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Improving Breastfeeding Knowledge of Staff Nurses

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Walden University

College of Health Sciences

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Patience Mbonifor

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Walden University
2017

Abstract

Improving Breastfeeding Knowledge of Staff Nurses

by

Patience S. Mbonifor

MSN, Walden University, 2009

BSN, Bethel University, 2006

Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2017

Abstract

The World Health Organization advocates that newborn babies require exclusive breastfeeding until 6 months of age to attain a desired level of growth. Despite this recommendation, exclusive breastfeeding rates continue to be at low levels globally. The purpose of this DNP project was to examine best practices for increasing the breastfeeding knowledge of health care workers, and to understand how breastfeeding is promoted in different healthcare systems. The Critical Appraisal Checklist and the Cochrane Handbook for Systematic Reviews framed this systematic literature review. Additionally, Melnyk's levels of evidence was used to evaluate each article. Articles for inclusion were limited to adults over the age of 18, nurses as providers, and literature published in English between 2012 and 2017. Keywords used in the literature search included *breastfeeding promotion*, *breastfeeding support*, *breastfeeding outcomes*, and *breastfeeding education*. The search identified 159 articles, of which 40 were selected for the final review. Twenty-two articles met the criteria for levels V-VI (qualitative), 11 met the criteria for levels III-IV (case control or cohort), 1 met the criteria for level II (randomized control trials), and 6 were level 1 (systematic review). The analysis of evidence demonstrated the importance of exclusive breastfeeding and led to the development of breastfeeding education recommendations. The recommendations will be presented to the organization and will provide nurses with the tools to support breastfeeding education. Application of the findings may lead to social change because new mothers will receive enhanced breastfeeding information, which will result in higher rates of breastfeeding of newborns and increased benefits for both infants and mothers.

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Dedication

I dedicate this project to God almighty who is my creator and on whom I leaned as I soared through this program. He has been my source of inspiration and wisdom as I stand on his pillar. I dedicate this to my children Clyde, Kishana, and Austin. You all reminded me to follow my dream despite all odds and never complain as I pursue this quest. My love for you all cannot be quantified and I pray God grants all your heart desires. The world is yours to conquer. Go out and make a positive difference in the lives of others.

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follow your steps. You saw this doctorate degree fifty-one years ago. You've always

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Section 1: Nature of the Project

Introduction

There is a great deal of literature regarding the benefits of breastfeeding. The comfort theory approach incorporates a baby-friendly hospital innovation as part of a holistic approach to nursing. Hospitals often refer to best practices guidelines when articulating their mission and vision of care. However, studies indicate that despite this rhetoric, some hospitals have not demonstrated the flexibility needed to inculcate changes that create effective messaging between nurses and breastfeeding mothers. According to Scott et al. (2006), the knowledge-to-action process model provides a structure for the development and application of best practices guidelines. Knowledge is gained through a constant desire to understand either a current or potential concern. Being able to research information, identifying the advantages and disadvantages of that information, and implementing the knowledge acquired to effect change makes for a great organization. When nurses ascertain and execute strategies to enhance recently acquired skills and supervise and evaluate variations in their awareness or perspectives, their practice positively impacts healthcare outcomes (Graham et al., 2006). Sustainable knowledge is acquired when this practice is ongoing. According to Rogers (2003), sustainable practices entail the standardization of new practices that are completely inculcated into routine undertakings.

Breastfeeding education intervention is considered a win-win situation for nurses, mothers, and infants. As part of best practice, nursing education should include training and implementation of coherent and tailored messaging to expectant and lactating

mothers (Watkins & Dodgson, 2010). However, many nurses are ill-equipped with effective breastfeeding administration strategies for mothers of newborn babies, leading to personal acquisition of information that is hardly reliable (Watkins & Dodgson, 2010). Studies have indicated adequate breastfeeding intervention strategies for nurses are few and far between, and researchers have made the argument for a more comprehensive implementation of breastfeeding education interventions for nurses.

According to the U.S. Department of Health and Human Services (DHHS) Healthy People 2010 goals, the baseline breastfeeding objectives are: to increase the number of women initiating breastfeeding to 75%, and to increase duration rates of breastfeeding at both 6 months (50%) and 12 months (25%; McGuire, (2011). Additionally, Healthy People 2010's Midcourse Review published in December 2006 included two new goals for breastfeeding exclusivity at 3 months (60%) and 6 months (25%). As cited in the Surgeon General's Call to Action (2011), breastfeeding rates are at the lowest among new mothers from poor and black backgrounds, but the Surgeon General stressed that economics and ethnicity are not the only impediments to breastfeeding benefits (Bryant, 2014). Other contributing factors to breastfeeding decline include: inadequate family support, substandard educational levels, long-term health issues, formula marketing promotions, and work-related obstacles (Bryant, 2014). Inadequate and/or unsuccessful public breastfeeding education and support present significant obstacles to continuous and exclusive lactation benefits. To underscore this contention, the organizers of the 2013 World Breastfeeding Week emphasized the alarming decrease in breastfeeding rates after hospital release and stressed the necessity

for a well-established public support system to avert such a consequential reduction (Bryant, 2014).

As I have noted, without supplemental education for nurses, including revised hospital breastfeeding guidelines, many hospitals will not be able to attain the Healthy People 2020 objectives for lactation initiation, duration, and exclusivity (Weddig, 2011). Breastfeeding is very effective in protecting the health of infants. Moreover, the Surgeon General emphasized that vital support from healthcare providers can develop into a “lifeline for mothers with breastfeeding questions and issues” (DHHS, 2011, p.45). Nurses who have received substantial breastfeeding education could enhance and promote competent breastfeeding practices, an important strategy for promoting health and wellbeing for both mother and child (Utoo et al., 2012).

The importance of breastfeeding babies has been identified by health professionals as an effective component in the development of healthy babies. Mothers are often faced with various breastfeeding challenges such as an inadequate understanding of breastfeeding benefits, and the inability to recognize the risks correlated with improper technique. The impact of this lack of knowledge may result in major sleep loss, which may also affect how mothers care for their other children (Mellin, Poplawski, Gole & Mass, 2011). Utoo et al. (2012) indicated that breastfeeding mothers expressed concerns that they were inadequately counseled by nurses about the impact of breast milk and its significant benefits to mother and child. Being the bearer of the essential responsibilities for the new-born resulted in mothers experiencing a sense of helplessness, inadequacy, remorse, failure, fatigue, uncertainty, irritation and bitterness. Utoo et al.

argued that there is a need for better breastfeeding education interventions for nurses to assist mothers in becoming empowered with the right tools to make informed decisions about the benefits of breastfeeding. Even when mothers understand the benefits of breastfeeding, there are multiple other issues that interrupt breastfeeding including sleep deprivation, lack of knowledge about breast feeding, and conflicting information given to patients by nurses. To resolve this dilemma stemming from a lack of education, supplemental educational tools for nurses are necessary to attain the Healthy People 2020 objectives for breastfeeding initiation, duration, and exclusivity (Weddig, 2011). It is imperative to explore the experiences of nurses who provide the day-to-day delivery of care to breastfeeding mothers in order to understand their perspectives on how they educate mothers on the benefits of breastfeeding.

Problem Statement

The effectiveness of nurses' promotion of educational intervention on breastfeeding mothers and new born babies. The ability of mothers to effectively breastfeed babies is lacking in many countries. Academic and clinical literature has shown the benefits of breastfeeding promotion. Some studies have indicated helpful outcomes while others have shown a lack of consistency with messaging by nurses. A few have addressed the socioeconomic outlook of the mothers. It is imperative to identify, develop, and implement a broad-based, sustainable, and adequately-balanced strategy that enhances the nurses' ability to deliver a more effective message about breastfeeding to mothers.

As noted in the Surgeon General's Call to Action (2011), rates of breastfeeding are lowest among new mothers from low socioeconomic backgrounds, including African Americans. He also stressed that economics and ethnicity are not the only impediments to breastfeeding rates. According to the Center for Disease Control and Prevention, breastfeeding rates improved nationwide in 2000-2008, and some of the greatest improvements were among African American women. Yet, only 59% of African American mothers breastfed in 2008, compared to 75% of white and 80% of Hispanic mothers (Currie, 2013). According to the DHHS (2011), other contributing factors to breastfeeding decline included family members not assisting the breastfeeding mother. Some working mothers find resuming work and the absence of maternity leave to be considerable impediments to breastfeeding. Utoo et al. (2012) found that breastfeeding mothers stated that nurses were unaccommodating and offered limited breastfeeding assistance while providing services to mothers and babies because of their lack of education. Moreover, breastfeeding mothers were dissatisfied with nurses' explanations of the benefits of breastfeeding. According to The World Health Organization (2013), there is an alarming decrease in breastfeeding rates after hospital release and thus a need for a well-established public support system to reverse such consequential reduction.

Purpose Statement and Project Objectives

The purpose of this DNP project was to examine best practices for increasing the breastfeeding knowledge of health care workers, to explore barriers that exist among women from different cultures, to understand how breastfeeding is promoted in different health care systems, and to recommend tools for nurses to promote and enhance

breastfeeding education for new mothers in local hospitals. I sought to understand cost-efficient and effective strategies that would enhance nurses' knowledge and skills in supporting breastfeeding. According to Cianelli et al. (2014), nurses who are trained in promoting, supporting, and protecting breastfeeding in hospitals are equipped with the ability to enhance the "breast-feeding initiation rates during the hospital stay, breast milk feedings in critically ill infants, and breastfeeding duration rates post discharge" (p. 2). The outcome of this project underscores the use of evidence-based practice in increasing breastfeeding knowledge and attitudes of nurses to give them the knowledge and confidence to educate new mothers on the benefits of breastfeeding. The project objectives included completing a systematic literature review outline using the *Cochrane Systematic Review Handbook* (Higgins & Green, 2011), and using Melynyk's 2011 levels of evidence to evaluate and validate the effectiveness of the evidence. Finally, in this project I have highlighted best practices and provided tools with recommendations for breastfeeding education for nurses in a local hospital.

Project Question

The question for this project was: What are the best practices for breastfeeding education? I used the current literature to identify and make recommendations regarding best practices for breast feeding education.

Significance of the Project

Hospitals that practice and promote a holistic approach to care should embrace a system that encourages a baby-friendly hospital innovation. A sustainable vision would incorporate essential elements of the system for breastfeeding enhancement

reinforcement interventions (Hannula et al., 2008). Such a system would greatly benefit all of the stakeholders involved in this process from the nurses who would be more knowledgeable and could deliver a more universally effective message, to the mothers who would be equipped with adequate tools for breastfeeding, to the babies connecting with mothers and receiving balanced nutrition through breastfeeding, to the organization/hospital living up to its reputation of providing a holistic approach to care (Hannula et al., 2008). One of the most effective measures a mother can take to protect the health of her infant is to breastfeed, and active support from healthcare providers can greatly improve the success rate among mothers who want to breastfeed (USDHHS, 2011 p. 23). The Surgeon General contends that vital support from healthcare providers can develop into a “lifeline for mothers with breastfeeding questions and concerns” (DHHS, 2011, p. 45).

