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# Use of Breastfeeding Support Interventions to Overcome Barriers: A Review of the Literature

Jennifer Booth
*Southern Adventist University*, nalonet@aol.com

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## Introduction

The benefits of breastfeeding have been well-researched and widely accepted. Current evidence cited by the American Academy of Pediatrics (2012) demonstrates that breastfeeding is associated with the reduction in the risk of acute otitis media, atopic dermatitis, asthma, severe lower respiratory tract infections, gastroenteritis, obesity, type 1 and type 2 diabetes, necrotizing enterocolitis, childhood leukemia, and sudden infant death syndrome (American Academy of Pediatrics, 2012). Kramer et al. (2008) found that children who received exclusive breastfeeding at 3 months and any breastfeeding up to age 12 months scored higher on the Weschler Abbreviated Scales of Intelligence for IQ. The breastfed children were also given significantly higher academic ratings by their teachers in both reading and writing (Kramer et al., 2008). Breastfeeding is not only beneficial to the infant, but to the mother as well. Maternal health outcomes from breastfeeding include more rapid uterine involution, decreased postpartum bleeding, and decreased risk of obesity, rheumatoid arthritis, and cardiovascular disease (American Academy of Pediatrics, 2012). Breastfeeding was also found to be associated with a decreased risk of ovarian cancer (Su, Pasalich, Lee, & Binns, 2012) and breast cancer (Kotsopoulos et al., 2012). Community benefits include reduced healthcare costs, reduced employee absenteeism, and reduced environmental waste. Economically, the United States Department of Agriculture estimates that $3.6 billion would be saved annually if breastfeeding rates increased to meet the Healthy People 2020 guidelines (American Academy of Pediatrics, 2012).

As a result of this overwhelming evidence, several prominent public health organizations have published recommendations for breastfeeding. The World Health Organization (2014) has published a global public health recommendation that infants should be exclusively breastfed for

the first six months of life, and continue to breastfeed while receiving complementary foods for up to two years of age or beyond (World Health Organization, 2014). The AAP recommends that infants are breastfed exclusively until age six months, and continue to breastfeed for a year and for as long as it is mutually desired (American Academy of Pediatrics, 2012). Healthy People 2020 published the following breastfeeding related goals: increase the proportion of infants who are ever breastfed, increase the proportion of infants who are exclusively breastfed through three months, increase the proportion of infants who are exclusively breastfed through six months, increase the proportion of infants who are breastfed at six months, and increase the proportion of infants who are breastfed at one year (U.S. Department of Health & Human Services [HHS], 2011).

**Description of Problem**

Although the benefits of breastfeeding are widely recognized, breastfeeding rates continue to fall short of proposed targets. There is an obvious disconnect between the ideal that "breast is best" and the actual initiation of breastfeeding. Furthermore, when breastfeeding *is* initiated, the exclusivity and duration of breastfeeding is suboptimal. Nationally, 36% of infants born in 2009 were exclusively breastfed at three months, and 16% were exclusively breastfed at six months, falling well below of the Healthy People 2020 goal of 46% and 26% respectively (Bonuck et al., 2014).

The problem of inadequate breastfeeding duration and exclusivity affects women from a variety of ethnic, cultural, age and economic backgrounds. However, there are certain groups of women who have been found to be at an increased risk for early breastfeeding cessation. Donnan et al. (2013) identified lower socioeconomic status, younger age, no previous

breastfeeding experience, and first-time mother status as barriers to breastfeeding success. Providers from a variety of backgrounds must be prepared to address this problem, including general and family practitioners, primary care pediatric providers, and women's health providers.

There are a variety of barriers present that increase the risk for early breastfeeding cessation. The rationale of this literature review is to pinpoint specific breastfeeding barriers and to identify the most effective breastfeeding promotion interventions that can be employed by nurse practitioners in a variety of practice settings. Given the disparity between the breastfeeding goals set by Healthy People 2020, the WHO, and the AAP, versus actual breastfeeding initiation, duration, and intensity, additional steps must be taken to educate and support postpartum mothers. For postpartum mothers, what are the barriers associated with initiation and continuation of breastfeeding, and does breastfeeding intervention and support, as compared with routine care, result in an increase in breastfeeding initiation, duration and exclusivity.

