The Effect of Post Partum Breastfeeding Peer Support on Breastfeeding Success Outcomes

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Abstract

The health benefits of breastfeeding are well documented and exclusive breastfeeding for at least the first six months of life is the target of national and global health care organizations. Although initial breastfeeding is on the rise, the percentage of infants still breastfeeding at six months drops significantly. In the population of newly delivered mothers of an obstetric practice, there is no readily accessible breastfeeding support offered following hospital discharge. A review of relevant literature revealed that lack of support is often cited as a key factor in the discontinuation of breastfeeding, whereas the evidence shows that participation in peer support has a positive effect on breastfeeding self-efficacy, which can have a positive effect on breastfeeding duration. To address this problem, the initiation of a breastfeeding closed social network Facebook group for this practice setting population was developed and implemented to provide readily accessible peer support and have a positive effect on the outcome of breastfeeding self-efficacy. Three months after initiation of the Facebook group, an anonymous voluntary survey was offered to group members, and 25 members participated in the survey. Responses demonstrated that peer support is helpful with breastfeeding confidence and that, following participation in the group, the respondents wanted to continue breastfeeding.

Keywords: Breastfeeding self-efficacy, confidence, duration, six months, peer support, groups, social network

The Effect of Post Partum Breastfeeding Peer Support on Breastfeeding Success Outcomes

The many health benefits of breastfeeding have been well documented and exclusive breastfeeding for the first six months of life has been the target of national, as well as global, organizations (Association of Women's Health, Obstetric and Neonatal Nursing [AWHONN], 2015, HealthyPeople.gov, 2018, World Health Organization [WHO], 2011). Although patients are strongly encouraged to exclusively breastfeed while in a Baby Friendly Hospital Initiative (BFHI) hospital after delivery, there is a lack of support to assist the mother-baby dyad of the obstetric (OB) practice project setting to continue breastfeeding after the patient returns home. This lack of support may influence the change in the percentage of infants who initially breastfed, to those who continue to be breastfed at six months, and at one year of age. This paper will explore the background and significance of the problem and offer a problem statement and PICOT question. The search strategy for literature will be described and synthesis of the body of evidence will be explained with a supporting conclusion. The purpose of the project will be outlined, and details of the applicable evidence based practice model and the theoretical framework utilized to guide the intervention will be provided. Finally, the project methods will be highlighted, including a discussion of survey outcomes and their impact.

Background and Significance

Epidemiology

Healthy People 2020 objectives include increasing the proportion of infants who are breastfed (healthypeople.gov, 2018). The targeted goals are 81.9% of infants ever breastfed, 60.6% are breastfeeding at six months, and 34.1% are breastfeeding at 12 months. The Centers for Disease Control (CDC) publishes a Breastfeeding Report Card every two years and, according to the 2012 report, in the United States 76.9% of infants were ever breastfed, 47.2%

were still breastfeeding at six months, and that number dropped to 25.5% at 12 months of age (CDC, 2012a). The CDC Breastfeeding Report Card of 2014 reported that 79% of infants were ever breastfed, but only 49% of infants were still breastfeeding at six months, and 27% were breastfeeding at 12 months of age (CDC, 2014). In the most current report for 2016, those numbers are 81%, 51%, and 30% respectively (CDC, 2016). This demonstrates that, although initial breastfeeding is on the rise, the percentage of those who continue until at least six months of age has not significantly changed.

Global and National Initiatives

The BFHI was developed by the WHO and UNICEF in 1991 as a global effort to promote exclusive breastfeeding for at least the first six months of life (Baby Friendly USA, 2012). The BFHI involves extensive training and assessments for maternity staff and is now implemented in hospitals and birth centers in 52 countries. According to the AWHONN Position Statement (AWHONN, 2015), women should be supported to "exclusively breastfeed for the first six months of an infant's life and continue to breastfeed for the first year and beyond" (p.125). The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding for at least the first six months of age, and then breastfeeding in combination with other foods until at least one year of age (AAP, 2018). The WHO (2011) recommends exclusive breastfeeding for the child's first six months, and thereafter to complement breastfeeding with other foods to the age of two years or more. The American Academy of Family Practice (2017), as well as the Surgeon General of the United States (Office of the Surgeon General, 2011), reported that women who encounter problems with breastfeeding are less likely to continue to breastfeed without professional assistance, and a follow-up plan should be developed for any identified issues.

Health Implications

Benefits to the health of infants that breastfeed exclusively for at least six months are well documented. Benefits include a perfect nutritional mix of protein, vitamins, and fat, breast milk antibodies that fight viral and bacterial infections, a decreased risk of asthma or allergies, fewer ear infections, lower incidence of respiratory illness, and fewer bouts of diarrhea. In the long term, breastfeeding is associated with higher IQ scores and less risk of diabetes and obesity. In addition to the nutritional benefits, breastfeeding promotes a unique emotional bonding between mother and infant. The initial health benefits to the breastfeeding mother include decreased blood loss, lower risk of infection, and greater weight loss, but breastfeeding also promotes mother's health in the long term. Breastfeeding has been associated with reduced risk for maternal diseases such as hypertension, breast cancer, cardiovascular disease, metabolic syndrome, ovarian cancer, osteoporosis and rheumatoid arthritis (AWHONN, 2015).

Financial Implications

There are financial benefits for families of the breastfed infant as well, with approximately $1500 per year saved in direct costs for formula and feeding supplies. Insurers, employers, and government programs also reap the benefits of breastfeeding. In a cost analysis it was found that if 90% of mothers breastfed exclusively for six months, 13 billion health care dollars would be saved. Finally, breastfeeding has an ecological impact as there are no manufacturing plants, no packaging, and no waste with this renewable resource. Researchers estimated that, for every one million formula-fed infants, there were 150 million containers used in formula packaging that were disposed of in landfills (AWHONN, 2015).

Internal Evidence

The data tells us "what" is happening, which is the first step in determining "why" it is happening (Davidson, Weberg, Porter-O'Grady & Malloch, 2017). The current process for the OB practice does not include any established, or readily accessible, breastfeeding support for mothers after they are discharged from the hospital. The practice does not track the number of requests for breastfeeding assistance, or conduct follow up statistics regarding continued breastfeeding rates after discharge (J. Taylor, personal communication, October 20, 2016). It is also important to note that there are mothers who, for any one of several reasons, may be unable to breastfeed. Physical, emotional, or environmental factors, as well as contraindications with certain medications, may all play a part in the decision to breastfeed.

Problem Statement and PICOT Question

The patients of the project setting local OB practice deliver at a facility that participates in the World Health Organization's Baby Friendly Hospital Initiative (BFHI) Ten Steps to Successful Breastfeeding (World Health Organization, 2009). The OB practice offers no support for breastfeeding after hospital discharge, which is the tenth and final step of the initiative (Baby Friendly USA, 2012). This lack of support for breastfeeding may be relevant to patient success with respect to continued exclusive breastfeeding, as well as to population health. La Leche League reports (2016) that most mothers, who stop breastfeeding before they had planned to do so, cite lack of support as the reason (La Leche League, 2016). Exploration of the background and significance of the issue has led to the clinically relevant question**,** "In breastfeeding mothers of an OB practice in the community, who have had breastfeeding education in the hospital, does participation in a social network breastfeeding peer support group, as compared to standard

hospital discharge without offer of a peer support group, have an effect on the mother's breastfeeding self-efficacy and desire/intent to continue breastfeeding?"

Search Strategy

In order to address the clinical question regarding the impact of social network peer support groups on the rate of breastfeeding for the first six months of life, an exhaustive search and review of the literature was performed. Four databases were searched, Cumulative Index of Nursing and Allied Health Literature (CINAHL) (Appendix A), Cochrane Library (Appendix B), PubMed (Appendix C) and Web of Science. The full search strategies for each of the databases that produced a yield are shown in the respective appendices. Initial search strategy included the key words: *breastfeeding, breastfeeding duration, breastfeeding promotion, attitude to breast feeding, social networking, social network, online support, and peer support*. The Boolean connector "OR" was used initially to cast a wide net for studies, followed by the use of "AND" to produce a more manageable yield of articles. Once the initial yields were produced, and after reviewing for duplication, abstracts were examined to determine relevancy to the clinical question. Studies considered for inclusion included each element of the PICOT question; the population was defined as breastfeeding mothers, the intervention examined was social network or peer support, and duration of breastfeeding was identified as the outcome. Exclusion criteria included the following: professional breastfeeding assistance only, antenatal support only, small sample size of less than 10 subjects, and studies which did not address longevity of breastfeeding. Of the databases searched, utilizing the aforementioned criteria and keywords, CINAHL provided six articles, Cochrane yielded one Systematic Review, PubMed resulted in one article, and Web of Science provided no relevant articles. Searches for grey literature led to one pertinent dissertation.

Evidence Synthesis

Literature Review

A common thread appears to run throughout the literature explored pertaining to this clinical issue, and that is the relationship of post partum support to successful breastfeeding (see Appendix D, Evaluation Table). New mothers are physically exhausted, riding a roller coaster of sleep-deprived emotions and hormonal changes. Couple that with the challenge of learning about their newborn and trying to meet the demands of his/her feeding patterns and preferences, and it is understandable how low the threshold may be for frustration with breastfeeding, and how great the need for support.

The need for all BFHI steps

A systematic review by Perez-Escamilia, Martinez, and Segura-Perez (2016), examined the impact of BFHI implementation on breastfeeding in the United States and worldwide. A dose-response relationship was found between the number of BFHI steps women were provided, and their breastfeeding success. That is, in particular, Step 10, “Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center” (babyfriendlyusa.org,2012.) , appeared to be critical for sustaining long term breastfeeding. Similar findings were demonstrated in studies outlined by Nickel, Labbok, Hudgens, and Daniels (2012), as well as Hughes (2015), who concluded that sustained breastfeeding was improved when multiple steps were completed, and when Step 10 was included; breastfeeding rates were compromised when all of the BFHI steps were not implemented. The CDC reported that only 32% of BFHI hospitals implement Step 10 and provide support for breastfeeding mothers when they leave the hospital (CDC, 2015).