Given that breastfeeding initiation rates can be significantly increased with proper education and support, it is imperative for nurses, especially those working in birth centers, to be equipped with the abilities to provide adequate counseling to mothers (DHHS, 2011; Utoo et al., 2012). Nurses’ breastfeeding education and intervention trainings can help mothers maximize the benefits of breastfeeding and maternal self-reliance. This education can be especially helpful to those in the highly susceptible postpartum period. Enhanced maternal self-reliance can result in prolonged and exclusive breastfeeding rates (Bryant, 2014).

Gaps in Practice

The specific problem in this practice is that there is a need for interventions to

increase the initiation and exclusivity of breastfeeding for immediate postpartum hospitalized mothers. Inadequate and/or unsuccessful public breastfeeding education and support presents significant obstacles to continuous and exclusive lactation benefits.

Given the fact that breastfeeding initiation rates can be significantly increased with proper education interventions regarding the benefits for mothers and newborn babies in hospital settings prior to and upon the birth of a child, it is imperative for nurses, especially those working in birth centers, to be equipped with the skills and abilities to provide adequate counseling to these mothers. Providing all nurses with adequate breastfeeding education intervention tools to help mothers, especially during the highly susceptible postpartum period, could maximize breastfeeding advancements by virtue of enhancing maternal self-reliance (Bryant, 2014). Such enhanced self-reliance can result in prolonged and exclusive breastfeeding rates as well as improved newborn and maternal results.

In order to close the gap resulting from the conflicting breastfeeding information given to breastfeeding mothers postpartum, I sought to identify best practices in breastfeeding education for staff nurses that will inform the development of a future breastfeeding education tool. I did this by reviewing scholarly articles on breastfeeding staff development and determining the reliability and validity of evidence in this literature. In the studies I reviewed, researchers addressed proper strategies, modeling the Healthy People 2020 goals established for “breastfeeding initiation, duration, and exclusivity” (Weddig, 2011, p. 1).

Social Change

As noted by Perrella et al. (2012), researchers have identified breast milk as the most adequate food for a newborn by health specialists and scientists globally. Breast milk is unique because it is naturally created to accommodate every child's nutritional and immunological needs, and contains disease-fighting antibodies that bolster the immune functioning that could potentially reduce exposure to allergies, asthma, respiratory diseases, childhood leukemia, lymphoma, and Hodgkin's disease. Additional benefits of breastfeeding newborns include lower exposure to ear infections, gastrointestinal tract infections, asthma, eczema, and a multitude of other serious and recurring diseases (Bryant, 2014). In my systematic literature review, I found that breastfeeding could reduce a baby's exposure to sudden infant death syndrome (SIDS), and that it has a correlation with lowering exposure to obesity as well as type 1 & 2 diabetes (Nabulsi et al., 2014). Breast milk contains analgesic properties that could potentially be valuable in the course of illnesses. Breastfeeding has been associated with enhancing cognitive development, and preterm babies are also linked with reduced exposure to necrotizing enterocolitis when breastfed (Gartner et al., 2005). Assuming that 90% of the population exclusively breastfeed for the endorsed 6 months, there would be an estimated \$13 billion in healthcare savings each year (Bartick & Reinhold, 2010).

Research also has indicated that there are health benefits to breastfeeding mothers. These include lower exposure to pre-menopausal breast and ovarian cancer, type 2 diabetes, osteoporosis, and postpartum depression (Bryant, 2014). Additionally, studies

have shown a possible correlation between breastfeeding and lower exposure to cardiovascular diseases (Nabulsi et al., 2014).

The benefits of breastfeeding have and continues to gain prominence. The healthcare industry has increased its breastfeeding promotion effort. Among some of the leading national and global organizations aggressively pushing for breastfeeding initiation, support, and enhancement are the World Health Organization (WHO, 2013), United Nations International Children's Emergency Fund (UNICEF, 2013), The Centers for Disease Control and Prevention (CDC, 2013), and the American Academy of Pediatrics Section on Breastfeeding (AAP, 2008).

Surgeon General Benjamin (2011) stated that lactation is the most adequate strategy to guarantee health improvements for both a mother and her child. The success rate among mothers who want to breastfeed can be greatly improved by raising awareness and providing support. Moreover, the Patient Protection and Affordable Care Act implemented on August 1, 2012 requires health insurance plans to cover various preventive services such as breastfeeding support, supplies, and counseling services (United States Breastfeeding Committee, 2013). New modifications in the Medicaid reimbursement policies have also encouraged state programs as well as hospital organizations to emphasize the enhancement of exclusive breastfeeding rates (Rhode Island Department of Health, 2013).

Definition of Terms

Exclusive breastfeeding: When a child receives only breast milk from their mother, or expressed breast milk (Webb, Marks, Lund-Adams, & Abraham, 2002). There

are a variety of established links between “exclusive breastfeeding and breastfeeding initiation and duration; socio-demographic factors (education level, urban vs rural residence, monthly household income and parity); biosocial factors (breastfeeding support); cultural factors (beliefs, norms and attitudes towards breastfeeding) and employment policies” (Tan, 2011, p. 3-7).

Breastfeeding initiation: Any breastfeeding either upon delivery or a maximum of 2 weeks after delivery. (Chung, Raman, Trikalinos, Lau, & Ip. 2008).

Breastfeeding duration -: length of time breast fed. For example, from 1 to 3 months (short-term), 4 to 5 months (intermediate-term), 6 to 8 month (long-term), and 9 months and above (extended). A breastfeeding period of less than 1 month is considered “no breastfeeding” (Chung, et al., 2008).

Prenatal breastfeeding education: Breastfeeding information that is communicated during pregnancy and can be done on an individual or group level, and in home, peer education, or clinical settings, with the goal of furnishing breastfeeding awareness. The education tends to be defined, specific, explanatory and goal-oriented with a clear-cut intent and targeted audience (Lumbiganon et al., 2012).

Breastfeeding support: Breastfeeding support is personalized based on the needs of an individual or group by an organization using various approaches. It could entail psychological support (acknowledging and reassuring the mother), physical support (furnishing meals, assisting with other children, house duties), and financial support. Breastfeeding support normally begins during the postnatal period (Lumbiganon et al., 2012).

Empowerment: A social practice through which people achieve mastery over their lives and their neighborhood. Mothers of newborns embrace greater power by gaining greater awareness about breastfeeding practices (Giglia, & Binns, 2011).

Participation: Commitment of new mothers as members of the breastfeeding team and as equal participants in the nourishment of the baby. Newborn mothers develop leadership skills, knowledge, and resources through their involvement (Giglia, & Binns, 2011).

Interventions: Every category of intervention that tackles breastfeeding or feeding with breast milk in a birth center or after discharge. The knowledge and skills acquired by nurses to educate and empower mothers of newborn babies.

Outcomes: The primary outcomes in this study included: established benchmarks for breastfeeding and breast milk feeding. The secondary outcomes entailed clinical and health procedures, and psychosocial and cost-effectiveness outcomes (Renfrew et al., 2010).

Evidence-based practice: A methodical technique to problem solving for health care professionals, including RNs, that includes the use of the best evidence currently accessible in clinical practice, and that furnishes the most reliable and effective care to patients (Pravikoff, Tanner, & Pierce, 2005). Evidence-based practice is an important tool for nurses in filling the gaps in their knowledge and abilities.

Counseling: An action where the counselor is listening and helping the mother to decide the best solution in her situation. Counseling is similar to advice, but entails more

interactive and emphatic behavior (WHO, 2004). Related concepts are guidance, education, and training.

Breastfeeding counseling: Counseling regarding breastfeeding management and potential problem resolution. This includes interacting with the mother, observing and assessing the mother's and infant's situation, and determining what actions will best support a breastfeeding mother and her child (WHO, 2004; WHO, 2006).

Assumptions and Limitations

An assumption of this project is that sufficient literature exists to inform the development of a breast-feeding education module for staff nurses. Furthering that a nurse who is knowledgeable about the benefits of effective breastfeeding education for lactating mothers will have a sustained competency in their professional role as an educator, provider, and client advocate. Another assumption is that nurses will be able to support breastfeeding mothers, families, and communities in accomplishing and sustaining complete health and wellness. As an important aspect of their profession, an assumption is that nurses can be ethically responsible for breastfeeding mothers, babies and families in the education on health promotion, risk reduction, dealing with illnesses, and disease prevention, based on evidence based practice.

One limitation is, sociopolitical, sociocultural, and economic barriers. Some health issues can impede or slow the implementation process. An example is the extent to which the project gets a buy-in from all of the stakeholders involved. Hospital birth centers seeking Baby Friendly Hospital Certifications status, as part of the certification process exclusively breastfeed numbers is an integral part of the process. Societal norms

regarding breastfeeding, socioeconomic backgrounds of nurses, the resilience and discernibility of branding/rebranding strategies by the baby formula industry, makes it difficult to convince parents that exclusive breastfeeding of a baby is vital for their health (Semenic, Childerhose, Lauziere, & Grouleu, 2012).

Summary

This systematic review of literature shows that breastfeeding provides significant health advantages for both newborn babies and their mothers. The persistent issue is the lack of adequate breastfeeding inception and duration training for nurses. Nurses are at a position to provide adequate information in regard to helping breastfeeding mothers make informed decisions on appropriate lactating initiation and duration. The project will support the development of educational tools for nurses to be well equipped to address this pressing need for effective breastfeeding intervention and education of new mothers on the benefits of breastfeeding.

Section 2: Background and Context

Introduction

According to Watkins & Dodgson (2010), breastfeeding is of global importance and is backed by prominent health organizations such as the WHO, UNICEF, AAP, and the Academy of Breastfeeding Medicine Board of Directors (2008), who advocate for a 6-month lactating period. The health-related advantages of breastfeeding include the prevention of middle ear infection (otitis media), respiratory infections, diabetes type 1 and type 2, decreased postpartum bleeding, and decreases in some reproductive cancers in the mother, and economic benefits for the community, family, and environment (Ip et al., 2008). However, regardless of these obvious advantages, there continues to be a lack of consistency in messaging by nurses on breastfeeding that can be tailored to any environment dealing with lactating mothers.