## Definition of Terms

**Table 1.** Conceptual and operational definitions

| | **Conceptual Definition** | **Operational Definition** |
|---|---|---|
| Baby-friendly hospital initiative | An initiative developed by the WHO and UNICEF in order to strengthen maternity practices to support breastfeeding (WHO, 2014). | Using the Ten Steps to Successful Breastfeeding to achieve an increased rate of breastfeeding initiation, intensity, duration and increased exclusive breastfeeding rates (Labbok, Taylor, & Nickel, 2013). |
| Exclusive breastfeeding | The infant only receives breast milk, without the addition of any other food or drink, including water (WHO, 2014). | Feeding only breast milk or vitamin supplements with no water, juice, formula, or solid foods during a given time period (Bonuck et al., 2014). |
| Breastfeeding initiation | The beginning of breastfeeding within the first hour of life (WHO, 2014). | Ever having been breastfed or fed breast milk (Bonuck et al., 2014). |
| Breastfeeding intensity | The magnitude of a quantity per unit (Merriam-Webster, 2014). | The percentage of all feedings during a given time period that were |

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|---|---|---|
| | | breast milk (Bonuck et al., 2014). |
| Breastfeeding duration | The length of time that something exists of lasts (Merriam-Webster, 2014). | Time in days, weeks, or months, until the mother stopped breastfeeding or feeding breast milk altogether (Bonuck et al., 2014). |
| Barriers to breastfeeding | Circumstance or obstacle that keeps people or things apart or prevents progress (Oxford, 2014) | Demographic information (age, sex, socioeconomic status), previous breastfeeding experience, breastfeeding interventions (Bonuck et al., 2014). |

**Theoretical Framework**

The theoretical framework chosen for this literature review is the Health Belief Model (HBM), created by Hochbaum, Kegels, and Rosenstock (1952). The authors developed this model as a systematic way to predict and explain preventative health behaviors. The HBM asserts that health-related behaviors are influenced by personal beliefs, perception about disease, and strategies to prevent illness. The four main constructs of the HBM are as follows: perceived seriousness, perceived susceptibility, perceived benefits, and perceived barriers. To address perceived seriousness, healthcare providers must be proactive in educating families on the importance of the decision of whether or not to breastfeed and how this decision may impact the family as a whole. Parents must be informed that choosing not to breastfeed may leave their child more susceptible to certain illnesses and conditions discussed previously. The benefits of breast feedings are numerous, and it is the healthcare provider's responsibility to assure that these benefits are understood by the family. The healthcare provider must also assess for perceived barriers to breastfeeding. A mother may recognize the benefits of breastfeeding, but still choose not to breast feed due to perceived pain, inconvenience, embarrassment, family pressures, etc. Additionally, the HBM proposes that behavior is also modified by "cues to action". Cues to action may include hearing a friend or family members' breastfeeding experiences, media attention or recognition of breast feeding, and campaigns to promote breastfeeding (Hochbaum, Kegels, & Rosenstock, 1952).

# Literature Review

## Methodology

Access to applicable journal articles was obtained online through the Southern Adventist University McKee Library. Cumulative Index of Nursing and Allied Health Literature (CINAHL) Complete was the primary database used, and articles were obtained between September 2014 and January 2015. Advanced settings were used for the CINAHL Complete searches, limiting the results to peer-reviewed sources published within the last five years. Key search terms included "breastfeeding", "promotion" and "interventions", which yielded 1,210 citations. A secondary search was conducted with the terms "breastfeeding" and "barriers", which produced 1,471 citations. Abstracts for selected, appropriate articles were reviewed and the articles that correlated the most consistently with the purpose of this paper were placed in a matrix for use in this literature review.