The need for professional or peer assistance

Patnode, Henninger, Senger, Perdue, and Whitlock (2016) completed a systematic review of randomized controlled trials conducted between 2008-2015 and confirmed that breastfeeding support and education provided by professionals and peers is "associated with an increase in the rate and duration of breastfeeding" (p. 1691). Minert (2014) reported on a Colorado hospital initiative that provided a post-discharge breastfeeding support group, resulting in an increase of the baseline exclusive breastfeeding rate from 34.1% to 85.7% of patients, within a two-year period of implementation.

The impact of support

Moudi, Tafazoli, Boskabadi, Ebrahimzadeh, and Salehiniya (2016) found that breastfeeding support offered during the first eight weeks postpartum had a significantly positive effect on breastfeeding self-efficacy. Further, they stated that self-efficacy is a critical factor which can affect the success and duration of breastfeeding. Renfrew, McCormick, Wade, Quinn, and Dowswell (2012) reported that all forms of extra breastfeeding support to new mothers had a positive impact on the duration of exclusive breastfeeding. Rozga, Benton, Kerver, and Olson (2016) found that peer counseling programs are associated with improved exclusive breastfeeding. Aksu, Kucuk, and Dusgun (2011) reported that breastfeeding education/support offered during a home visit as early as the third postpartum day was also associated with a significant increase in the percentage of exclusively breastfed infants at two weeks, six weeks, and six months. Lastly, a study by Munn, Newman, Mueller, Phillips and Taylor (2016) noted that, although Step 10 of the BFHI may be difficult to implement, it has the potential to significantly impact breastfeeding outcomes.

Critical Appraisal and Synthesis

The strength of the evidence produced ranged from Level I to Level V, according to Melnyk's Hierarchy of Evidence (Melnyk & Fineout-Overholt, 2015), including three observational and exploratory studies, one netnography (a method of research which consists of ethnography adapted to the study of online cultures and communities [Bowler, 2010]) and two literature reviews. There were three Randomized Controlled Trials and one Systematic Review (see Appendix E, Synthesis Table). The quality of the studies overall was high, with most studies having large sample sizes or a large number of studies assessed, few limitations, low attrition rates, and no bias or competing interests identified. Content validity was present in all studies, but those with small samples did not demonstrate external validity. Reliability was evident across studies as intended data was measured and was consistent across sample populations. There was heterogeneity noted of sample demographics, ranging from adolescent mothers to mothers of advanced maternal age. Levels of education also varied from no secondary education to university education. Most of the independent variables revolved around some form of peer support such as volunteer telephone support, social network, or face to face. Additional independent variables pertained to demographics, as other factors which might have an effect on breastfeeding initiation or duration. Dependent variables focused on breastfeeding initiation, self-efficacy, continuation, and/or duration, as well as maternal satisfaction, confidence, and immediacy of support. Of the ten studies evaluated, nine demonstrated a positive effect on the breastfeeding outcome variables. Only one study reported that peer support did not have an effect on breastfeeding duration. It is interesting to note that participants in that same study did however report a lack of peer support as a factor in their decision to terminate breastfeeding (see Appendix E. Synthesis Table).

Although there were additional factors described as contributing to breastfeeding outcomes, peer support was consistently included in all studies as an intervention that warranted exploration. According to Renfrew's conclusion (2012), "All women should be offered support to breastfeed their babies to increase the duration and exclusivity of breastfeeding, and support may be offered either by professional or lay/peer supporter, or a combination of both. Support should be tailored to the needs of the setting and population group." Renfrew (2012) further stated that support should be ongoing, so that women can predict that support will be readily available.

Based on the evidence presented, peer support has been found to have a positive effect on self-efficacy, which has a positive effect on breastfeeding duration. The intervention of developing a peer support social network to improve breastfeeding self-efficacy and duration outcomes is supported by the research findings. For breastfeeding mothers of an OB practice who have delivered at a BFHI hospital, and have had professional assistance with initiation of breastfeeding, the next step of ongoing peer support, either by telephone, social network, or face to face, to continue and increase duration of breastfeeding, is aligned with the BFHI program.

Purpose Statement

Based on the evidence and feasibility, the intervention selected to implement is a peer support/social network group, in the form of a closed Facebook group, for breastfeeding mothers of an OB practice in the community who have delivered at a BFHI facility. This intervention provides a readily accessible platform for breastfeeding mothers to seek and/or share peer support and personal advice with each other after, or even before, delivery. The stakeholders who will benefit from this practice change are primarily the breastfeeding mother and her infant, family, and peers. On a professional level, the mother and infant's health care providers and the

patient's health insurance carrier may all be affected. With respect to national and global implications, if this intervention is implemented throughout multiple practice settings, there could be a positive generalized effect on breastfeeding self-efficacy and duration in larger populations, as well as economic and environmental benefits.

Evidence Based Practice Model

The Rosswurm and Larrabee Evidence-Based Practice (EBP) Model (Melnyk & Fineout-Overholt, 2015) is an appropriate choice of a systematic process for application of the synthesized evidence and implementation of a practice change (see Appendix F, Evidence-Based Practice Model). This model is comprised of a six step process which includes: Assess the need for change in practice, locate the best evidence, critically analyze the evidence, design the practice change, implement and evaluate the change in practice, and integrate/maintain the change in practice.

Recognition of the practice problem of the lack of breastfeeding support after hospital discharge, based on internal data, prompted the PICOT question for this EBP project as the first step of this process. The search for evidence, step two, was carefully planned and conducted using appropriate key words and search limits to produce the highest levels and quality of evidence. As part of step three, the evidence was critically appraised and organized to identify key points to utilize for synthesis of studies. Steps four and five, design of the practice change and implementation and evaluation of the change in practice, were planned to be peer support of breastfeeding in a social network platform. The final step of integration and maintenance of the practice change are ongoing, but this EBP model clearly sets an orderly and comprehensive pathway for an effective method of developing the change in practice.

Theoretical Model

The Self-Efficacy Theory, which originated from the Social Cognitive Theory developed by Albert Bandura, provides a suitable theoretical framework for the importance of peer support on breastfeeding outcomes. Self-efficacy theory holds the belief that one has the power, or perceives they have the ability, to master a situation, reach a goal, or produce a positive outcome. The concepts of Self-Efficacy theory include the four categories which influence self-efficacy: Cognitive, motivational, emotional, and decisional (Bandura, 1977). The categories are interrelated, and they align with the effect of peer support on new breastfeeding mothers. Because new mothers may be emotional, due to the shifting of hormones and typical sleep deprivation, they may feel pessimistic and lack the motivation to continue breastfeeding, feeling that efforts are futile. A woman's decision-making process is influenced by her social network, and perceived social support has been found to predict breastfeeding success (CDC, 2012b). The ability to be resilient and make cognitive decisions about continuing breastfeeding may be bolstered by the positive emotional benefit of peer support and therefore enhance breastfeeding self-efficacy.

Project Methods

Institutional Review Board approval for Social and Behavioral Research was obtained (see Appendix G). The setting for the intervention is a local OB practice, whose patients deliver at a BFHI hospital. The OB practice has a strong collaborative midwifery model presence for delivery, and breastfeeding is typically the preferred plan for infant feeding for this population of patients. There is a remote possibility that patients may deliver unexpectedly at another hospital if labor should ensue when not near this hospital's geographic location. The population for this intervention is breastfeeding mothers who are patients of the OB practice and the intervention is

a closed, private, social media Facebook peer support group for breastfeeding mothers. Membership in the group is by invitation or approval to join, and approval is given by the administrators of the group, who include the social media and public relations staff of the OB practice, and this author. Membership in the Facebook group is not restricted by any demographics. The Facebook page holds a disclaimer that advice obtained is from peers, not from medical professionals. Development of the intervention was accomplished with support and assistance from the OB physicians and midwives, their social media team, and the hospital lactation consultant team. The Facebook group was promoted on the general Facebook page for the OB practice, as well as in-kind by the practice. The budget for the intervention included approximately 20 hours spent in meetings, phone conversations, and emails with the OB practice public relations contact, as well as with the social media staff of the practice, over several months to develop the Facebook page, group title, and logo. In addition, approximately eight hours were spent by the staff in meetings with the practice leadership to discuss the project and gain final approval for all aspects of the intervention. Time spent to actually create the group online by the social media representative was approximately two hours. Conducting searches for appropriate breastfeeding education (with lactation consultants as well as independently) to include on the group page was approximately 16 hours. The group page was monitored daily over three months time for group content and requests for membership, totaling approximately 45 hours.

For purposes of evaluating the effect of peer support on breastfeeding self-efficacy for the Facebook group members, a Survey Monkey was created. The survey contained 15 questions pertaining to breastfeeding self-efficacy with Likert-type scale possible answers, and 10 questions pertaining to demographics. A link to the survey was posted on the Facebook page

and, to protect identity, participation in the survey was anonymous and voluntary. The survey was posted three months after the Facebook group was introduced.