A systematic literature review showed the success of various breastfeeding educational interventions among healthcare professionals. Yet there are a limited number of studies that focused on the knowledge and attitudes of nurses towards breastfeeding. Thus, this project fills a gap in nursing practice (see Gomez, 2015). Nurses' increased breastfeeding knowledge is a predictor of breastfeeding mothers' degree of education (Bernaix, 2000). However, there continue to be inconsistencies by some nurses in the delivery of breastfeeding counseling to lactating mothers. Inadequate, inconsistent, and often confusing messages to breastfeeding mothers has consequences. According to the Office of the Surgeon General (CDC, 2011), a study of maternity practices with regards to breastfeeding conducted in 2,687 hospitals and birth centers in the United States

indicated such practices often do not follow evidence-based practices. Despite the development of previous tools to explore nurses' attitudes towards breastfeeding, not enough has been done to ensure nurses' continuous breastfeeding education trainings that would enhance their knowledge and skills in providing effective counseling for breastfeeding mothers. According to Bolling (2007), the conflicting messaging by nurses is compounded by other factors such as painful breasts, sore nipples, apprehensions regarding sufficiency of milk supply, and the baby's attitude, as well as mothers' feeling of humiliation associated with breastfeeding in public.

Source of Evidence

I conducted a preliminary literature search regarding breastfeeding education with a primary focus on peer reviewed journal articles. The databases I used for the search included the Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline/Ovid, Google Scholar, the Cochrane Database of Systematic Review, ProQuest, and PubMed, which I accessed through the Walden University library. I conducted a secondary search to narrow the results with the assistance of Boolean operators. I entered the following keywords and phrases: *breastfeeding promotion, intervention, prenatal setting, nursing practice, breastfeeding support, breastfeeding outcomes, and breastfeeding education.*

Specific Literature

Researchers have conducted studies to determine the success of various breastfeeding educational interventions among healthcare professionals. Yet, in my initial review I identified only a limited number of studies focused on the knowledge and

attitudes of nurses towards breastfeeding. Thus, I determined that this project was needed to further explore this area and help to fill a gap in nursing practice (see Gomez, 2015).

Lumbiganon et al. (2012) conducted a literature review that was aimed at evaluating the effectiveness of prenatal breastfeeding education for increasing breastfeeding initiation and duration. These researchers conducted a search of the Cochrane Pregnancy and Childbirth Group's Trials Register (2010), CENTRAL (**The Cochrane Library**, 2010), MEDLINE (1966 to 2010) and SCOPUS (1985 to 2010). Additionally, they sought expert opinions and conducted an updated search of the Pregnancy and Childbirth Group's Trials Register (2011) in the Anticipated Categorization section of the review (Lumbiganon et al., 2012). The outcome of their literature review indicated the urgent need for a superior randomized controlled study with an effective sample size that is evidence-based to determine the efficiency of breastfeeding education (Lumbiganon et al., 2012).

Mellin, Poplawski, Gole, and Mass (2011) conducted a study to explore whether or not an official breastfeeding education intervention for healthcare providers, consisting of breastfeeding procedures, a resource guide, and instructional demonstrations would bring awareness, gratification, and a respectful mindset to attitudes and practices of breastfeeding (Mellin et al., 2011). This quasi-experimental study entailed a survey gathered that pre-intervention and post-intervention baseline data on a 6-month post breastfeeding education program (Mellin et al., 2011). The study showed how educational projects and consistently following procedure can result in an increase in breastfeeding awareness and attitudes for healthcare providers. Furthermore, the outcome

of the interventions led to an improvement in nurses' understanding of breastfeeding in general, and a reduction in formula supplementation during bedtime.

In Bryant's (2014) study she argued that, in spite of the WHO's endorsement of exclusive breastfeeding for babies during an extended period of 2 years, breastfeeding rates continue to be substandard in many developed countries. The purpose of the project was to increase breastfeeding exclusivity and continuation rates through awareness and support, and to provide a confident breastfeeding experience for the mother and child (Bryant, 2014). Bryant carried out a broad literature review of online databases along with local, state, and federal government websites, hospital websites, and breastfeeding organization websites. Essential search words included the following: *peer counseling, centering pregnancy, baby friendly lactation, lactation consultant, program development theories, infant nutrition, breastfeeding, community lactation support, home visits, and history of breastfeeding* (Bryant, 2014). Bryant's community-based breastfeeding study consisted of four mothers. They each delivered healthy, full-term babies and were released from the hospital on the expected release dates. Of the four participants, three had vaginal deliveries, while one had a caesarian section (Bryant, 2014). The original interview evaluation and the educational strategy were modified for two of the four subjects. Preceding the session, one of the participants gave birth, while another notified the researcher immediately after giving birth. As part of a confidentiality agreement, participants were interviewed in their respective homes, and each took part in the breastfeeding education plan (Bryant, 2014). The outcome of this study confirmed the

benefits outlined in the Surgeon General's Call to Action to Support Breastfeeding (HHS, 2011).

General Literature

According to Wolf (2003), the first public health breastfeeding promotion in the United States was instituted in the early 20th century, as a strategy to reduce infant mortality. In the 1950s, breast feeding was further reduced due capitalism promoting the use of formulas in new born babies as a money-making tactics for the economy. (Bryant, 2014). The vigorous advertisement and promotion of formula companies led to an even larger decrease in breastfeeding (Stevens, Patrick, & Pickler, 2009).

The early 21st century saw a second nationwide public health breastfeeding promotional push (Wolf, 2003). According to Bryant (2014), the American Public Health Association (2013), along with the DHSS (2011), began revising their campaign for action, emphasizing that breastfeeding rates are persistently lower than the Healthy People 2020 (2010) goals in spite of the medical endorsements and health benefits. These low rates are a result of prolonged social, political, racial, geographic, and economic impediments. The significance of breastfeeding during the progression to motherhood has been identified by nurses as an effective component to healthy babies. As Nyström and Öhrling (2004) have noted, "Mothers are often faced with various breastfeeding challenges, like inadequate understanding of exceptional breastfeeding benefits and inability to recognize the risks correlated with improper or refusal to breastfeed" (p. 327). Nyström and Öhrling contended that, during the first year, new mothers are, "living in a new and overwhelming world," and their essential responsibility for the new born results

in mothers' "feelings of powerlessness, insufficiency, guilt, loss, exhaustion, ambivalence, anger, and resentment" (p. 327).

According to Donaldson (1991), given the significant advantages of evidenced-based nursing care, it is essential to have a tangible blend of outcomes from interventions established and tested. The outcome of the author's study indicated new mothers who underwent postnatal interventions were more inquisitive than new mothers without the experiences of an intervention. Furthermore, Donaldson argued that postpartum breastfeeding education is generally ignored in U.S. healthcare system. Nyström and Öhrling (2004) claimed that there is a need for breastfeeding education intervention for nurses, with the goal of empowering mothers with the right tools to make informed decisions about the benefits of breastfeeding.

The benefits of breastfeeding have continued to gain prominence. The world of healthcare has increased its breastfeeding promotion effort. Among some of the leading national and global organizations aggressively pushing for breastfeeding initiation are, the WHO (2013), UNICEF (2013), the CDC (2013), the Surgeon General (2011), AAP (2005), APHA (2113), and the DHHS (2011). In 2011, Surgeon General Benjamin stated in the Call to Action that lactation is the most adequate strategy to guarantee health improvements for the mother and her child. He said, "By raising awareness, the success rate among mothers who want to breastfeed can be greatly improved through active support from their families, their friends and the community" (USDHHS, 2011, p. 45). Moreover, the Patient Protection and Affordable Care Act implemented on August 1, 2012, requires health insurance providers to provide coverage for selected preventative

services including breastfeeding support, supplies, and counseling (United States Breastfeeding Committee, 2013). New modifications in Medicaid reimbursement policies have also encouraged state programs and hospital organizations to emphasize the enhancement of exclusive breastfeeding rates (MN Department of Health, 2013).

Despite numerous studies that promote the benefits of breastfeeding education, few studies have targeted possible barriers to breastfeeding interventions. It is therefore, imperative to acknowledge the barriers and examine them while developing breastfeeding education projects and assessments (Laanterä, Pölkki, & Pietilä, 2011). In a study designed to improve the adoption of breastfeeding and increase the duration to a minimum of 6 months among a group of low-income, Hispanic women through an intervention program, Gill, Reifsnider, and Lucke (2007) found out Hispanic mothers understood the rewards of breastfeeding but distinguished some key issues with regards to breastfeeding. These entailed the feeling of humiliation about breastfeeding in public, inadequate self-assurance, loss of independence, lifestyle limitation, and inadequate support from family and friends (Gill, Reifsnider, Mann, Villarreal, & Tinkle, 2004).

In summary, the literature has shown the significance of breastfeeding to the well-being of state, nation, and globe (Bryant, 2014). Despite persuasive public advertisements and funding attempts, breastfeeding improvement rates remain substandard. Aggressive interventions to enhance a woman's breastfeeding awareness, self-assurance and abilities are fundamental for advancement, and this starts with pre-and post-delivery. Nurses are in a unique position to address this lifelong challenge. Increasing their educational

abilities to provide the most effective counseling to mothers of newborn babies would significantly enhance exclusive and prolonged breastfeeding rates (Weddig, 2011).

Bernaix (2000) has shown that nurses' increased breastfeeding knowledge is a predictor of breastfeeding mothers' degree of breastfeeding education. However, there continues to be inconsistencies by some nurses in the delivery of breastfeeding counseling to lactating mothers. The impact of inadequate, inconsistent, and often confusing messages to breastfeeding mothers has consequences. According to the Office of the Surgeon General (CDC, 2011), a study of maternity practices germane to breastfeeding conducted in 2,687 hospitals and birth centers in the United States indicated such practices often do not follow evidence-based practices. Despite the development of previous tools to explore nurses' attitudes towards breastfeeding, not enough has been done to ensure nurses' continuous breastfeeding education, which can enhance their knowledge in providing effective counseling for breastfeeding mothers.

I determined that a more comprehensive literature review to inform the development of an educational module for nurses would play a significant role in facilitating the initiation, support, and sustenance of breastfeeding for mothers. Nurses play an important role in facilitating genuine patient self-determination, affecting professional awareness, proficiency, and understanding of the mother, thus empowering the mother to express and accomplish exclusive breastfeeding goals (Rafael, 2000).

Concepts, Models, and Theories

Watson's Theory of Human Caring

Watson's (1988) theory of caring is based on the transpersonal facet of caring in human interactions. Watson (1988) characterized her caring strategy as *caritas* nursing, which can be interpreted as bringing caring, loving, and benevolent practice to both the individual and work life (Onyejuruwa, 2014). In the previous decade, theory-guided practice models and caring relationships were acknowledged as the basis for competent nursing (Watson, 2002).

Watson's concept (1988) of health conforms with the WHO's (2013) definition of empowerment to health-promotion of nursing practices that involve assisting an individual in acquiring more self-awareness, self-discipline, accessibility for self-recovery, and transpersonal teaching-learning (Rafael, 2000). Various aspects center on the nurse's role of caring, establishing rapport in elucidating values, and being genuinely present to patients. Self-awareness and being considerate to others is also very important. Having a helping and trusting rapport correlates with protecting and enriching the self-worth of others (Rafael, 2000).