## Discussion

Nurse practitioners can play an important role in identifying breastfeeding barriers and developing and implementing solutions that facilitate an increase in breastfeeding initiation, duration, and exclusivity. This literature review will identify specific barriers to breastfeeding, breastfeeding intervention and promotion strategies, and how these strategies can be used to overcome barriers.

**Breastfeeding barriers.** Why is there such disconnect between the knowledge that breast milk is the optimal source of nutrition for babies, and actual breastfeeding initiation, duration, and exclusivity rates? While breastfeeding is often seen as natural and simplistic, it is often quite the contrary. Mothers frequently struggle, especially in the first several weeks of breastfeeding, and often give up because they feel they are unable to meet their child's most

basic need. Teich, Barnett, and Bonuck (2014) reported 73% of women studied described at least one breastfeeding barrier, and many cited multiple barriers. Wagner, Chantry, Dewey, and Nommsen-Rivers (2013) noted that most concerns peaked at day three, with 92% of women reporting at least one concern, and gradually declined thereafter.

The first breastfeeding barrier to be addressed is age. A study conducted by Donnan et al. (2013) revealed that older age was a significant independent predictor of initiation of breastfeeding. The mean age in years for women who did not initiate breastfeeding was 26.6, while the mean age for women who initiated breastfeeding was 29.6 years (Donnan et al., 2013). Age was also cited as a barrier in a study by Bonuck et al. (2014), which showed lower breastfeeding rates among younger mothers.

Parity is often, though not always, closely associated with age, and it is the next barrier to be discussed. Donnan et al. (2013) found that parity, or having had at least one previous live birth, was a significant independent predictor of breastfeeding initiation. A multiparous woman may or may not have previous breastfeeding experience, and this can greatly impact breastfeeding intention and success. Data analyzed from the Feeding Your Baby Cohort Study by Donnan et al. (2013) revealed that parous women with previous breastfeeding experience were most likely to initiate breastfeeding, continue breastfeeding exclusively, and were slowest to discontinue breastfeeding. In contrast, parous women without previous breastfeeding experience were least likely to initiate breastfeeding (20%) and only 5% continued to breastfeed at 16 weeks. Parity was not a strong predictor of breastfeeding cessation (Donnan et al. 2013).

Additionally, many social factors can act as breastfeeding barriers. Bonuck et al. (2014) found substantial disparities in breastfeeding rates based on socioeconomic status, specifically among non-Hispanic Black, younger, and less-educated mothers. Donnan et al. (2013) found

that living with a husband or partner was an independent predictor of breastfeeding initiation. Haroon et al. (2013) cited a lack of breastfeeding knowledge and confidence as key reasons among mothers for less than optimum breastfeeding duration. Working outside the home was also found to be a barrier and common reason for premature weaning from the breast (Haroon et al., 2013).

The next breastfeeding barrier to be discussed is the lack of intention to breastfeed. A study performed by Donnan et al. (2013) used a Theory of Planned Behavior- based questionnaire prenatally to measure the participants' intention to breastfeed. The study found that greater intention to breastfeed was a significant independent predictor of breastfeeding initiation. Furthermore, women with higher intention scores achieved much greater breastfeeding duration than those with lower intention scores. Breastfeeding intention was also associated with a lower risk of stopping "exclusive" or "any" breastfeeding, with a 29% and 43% lower risk respectively (Donnan et al., 2013).

The final group of breastfeeding barriers to be addressed is multifaceted and will be classified as "mechanical barriers". The first of the mechanical breastfeeding barriers is lactational, dealing with a low-supply or the perception of a low-supply of breast milk. In a study by Teich, Barnett, and Bonuck (2013), insufficient milk supply in the first few days postpartum was the most commonly reported breastfeeding barrier. Many women in the study reported that low-supply was the reason they introduced formula. Haroon et al. (2013) cites perception of insufficient milk supply as a common cause of early breastfeeding cessation. Wagner, Chantry, Dewey, and Nommsen-Rivers (2013) found that 47% of mothers cited pain while breastfeeding as the most prevalent concern at day seven postpartum. In this study, the greatest factor attributed to breastfeeding cessation by 60 days was infant feeding difficulty