Outcomes/Project Results/Impact

At the time the survey invitation link (see Appendix H) was posted to the peer support Facebook page, there were 102 members that had joined the group. The link remained available for two weeks, and there were 25 members who voluntarily participated in the survey. The survey was comprised of 25 questions: 15 questions related to breastfeeding self-efficacy and 10 demographic questions. Descriptive statistics were generated for each of the 10 Likert-scale ranked demographic questions. Homogeneity was noted with several variables; 88% of respondents were aged 25-34 (n = 22). Regarding marital status, 88% of all participants were married (n = 22), the remaining were divorced or single. There were 92% of participants who identified as not being of Hispanic, Spanish, or Latino ethnicity (n = 23), and 80% identified their race as Caucasian (n = 20). The remaining respondents listed their race as American Indian or Alaskan Native (n=1), Asian (n = 2), Native Hawaiian or Pacific Islander (n = 1), and one respondent declined to answer. There was greater heterogeneity in responses to questions pertaining to education, income, and employment. In this group, all participants had earned a high school diploma and attended college. The greatest number of respondents, 40%, had a Bachelors Degree (n = 10), 24% had an Associate Degree (n = 6), 20% hold a Masters Degree (n = 5), 4% had a Doctorate Degree (n = 1), and 12% attended college (n = 3), but did not earn a degree (see Appendix I). The range for income answers (see Appendix J) was less than $20,000 to $100,000+, with the largest percentage of respondents, 76%, earning $75,000 or more ($n$ = 19). With respect to employment, 80% were employed either full or part time, or on maternity leave (n = 20). One question inquired whether the woman had previous breastfeeding experience

(PE). The greater percentage of women, 64%, had previously breastfed (*n* = 16), and 36% (*n* = 9) had no prior breastfeeding experience (NPE).

The breastfeeding survey section included 15 Likert-scale ranked questions relating to breastfeeding self-efficacy, with answer choices ranging from 1= not confident to 4= very confident. The greater proportion of participants, 64% (*n*=16), responded that they could determine if their baby was getting enough milk *(m* = 2.8, *SD* = 1.0*)*, 95% CI [2.38, 3.21], and 60% (*n* = 15) of respondents responded that they could successfully cope with breastfeeding (*m* = 2.78, *SD* = .92*)*, 95% CI [2.37, 3.14]. Further, mothers responded positively that they could tell when their baby was finished feeding ("*m* = 3.4, *SD* = .97), 95% CI [2.83, 3.64]. Most mothers were confident about their ability to breastfeed without formula supplement (*m* = 3.04, *SD* = 1.05), 95% CI [2.60, 3.47] and were confident that their baby was properly latched for the entire feeding (*m* = 2.96, *SD* = 1.1), 95% CI [2.51, 3.41]. When asked about managing breastfeeding to satisfaction, there was more division in respondent's answers with 12% (*n*=3) answering that they were not confident, 36% (*n*=9) sometimes confident, 32% (n=8) confident, and 20% (*n*=5) very confident (*m* = 2.6, *SD* = .98), 95% CI [2.20, 2.99]. Of particular interest for this intervention, mothers were asked if they found peer support helpful in their confidence with breastfeeding (see Appendix K). Most mothers responded that they did find to be helpful with their confidence (*m* = 3.48, *SD* = .71), 95% CI [3.18, 3.77]. Finally, participants were asked if they wanted to continue breastfeeding for every feeding. The majority of respondents, 84% (*n*=21), responded that they were confident or very confident in this intent (*m* = 3.16, *SD* = 1.02), 95% CI [2.73, 3.58] (see Appendix L).

Noting the incidental findings that the survey scores seem to be higher overall for women with previous breastfeeding experience (PE), an independent samples *t*-test was conducted to

examine the total scores for self-efficacy between women with PE and NPE (no previous experience). There was a significant difference in the scores for PE (m= 50.75, SD = 7.541) versus NPE (m = 36.44, SD = 11.57) conditions; t (23) = 3.75, p = .001. These results suggest that experience may also have an effect on breastfeeding confidence; specifically, a woman has more confidence with breastfeeding if she has previous breastfeeding experience.

Discussion

The results of the breastfeeding self-efficacy survey demonstrate that peer support provides an emotional benefit in building confidence and desire to continue with breastfeeding (see Appendix M). The research has shown that confidence will lead to a greater likelihood that a woman will continue to breastfeed, and hopefully meet national and global standards for duration and exclusivity of breastfeeding to six months or even one year. As discussed previously, continuation of breastfeeding leads to positive health outcomes for both the mother and the baby, as well as potential for a positive financial and environmental impact.

As reported, the largest percentage of respondents in the survey (76%, n=19) had an income of $75,000 or more (see Appendix N). The median household income for the town where the OB practice is located is $81,485 (Sperling's Best Places, 2018). However, the most current report of median household income for Maricopa County in 2016, where the town of Gilbert is located, is $55, 676. Further, that same statistic for the state of Arizona is $51,350, and nationally it is $57,617 (United States Census, 2018). The difference in incomes may pose a limitation for generalizability of data results collected among this population sample.

The project intervention of the closed social network Facebook group will be sustained by the participation and joining of members. It has continued to grow steadily since inception, and continued approval and support of the OB practice will also sustain the group. The practice

will continue to advertise the peer support group on their general Facebook page once each month and will continue to promote the group both with printed flyers and by providers within the clinic setting. Word has recently spread within the community about this group, and other OB practices have inquired about creating a similar platform for their own patients.

As evidenced in the literature, peer support is powerful among breastfeeding women. The strengths of this project include that the group's focus is based on shared personal experience and empathy, and members treat other with respect, which could provide a positive emotional benefit and help build self-esteem and confidence. Another area of strength is the willingness of the OB practice providers and patients to become involved with this innovative intervention. The practice had been seeking some way to support their breastfeeding mothers, and the group is readily accessible and available for group members, as opposed to a weekly face-to-face type community meeting that must be staffed for a particular day and time, and that new mothers may not, for whatever reason, be able to attend. The social media staff of the OB practice include monitoring of the Facebook group as part of their daily review of all online platforms for the practice. There is minimal cost involved with initiation or maintenance of the online group. In addition, when a woman has gained experience and confidence with breastfeeding, she may then be able to share her wisdom with newer members within the group who may be struggling with breastfeeding. In other words, members benefit from the group whether they are giving or receiving support.

Limitations of this project include that it has only been conducted with a small population of one OB practice over a relatively short (three month) period of time. Long term effects of the intervention are unknown. Further, the unique characteristics of the majority of the sample population (age over 25, educated, employed, with high income) may limit the generalizability of

the survey results. Attempts to implement this project with a large health care system were met with challenges such as a prolonged period of time for their IRB approval, and required branding of the Facebook group, which was predicted to take up to two years. Another possible limitation is that some members might want to remain anonymous, which is not possible with the current Facebook platform. In addition, although the home page includes a disclaimer that the group does not provide medical advice, some members might seek support from fellow group members when treatment from a health care provider might be more appropriate.

Conclusion

The evidence has revealed that breastfeeding rates, both nationally and globally, drop significantly by the age of six months, and that a lack of support is often cited as a key factor in the discontinuation of breastfeeding. Participation in breastfeeding peer support, on the other hand, has been correlated with a positive effect on breastfeeding duration, leading to positive health benefits for the mother and baby, as well as a positive impact on the economy and environment. Implementation of a closed social network Facebook group, in connection with an OB practice that delivers at a BFHI hospital, completed the tenth and final step of the BFHI and provided peer support to breastfeeding mothers of the OB practice. A survey of group members demonstrated that implementation of this intervention has been successful for this population of women, with respect to their self-efficacy and desire to continue breastfeeding. Future developments may include promotion among other local provider practices, as well as hospital settings, and perhaps adoption by other health care systems, in order to benefit breastfeeding mothers and their babies for improved patient and population outcomes.

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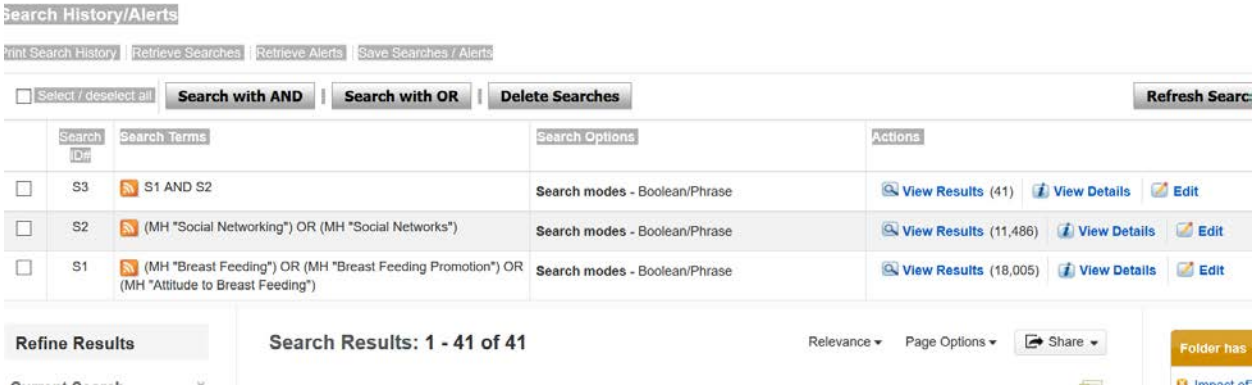
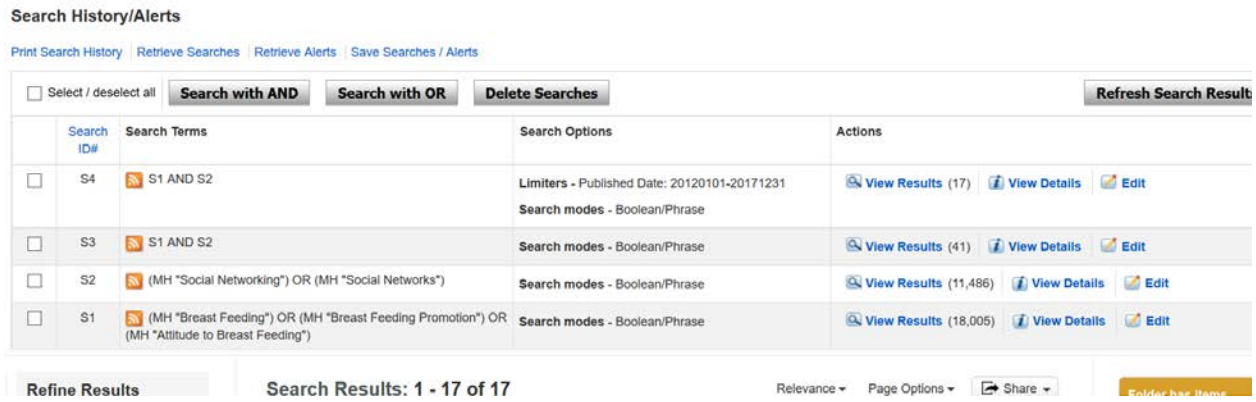
Appendix A