The thoughtful and innovative use of the problem-solving process is coherent with current ideas of health promotion, since as per Watson's (1988) theory, it transpires in the context of a rapport of reciprocity, where the patient's health goals are important and the patient is given a choice for fair involvement in the process (Rafael, 2000). In addition to enlightening the evaluation process, Watson's (1988) theory also educates the nurses on extent and emphasis. According to Rafael (2000), transpersonal teaching and

learning plays a significant role in health awareness, during which nurses are continuously involved.

In alignment with the “Watson’s Philosophy, Science, and Theory of Human Caring as a Conceptual Framework for Guiding Community Health Nursing Practice”, the U.S. Preventive Services Task Force (2005) recommends as a guiding framework for breastfeeding education intervention for nurses. With regard to the mother of a newborn baby, this does not entail information transfer, but an assessment of the significance of breastfeeding for the mother and child and the furnishing of information and enhancement of skills that mothers and nurses ascertain as essential to empowering the mother with the ability to obtain better control for effectively breastfeeding her newborn.

Developing awareness and nursing care comfort levels that correlate with postpartum nursing is essential (Medoff-Cooper et al., 2005). Knowledgeable nurses are in a position to educate breastfeeding mothers on strategies to enhance healthcare effects for babies. A significant goal in providing breastfeeding educational interventions for nurses is to help provide awareness and information for mothers on the advantages of breastfeeding to help lower the amount of avoidable, medical-related diseases or illnesses for babies (Onyejuruwa, 2014). It is projected that future breastfeeding education efforts employed in this organization will enhance nurses’ self-assurance in providing care, lowering the amount of newborn health-related illnesses or diseases and eventually lowering the correlated health care expenditures (Onyejuruwa, 2014).

Summary

This section not only deals with the benefits of breastfeeding, it provides evidenced based studies to support these benefits. This section also presents challenges that have significantly impacted mothers' ability to effectively breastfeed their babies. There were not enough studies identified to address the significant role nurses can play in helping address these challenges mothers and babies face during postpartum while at the hospital. Studies that could determine first the knowledge and attitudes of nurses towards breastfeeding and how this impacts a mother's ability to effectively breastfeed her baby are limited. This project is designed to close the gap by increasing understanding of best practices in breast feeding education and informing the development of a future educational module designed to increase nurses' bedside lactation support thereby increasing breastfeeding mothers' ability to effectively initiate and sustain breastfeeding.

Section 3: Collection and Analysis of Evidence

Introduction

Given the findings in numerous studies on the effectiveness of breastfeeding intervention strategies, it is imperative to devise a broad-based breastfeeding strategy that encompasses a combination of effective strategies such as a continuum of breastfeeding education for nurses, parenting counseling, preventive management, socioeconomic health promotion study, and so on. In addition to providing care for their patients, nurses play a vital role in the administration of breastfeeding support for new mothers. Despite the challenges faced in finding the most effective breastfeeding strategy, having an ongoing breastfeeding educational intervention strategy that has been endorsed by the organization has the tendency to yield very positive outcomes. Without the backing of hospitals, nurses will often find themselves applying intervention strategies that are either self-taught acquired through personal experiences, leading to ineffective forms of communication to breastfeeding mothers. According to Hannula et al. (2008), having the essential elements of the baby-friendly program's 10 steps incorporated into the breastfeeding intervention support for breastfeeding mothers, and considering the personal and socioeconomic background of the mothers, would result in the advancement and greater satisfaction of mothers through reinforcement and sustenance for their self-efficacy and competency awareness, therefore enhance their breastfeeding skills.

The purpose of this DNP project was to conduct a systematic review of the current evidence related to best practices in breastfeeding education, and to provide an overview guide of best practices to the local hospital. Specifically, I sought to understand

more effective strategies that would enhance nurses' knowledge and skills in supporting breastfeeding. I conducted a comprehensive literature review using an evidence-based process review of the literature from 2011 to 2016. I used the following databases for this review: CINAHL, Medline/Ovid, Google Scholar, the Cochrane Database of Systematic Review, ProQuest, and PubMed. In the searches, I used the following search terms to identify relevant articles: *breastfeeding promotion, intervention, prenatal setting, nursing practice, breastfeeding support, breastfeeding outcomes, and breastfeeding education.*

I used a critical appraisal checklist (Melnik & Fineout-Overholt, 2011) to determine the outcome of the project based on the validity, reliability, and applicability of the literature. Melnik and Fineout-Overholt's (2011) evaluation table provided direction for this systematic review. The evaluation table included: the citation, the conceptual framework, the purpose, the design/method, the sample or setting, level of evidence, data analysis, findings, appraisal, and worth to practice.

Inclusion and Exclusion Criteria

I established several inclusion and exclusion criteria for the systematic review process. The inclusion criteria required that the literature I reviewed was published between 2011 and 2016, that the studies in that review involved adults over 18, and that the articles were written in English. I excluded articles that addressed other concomitant illnesses, home births, and non-nurse participants.

Population Sampling

The literature review did not require the participation of a research population.

Purpose and Methods

In this DNP project, I used Melnyk and Fineout-Overholt's (2011) Critical Appraisal checklist. The purpose of the Critical Appraisal Checklist is to empower nurses with the awareness and skills they need to implement evidence based practice (EBP) consistently, slowly, and carefully (Melnyk & Fineout-Overholt, 2011). The Critical Appraisal Checklist is not only meant to determine the weaknesses in a study, but to ascertain its relevance to practice (Melnyk & Fineout-Overholt, 2011). It is important to also note that this checklist followed the rapid critical appraisal (RCA) of each study to ascertain if they were evidence-based, and to determine the effectiveness of how each study was carried out, its relevance and impact to practice, and whether the conclusion from the evidence reviewed helped nurses improve their breastfeeding knowledge and attitudes (Melnyk & Fineout-Overholt, 2011). In addition, I used Melnyk and Fineout-Overholt's (2011) levels of evidence to evaluate the effectiveness of the evidence.

Institutional Review Board Approval

The approval of Walden University's Institutional Review Board (IRB) is of utmost importance before any data collection can be obtained by the student for any project. I initiated this systematic literature review following Walden University IRB approval (# 07-31-17-00065015).

Data Analysis

I appraised data from the Critical Appraisal Checklist using an evaluation table. I identified the reliability and validity of evidence for each scholarly article on breastfeeding education for nurses. The data analysis was based on the evidence from the

Critical Appraisal checklist and Melnyk and Fineout-Overholt's (2011) levels of evidence. I rated each article on breastfeeding education for nurses and then made recommendations based on the results of the ratings.

Summary

I identified and analyzed studies done on breastfeeding intervention outcomes to generate recommendations about a universally sustainable strategy for breastfeeding messaging for nurses that would ultimately benefit all stakeholders involved. I further hoped that the results of this project would help to identify the most effective approach to breastfeeding that would be a best practice fit in the local organization.

Section 4: Findings and Recommendations

Introduction

The purpose of this project was to make it possible for nurses and other health care providers who care for mothers and babies to demonstrate competencies in delivering accurate information and support. Ideally, care providers should be able to relay consistent and supportive messages about breastfeeding. However, not all nurses have the experience or comfort level to educate mothers and those who support them about the benefits of breastfeeding. There has been a push to promote breastfeeding practices by the Baby Friendly Hospital Initiative (BFHI). Some organizations are providing mothers with practical support and information, enabling them to establish and continue breastfeeding their babies for at least 6 months after birth. The purpose of this systematic literature review was to analyze and synthesize best strategies for developing competencies for nurses to promote consistent breastfeeding practices in different hospitals.

The outcomes of this project may contribute to a decrease of inconsistencies in processes and an increased use of innovative strategies to enhance nurses' education on delivering breastfeeding messaging to mothers. The systematic approach of the BFHI has been welcomed by clinicians and mothers alike. The fact that this is a WHO initiative that provides relief for everyone involved has led to overall cooperation and curiosity, and more importantly, stakeholders' willingness to become a part of an evidence-based initiative. The provision of improved breastfeeding assistance to mothers through the BFHI has increased the rate of breastfeeding advancement, safeguarding, and sustenance

(Kim et. al., 2009). A hospital seeking BFHI certification will be very willing to support projects that will bring them closer to their goals.

Search terms and definitions included in this review can be found in Section 3.

The complete list of articles I read are found in Appendix A with a table of headings that include the first author and date the article was published, the aim of the study, the methodology used with applied interventions, the study results, and the level of evidence. The major themes have been captured by the types of studies and the relevant inferences to advance the essence of this project.

Findings

Search Results

My initial literature review for this project yielded 159 articles. Of those articles, 7 were removed because these were duplicated studies, and 110 articles were excluded because of the year of publication. Two were articles initially published in German without translation in English. For the purpose of this systematic literature review, 40 articles met the pre-determined inclusion criteria. In Appendix B, I summarize selected articles with identified review criteria.

Included Studies

I identified three randomized control trials reported in the 40 articles that met the inclusion criteria. In the first randomized controlled study, Cristofalo et al. (2013) compared the duration of parenteral nutrition, growth, and morbidity in extremely premature infants fed exclusive diets of formula versus that of infants fed exclusive diets of human milk. Infants were enrolled from seven neonatal intensive care units (6 in the

US and 1 in Austria). Birth weight (983 vs. 996 g) and gestational age (27.5 vs. 27.7 wk) in BOV and HUM, respectively, were similar. However, there was a significant difference in median parenteral nutrition days, 36 versus 27, in BOV and HUM respectively ($p = .04$). The trial supports the use of an exclusive human milk diet to nourish extremely preterm infants in the neonatal intensive care unit.

In the second randomized controlled study, Maycock et al. (2013) sought to investigate the effects of an antenatal education session and postnatal support targeted to fathers. The study was referred to as The Fathers Infant Feeding Initiative (FIFI Study). A total of 699 couples were randomized from 8 public maternity hospitals to an intervention or a control group. The intervention was a 2-hour antenatal education session and postnatal support provided to fathers. Breastfeeding rate for the intervention group was significantly greater at 6 weeks (81.6%) compared to the 75.2% of the control group. The infants of older fathers were more likely to breastfeed at 6 weeks compared to infants of younger fathers. This article underscored the effect of educating couples as a partnership in promoting breastfeeding education.

The third randomized controlled trial was a study by Laliberte et al., (2016). In it, the researchers evaluated the efficacy, safety, and maternal satisfaction of a newly established integrative postpartum community-based clinic providing comprehensive support for mothers during the first month and after discharge from the hospital. The primary objective was to assess breastfeeding rates, readmission rates, and patient satisfaction. The study conducted in Ottawa, Canada, included 472 mothers from two campuses. Participants were randomized to receive standard care ($n = 157$) or attend the

postpartum breastfeeding intervention between January and July 2014. More mothers in the intervention group were exclusively breastfeeding at 12 weeks compared to mothers in the control group. However, no statistically significant difference was observed. The rate of emergency room visit at 2 weeks for the intervention group was 11.4%, compared to the standard of care group 15.2%. The intervention group was significantly more satisfied with the overall care they received for breastfeeding compared to the control group.