concerns and milk quantity concerns (Wagner, Chantry, Dewey, & Nommsen-Rivers, 2013). In a study by Haughton, Gregorio, and Perez-Escamilla (2010), sore nipples and pain were more likely to be cited as reasons for breastfeeding cessation before 6 months. Problems initiating or maintaining a good latch were cited as barriers by Teich, Barnett, and Dewey (2013), as well as Wagner, Chantry, Dewey, and Nommsen-Rivers (2013). Additional barriers included nipple confusion, positioning difficulties, and infant fussiness/frustration at the breast (Wagner, Chantry, Dewey, & Nommsen-Rivers, 2013).

**Breastfeeding interventions.** Currently, the most prominent set of breastfeeding interventions is the Baby-Friendly Hospital Initiative, constructed by the WHO and UNICEF. This initiative contains the Ten Steps to Successful Breastfeeding that must be implemented for a hospital to achieve "Baby-Friendly" status. The Ten Steps to Successful Breastfeeding provide that every facility providing maternity services and care for newborns should: have a written policy about breastfeeding that is routinely discussed with health care staff, train all health care staff in the skills necessary to implement this policy, inform all pregnant women about the benefits of breastfeeding, help mothers initiate breastfeeding within 30 minutes after birth, show mothers how to breastfeed and maintain lactation even if they are separated from their infant, give infants no food or drink other than breast milk (unless medically indicated), practice rooming-in 24 hours a day, encourage breastfeeding on demand, give no artificial nipples or pacifiers to breastfeeding infants, establish breastfeeding support groups and refer mothers to these groups upon discharge (Labbok, Taylor, & Nickel, 2013). Several of the studies in this literature review used various interventions from the Ten Steps to discover if they are effective in improving breastfeeding initiation, duration, and exclusivity.

Lactation consultants are almost synonymous with breastfeeding promotion and intervention. Several studies in this literature review examined breastfeeding interventions that involved various aspects of lactation consultation, with or without additional interventions. In a study by Pannu et al. (2011), the researchers compared individual consultation on breastfeeding and infant positioning with group consultation and breastfeeding promotion pamphlets. Bonuck, et al. (2014) conducted two separate randomized controlled trials. The first study compared outcomes with usual care versus electronically prompted anticipatory breastfeeding guidance and pre- and postnatal visits with a lactation consultant. The second study compared usual care, electronically prompted guidance alone, lactation consult visits alone, or both lactation consult visits and electronically prompted guidance combined. In a separate qualitative study, Andaya, Bonuck, Barnett, and Lischewski (2012) examined women's perceptions and reported effects of the breastfeeding interventions used in the aforementioned randomized controlled trials by Bonuck et al. (2014). Researchers Paul et al. (2012) conducted a randomized controlled trial that compared breastfeeding rates between standard office-based postpartum care versus home nursing visits at 2 days postpartum.

Haroon et al. (2013) conducted a systematic review that looked at exclusive, partial, and non-breastfeeding rates in response to individual counseling, group counseling, or a combination of both. The results were broken down into subgroups that looked at breastfeeding rates at day one, less than one month, and months 1-5 postpartum. Reeder et al. (2014) conducted a randomized controlled trial that analyzed the effects of telephone peer counseling on exclusive and non-exclusive breastfeeding among WIC clients. Participants were randomized to either receive no peer counseling, 4 telephone contacts, or 8 telephone contacts. Fu et al. (2014) implemented a multicenter cluster randomized controlled trial with three arms: standard

maternity care, standard care plus three in-hospital professional breastfeeding support sessions of 30-45 minutes, or standard care plus weekly post-discharge breastfeeding telephone support of 20-30 minutes for four weeks. The aim of the trial was to evaluate the presence of any breastfeeding and exclusive breastfeeding at one, three, and six months postpartum.