Database Search Strategy

CINAHL

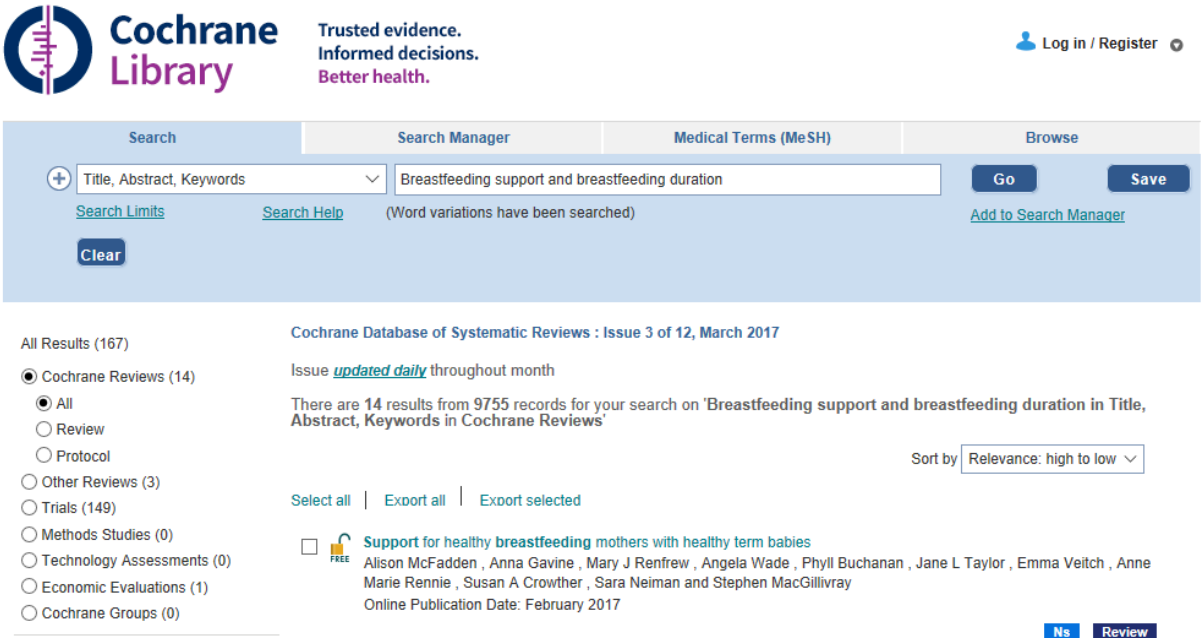




Appendix B

Database Search Strategy

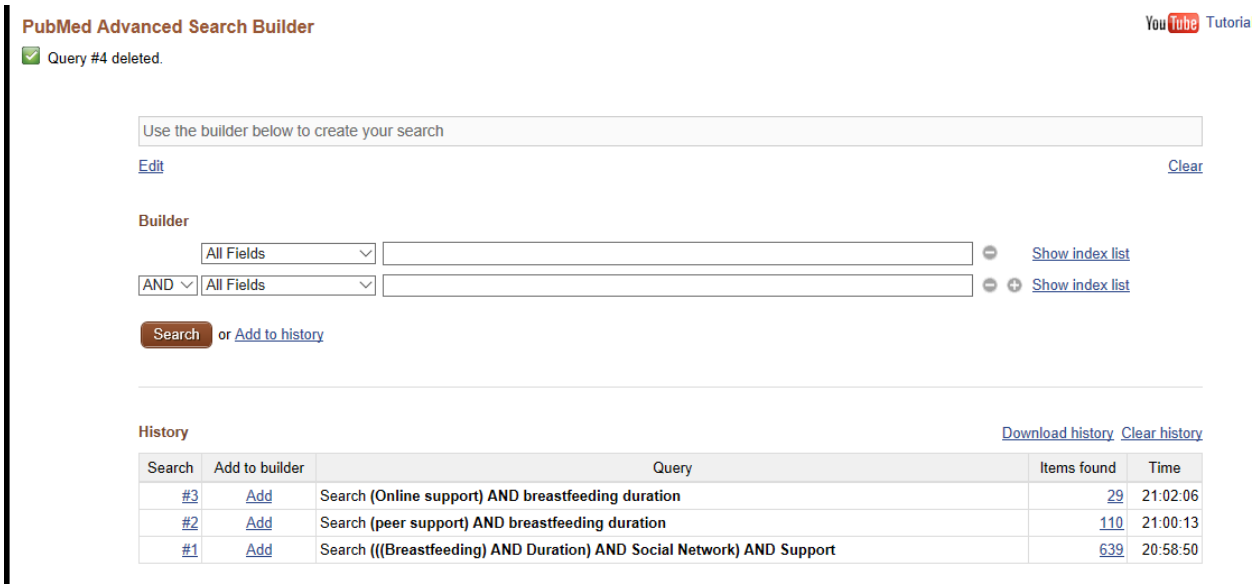
Cochrane Library



Appendix C

Database Search Strategy

PubMed



PubMed Advanced Search Builder

YouTube Tutoria

Query #4 deleted.

Use the builder below to create your search

Edit Clear

Builder

All Fields — Show index list

AND — All Fields — Show index list

Search or Add to history

History Download history Clear history

Search	Add to builder	Query	Items found	Time
#3	Add	Search **(Online support) AND breastfeeding duration**	29	21:02:06
#2	Add	Search **(peer support) AND breastfeeding duration**	110	21:00:13
#1	Add	Search **(((Breastfeeding) AND Duration) AND Social Network) AND Support**	639	20:58:50

Appendix D

Table D1

Evaluation Table

Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
Bolton, T., et al. (2009). Characteristics associated with longer breastfeeding duration: an analysis of a peer counseling support program. **Funding**: Sources of support: Michigan Department of Community Health and the Department of Food Science and Human Nutrition, Michigan	Social Cognitive Learning Theory	**Design:** Observational **Purpose:** To characterize women who participated in the BFI over a 3 year period, to determine which participant and program characteristics were associated with increased BF initiation and longer DU.	n= 5067 Data collected from BFI Program Data **Inclusion Criteria**: Pregnant and BF enrolled in BFI from 2002-2005 **Exclusion Criteria:** Participants choosing more than one race or ethnic category, or a category other than C, AA, or H, were a minor proportion and excluded.	IV1: MA IV2: ME IV3: E IV4: PBFE IV5:GA IV6: BW IV7: AF DV: BF DU	**All IV's**: Hard copy data collection forms completed by Peer Counselors with information provided by participant. **DV**: Data collected by Peer Counselor during 1-2 home visits and/or 1-2 phone calls.	Chi square analysis Descriptive statistics Two stepwise linear regression analyses	Shorter BFDU with AF at Day 1, in both prenatal (-37.9 days [95% CI: -57.9 to -17.9]) and postpartum (-49.1 days [95% CI: -63.4 to -34.8]) groups. No effect size reported. No difference in distribution of infant gender. Increased MA (for each year, 2 days longer BFDU) and PBFE (20 days longer) predictive of longer BFDU.	**LOE: IV (**per Melnyk Hierarchy of Evidence) **Strengths:** Large study sample over several years time. No bias recognized. **Limitations**: Observational study, limited ability to determine causal relationships. Data collected by peer counselors who provided program services. No control group, so unable to determine absolute program efficacy. **Validity:** External validity strong due to large sample size. Content validity slightly weakened due to no control group**.**

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
State University. **Conflicts or bias**: None recognized USA								**Reliability:** Study reliable as collection forms measured intended data**.** **Conclusion/Applicability:** BFDU may be improved by targeting peer counseling to younger mothers and those with no PBFE, and delay early formula feeding. **Feasibility:** Safe, reasonable to implement, requires 1-2 Peer Counselors, no office space.
Bridges (2016). The faces of breastfeeding support: Experiences of mothers seeking breastfeeding support online. **Funding**: None noted. Recruitment of participants	Essentialist/ realist theoretical theme	**Design:** Qualitative**;** Online ethnographic exploratory research approach (netnography). **Purpose:** To investigate how BF mothers find support online using closed FB groups	**Sample**: n= 23 participants **Setting**: Recruited from three of 17 FB groups, based on the volume and nature of their posts. **Inclusion Criteria:** Participants were members of ABA, and of	IV1: SNS DV1: MS DV2:CO DV3: ED DV4: I	Online depth interviews, participants were asked 8 open questions, and online semi-structured focus groups x 48 hrs.	Theoretical thematic analysis.	Results reported by themes. Overarching theme identified was support, with four subthemes: community, complementary, immediate, and information.	**LOE: IV** (Melnyk Hierarchy of Evidence) **Strengths**: Themes determined by participants' own words. To increase validity, additional level of thematic analysis, Leximancer, utilized to synthesize representation of text within writing. Validity also increased by "cleaning" the document before analysis,

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
facilitated by Australian Breastfeeding Association. **Conflicts**: None recognized, possible bias with ABA involvement Australia			closed FB groups that were active **Exclusion Criteria**: None identified					eliminating non-descriptive words. **Limitations**: Thematic analysis provides a less rich description of overall data, and more detailed analysis of some aspects of data. No demographic data was collected on participants. Small sample size. **Validity:** External validity weak due to small sample size. Content valid as interviews directed at participants' experience in SNS. **Reliability:** Participants' responses consistent, but only one set of interviews/focus groups analyzed. **Conclusion/Applicability:** Applicable in practice setting for providing support within an immediate, informative, supportive community.