The remaining 37 studies include discussions of the attitudes and perspectives of nurses on breastfeeding (n = 9), the education of mothers and significant others on the benefits of breastfeeding (n = 17) and best practice strategies in baby-friendly hospitals (n = 11). There was one quasi-experimental study by Hawkins, Stern, Baum, and Gilman (2015) using data from five states from 1999 to 2009. The authors evaluated the impact of the BFHI on breastfeeding initiation and duration according to maternal education.

The systematic and critical literature reviews (n = 10) highlighted the overall health benefits of breastfeeding (Salone, Vann, & Dee, 2013; Haroon, Das, Salam, Imdad, & Bhutta (2013), the advantages of a structured program for breastfeeding (Beake et al., 2012), and specific strategies to influence adolescent mothers to breastfeed (Grassley et al., 2013). Five of the studies were longitudinal or retrospective cohort analyses. The longitudinal studies mostly require extensive time and commitment from the study participants. In the retrospective studies, researchers looked for people who had experienced an event or process such as breastfeeding. The studies addressed breastfeeding intention and duration rates (Wang et al., 2013), breastfeeding practices

among women in rural areas and risk of childhood hospitalization, and breastfeeding patterns (Ajetunmobi et al. 2015).

The rest of the studies (n = 22) were combinations of qualitative studies that included focus group discussions, qualitative interviews, questionnaires, surveys, and observational studies to gather data. Researchers generally use surveys and questionnaires to gather data through self-report in order to examine relationships among variables. The common themes of these studies centered on the attitudes and beliefs of health care professional about breastfeeding (n = 5). The knowledge and attitudes of care givers in assisting patients with breastfeeding and the effect of socioeconomic status and knowledge from other sources impacts the decisions of mothers to breastfeed (Kornides & Kitsantas, 2013).

Study Outcomes and Limitations of Included Studies

The benefits of breastfeeding for the new infants and preterm infants were highlighted in many of the studies. In the randomized controlled trial by Cristofalo et al. (2013), birth weight (983 vs. 996 g) and gestational age (27.5 vs. 27.7 wk.) in BOV and HUM, respectively, were similar. There was a significant difference in median parenteral nutrition days, 36 versus 27 in BOV and HUM, respectively (p = .04). This study showed the need for human milk in preterm infants. Salone et al. (2013) purported that when compared with health outcomes among formula fed children, the health advantages associated with breastfeeding are numerous. Ajetunmobi et al. (2015) asserted that within the first 6 months of life, there was greater hospitalization for common childhood illnesses among formula-fed infants and mixed-fed infants compared with infants

exclusively breastfed after adjustments for parental, maternal, and infant health characteristics. These benefits may have been common knowledge to many seasoned nurses who have worked with mothers and babies for many years. However, this literature review revealed that new nurses may not have the confidence to educate mothers on breastfeeding as compared to their seasoned colleagues.

Gavine et al. (2015) identified the gaps in the knowledge of health care providers in a systematic literature review. The researchers concluded that there is a lack of good evidence on breastfeeding education and training for healthcare staff. There is a critical need for researchers to address breastfeeding education. Mothers who believed that breastfeeding could prevent disease during childhood breastfed for longer than others. Dodgson, Bloomfield, and Choi (2014), evaluated the experiences, attitudes, and perceptions about breastfeeding in health science students. Again, the results showed that graduate students had more positive attitudes and beliefs ($n = 101$; 20.10%) than undergraduates ($n = 403$; 89.9%). Most RNs from undergraduate programs may not be as positive in promoting breastfeeding as compared to their graduate colleagues.

Sigman-Grant and Kim (2016) compared breastfeeding knowledge and attitudes among physicians and nurses. The results showed that physician knowledge did not change significantly. Nurses had significantly higher median baseline knowledge scores about initiation and frequent feeding of infants over a period of time.

The systematic review also revealed that the type of organization and organizational culture play a big role in how breastfeeding competency is prioritized and how care providers educate mother son the importance of breastfeeding. Pérez, Martinez,

& Segura, Pérez (2016) examined the impact of the BFHI package on breastfeeding and child health outcomes. The authors conclude that adherence to BFHI has a positive impact on short-, medium-, and long-term breastfeeding outcomes. Khan and Akram (2013) sought to determine changes in the breastfeeding practices of mothers after receiving counseling on the 10 steps. They found that counseling, under the BFHI improved breastfeeding practices up to 98.97%. Hawkins et al. (2015) evaluated the impact of the BFHI on breastfeeding initiation and duration overall. The authors concluded that breastfeeding initiation increased by 3.8% among mothers with lower education who delivered in BFHI facilities.

Implications

This systematic literature has added to the works of many researchers who have identified the drop-in rates of breastfeeding among new mothers. This review has afforded a comprehensive analysis of some of the root causes that can be used in nurse education to promote breastfeeding not only in orientations to labor and delivery units, but also in the educational pipelines that prepare these nurses to deliver care in health care organizations. The importance of educating nurses to be confident in providing consistent education to new mothers has implications for nursing and for social change. Bareug et al. (2016) asserted that socio-economic inequalities in exclusive breastfeeding were present from beginning and persisted for 5 months. 22% of the most educated mothers exclusively breastfed, compared with 7% of the least educated mothers. Having knowledge of the importance of breastfeeding, might impact breastfeeding rates among

women of lower socio-economic class and prevent babies from frequent admissions to the hospital in their infancy.

Recommendations

The systematic literature review I conducted for this project, I concluded that ensuring adequate screening of nurses' competence is a significant factor in scaling down the inconsistencies in their delivery of breastfeeding education counseling to mothers (see Gavin et al., 2017). The DNP project developed a pre-assessment to determine the current baseline knowledge of nurses and their comfort level in the delivery of education to lactating mothers. The screening process will entail a survey of the nurses at the Birth Center. This systematic literature review will be shared with educators of the Birth Center to incorporate one-to-one meetings with current staff and new nurses after the educators have determined the need for education. The staff's education on breastfeeding should be customized based on the survey. Once the educator has completed the required educational competencies with the seasoned and new nurses, a posttest will be conducted (Appendix C) to ensure the effectiveness of the exercise. I will recommend use of the Maryland Hospital RN Breastfeeding Evaluation Tool (Appendix D). I have established a partnership with the hospital's lactation specialist to reinforce the findings of this review with nurse educators. The Maryland Hospital Breastfeeding Policy Recommendations (2012; see Appendix E) will be recommended to the leadership team to adapt, with proper copyright measures in place, for consistency on how breastfeeding education will be operationalized within the organization. The benefits of breastfeeding are well known;

this systematic review will reinforce the importance of adhering to a standard protocol to ensure nurses' competence and skills on breastfeeding is a priority for hospitals.

Strengths, Limitations and Recommendations for Further Study

A major strength of this systematic literature review is that it adds to a body of knowledge on a well-known phenomenon. In this project, I have used a systematic analysis to critically appraise and synthesize the available literature on the issue of breastfeeding education. Many of the studies proved that when self-efficacy interventions are implemented to improve breastfeeding, hospital practices may need to be optimized (Otsuka et al., 2014).

The randomized control trial studies with large sample sizes have indicated that more education is needed for nursing staff to be more comfortable in educating new mothers. The studies also supported the trend for organizations to gain certification as Baby Friendly Hospitals.

One limitation of the review is that most of the researchers assumed that all mothers are capable of breastfeeding. There were limited references to mothers who may be incapable of breastfeeding due to physical or mental illness.

Another limitation is that a few of the articles were based on qualitative studies where the researchers sent out surveys to gather data and had very small samples sizes; therefore, the results were not viable for generalization. For instance, Asiadu et al. (2015) evaluated the effects of a self-efficacy intervention on breastfeeding self-efficacy and exclusive breastfeeding. The sample size included 14 pregnant African American women and 8 support persons.

Many of the studies were focused on educating mothers. However, the studies that included the fathers in the education proved that mothers were likely to adhere to the plan of breastfeeding when they have the support of their spouses. More research is needed in the role of educating significant others (SO) on the benefits of breastfeeding.

This review did not reveal whether the cultural background and belief system of the care providers influenced their attitudes or perceptions in educating the mothers and their SOs on the importance of breastfeeding. Further research could be done to assist nurses and other healthcare providers in being aware of their own biases on the issue of breastfeeding while interacting with mothers. Another area for future research would be to examine whether male nurses have the same comfort level in educating mothers and teaching them best practice strategies in breastfeeding.

Summary

Nurses' attitudes and behaviors play a significant role in helping or hurting breastfeeding mothers' ability to effectively breastfeed. This involves educating breastfeeding mothers on the scientific and exceptional health advantages of breastfeeding, as well promoting breastfeeding culture and related positive behavior. The WHO and UNICEF highly recommend exclusive breastfeeding for 6 months, and continued breastfeeding until the baby is 2 years old (Spear, 2010). However, multiple factors can be associated with nurses' ability to effectively educate breastfeeding mothers.

These factors include demographics (age or marital status), socioeconomic status, psychological issues (beliefs about breastfeeding), nurses' lack or limited knowledge

about milk expression, unwillingness for further education resulting in lower self-assessed competence in clinical skills, and motivation to educate breastfeeding mothers), self-confidence (Nurses' insecurity in helping mothers who had an inadequate milk supply), personality, or presence of psychological disorders) (Colodro-Conde, et al., 2011). Some nurses might rely on supposition about the woman's capability to breastfeed. In other cases, the practices are not based on evidence and do not support breastfeeding (Laanterä, et al., 2011).

Some nurses' own or SO's' breastfeeding experience was an important source of their knowledge. Though this might help increase their confidence in managing breastfeeding problems, if the nurse's own experience was unsatisfactory, it is difficult to advise others to effectively breastfeed and may lead to a lack of credibility on the nurse's part (Laanterä et al., 2011). A lack of a common approach could lead to conflicting breastfeeding advice among nurses. In some cases, nurses are apprehensive in correcting the incorrect information of colleagues, resulting in confused mothers who are getting different advice from different nurses in the same birth center within a short period of time (Laanterä et al., 2011). Some facilities lack breastfeeding guidelines and in other cases, the nurses lack the ability to follow the guidelines in their practice. Some nurses do not often understand that supporting women is not the same as giving them advice. In one study, some mothers described the guidance as rough, rude, or routine, or felt the guidance to be distant and judgmental (Laanterä et al., 2011).

In this section of the systematic literature review, I have described the keywords and inclusion process to get the final 40 articles I analyzed. Key findings have been

discussed based on the synthesis of the studies, the strengths and limitations have been highlighted with recommendations, and implications and areas for future studies have been identified.