Finally, researchers Hawkins, Stern, and Gillman (2013) took a look at how laws promoting breastfeeding impact breastfeeding initiation and duration. The researchers used models to analyze breastfeeding status before and after the institution of breastfeeding laws in 32 states.

**Overcoming barriers with breastfeeding interventions.** As previously identified, there are numerous barriers present that may hinder successful breastfeeding. This portion of the literature review will evaluate the effectiveness of the aforementioned breastfeeding interventions and discuss how they can be used to overcome breastfeeding barriers.

The Ten Steps to Successful Breastfeeding, implemented by facilities as part of the Baby-Friendly Hospital Initiative, contain several effective tools that can help overcome breastfeeding barriers. Tarrant et al. (2011) examined the effects of six Baby-Friendly practices implemented in four public Hong Kong hospitals that did not yet have the Baby-Friendly distinction. These practices included the following: breastfeeding initiation within 1 hour after birth, breastfeeding on demand, rooming-in, exclusive breastfeeding while in the hospital, no pacifiers or artificial nipples, and information on breastfeeding support provided upon hospital discharge. Tarrant et al. (2011) found that exposure to Baby-Friendly practices provided substantial protection against early breastfeeding cessation. Mothers who experienced one or fewer Baby-Friendly practices were almost three times more likely to discontinue breastfeeding. Exclusive breastfeeding while

in the hospital showed a protective effect against early weaning, which was statistically significant (Tarrant et al., 2011).

The use of lactation consultation is a common breastfeeding intervention. Pannu et al. (2011) found that mothers who took part in an individual breastfeeding consultation with a healthcare staff member in the antenatal period were about 55% less likely to discontinue fully breastfeeding by six months and 50% less likely to discontinue *any* breastfeeding before twelve months. Bonuck et al. (2014) conducted two separate randomized controlled trials: BINGO and PAIRINGS. In BINGO, any breastfeeding and exclusive breastfeeding rates at three and six months were highest for the lactation consultation (LC) only and the lactation consultation plus electronically prompted guidance (LC + EP) groups as compared to the standard care group. The PAIRINGS treatment group (LC + EP) had significantly higher rates of any breastfeeding at one, three, and six months, and of exclusive breastfeeding at one and three months. Electronically prompted guidance alone did not differ from usual care on any outcome. In PAIRINGS, the odds of exclusive breastfeeding at three months were nearly three-fold higher in the intervention group than in the usual care group. Breastfeeding intensity was also greater at one and three months in the PAIRINGS intervention group. Women randomized to an intervention that included lactation consultation were less likely to wean by 6 months than women randomized to a non-lactation consultation intervention. Both the BINGO and PAIRINGS trials were conducted in an urban, primarily low income, and ethnically diverse setting and included many younger and primiparous mothers (Bonuck et al., 2014). Andaya, Bonuck, Barnett, and Lischewski-Goel (2012) conducted a qualitative study using participants of the BINGO and PAIRINGS trials. Key findings included that LC's helped overcome breastfeeding barriers, and that the LC and EP interventions were complementary (2012). Finally, in a randomized

controlled trial by Paul et al. (2012) that compared breastfeeding rates between women receiving home nursing visits and standard office visits, the home nursing visit group was found to have significantly higher rates of breastfeeding at two weeks and two months postpartum. However, the intervention had no effect on breastfeeding at six months postpartum.

Another frequently implemented intervention seen in the literature was individual counseling, group counseling, or a combination of both. This type of support may take place in person or over the phone. Researchers Haroon et al. (2013) compared exclusive, partial, and non-breastfeeding rates between women receiving individual counseling, combined individual and group counseling, or group counseling alone. Overall, statistically significant increases in exclusive breastfeeding rates as a result of any breastfeeding intervention were seen, with increases of 43% at day one, 30% at one month, and 90% in months 1-5. Rates of "no breastfeeding" were also reduced by 32% at one day, 30% at one month, and 18% at 1-5 months (Haroon et al., 2013). Reeder et al. (2014) found that nonexclusive breastfeeding duration was greater at three months postpartum for the women receiving telephone peer support versus women in the control group, and greater at six months postpartum for only Spanish participants receiving the intervention. Breastfeeding rates did not differ among those in low-frequency versus high-frequency treatment groups (Reeder et al., 2014). Fu et al. (2014) found that early implementation of professional breastfeeding support via telephone significantly increased the rates of any breastfeeding and exclusive breastfeeding in the early postnatal period through the first month postpartum. The telephone interventions also increased overall breastfeeding duration through the first six months (Fu et al., 2014).