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
								Feasibility: Safe, closed online group, minimal to no cost.
Dennis, C. (1999). A randomized controlled trial evaluating the effect of peer (mother-to-mother) support on breastfeeding duration among primiparous women. **Funding**: Faculty of Nursing Scholarship, research grant, University of Toronto. **Conflicts or bias**: None identified. Canada	Based on Stewart's "From Provider to Partner" conceptual framework, Breastfeeding Support Conceptual Framework	**Design:** RCT **Purpose:** Evaluate the effect of peer support on breastfeeding duration among first-time mothers.	**Sample**: Primiparous BF mothers (n=258) **Setting:** Regional community of Hospitals identified as A and B. **Inclusion Criteria:** Primiparous, ability to read or understand English, age >16 years, singleton birth, GA >37 wks at delivery, plan to BF, residence in participant geographic region.	IV1: VTPS DV1:BFDU DV2: MS	Confidential questionnaires at 4, 8, and 12 weeks postpartum using Maternal Breastfeeding Evaluation Scale, rated on a 5-pt Likert scale. A second 5-pt Likert scale was used to evaluate perception of the support received from VTPS.	Independent 2-sample t-test Pearson's correlations Spearman's rank order correlation coefficients. RR and corresponding 95% CI were estimated	Of 258 participants, 81.1% with VTPS were BF at 3 mos PP, compared with 66.9% in control group. The results indicated intervention significantly predicted BFDU at 4 weeks (odds ratio [OR] 2.5, 95% CI 1.04–6.00; $p = 0.04$), 8 weeks (OR 2.4, 95% CI 1.15–4.83; $p = 0.01$) and 12 weeks (OR 2.5, 95% CI 1.33–4.78; $p < 0.001$). This suggests that mothers who received VTPS were about 2.5 times more likely than those in control group to continue to BF at all follow-up periods. RR suggests 21%	**LOE: II** (Melnyk Hierarchy of Evidence) **Strengths**: Large sample size, no competing interests declared. Appropriate statistical analysis for findings. Small attrition number (2 of 258). **Limitations:** Only one regional area studied. **Validity:** External validity present and may be generalized to larger population. Content valid as measurements assessed objectives and outcomes. **Reliability:** Instrument measures intended data, consistent across sample population. **Applicability**: These clinical findings address the IV and DV's and

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
			Exclusion: Congenital anomalies that could interfere with BF, maternal illness, Level II Nursery, mother enrolled in BF PSP prenatally**.**				more mothers continue BF at 3 mos with PS. Lack of association noted between frequency of VTPS and 3 mos BF rate, but rather an association with the perception of VTPS available if needed. All participants (100%) indicated VTPS should be offered to BF mothers.	warrant further research on VTPS and BF rates to at least 6 mos of age. **Feasibility**: Safe and reasonable to implement, minimal cost for TS.
Dennis, C. (2002) Breastfeeding initiation and duration: a 1990-2000 literature review. **Funding**: Not identified **Conflicts or bias**: None identified Canada	Breastfeeding Self-Efficacy Framework	**Design:** Literature review **Purpose:** To review evidence from RCT's, meta-analyses, and studies with large representative samples on BF initiation and D and to delineate effective strategies for promoting positive BF behaviors	**Sample**: Approximately 3700 participants across >150 studies. **Inclusion Criteria:** Written in nursing or medicine journals in English from North America or the UK, relevant to the	IV1: TC IV2: HV IV3: OC DV: BFDU	Data extracted from Medline, CINAHL, and the Cochrane Library.	Data extracted and organized under headings of benefits of BF, BF IN and BF DU, personal characteristics, sources of support, BF interventions, and review implications.	Support from a partner or nonprofessional greatly increases likelihood of positive BF behavior. Complementation of professional services with peer support from a mother experienced in BF effective in BF promotion.	**LOE: V** (Melnyk Hierarchy of Evidence) **Strengths**: Quality of evidence reviewed: RCT's, MA's, studies with large, representative samples. No bias identified. **Limitations**: Low LOE as literature review. **Validity:** Content validity present, external validity present based on number of studies reviewed.

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
			objective, published 1990-2000, preference for RCT, MA, largest, most representative samples, studies conducted in NA. **Exclusion Criteria:** Classic findings					**Reliability**: Objectives met by review, peer support promote BF behaviors. **Applicability**: Findings applicable to project, with strategies to promote BF behaviors. **Feasibility**: Safe, low cost, appears to be particularly beneficial with socially disadvantaged BF women.
Mazza, et al. (2014). Influence of social support networks for adolescent breastfeeding mothers in the process of breastfeeding. **Funding**: Not identified	Social Cognitive Learning Theory	**Design:** Exploratory study with a qualitative approach **Purpose:** Investigate the influence of the social support networks on the process of BF among adolescent mothers.	**Sample**: Adolescent BF mothers (n=9). **Setting**: three Health Centers in Curitiba, Brazil, September-October, 2011. **Inclusion Criteria:** Adolescent BF mother aged 10-19 years,	IV1: PSSN IV2: SSSN DV: BFC and BFDU	Semi-structured interviews of adolescents, with legal guardian present; instrument addressed BFC and DU, perception of support received, feelings about BF.	Interviews transcribed and interpreted with thematic categorical analysis method.	Two categories emerged from analysis of data: Influence of PSSN and influence of SSSN. PSSN (family members) provided domestic activity assistance and care of infant. SSSN (HCW) provided BF education, latch assistance, encouragement of BFC. Those who	**LOE**: VI (Melnyk Hierarchy of Evidence) **Strengths**: No bias identified **Limitations**: Small sample size. Study conducted over short time period. Low LOE. **Applicability**: Demonstrates importance of HCW education for BF

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
Conflicts or bias: None noted Brazil			baby less than 6 mos of age, living in the assigned region. **Exclusion Criteria:** None identified.				reported a greater bond with the SSSN had longer BFDU.	mothers and association with greater BFC and DU. **Feasibility**: Importance of creating bond between HCW, the BF mother, and her PSSN, to interlink knowledge and actions for promotion of BF.
McFadden, et al (2012). Support for healthy breastfeeding mothers with healthy term babies. **Funding: Internal Sources:** University of York, UK **External sources**: Grant from National Institute for Health Research Health Technology	Breastfeeding Self Efficacy	**Design:** Cochrane Systematic Review **Purpose/Objective:** Analyze the impact of the intervention, extra BF support, compared with usual maternity care, with the purpose of facilitating continued BF	**Sample**: Assessment of 218 reports. Participants were BF mothers, or those considering BF, if the study included BF support after birth **Inclusion Criteria:** Randomized controlled trials comparing extra support for healthy BF mothers of healthy term babies, with	IV1: POVS, either FTF, T, one time or ongoing. DV1: EBF stopped before 6 months DV2:Any BF stopped before 4-6 wks postpartum DV3: MS	Main outcome measure (model not identified) was effect of interventions on stopping BF by specified points in time. Primary outcomes were recorded for stopping any or EBF before 4 to 6 weeks and at the last study assessment (up to 6 mos). For dichotomous data, results presented as	For cessation of EBF at up to 6 mos the treatment effect appeared greater where intervention was delivered by non-professionals (average RR 0.74, 95% CI 0.64 to 0.87) compared with professionals (average RR 0.93, 95% CI 0.88 to 0.98) or both (average RR 0.76, 95% CI 0.44 to 1.32	MS with BF was reported in 11 studies. Significantly more mothers in PSG than in control groups were satisfied with their infant feeding experience.	**LOE**: I (Melnyk Hierarchy of Evidence). **Strengths**: Large number of high LOE reports assessed. Two review authors independently assessed risk of bias for each study using *Cochrane Handbook for Systematic Reviews of Interventions*. **Limitations:** None identified. **Applicability**: Where there is high heterogeneity the applicability of the overall effect estimate is likely to vary in different settings.

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
Assessment Programme. UK Medical Research Council, UK. **Conflict or bias**: None identified, two authors independently assessed eligibility for inclusion and carried out data extraction, and data checks were carried out by a third author United Kingdom			usual maternity care. **Exclusion Criteria:** Antenatal Interventions alone, and solely educational interventions.		summary risk ratio with 95% CI. I^2 and T^2 statistics used to quantify heterogeneity along with the Chi^2 test for heterogeneity			**Feasibility**: Safe to implement, and support should be tailored to the setting and needs of the population group. .
Meedya, et al. (2010). Factors that positively influence breastfeeding duration to 6 months: A	Breastfeeding Self Efficacy	**Design:** Literature Review **Purpose/Objective:** Explore what modifiable factors positively influence BF DU to 6 months,	**Sample**: Assessment of over 7000 reports, dated 2000-2009. **Inclusion Criteria:**	IV1: BF intention IV2: SS DV: BF DU	Online literature search of Medline, CINAHL, Cochrane, Maternit and Infant Care.	Factors reported as positively associated with prolonged BF DU were categorized, with emphasis	Across all studies reviewed, peer support had a positive effect on BF DU, and BF self-efficacy. Although women perceived professional support	**LOE**: V (Melnyk Hierarchy of Evidence) **Strengths**: Wide search and assessment, large number of studies over 9 year time span. No bias identified.