Section 5: Dissemination Plan

The purpose of this project was to determine training needs of nurses in the birth center at my hospital, and to carefully identify gaps in awareness, competency, and attitudes. The full implementation of the recommendations of this project is beyond the scope for this review. However, the results of this systematic review will serve as a body of evidence to support change in how nurses' education on breastfeeding is delivered. Collaboration with the birth center educators to use the screening tool, customize the nurses' competencies, offer a posttest for knowledge assessment, and provide an evaluation tool will prove vital for the success of best practices. A standardized realistic approach will be used to assess awareness, attitudes, and practices of nurses. The design of the evaluation tool will entail a descriptive survey across a variety of knowledge and skills topics. The survey will make known significant deficiencies in breastfeeding educational knowledge. Professional development projects will enhance nurses' awareness of evidence-based studies on how to properly manage breastfeeding mothers. This project will be presented to the birth center leaders and lactation consultants as key stakeholders in disseminating the information to the nursing staff and getting buy-in for success. There have been preliminary discussions about integrating the recommendations from this systematic review in the current orientation process and the next annual nursing competency day as part of continuous education learning.

Analysis of Self

As a nurse and a DNP student, I believe that to achieve the highest level of patient care, I have to continuously challenge myself with the use of previous theories to enhance

my ability to be inquisitive and find answers to unresolved issues in the field of nursing. Advanced nurse practitioners practicing in various complex systems and organizations are often called on to help define potential problems and to develop interventions to address these problems. Given its Magnet hospital designation, there are certain standards that the hospital where I work has to meet. As a masters prepared nurse working with a lactation specialist who is very involved in evidence-based practice, I have been inspired to contribute the level of evidence required to move our organization to a level of excellence.

Our hospital is seeking BFHI status. The WHO's latest push is to encourage mothers to breastfeed their babies exclusively for 6 months. This is not an easy idea to sell to some mothers. The lactation manager and I have earned the respect of nurse's due to our interest in research and evidence-based practice. My master's degree project was on breastfeeding, which is a passion of mine. Working in the birth center and seeing many sad and frustrated new breastfeeding mothers is the reason I have worked on this project to help resolve their problems. The competency/education day this year had a few sessions on breastfeeding and baby-friendly questions and answers. Hospitals lack appropriate resources to facilitate mothers' ability to effectively breastfeed their babies. Research abounds regarding the benefits of breastfeeding promotion intervention; some studies have indicated helpful outcomes; while others show a lack of consistency with messaging by nurses. A few researchers have looked at the socioeconomic status of the mothers. It is imperative to identify, develop and implement a broad-based, sustainable, and adequately-balanced strategy that enhances the nurses' ability to deliver a more

effective message of breastfeeding to mothers. This would definitely make a positive impact on social change in raising strong, healthy babies with the aid of their mothers' natural breast milk.

Summary

According to Watkins & Dodgson (2010), the worldwide importance of breastfeeding has been marked by prominent health organizations such the WHO, UNICEF, the AAP, and the Academy of Breastfeeding Medicine Board of Directors (2008), who advocate for a 6-month lactating period. Breastfeeding provides the ultimate health-related outcomes for stakeholders including the prevention of middle ear infection, respiratory infections, diabetes type 1 and type 2, decreased postpartum bleeding, and decrease in some procreative cancers in the mother, and economic benefits for the community, family, and environment (Ip et al., 2007). These benefits should be well known to nurses who care for antenatal and postnatal women who need this information to make an informed decision about breastfeeding their infants.

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Appendix A: Analysis and Evaluation

First Author Date	Aim	Design	Results	Limitation	LOE
	Setting/Sample	Intervention			
Cristofalo et al., 2013	To compare the duration of parenteral nutrition, growth, and morbidity in extremely premature infants exclusively diet of either bovine milk-based (BOV) formula or Donor human milk. (HUM)	Multicenter Randomized controlled trial	Birth weight (983 vs 996 g) and gestational age (27.5 vs 27.7 wk) in BOV and HUM, respectively, were similar. There was a significant difference in median parenteral nutrition days 36 vs 27, in BOV vs HUM, respectively (p=.04). The trial supports the use of an exclusive human milk diet to nourish extremely preterm infants in the neonatal intensive care unit	Lack of availability of maternal breastmilk in the study due to maternal exposure to medications or medical complications.	1
	Infants from 7 neonatal care units. 6 in the US and 1 in Austria. Infants with Birth weights of 500-1250 g.				
Chapman & Pérez-Escamilla, (2012).	To identify and evaluate U.S based randomized trials evaluating breastfeeding interventions targeting minorities and highlight public health approaches for minimizing breastfeeding	Randomized Trial	Peer counseling in combination with health professional breastfeeding education in clinics appointments, group prenatal classes, hospital and nutritional programs for women, infants and children were	Future research will have to evaluate the success of the interventions.	1

	disparities.		found to greatly improve breastfeeding initiation, duration or exclusivity		
	Through PubMed searches 22 relevant publications were found and 18 were evaluated	Breastfeeding education in hospital and after discharge			
Kaunonen et al., 2012	To describe peer support interventions supporting breastfeeding during pregnancy and the postnatal period	Systematic literature review	It was concluded that during pregnancy, hospitalization and the postnatal period, individual support and education were used most commonly. Peer support by trained and experienced peer supporters was effective in ensuring the continuation of breastfeeding.		V
	CINAHL, MEDLINE, Cochrane database from 2000 until February 2008, utilizing specific terms.	Intervention resulted in an increase in nurse observation of breastfeeding nighttime, and a decrease in formula supplementation at night			
Sigman-Grant, M., & Kim, Y. (2016).	To compare baseline breastfeeding knowledge and attitude scores from Nevada health care professionals from 2004-2013	Questionnaire /survey	Physician knowledge did not change significantly. Nurses had significantly higher median baseline knowledge scores	Limited sample number	V1

			about initiation and frequent feeding than physicians and students. Nurses also had higher median attitude scores.		
	889 healthcare professionals in a hospital setting	90 minute workshop, pre and posttest.			
Salone et al., 2013	The purpose of the report is to provide an educational update for dentists and dental staff members about the general health advantages and oral health outcomes associated with breastfeeding	Systematic literature review, comparative studies and statements and reports from major governmental and non-governmental organizations	When compared with health outcomes among formula fed children, the health advantages associated with breastfeeding are numerous. The American Academy of Pediatrics recommends that breastfeeding should be exclusive for about six months of life.	Some authors pointed to lack of evidence that human milk is cariogenic and stated that factors such as oral hygiene, may be more influential in caries development than is on-demand breastfeeding.	V
	Comparative studies published from January 1999 through March 2011, by using breastfeeding, craniofacial development, dental occlusion and early childhood caries as key words	N/A			
Inoue et al, 2012	To summarize the factors that have influenced the duration of	Literature Review	Studies in Japan suggest that some factors related to breastfeeding	Limited number of studies on breastfeeding	V

	breastfeeding in Japan to provide information relevant to breastfeeding promotion programs		duration in studies in other countries show inconsistent relationships in Japanese studies. Cultural and physical factors may be involved in breastfeeding practices, but	factors in Japan, and there are some inconsistent results between studies. There is need for further studies to resolve these inconsistencies	
	A search of electronic database in Japanese and English was undertaken up to 2011. Inclusion criteria were studies that focused on infant feeding practices. 12 articles were selected for the final analysis	N/A	more studies, particularly larger cohort studies, are needed to confirm association. While breastfeeding rates have improved in the last three decades, the trends in the rate of exclusive breastfeeding is less certain due to inconsistent definitions.		
Demirtas. B., 2012	To explore strategies to support breastfeeding, and reveal how the international papers compare with the Turkish situation	Systematic Literature review	The study identified strategies to support breastfeeding which included collaboration with community and family members; confidence building; appropriate ratio of staffing levels; development of communication skills and closing	The study sample was very limited	V
	CINAHL, PubMed, Science Direct, Scopus, Web of Science database,	N/A			

	Cochrane, Turkish health database. Articles between 1995 and 2011. 38 total		the gap in inequality in health		
Perez-Escamilla et al., 2016	To examine the impact of the BFHI package on breastfeeding and child health outcomes worldwide and in the United States	Systematic Literature Review	The Ten Steps that form the bases of BFHI serve as a quality assurance system based on highly interested specific actions at the facility and community level. Adherence to it has a positive impact short, medium, and long term breastfeeding outcomes.	Unable to compare the impact of partial vs full implementation of the Ten Steps. Another limitation was looking at first time mothers and mothers with other children together	V
	834 Records identified through database, 58 met criteria	N/A			
Grassley, J. S, et al, 2013	To report the development and psychometric testing of the supportive needs of adolescents breastfeeding skills	Systematic Review	Psychometric property scale shows adequate internal consistency support is instrumental in promoting breastfeeding. Further exploration of this scale globally is suggested.	Sample size met only minimum requirements. Most participants were late adolescents. Only six were middle and none were early, which limits generalizability of the findings.	V

	101 adolescents aged 15-20 years during postpartum stay in 3 hospitals in USA, July 2009-July 2010	N/A			
Dodgson, et al, 2014	To evaluate health science students experiences, attitudes, and perceptions with breastfeeding	Descriptive Cross-Section survey	More positive attitudes and beliefs were found in graduate students (n=101; 20.10% when compares to undergraduates (n-403; 89.9%)	Health science student's beliefs and attitudes towards infant nutrition often were not evidence-based.	V
	Health science college within a major metropolitan research University in the United States	N/A			
Perrine et al., 2012	To describe mothers' exclusive breastfeeding intentions and whether Baby Friendly Hospital practices are associated with achieving these intentions	Questionnaire within a 12 month period	Women who intended to breastfeed prenatally, more than 85% intended to do so for 3 months or more. However, only 32.4% of those mothers achieved their intended exclusive	Limited data, therefore generalization not possible	V

	In 2005-2007 women in 6 BFHI were given questionnaires to complete within 12 months	N/A	breastfeeding. Beginning breastfeeding within one hour after birth and no pacifiers, increased exclusivity of breastfeeding		
Ajetunmobi et al., 2015	To evaluate the risk of childhood hospitalization associated with infant feeding patterns 6-8 weeks of age in Scotland	Retrospective Cohort Descriptive analysis	Within the first 6 months of life, there was a greater hospitalization for common childhood illnesses among formula-fed infants and mixed fed infants compared with infants exclusively breastfed after adjustments for parental, maternal, and infant health characteristics.	The study was limited due to the uncertainty over the overall duration and the definition of infant feeding. Limitation in the dates set, precluded a full debate on causality and protective effects of exclusive breastfeeding	1V
	A retrospective population level study based on the linkage of birth, death, maternity, infant health, child health surveillance, and admission records for children born in Scotland between 1997 and 2009 (n=502	N/A	Using the linked administrative data, they found greater risk of hospitalization in early childhood infants who were not exclusively breastfed at 6-8 weeks of age.		