Recent implementation of state breastfeeding laws were examined by Hawkins, Stern, and Gillman (2012). The researchers found that breastfeeding rates were 1.7 percent higher in

states with breastfeeding laws that provided for private space and break time for breastfeeding employees. Most of these gains were among Hispanic and Black mothers, suggesting that breastfeeding laws may help to reduce disparities.

### Limitations

Several limitations were identified throughout the course of the literature review. While several of the studies discussed were large, randomized controlled trials, a few studies had a relatively small sample size. Two of the studies that examined Baby-Friendly Hospital Initiatives actually took place in hospitals that had not yet received the BFHI accreditation. This was actually planned by the researchers, but it could skew the results since the hospital staff was not completely familiar with the BFHI practices. Self-selection bias must be considered for several of the studies, due to the fact that women who already intended to breastfeed would be more likely to enroll. In many of the studies, there was no way to measure the quality of the breastfeeding interventions provided. Blinding of study participants or those implementing breastfeeding interventions is impossible in this type of research and has the potential to lead to bias. At the review level, the specific key words used to search for articles and the process of article selection may have been influenced by the author's preconceived ideas about the success of breastfeeding interventions.

## Conclusion

The benefits of breastfeeding, for both infant and mother, are numerous and well-established. Benefits include improved physical, intellectual, community and economic outcomes. The benefits are so overwhelming, the WHO, UNICEF, Healthy People 2020, and the AAP have published recommendations for exclusive breastfeeding until age six months and

continuation for up to a year or more if mutually desired by the mother and infant. Unfortunately, there is a disconnect between these evidence-based recommendations and the actual initiation, exclusivity, and duration of breastfeeding. Several barriers to breastfeeding were identified, including younger age, primiparity, no intention to breastfeed, lower socioeconomic status, less education, working outside the home, no previous breastfeeding experience, perception of insufficient milk supply, latching difficulties, sore nipples and fussy baby/refusing the breast. Breastfeeding interventions found in the literature included: the BFHI Ten Steps to Successful Breastfeeding, lactation consultation, electronically prompted anticipatory guidance, individual and group counseling, professional telephone support, telephone peer counseling, and state breastfeeding laws. Almost all of the interventions were shown to provide at least a modest improvement in breastfeeding rates; however, some interventions were found to significantly increase the initiation, exclusivity, and/or duration of breastfeeding. Exposure to the BFHI Ten Steps increased breastfeeding rates in a dose-dependent manner. Lactation consultation was one of the most beneficial interventions, and was shown to help overcome multiple barriers such as latch and milk supply issues, lack of previous breastfeeding experience, primiparity, and younger age. Lactation consultation paired with electronically prompted anticipatory guidance improved breastfeeding initiation, exclusivity, and duration in an urban, low income, ethnically diverse setting.

Additional research is needed to discover which interventions are most successful at overcoming specific breastfeeding barriers. Nurse practitioners can be instrumental in bridging the gap between breastfeeding recommendations and implementation of breastfeeding interventions. Nurse practitioners working in women's health, pediatrics, and general family medicine can make a difference. The provider should identify and discuss potential barriers with

the patient, and make recommendations for appropriate interventions. The antenatal period is a very effective time to start implementing breastfeeding education to improve outcomes. With continued efforts, we as nurse practitioners can begin to improve breastfeeding initiation, exclusivity, and duration in order to meet goals and improve the health of women and children.

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