Table Key

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
literature review **Funding**: School of Nursing and Midwifery, Faculty of Health, Newcastle University, Australia. **Conflict or bias**: None identified. Australia		to develop midwife-provided ED.	Only SR, RCT, and cohort studies were included. Qualitative and descriptive studies for identification of factors that influence BF success were included. **Exclusion Criteria:** Studies which did not address the aim of the review.		Based on keywords BF, DU, BFC, Intervention, ED, Confidence, Self-Efficacy, Support.	on factors potentially modifiable by ED intervention.	as important, emotional support from family and peers was a vital factor in BF success.	**Limitations**: Low LOE **Applicability**: Peer support had positive effect on BF DU across all studies. **Feasibility**: Safe, low cost to implement as part of PP follow up.
Meglio, et al. (2010). A randomized controlled trial of telephone peer support's influence on breastfeeding duration in adolescent mothers **Funding**: Special	Social Cognitive Learning Theory	**Design:** RCT **Purpose/Objective:** Evaluate the effect of TPS on BF	**Sample**: BF adolescent mothers (n=78); divided to PS group (n=38), or control group (n=40). **Setting**: Two Rochester, NY hospitals	IV1: TPS DV1: Any BF DU DV2: EBF DU	DV1: Any BF DU: measured by age in days at complete BF cessation. DV2: EBF DU: measured by time to first introduction of any nutritional supplement. telephone interviews,	Log-rank test and Kaplan-Meier curves used to describe cumulative probability of maintaining BF over time. Relative risks of BF cessation quantified by hazard ratios and 95% CI	"Any BF" results did not differ significantly between groups, and did not improve "any BF" DU (75 days intervention group vs. 35 days in control, p=0.26), but peer support intervention did increase EBF DU (35 days vs. 10 days, p=0.004).	**LOE;** II (Melnyk Hierarchy of Evidence) **Strengths**: High LOE, randomized double-blind design, intention to treat analysis, no bias identified. **Limitations**: Relatively small sample size, participants given monetary compensation for participation (whether they continued BF or not).

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
Projects Grant from the Ambulatory Pediatric Association. Salary support provided through fellowship training grants by the National Research Service Award and the Health Research Service Award. **Conflict or bias:** Participants were given $25 mall gift card if they completed the 8 wk postpartum interview. USA			**Inclusion Criteria:** Adolescent mother 12-36 hours post VD, 24-48 post CS. **Exclusion Criteria:** None identified		using standardized, closed-ended questionnaires, conducted by single research assistant, at 1,2,3,4,6,and 8 weeks postpartum, and again at monthly intervals until BF was discontinued. Measures consistent with standardized definitions by Interagency Group for Action on Breastfeeding.	obtained from Cox proportional hazards models.		High PC dropout rate (10 of 15). Conducted in medium-size city, may not generalize to larger metropolitan or to rural areas. **Validity**: Content validity present, but external validity weak as findings may not generalize to other populations. **Reliability**: Suggested better methods be developed for retaining adolescent peers for future studies. **Applicability**: TPS found to be effective for increasing BF DU in adolescent BF mothers **Feasibility**: Challenges with securing adolescents as consistent peer support.

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
Muirhead, et al. (2006). The effect of a programme of organised and supervised peer support on the initiation and duration of breastfeeding: a randomised trial. **Funding**: Ayrshire and Arran Health Board, which took no further part in the trial **Conflict or bias**: Authors state no competing interests. Scotland	Social Cognitive Learning Theory Breastfeeding Self efficacy	**Design:** RCT **Purpose/Objective:** To test a specified program of PS affects initiation and/or DU of BF	**Sample**: Women at 28 wks GA, with intention to BF (n=225), divided to PRG (n=112), and control (n=113). **Setting**: General practice in Ayrshire, Scotland **Inclusion Criteria:** Informed consent by research assistant **Exclusion Criteria:** Not identified	IV: PS DV: BF IN and BFDU	Questionnaires for breastfeeding stop day, qualitative data on problem, type of support at 10 days, 8 weeks, and 16 weeks.	Kaplan-Meier plots of BF for control and PSG with all strata combined, and log-rank test.	Specified program of trained peer support did not significantly increase BFDU in women who received PS. Thirty-five of the 112 (31%) women in PSG were BF at 6 weeks compared to 33/113 (29%) in the control group, a difference of 2% (95% confidence interval = −10% to 14%). The median BF DU for all women in PSG was 2 days, compared to 1 day for the control group and the Kaplan–Meier survival plot shows PSG overall BF slightly longer than the control group, with no statistically significant difference by log-rank test (P = 0.5). The median BF DU among primagravidae in	**LOE:** II (Melnyk Hierarchy of Evidence) **Strengths**: No bias identified, intention to treat analysis **Limitations**: Women who did not start BF, or who stopped while still in hospital received no PS. Time and resource limits resulted in only 225 participants recruited. **Validity:** Content validity present, but external validity undetermined to generalization, as sample is from just one practice setting. **Applicability**: Peer support until 16 weeks of age did not increase breastfeeding in this population by a statistically significant amount.

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
							PSG was 7 days, compared to 3 days for the control group. Among women who started to BF the medians were 72 days in PSG and 56 days in the control group. These differences were not statistically significant.	**Feasibility**: Findings not statistically significant to implement. Further research needed to examine effectiveness of BF support covering hospital and postnatal settings.
Simard, et al. (2005). Factors influencing the initiation and duration of breastfeeding among low-income women followed by the Canada prenatal nutrition program in 4 regions of Quebec.	Social Cognitive Learning Theory	**Design:** Correlational/ Observational **Purpose/Objective:** To understand factors associated with initiation and duration of BF among LI women, to better target BF promotion	**Sample**: Random subsample group of pregnant women (n=196), from sample of pregnant women (n=6223) registered with CPNP. **Setting**: Four regions of Quebec **Inclusion Criteria:** Low income,	IV1: PS IV2: ME IV3: IF IV4: BW IV5: BP DV1: BF IN DV2: BF DU	Questionnaire addressed demographics, socioeconomic characteristics, peer support, BF intention, perceived needs for BF, and reasons for terminating BF. At 6 mos PP, peer support measured using shortened version osf social support	Spearman or Pearson correlation coefficients used to report relationships between maternal demographic, socioeconomic, lifestyle habits, peer support, and BF IN and DU.LIFEREG survival analysis procedure used to evaluate predictive factors of BF	Women with university education, born outside Canada, with low birth weight infants, were more likely to initiate BF. Of this group, those who were nonsmokers, multiparity, with higher level of education, were positively associated with longer BF DU. Actual BF DU was not significantly related to peer support. However, participants reported lack of peer support	**LOE**: IV (Melnyk Hierarchy of Evidence) **Strengths**: Russel and Cutrona social support scale has good psychometric properties. No bias identified. **Limitations**: Relatively small subsample. **Validity**: Content validity present. External validity weak due to sample size. **Applicability**: Reliability present by appropriate statistical analysis. Intended data measured

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Decision for Use in Practice/Application to Practice
Funding: Not identified **Conflict or bias**: No reported competing interests Canada			registered with CPNP **Exclusion Criteria:** Not identified		scale created by Russel and Cutrona. Anxiety and stress measured with French version of parental index scale, validated by Lacharite et al.	DU at 3 wks and 6 mos PP. Also, stepwise multiple regression analysis used at 6 mos. to evaluate reasons for termination of BF. Reasons for termination of BF were obtained by open-ended question.	as one of the reasons for BF termination.	and consistent across sample population **Feasibility**: Peer support not significantly associated with longer BF DU. Future research to determine factors influencing BF IN and BF DU.

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Appendix E

Table E1

Synthesis Table

Author	Bolton	Bridges	Dennis	Dennis	Mazza	McFadden	Meedya	Meglio	Muirhead	Simard
Year	2009	2016	1999	2002	2014	2012	2010	2010	2006	2005
Design	Observational	Netnography	RCT	Literature Review	Exploratory	Systematic Review	Literature Review	RCT	RCT	Observational
Number of subjects	5067	23	258	3700	9	218 studies	7000 studies	78	225	196
Independent Variables										
AF	X									
BP										X
BW	X									X
E	X									
FTF						X				
GA	X									
HV				X						
IF										X
MA	X									
ME	X									X
OC				X						
PBFE	X									
POVS						X				
PS									X	X
PSSN					X					
SSSN					X					
SNS		X					X			
TC			X	X		X				
VTPS			X					X		

Table Key

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Dependent Variables										
BFC	X				X		X			
BFDU	X		X	X	X	X	X	X	X	X
BFIN									X	X
BF Self-Efficacy			X			X	X			
CO		X								
EBF								X		
ED		X								
I		X								
MS		X	X			X				
Findings										
PS increased BFDU	↑		↑	↑	↑	↑	↑	↑	↑	
PS did not affect BFDU										X
PS improved BF self-efficacy			↑			↑	↑			
PS improved MS with BF		↑	↑			↑				
Bond with SSSN improved BFDU					↑					
Perception of available VTPS improved BF rate at 3 mos			↑							
Older MA increased BFDU	↑									
Homogeneity										
Heterogeneity						X				
Setting										
Community	X	X	X	X	X	X	X	X	X	X
Outpatient clinic				X						