	948), followed up to March 2012.				
Johnson, et al, 2016	To explore African American women's breastfeeding thoughts, attitudes, and experiences with healthcare professionals and how it influences their breastfeeding interest	Focused group discussions	Participants generally agreed that breastfeeding is the healthier feeding method but perceived that healthcare providers were not always fully supportive and sometimes discouraged breastfeeding, non-breastfeeding mothers expressed distrust of the information given by healthcare workers, trusted friends and family more	Very small number of health care professionals (n=9) many cited busy schedules no physicians participated. The number of participants were very limited, making it difficult to generalize the study.	1V
	38 pregnant or lactating African American women and racially diverse health professionals	N/A			
Hawkins et al., 2015	To evaluate the impact Baby-Friendly Hospital Initiative (BFHI) on breastfeeding initiation and duration overall and according to maternal education	Quasi-experimental study, using data from five states from 1999 to 2009	Although there was no overall difference in breast-feeding initiation between birth facilities that received BFHI and non-BFHI facilities, breastfeeding initiation increased by 3.8	Small sample size	111

	13 BFHI hospitals and 19 matched non-BFHI facilities across 5 states in the USA	N/A	% among mothers with lower education who delivered in BFHI facilities		
Benoit, B., & Semenic, S. 2014	To explore manager, educator, and clinical leader perceptions of barriers and facilitators to implementing Baby-Friendly practice in the neonatal intensive care unit (NICU)	Qualitative descriptive study	There were several barriers to implementing Baby-Friendly care including health status, parent/infant separation, and staff work load and work patterns, gaps in staff knowledge and skills, and lack of continuity of breastfeeding support.	Small sample size	V1
	Two University affiliated level 111 NICUs in Canada. 10 medical and nursing managers, nurse educators, lactation consultants and neonatal nurse practitioners	N/A	Facilitators included breastfeeding education, breastfeeding champions, and inter-professional collaboration		

Mitchell-Box, K., & Braun, K. L., 2012	To explore male partner's perceptions of breastfeeding to inform the development of interventions to increase their support of breastfeeding	Qualitative grounded theory	All the men appreciated breastfeeding's health benefits, acknowledged that it was natural, and were empathetic to the efforts of their partners. The men also discussed not being involved in the breastfeeding decision, believing formula was more convenient than breastfeeding.	The sample size was very limited, therefore generalization could not be made.	V1
	Participants were recruited and interviewed in two Special Supplemental Nutrition Program for Women, Infants 14 male partners of low-income pregnant women or new mothers	N/A			
Holbrook et al., 2013	Despite the American Academy of Pediatrics and the World Health Organization's recommendation of exclusive breastfeeding of infants until age 6 months, the rates are lower among Hispanic or Latino populations. A variety of factors influence a	Cohort Longitudinal study	More mothers that had a previous infant was associated with breastfeeding initiation and breastfeeding at 6 months and 1 year postpartum. College education was associated with increased exclusive breastfeeding at 6 months and having other children resulted	As an observational, prospective cohort study, it can only identify associations, not causal relationships. The study used a convenience sample recruited in the San Francisco Bay Area, and thus the results may not be generalized to	1V

	woman's decision or ability to initiate and continue to breastfeed.		in reduced breastfeeding at 6 months. Initial choice about breastfeeding will likely influence future breastfeeding decisions, so breastfeeding interventions should specifically target new mothers.	all Latino populations in the U.S. and abroad	
	Cohort pregnant Latino women recruited from two hospitals in San Francisco Bay Area (n=185)	N/A			
Nesbitt et al., 2012	To examine the facilitating influences and barriers to initiating, and continuing breastfeeding as perceived by adolescent mothers.	Qualitative study. Face to face interviews	Adolescent mothers in this study expressed that the decision to breastfeed was made prenatally and while partner and family member opinions about breastfeeding initiation were influential, the decision was made independently. Mothers were motivated to breastfeed due to the health benefits	Small sample size. The study did not include any participants from more rural areas of the region, nor did it include younger participants. Caution should be applied when using this study for other groups of participants.	1V
	16 adolescent mothers (15-19years) in Durham region, Ontario, Canada	N/A			
McInnes et al., 2013	To investigate how parents and their significant others influence feeding	Serial qualitative interviews	Women turned to those most likely to confirm or resolve their decisions and	Familiarity between interviewer and interviewee	1V

	<p>behaviors change. The overall aim was to explore the early infant feeding experiences of parents and their significant others during the first six months of life, and to answer the research question: What would make a difference?</p>		<p>maintain their confidence as mothers. Health professional have considerable potential to become significant influences when families are reconciling feeding decisions with overall family wellbeing, and improved training in communication skills and effective breastfeeding care is recommended.</p>	<p>can create the difficulty of maintaining distance and neutrality over time. The significant other present during interviews likely affected ‘Who’ question.</p>	
	<p>Interviews of womens’ feeding behaviors. 36 women and 37 nominated significant others. 220 interviews 4 weekly from late pregnancy to six months after birth</p>	<p>N/A</p>			
<p>Wang et al., 2014</p>	<p>To estimate the breast-feeding intention and duration rate, identify the reasons to initiate and wean breast feeding and explore predictors of breast-feeding duration.</p>	<p>Longitudinal study</p>	<p>The common reasons for initiating breast feeding were that breastfeeding is beneficial for both the baby and mother. Reasons for weaning breast feeding were insufficient breast milk,</p>	<p>Limited study sample making generalization not possible.</p>	<p>V</p>

			tiredness, fatigue, and return to work. Partners, relatives and nurse midwives were important supportive resources during breast feeding.		
	Antenatal clinic of five regional hospitals from four clusters in Hong Kong. 2098 women in the second trimester of pregnancy	N/A			
McLelland et al., 2015	To explore the views of midwives and maternal-child health nurses regarding factors that influence breastfeeding initiation and continuation, focusing on how support for women could be improved to increase breast feeding duration	Focus group study	The timing of immediate postnatal breastfeeding support was critical to enable women to initiate and continue breastfeeding.	Small sample size	1V
	Hospital or home midwives and community based maternal and child health nurses in one region of Victoria Australia	N/A			

Cianelli. R., et al, 2014	To analyze the development of an online computer based breast feeding training and the complementary outcome of the training.	Online Breastfeeding Training Module pre and post intervention	Online Breastfeeding Training for nursing students, demonstrated its effectiveness. Hospitals and nursing schools may be encouraged to adopt this program to increase healthcare provider's knowledge on breastfeeding, and they can further educate and support women to initiate and sustain breastfeeding their babies	Limited sample size from one nursing school only, thus limiting generalization of the results.	V1
	86 undergraduate nursing students who completed the online Breastfeeding Training	Online Blackboard			
Attanasio et al., 2013	To estimate the relationship between prenatal employment status, a strong predictor of postpartum return to work, and breast feeding intentions and behavior.	Data Review from Baby Friendly Hospitals	Women who were employed during pregnancy were older, were educated, were less likely to have had a previous cesarean delivery, and had fewer children. Although breastfeeding intention did not differ by employment, full time employment during pregnancy was associated with decreased	Small study size	V
	Mother 11 national survey data (N=1573) Examined hospital practices from Baby Friendly	N/A			

	Hospitals		odds of exclusive breastfeeding 1 week postpartum. Higher BFHI scores were associated with higher odds of breastfeeding at 1 week but did not differentially impact by employment status. Women employed full time were less likely to fulfill their intention to exclusively breastfeed compared to those not employed during pregnancy.		
Gavin et al., 2017	To determine whether education and training programs for healthcare staff have an effect on their knowledge and attitudes about supporting breastfeeding mothers	Systematic Review Randomized controlled Trials	The conclusion was arrived that there is a lack of good evidence on breastfeeding education and training for healthcare staff. There is therefore critical need for research to address breastfeeding education and training of staff	There were limited articles measuring healthcare staffs' attitudes towards breastfeeding.	11
	1192 reports identified, 250 of which data was collected	Lectures, discussions and practical exercises			

Laliberte et al., 2016	To evaluate the efficacy, safety, and maternal satisfaction of a newly established integrative postpartum community-based clinic providing comprehensive support for mothers during the first month after discharge from the hospital. Primary interest was breastfeeding rates, readmission and patient satisfaction.	Randomized controlled trial	More mothers in the intervention group were exclusively breastfeeding at 12 weeks compared to mothers in the control group. However, no statistically significant difference was observed. The rate of emergency room visit at 2 weeks for the intervention group was 11.4% compared to the standard of care group 15.2%. The intervention group was significantly more satisfied with the overall care they received for breastfeeding compared to the control group.	The small sample size could have resulted in the small difference in the result. The study cannot be generalized to countries that have a shorter length of stay after delivery. Lack of cost effective component. There was also some limitations in the selection process.	1
	Study conducted in Ottawa, Canada, where 472 mothers from two campuses between January and July 2014	Outcome data were captured through questionnaires to determine the effects of intervention			
Parsa et al., 2015	To determine factors related to breastfeeding and its perceived health benefits among Iranian mothers	Cross-sectional quantitative study	The study showed that the mothers' beliefs regarding infant health play an important role in their decision to breastfeed.	Due to the small sample size, it cannot be generalized to all Iranian women	1V

	Postpartum women who attended the health care center six weeks after delivery 18 years and above a total of 316.	Educational materials, books, pamphlets and phone numbers to receiving breastfeeding counseling	Mothers who believed that breastfeeding could prevent disease during childhood breastfed for longer than others. Health policy makers, doctors and nurses should provide appropriate information, social support, and counselling for mothers breastfeeding		
Otsuka K., et al., 2014	To evaluate the effects of a self-efficacy intervention on breastfeeding self-efficacy and exclusive breastfeeding and further assessed the difference in its effect by hospital routine type	Randomized Trial	Results were assessed using Breastfeeding Self-Efficacy Scale. Self-Efficacy intervention enhanced breastfeeding self-efficacy and improved exclusive breastfeeding rate at 4 weeks postpartum	Even though there was a difference between the BFHI and Non BFHI hospitals, the study did not measure the influence of the hospital infant feeding practices on the impact of the intervention	1
	781 pregnant women from two Baby Friendly hospitals and 2 non-Baby Friendly	Breastfeeding self-efficacy workbook was given to the women			

	hospitals Interviews were done. Covering pre and postnatal				
Maycock. B., et al, 2013	To investigate the effects of an antenatal education session and postnatal support targeted to fathers	Randomized Controlled Trial	Breastfeeding rate for the intervention group was significantly greater at 6 weeks 81.6% compared to 75.2% in the control group.	Length of study was very limited making generalization difficult	1
	8 public maternity hospitals. 699 couples	2 hours antenatal education session and postnatal support provided to fathers	The infants of older fathers were more likely to breastfeed at 6 weeks compared to infants of younger fathers		
Beake et al., 2012	To consider the evidence of outcomes of structured compared with non-structured breastfeeding programs in acute maternity care settings to support initiation and duration of exclusive breastfeeding	Literature review of Qualitative and quantitative studies.	Most of the studies found a statistically significant improvement in breastfeeding initiation following introduction of a structured breastfeeding program although effect size varied. In settings with low breastfeeding	Small study size, generalization not adequate.	V

