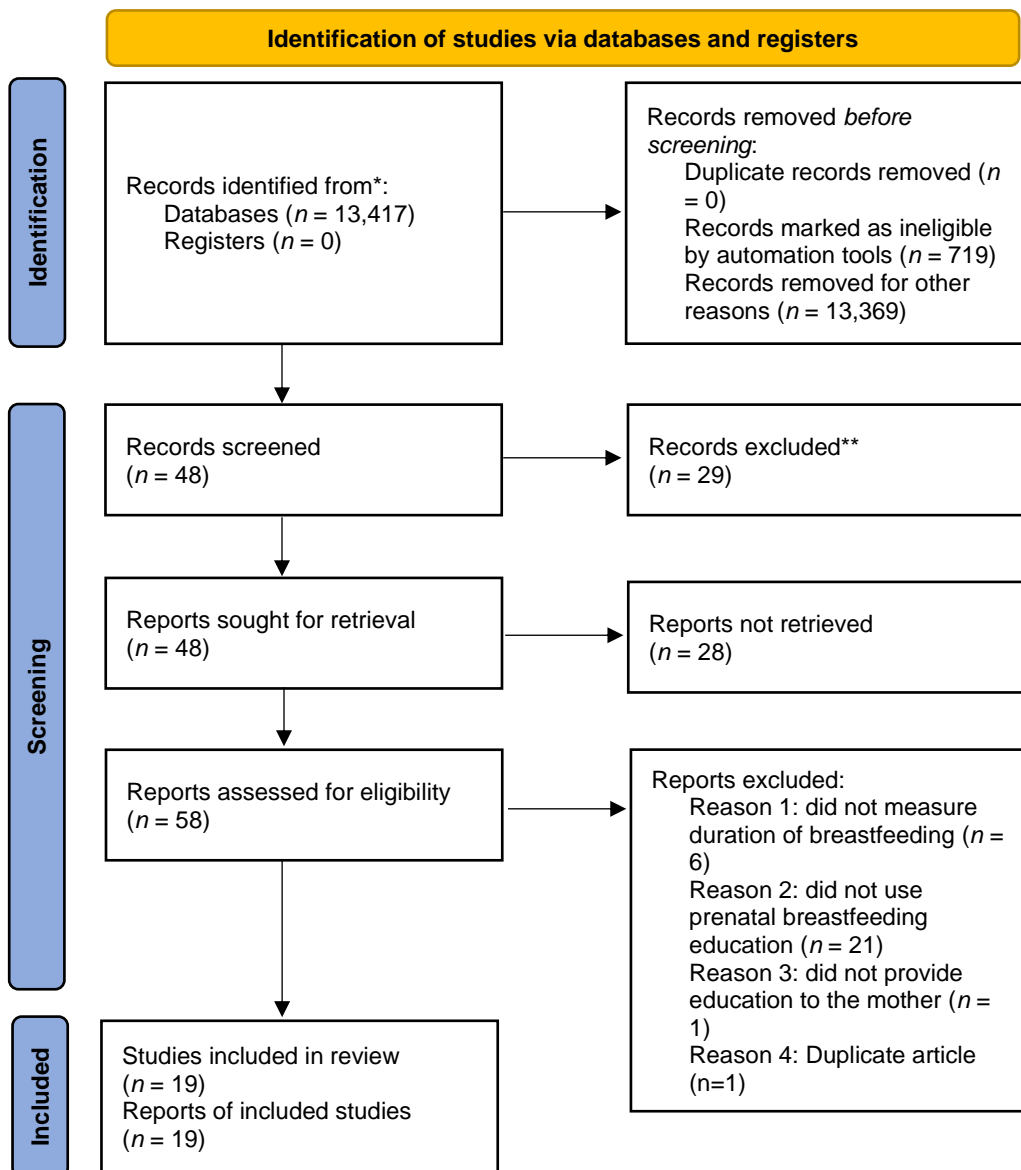
Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
exclusivity: A systematic review. <i>Journal of Human Lactation</i> , 31(3), 354–366. https://doi.org/10.1177/0890334415583294							
Wood, N. K., Woods, N. F., Blackburn, S. T., & Sanders, E. A. (2016). Interventions that enhance breastfeeding initiation, duration, and exclusivity: A systematic review. <i>MCN, the American Journal of Maternal Child Nursing</i> , 41(5), 299–307. https://doi.org/10.1097/NMC.00	To evaluate breastfeeding interventions and make recommendations based off of findings	Six studies comprising 3,651 pregnant women	PubMed, CINAHL Plus, and PsycINFO databases were searched from 2004–2014	Multiple methods of prenatal breastfeeding education was more effective than single methods of education	Level 1: Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses	Only six studies were evaluated.	Yes, evidence is consistent with other research findings.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
00000000000264							
Wouk, K., Tully, K. P., & Labbok, M. H. (2017). Systematic review of evidence for baby-friendly hospital initiative step 3: Prenatal breastfeeding education. <i>Journal of Human Lactation</i> , 33(1), 50–82. https://doi.org/10.1177/0890334416679618	To determine whether prenatal clinic- or hospital-based breastfeeding education increases breastfeeding initiation, duration, or exclusivity	A systematic review of 38 randomized controlled trials or quasi-experimental studies in both developed and developing countries	MEDLINE and CINAHL databases were utilized searching for peer-reviewed articles published between 2000 and 2016.	Education alone was not effective. The most effective interventions spanned the prenatal and postnatal periods with intensive group sessions, home visits, and individual sessions. Education that includes informational materials and interpersonal support (home visits, telephone support, and novel web-based formats)	Level 1: Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses	Search only covered two databases	Yes, this study provides high quality evidence for the initiation of prenatal breastfeeding education in addition to interpersonal support.

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Study Limitations	Would Use as Evidence to Support a Change?
				increases breastfeeding initiation, duration, and exclusivity.			

Appendix B

PRISMA Diagram



From “The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews,” by M. J. Page, J. E. McKenzie, P. M. Bossuyt, I. Boutron, T. C. Hoffmann, C. D. Mulrow, L. Shamseer, J. M. Tetzlaff, E. A. Akl, S. E. Brennan, R. Chou, J. Glanville, J. M. Grimshaw, A. Hróbjartsson, M. M. Lalu, T. Li, E. W. Loder, E. Mayo-Wilson, S. McDonald, . . . D. Moher, 2021, *BMJ*, 372, Article 71. (<https://doi.org/10.1136/bmj.n71>)

For more information, visit: <http://www.prisma-statement.org/>

Appendix C

Institutional Review Board Approval Letter



February 14, 2023

Kayla Carter

Vickie Moore

Re: IRB Application - IRB-FY22-23-1087 Prenatal Educational Strategies to Increase the Duration of Breastfeeding: An Integrative Review

Dear Kayla Carter and Vickie Moore,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds that your study does not meet the definition of human subjects research. This means you may begin your project with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research because it will not involve the collection of identifiable, private information from or about living individuals (45 CFR 46.102).

Please note that this decision only applies to your current application. Any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP

Administrative Chair of Institutional Research

Research Ethics Office

Appendix D**CITI Training Certificate**

Completion Date 11-Dec-2022
Expiration Date 11-Dec-2025
Record ID 53159643

This is to certify that:

Kayla Carter

Has completed the following CITI Program course:

Biomedical Research - Basic/Refresher
(Curriculum Group)
Biomedical & Health Science Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Not valid for renewal of
certification through CME.

Under requirements set by:

Liberty University



Verify at www.citiprogram.org/verify/?w43c59be0-16e0-44f4-b265-f87fe2893948-53159643