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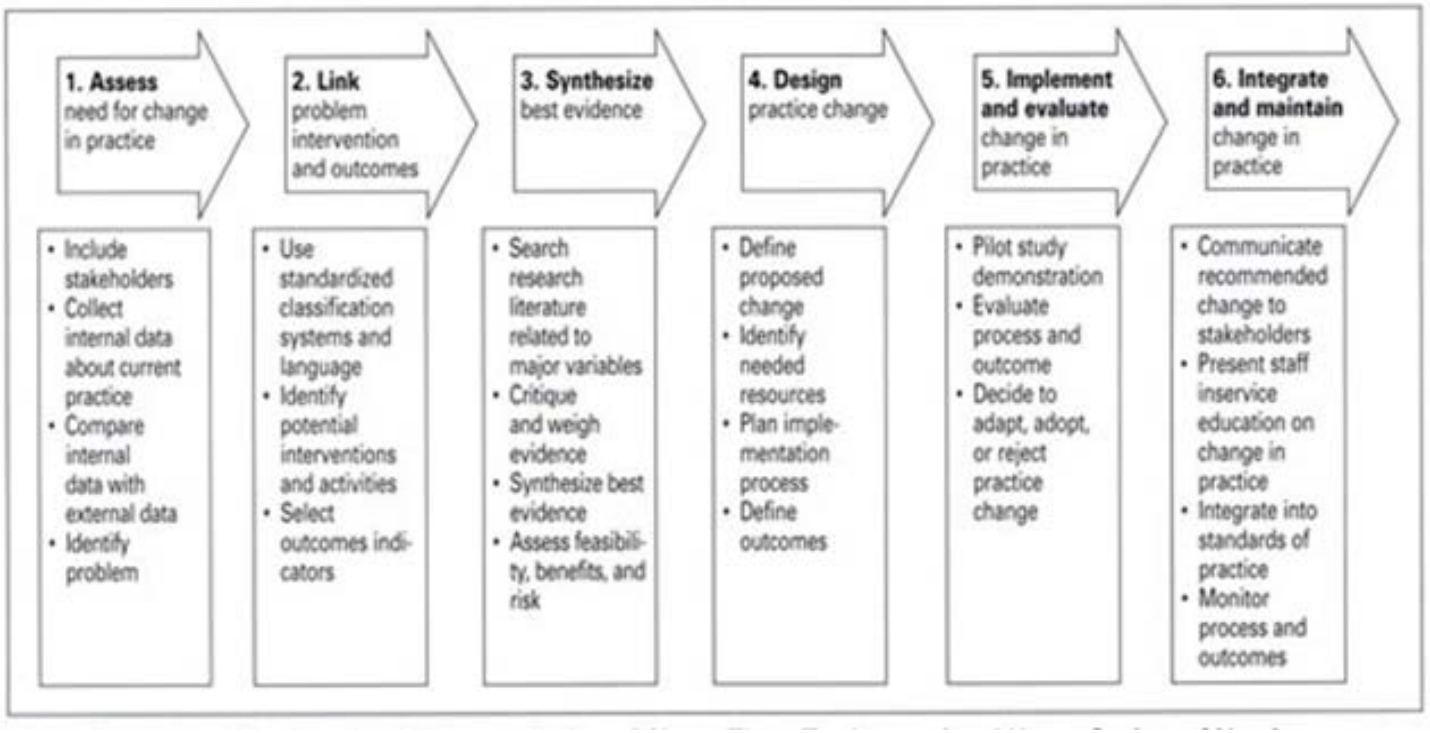
Appendix F

Rosswurm & Larrabee Evidence-Based Practice Model



Appendix G

Institutional Review Board Approval

ASU Knowledge Enterprise Development

EXEMPTION GRANTED

Kara Mangold
CONHI - DNP
-
Kara.Mangold@asu.edu

Dear Kara Mangold:

On 10/19/2017 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Breastfeeding Closed Social Network Peer Support Group
Investigator:	Kara Mangold
IRB ID:	STUDY00007104
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Breastfeeding Support, Category: Other (to reflect anything not captured above); • Breastfeeding Support, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Breastfeeding Support, Category: Other (to reflect anything not captured above); • Breastfeeding Support, Category: Consent Form; • Breastfeeding Support, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Breastfeeding Support, Category: Recruitment Materials; • Breastfeeding Support, Category: IRB Protocol;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 10/19/2017.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Pamela Storto
Kara Mangold
Pamela Storto

Appendix H

Survey Monkey Invitation Link

Appendix I

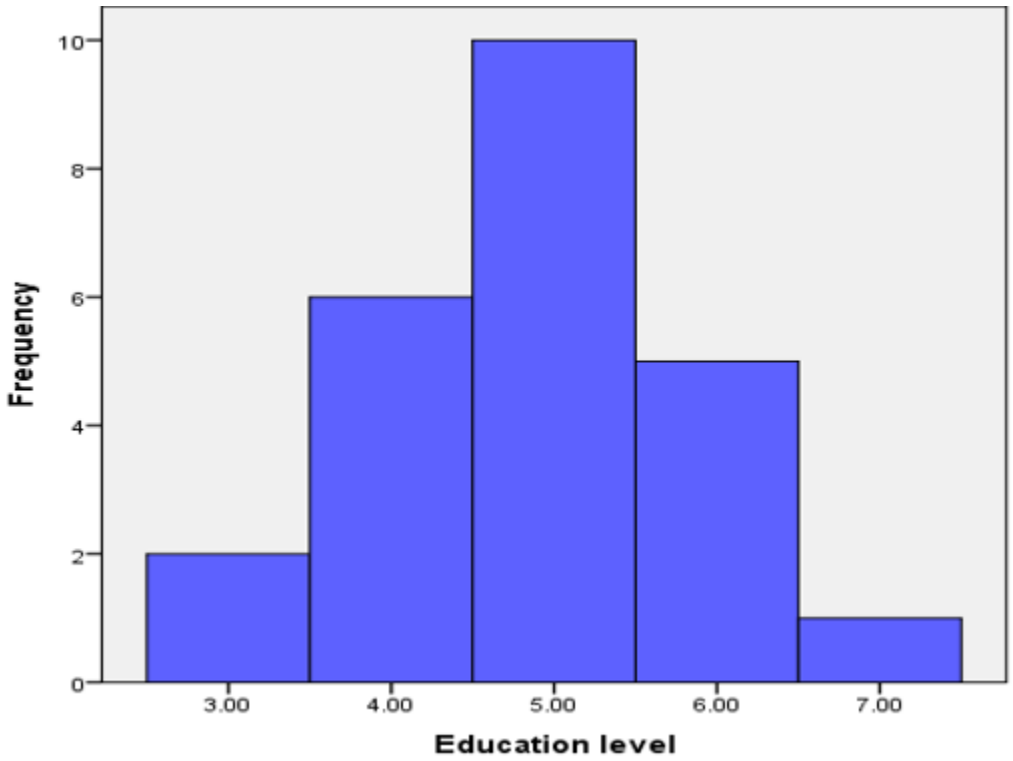


Figure I1. Range of Education Levels Among 25 Survey Respondents on Breastfeeding Self-Efficacy Survey. Vertical bars represent levels of education (*m* = 4.87, *SD* = .992), 95% CI [4.45, 5.29] as follows: 3.00 = Attended college, no degree earned; 4.00 = Associate Degree; 5.00 = Bachelors Degree; 6.00 = Masters Degree; 7.00 = Doctorate (Storto, 2018).

Appendix J

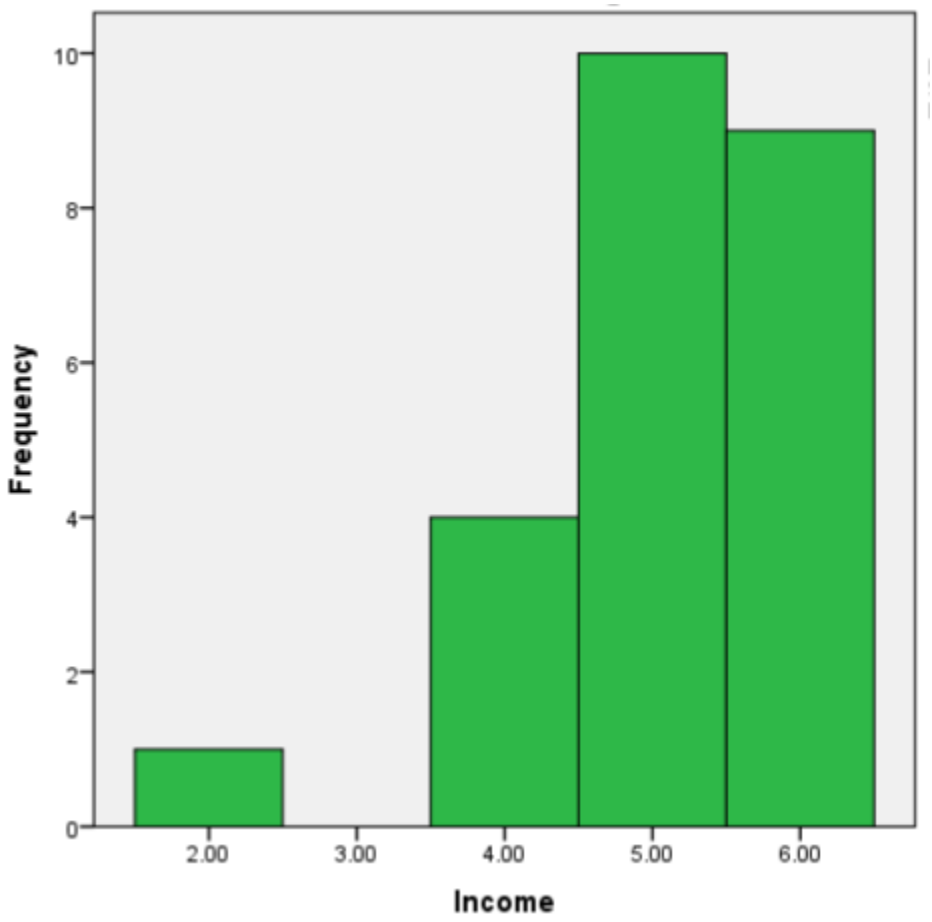


Figure J1. Range of Income Levels Among 25 Respondents on Breastfeeding Self-Efficacy Survey. Vertical bars represent levels of income (*m* = 5.08, *SD* = .974), 95% CI [4.67, 5.49] as follows: 2.00 = $20,000 - $34,999, 3.00 = $35,000 - $49,999, 4.00 = $50,000 - $74,999, 5.00 = $75,000-$99,999, 6.00 = $100,000+ (Storto, 2018).