	26 articles published between 1992-2010 were reviewed	N/A	initiation and duration rates, structured programs may have a great benefit		
Seighali et al., 2014	The assessment of participants' attitudes, knowledge and practice after a breastfeeding workshop	Workshop and Questionnaire	There was a significant association between attitude and background data including having children, personal or spousal breastfeeding experience and age. Health in-service training program improved participant's attitudes, knowledge and practice score	Small study size	V1
	40 participants registered for workshops 38 females	N/A			
Baerug. A., 2016	To examine the association between socioeconomic position and exclusive breastfeeding	Data collected from Questionnaires sent to mothers when their infants five months	Socio-economic inequalities in exclusive breastfeeding were present from beginning and persisted for five months. 22% of the most educated mothers exclusively breastfed compared with 7% of the least educated mothers.	The major limitation was the fact that the study was done in Norway only, therefore generalization of the study cannot be made.	1V
	1598 mother-infant pairs Norway	Maternal education was used as an indicator of socio-economic position			

Corriveau et al., 2013	To determine whether implementing a program based on a clinical protocol affects breastfeeding rates within a pediatric primary care setting.	Retrospective before and after study design	The results of this study showed that there was an increase in breastfeeding initiation and duration rate after the implementation of The Academy of Breastfeeding Medicine (ABM) breastfeeding clinical protocol	Limited study size	1V
	757 mothers-infant pairs. A retrospective before and after study design	N/A			
Radzysinski et al., 2015	To investigate how health care providers perceived their role in breastfeeding and maternal support	Qualitative Descriptive study	Data analysis suggests that inconsistencies between the health-care provider's perceived support and behaviors, lack of knowledge, and significant lack of skill in the assessment and management of breastfeeding couples contributed in the low rates of initiation and duration of breastfeeding.	Interview were conducted with study participants only once. Findings reflect the perspectives of a convenient sample which may limit the transferability of the findings of the study	V
	53 health-care professionals that provided care to breastfeeding women	N/A			

Anchondo et al., 2012	To investigate physicians' breastfeeding experiences and attitudes using survey based on two behavioral theories. Theory of reason action (TRA) and the health belief model (HBM) Methods	Physicians answered surveys	Analysis of the association between physicians' breastfeeding experiences and their attitudes revealed physicians are knowledgeable about breastfeeding and have positive attitudes towards breastfeeding.	Small sample size	V1
	73 participants made of residents and faculty physicians from pediatrics, obstetrics/gynecology, and family medicine at a university campus located on the U.S Mexico border	N/A	However, their training lacks depth and hands-on experience. If physicians learn more about breastfeeding and exclusivity, the rates in the U.S would increase naturally.		
	3 barbershops in Dallas, Texas, 81 men	N/A			
Kornides J & Kitsantas, 2013	To examine how prenatal exposure to breastfeeding information from various media sources, maternal knowledge of benefits, family and clinician support, and	Information collected through mailed questionnaires sent prenatally and at regular intervals during the first 12months of life.	The majority of women initiated breastfeeding (85.3%) and continued to do some combination of breastfeeding and formula in the second month (63.8%). Exclusive	The method of measurement for sources of information. No information was available on the content of breastfeeding information and the extent of exposure to	V1

	peer practices influence breastfeeding outcomes in early infancy.		breastfeeding at two months was (38%). Overall, women older than 25 years were significantly more likely to initiate and continue breastfeeding at two months	each medium, as well as the mother's exposure to advertisement of formula.	
	Conducted by the US Food and Drug Administration and the CDC from May 2005 to June 2007. 49,00 women participated nationwide				
Haroon et al., 2013	To determine if promoting breastfeeding interventions will increase the number of women that will breastfeed their babies exclusively for 6 months	Systematic Review	After reviewing all the articles, the conclusion was drawn that, statistically, there was a significant increase in EBF rates as a result of breastfeeding promotion interventions. Therefore breastfeeding education and/or support increases EBF rates.	Study was limited	1
	372 studies were selected, 110 were fully included.	N/A			

Asiadu et al., 2015	To describe the use of social media during the antepartum and postpartum periods among first time African American mothers and their support persons.	A qualitative Critical ethnographic research	The participants frequently used social media for education and social support and searched the internet for perinatal and parenting information. Social media were accessed through smart phones and/or computers.	Limited sample number, there cannot generalize.	V
	Participants were recruited from community-based, public health, and home visiting programs. 14 pregnant African American women and 8 support persons	N/A			
Khan, M., & Akram, D. S., 2013	To determine changes in the breastfeeding practices of mothers after receiving counseling on Ten Steps	Observational study	Counseling under Baby Friendly Hospital Initiative improved breastfeeding practices up to 98.97%.	Small sample size, further studies needed in order to generalize.	V
	236 women from Observational studies from June 2007 to June 2009	N/A			

Radhakrishnan et al., 2012	To assess the prevalence of exclusive breastfeeding practices and the factors influencing them among women in a rural area in Tamil Nadu.	Cross-sectional study	The majority of the women 60.5% initiated breastfeeding within half an hour after delivery. Various demographic factors like the education of the mother, type of delivery, type of family,	Small sample size, there cannot be generalized	1V
	Conducted in three areas from March 2011- June 2011. 291 children ages 6 months to 2 years.	N/A	occupation, number of children, monthly income and many more. 44.7% inferred that the main reason for giving formula was due to inadequate milk secretion. Overall, the breastfeeding rate in this area is low. Hence promotion of exclusive breastfeeding and focus on the factors affecting them is highly warranted.		
Hunter T & Cattelona G., 2014	To examine the relationship between father involvement and support for breast feeding initiation and duration in the first-time mother	Self-reported questionnaire survey	(45.9%) of mothers received help from their husband or partner with breastfeeding while in the hospital, while (54.1%) of	Limited sample size resulting in inability to generalize study.	V1

			mothers did not receive support from their partners. Mothers who received early post-partum breastfeeding support were more likely to continue after leaving the hospital		
	146 women completed a survey postpartum. These mothers were living in Indiana.	N/A			

Appendix B: Levels of Evidence

- Level 1 - Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses
- Level 2 - One or more randomized controlled trials
- Level 3 - Controlled trial (no randomization)
- Level 4 - Case-control or cohort study
- Level 5 - Systematic review of descriptive & qualitative studies
- Level 6 - Single descriptive or qualitative study
- Level 7 - Expert opinion

Source: Melnyk, B.M. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing and healthcare: A guide to best practice*. Philadelphia: Lippincott, Williams & Wilkins

Appendix C: RN Breastfeeding (Educational Intervention) Competency

Breastfeeding Competency Checklist	Name
	Date
GOAL: Standardize breastfeeding support by OB staff Nurses	Objectives Met Yes/No
1. Introduces self and provides adequate explanation for nursing intervention. i.e. initiation of breastfeeding, positioning, troubleshooting problems. (Performance Accomplishment)	Yes No
2. Instructs mother in awaking infant. i.e. talking, stroking, etc.... (Performance Accomplishment)	Yes No
3. Assist mother with putting the baby skin to skin. (Performance Accomplishment)	Yes No
4. Assist the mother to assume positive breastfeeding positions: a. Cradle b. Football c. Side lying d. Cross Cradle (Performance Accomplishment)	Yes No
5. Provide adequate explanation of how to support the breast and infant's head during breastfeeding. (Performance Accomplishment)	Yes No
6. Applies adequate techniques to promote "Latch" in the infant and comfort in mother. (Performance Accomplishment)	Yes No
7. Instructs mother in adequate signs of infant nutrition. (Performance Accomplishment)	Yes No
8. Feedback on performance: encourage and praise (Verbal Persuasion)	Yes No
9. Give information on impact of pain/fatigue/anxiety/stress: Medicate as needed (Physiological and Emotional Status)	Yes No
10. Instructs mother in completion of Breastfeeding Record. (Performance Accomplishment)	Yes No

11. Describes the composition of colostrum. (Performance Accomplishment)	Yes	No
12. Describes adequate timing of breastfeeding. (Performance Accomplishment)	Yes	No
13. Answers questions and/or seeks assistance from LC.	Yes	No
14. Demonstrate adequate EMR documentation of breastfeeding support.	Yes	No
15. Discussion and information on previous breastfeeding experience: provide information (books/video) (Vicarious Experience)	Yes	No
	Date completed	
	Validated By:	

Appendix D: RN Breastfeeding Evaluation Tool

Breastfeeding Evaluation Checklist	Name: Date:
GOAL: Standardize breastfeeding support by staff Nurses	Objectives Met Yes/No
1. Introduces self and provides adequate explanation for nursing intervention. i.e. initiation of breastfeeding, positioning, troubleshooting problems. (Performance Accomplishment)	Yes No
2. Instructs mother in awaking infant. i.e. talking, stroking, etc... (Performance Accomplishment)	Yes No
3. Assist mother with putting the baby skin to skin. (Performance Accomplishment)	Yes No
4. Assist the mother to assume positive breastfeeding positions: a. Cradle b. Football c. Side lying d. Cross Cradle (Performance Accomplishment)	Yes No
5. Provide adequate explanation of how to support the breast and infant's head during breastfeeding. (Performance Accomplishment)	Yes No
6. Applies adequate techniques to promote "Latch" in the infant and comfort in mother. (Performance Accomplishment)	Yes No
7. Instructs mother in adequate signs of infant nutrition. (Performance Accomplishment)	Yes No
8. Feedback on performance: encourage and praise (Verbal Persuasion)	Yes No
9. Instructs mother in completion of Breastfeeding Record. (Performance Accomplishment)	Yes No
10. Describes adequate timing of breastfeeding. (Performance Accomplishment)	Yes No
11. Answers questions and/or provides	Yes No

adequate assistance for mothers.	
12. Discussion and information on previous breastfeeding experience: provide information (books/video) (Vicarious Experience)	Yes No
	Date completed Validated By:

Note. Source: *Journal of Obstetric, Gynecologic, & Neonatal Nursing*

Appendix E: Maryland Breastfeeding Recommendations

Summary of Maryland Hospital Breastfeeding Policy Recommendations

The “Best Practices” hospitals will:

1. Have a written breastfeeding policy that is routinely communicated to all hospital staff.
2. Train all hospital staff in the skills necessary to implement this policy
3. Inform all pregnant women about the benefits and management of breastfeeding
4. Help breastfeeding mothers initiate breastfeeding within 1 hour of birth
5. Encourage breastfeeding on demand
6. Show breastfeeding mothers how to breastfeed and how to maintain lactation even if they are separated from their mothers
7. Practice “rooming in”-encourage breastfeeding mothers and infants to remain together 24 hours a day
8. Give breastfed infants no food or drink, other than breast milk, unless medically indicated.
9. Give no pacifiers or artificial nipples to breastfeeding infants in the hospital, unless medically indicated.
10. Foster the establishment of breastfeeding support groups and refer breastfeeding mothers to them on discharge from the hospital or clinic