Appendix K

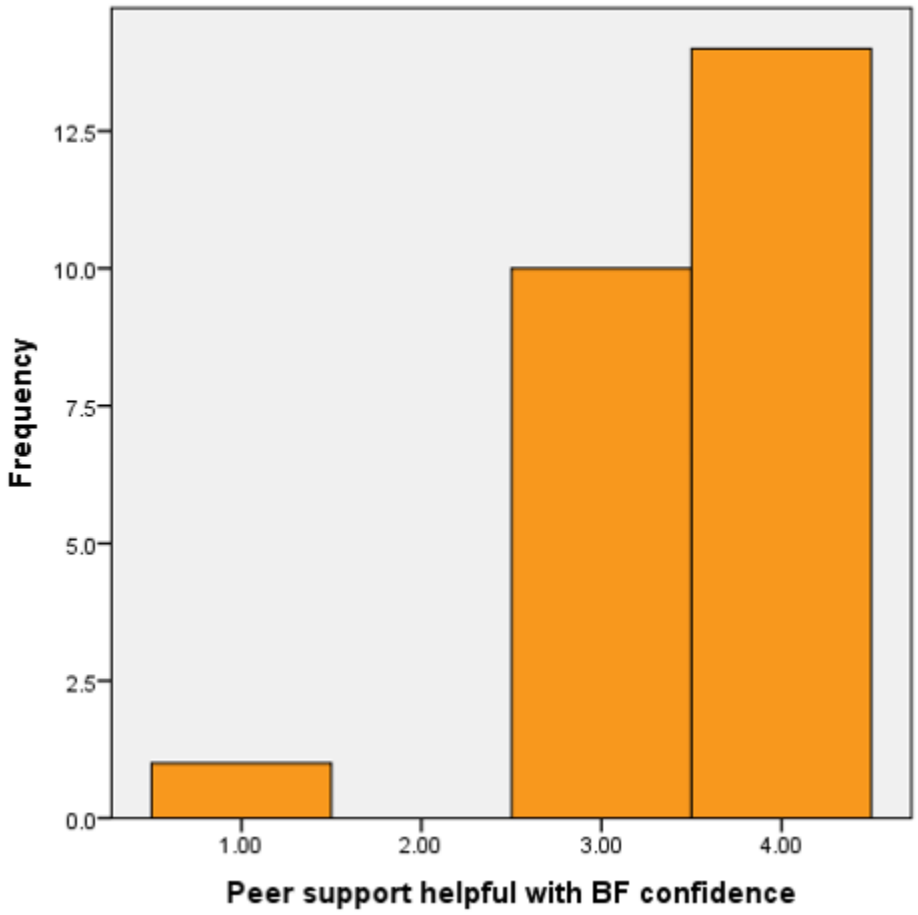


Figure K1. Range of Responses Regarding Peer Support and Breastfeeding Confidence Among 25 Participants of Breastfeeding Self-Efficacy Survey. Vertical bars represent respondents' level of agreement with the statement "Peer support is helpful with my confidence in breastfeeding" *(m* = 3.48, *SD* = .714), 95% CI [3.18, 3.77] as follows: 1.00 = Strongly disagree; 2.00 = Disagree; 3.00 = Agree; 4.00 = Strongly agree (Storto, 2018).

Appendix L

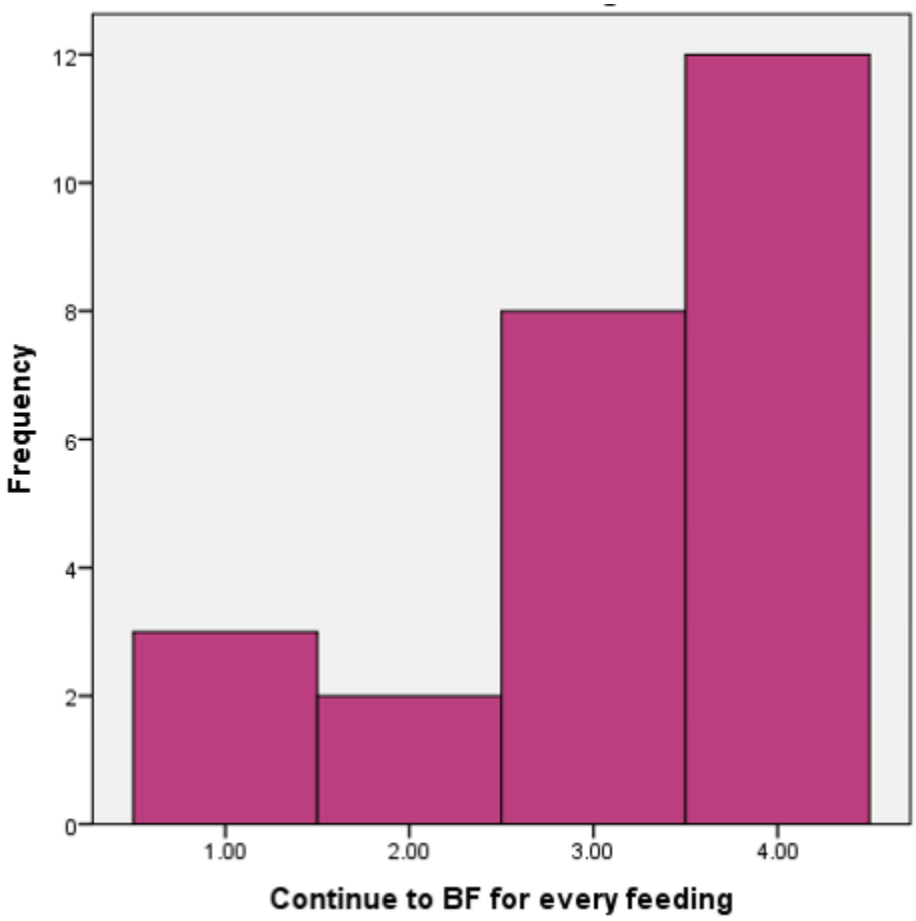


Figure L1. Range of Responses Regarding Desire/Intent to Continue Breastfeeding Among 25 Participants of Breastfeeding Self-Efficacy Survey. Vertical bars represent repondents' level of desire/intent to continue with breastfeeding for every feeding (*m* = 3.16, *SD* = 1.028), 95% CI [2.73, 3.58] as follows: 1.00 = Not confident; 2.00 = Sometimes confident; 3.00 = Confident; 4.00 = Very confident (Storto, 2018).

Appendix M

Table M1

Summary of Characteristics and Self-Efficacy Responses from Breastfeeding Satisfaction Survey

Variable	*n*	*m (SD)*	95% CI LL, UL
Baby gets enough milk[1]	25	2.8 (1.0)	[2.38, 3.21]
Cope with BF challenges[1]	25	2.76 (.92)	[2.37, 3.14]
BF without supplement[1]	25	3.04 (1.05)	[2.60, 3.47]
Baby properly latched[1]	25	2.96 (1.09)	[2.50, 3.41]
Manage BF to satisfaction[1]	25	2.6 (.98)	[2.20, 2.99]
BF even if baby is crying[1]	25	3.0 (.91)	[2.62, 3.37]
Desire to continue BF[1]	25	3.4 (.96)	[3.00,3.79]
BF with family present[1]	25	2.8 (1.08)	[2.35, 3.24]
Satisfied with this BF[1]	25	3.08 (.91)	[2.70, 3.45]
Deal with time consuming[1]	25	2.88 (1.05)	[2.44, 3.31]
Finish each breast[1]	25	3.32 (.75)	[3.01, 3.62]
BF for every feed[1]	25	3.16 (1.03)	[2.73, 3.58]
Keep up with BF demands[1]	25	3.08 (1.07)	[2.62, 3.52]
Know when baby finished[1]	25	3.24 (.96)	[2.83, 3.64]
Peer support helpful with BF confidence[2]	25	3.48 (.71)	[3.18, 3.77]

M1 Table Key

Self-Efficacy Questions

1. 1 = Not confident, 2 = Sometimes confident, 3 = Confident, 4 = Very confident
2. 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree.

Appendix N

Table N1
Summary of Demographic Responses from Breastfeeding Satisfaction Survey

Variable	*n*	%
Age in years		
18-24	2	8
25-34	22	88
35-44	1	4
Education level		
Attended college, no degree	3	12
Associate Degree	6	24
Bachelors Degree	10	40
Masters Degree	5	20
Doctorate	1	4
Marital Status		
Single, never married	2	8
Married or domestic partner	22	88
Divorced	1	4
Ethnicity		
Hispanic, Spanish or Latino origin	2	8
Not Hispanic, Spanish or Latino origin	23	92
Race		
American Indian or Alaska Native	1	4
Asian	2	8
Native Hawaiian/Pacific Islander	1	4
Caucasian	20	80
Declined to answer	1	4
Employment		
Full time or on maternity leave	17	68
Part time or on maternity leave	3	12
Unemployed, not looking for work	5	20
Income		
Less than $20,000	1	4
$20,000 - $34,999	1	4
$35,000 - $49,999	0	0
$50,000 - $74,999	4	16
$75,000 - $99,999	10	40
$100,000 +	9	36